

A Study of the Commuting Behavior of Vacant House
Owners in Mountainous Areas

中山間地域における空き家所有者の通い行動に関する研究

February 2025

千葉大学大学院園芸学研究科

環境園芸学専攻緑地環境学コース

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(千葉大学審査学位論文)

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ABSTRACT

This study seeks to quantitatively illuminate the contribution of vacant house owners to the sustainability of local communities, especially in the context of an aging rural population and population migration to urban areas. In this study, the “commuting population” are those who own houses in rural areas but mainly live in other urban areas and regularly return to their hometowns to manage their properties. Although these people live in cities, they still have an essential impact on the development of rural communities. They manage their properties while commuting to maintain the surrounding environment and contribute to the local financial support and economy. The study will first identify the basic attributes of these commuting populations and their vacant houses to understand the current situation of the commuting population and vacant houses. The study will then explore how often the commuting population returns to their rural houses, the amount of time and purpose spent commuting, and how these behaviors relate to their participation in local rural societies. This includes participation in local activities, personal social activities, and personal recreational activities while returning to the house. To investigate the relationship between local communities and commuters and examine how these relationships impact the sustainable development of rural areas, this project will combine quantitative questionnaire surveys with qualitative interviews. This study investigates two towns in the Aizu area under the same background environment and finally makes a comparative study of the two areas. Due to the geographical location and transportation conditions of the two towns, vacant house owners show differences in their purpose of returning to the province and in their communication with local regional communities. Through comparative studies, it is possible to construct a more comprehensive project of the characteristics of vacant house owners, leading to a more profound exploration of possible connections between this group and local rural communities. In the background of population decline and

aging, this study aims to provide support for revitalization policies in rural areas. It is expected that the results of the study will not only have a positive impact on local government policy decisions and community strategies but also provide data support for more effective rural sustainable development so that the commuting population becomes active contributors to development rather than passive stakeholders. Finally, the research will focus on the commuting population, based on their commuting behavior and participation in the local society, and propose supporting strategies to more effectively promote the regular commuting of this population and the management of vacant houses, and explore the potential contribution of the commuting population to the local society.

Keywords: Intermediate and Mountainous Areas, Area Planning, Depopulation Settlements, Related Population, Commuting Behavior, Vacant House Management, Local Communication, Social Impacts

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Chapter 1. Introduction

1.1 Background to the Research

1.1.1 Research Significance in the Intermediate and Mountainous Areas

The intermediate and mountainous areas consist of the intermediate areas (the areas from the outer edge of the plain to the mountains) and the mountainous areas (the mountains and their surrounding areas), which are an important part of the national territory of Japan. These regions account for about 70% of Japan's land area and 11% of its population. At the same time, it also occupies an important position in Japanese agriculture and agricultural production. Its cultivated land area, the total number of farmers, and agricultural output account for about 40% of the country's total number. They play an essential strategic role in maintaining agricultural production and rural human settlements in Japan, so they have been a key subject for scientific research and government development and utilization over the years ^[1].

The mountainous areas are situated in the higher sections of the river basin, characterized by steep topography and distinctive physical attributes. The areas have historically been characterized by agricultural-producing activities while fulfilling necessary functions. For example, in terms of land protection and water resources management, the topography of these areas forms a natural buffer against rivers and soil erosion, prevents environmental degradation and natural disasters, and plays a pivotal role in maintaining the basis of life for the people of the country. However, the complex terrain has not only increased the difficulty of large-scale agricultural development but has also been in a marginal position in industrial development. Nevertheless, mountain areas continue to play a vital role in the country's agricultural, ecological, and cultural heritage protection ^[2]. Simultaneously, the importance of these regions on a global scale should not be underestimated, as numerous nations

characterized by mountainous landscapes or intricate geographical features encounter comparable challenges to their development. Moreover, given the rising international focus on sustainable development, climate change, and the revitalization of rural areas, the examination of these regions has gained significant importance. There are challenges and innovative solutions in these locations, and the breadth and depth of research in Japan's mountainous and intermediate regions could be a model for similar regions abroad. This demonstrates the global significance of these sites and the importance of doing research there ^[5].

First, agricultural production is a major factor in Japan's intermediate and mountainous areas. It accounts for 40% of the total arable land and the lives of the country's main producer of all specific crops (e.g., wasabi and economic support are essential to promote agricultural production). However, a challenge also lies in agricultural sustainability and the lives that people from the region must live. In this regard, agricultural technology and economic support are needed to promote sustainable agricultural farming and make the lives of local people a challenge ^[4].

In addition to the importance of agricultural production, these areas are also crucial cultural heritage preservation sites in Japan. Many small rural settlements, coupled with the extinction of numerous traditional cultures and structures, have retained their distinctive culture and customs. The extinction of these regions is a vital cue, along with the vanishing of many traditional cultures and buildings ^[6]. The preservation of cultural heritage is associated not only with history but also with the extinction of numerous traditional cultures ^[5]. To guarantee the continued growth of agriculture and living in intermediate and mountainous areas, we must acknowledge the significant role of rural settlements in cultural heritage preservation.

Finally, the ecological environment is also essential for sustainable development in intermediate and mountainous areas, even in the whole nation. These mountain areas are rich in ecological populations and are valuable ecological reserve resources ^[7]. Intermediate and mountainous regions are often characterized by natural disasters but

also provide for the water and soil to prevent disasters. Environmental management and floods, as well as sustainable development of the intermediate and mountainous areas, are also crucial for the stability of the ecological environment in other regions ^[10].

In conclusion, the development goals of regional revitalization and sustainable development are essential for the protection of intermediate and mountainous areas. Conduct targeted research in these areas to formulate and strengthen policies that promote economic development while improving the quality of life and the overall well-being of residents. This is the basic guarantee. There is also a need for research on the specific characteristics of the intermediate and mountainous area, such as maintaining the resilience and sustainable development of local communities, thinking about how to protect the cultural identity of the settlements, and adapting to climate disasters and changes. Consider strategies to respond to disasters and create a robust future for citizens. To ensure that these areas and their uniqueness are protected, policies and plans must be put in place. The basis for planning is the collection of favorable data from the survey, with which the authorities can provide and formulate stable strategies for the development of these communities while maintaining the long-term viability of these areas to ensure resilient and successful policies and programs for the overall welfare of their citizens and these communities while ensuring their long-term sustainability ^[15.17.18].

Given these functions, research and policies focusing on intermediate and mountainous areas are essential to promote sustainable agriculture, protect natural resources and ensure the continued well-being of nations. Further technological innovation and strategic support are essential for the sustainable development and revitalization of these regions.

1.1.2 The Status of Vacant Houses and their Management in Japan

Japan has demographic issues such as a declining population and substantial outmigration. Aging and birth rates provide substantial challenges in many

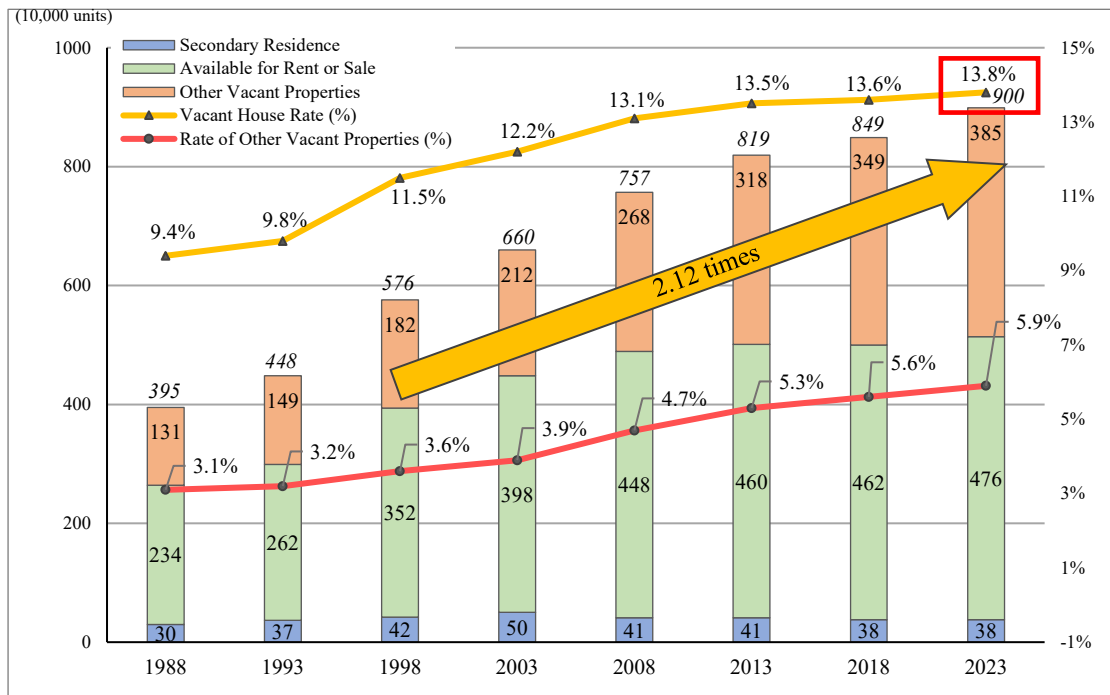
communities, especially as intermediate and younger family members refuse to return to the stalled local economic growth, furthering their demise. The intermediate and mountainous areas face a sharp decline in younger demographics as younger generations migrate to urban centers for better employment and educational opportunities, including an elderly population, many houses becoming vacant as elderly residents pass away and younger family members, stifles, declining birth rate, and large numbers of older buildings and renovation costs. Younger generations have left these places for better jobs and education, leaving more elderly. As newer generations move to cities for better jobs and education, the aging population grows. Many residences are unoccupied because elderly people die and younger relatives don't return. Reusing unoccupied residences is declining, especially in intermediate buildings due to high reconstruction costs ^[18]. Furthermore, many owners find it economically or logistically impossible to repurpose these vacant houses. This is why the majority of property owners neglect them all too much. These trends are compounded by low housing demand in depopulated areas, preventing further out-migration and addressing the growing number of vacant houses. Understanding how these demographic and economic forces interact is crucial for policy development to repurpose or sell vacant houses, leading to widespread neglect of intermediate and mountain areas, further complicating efforts to revitalize outmigration and address the ever-increasing number of vacant properties.

According to the Ministry of Internal Affairs and Communications' Housing and Land Survey conducted in 2023, the number of vacant housing units nationwide is estimated to be approximately 9.0 million, with the vacancy rate at about 13.8%. However, the percentage of vacant houses in intermediate and mountainous areas, excluding coastal urban areas, should be much higher than the national average, making measures to address vacant houses in these mountainous areas an urgent issue.

Trends in the Number of Vacant Houses in Japan

○ According to the Housing and Land Survey (Ministry of Internal Affairs and Communications), the total number of vacant houses has increased about 1.6 times (from 5.76 million to 9 million) over the past 20 years.

○ Vacant houses for secondary use, "other vacant houses" (3.85 million), which have not been occupied for a long time, excluding houses for rent or sale, have increased about 2.12 times over the past 20 years.



Source: <Current Status and Issues of Vacant House Policy and Directions for Consideration>, Housing Bureau, Ministry of Land, Infrastructure, Transport and Tourism, October 2023

https://www.stat.go.jp/data/jyutaku/2023/pdf/g_kekka.pdf (accessed in Oct. 2024)

Figure 1-1. Number of vacant houses by category

Types of vacant houses

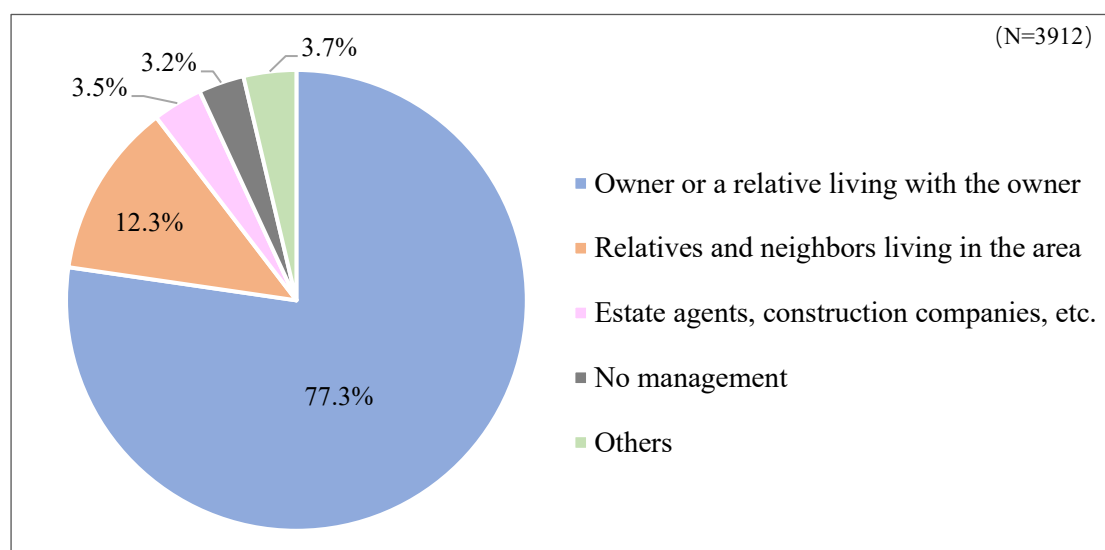
- ① Secondary residences: villas, other villas, and other properties (residences with occasional occupants).
- ② Available for rent or sale: Newly constructed or pre-existing houses currently unoccupied and available for rental or purchase.
- ③ Other vacant properties: Uninhabited Dwellings not mentioned above, such as those left vacant for an extended period due to the host family's relocation for work or medical reasons, or houses intended for demolition and subsequent reconstruction.

Figure 1.1 shows the steady increase in vacant houses in Japan from 1988 to 2023, with a breakdown of different types of vacant properties. Over this period, the vacant

house rate (orange line) has grown from 9.4% in 1988 to 13.8% in 2023, reflecting the increasing number of unused houses across the country. The rate of other vacant properties (yellow line) has also risen from 3.1% to 5.9% over the same period. This suggests that a growing proportion of vacant houses do not fall into conventional categories like those available for rent or sale. The bar graph categorizes vacant houses into secondary residences (green), properties available for rent or sale (blue), and other vacant properties (red). Notably, the number of other vacant properties has expanded significantly, from 182 units in 1998 to 385 units in 2023, which has increased to 2.12 times, becoming the largest segment of total vacant houses. In contrast, the number of properties available for rent or sale has also increased but at a slower pace, rising from 234 units in 1988 to 476 units in 2023. Meanwhile, secondary residences have remained relatively stable, fluctuating between 30–50 units. Conversely, the availability of properties for rent or sale has seen an increase, albeit at a more measured rate, growing from 234 units in 1988 to 476 units in 2023. In the meantime, the number of secondary residences has shown a consistent pattern, varying between 30 and 50 units. Particularly in the “other” category, this rising trend of unoccupied properties draws attention to the growing issue of houses that are not actively for sale or utilized as second residences, which is probably caused by urban migration, aging populations, and rural depopulation. These trends show how targeted strategies are needed to manage or repurpose these underutilized resources, particularly in places where population decline has left an excess of vacant houses. The efficient use of Japan's housing stock and a sustainable rural renaissance depend on this problem being resolved.

Under these circumstances, tackling the issue of unoccupied residences in intermediate and mountainous areas necessitates thorough and sustained endeavors. These include revitalizing the local economy and vitality, encouraging the settlement of young people, and providing appropriate strategies for reuse. Collaboration among local communities, governmental bodies, relevant experts, or organizations is essential to finding sustainable solutions.

The management of vacant houses in Japan has thus become a critical issue for local governments and national policymakers. Vacant houses present numerous challenges: they can deteriorate over time, become safety hazards, attract criminal activity, and undermine the overall aesthetic and livability of neighborhoods. The cost of maintaining or demolishing these structures often falls to individual property owners, who may be unable or unwilling to act due to financial constraints, emotional ties to ancestral properties, or legal complications arising from unclear property inheritance [19].

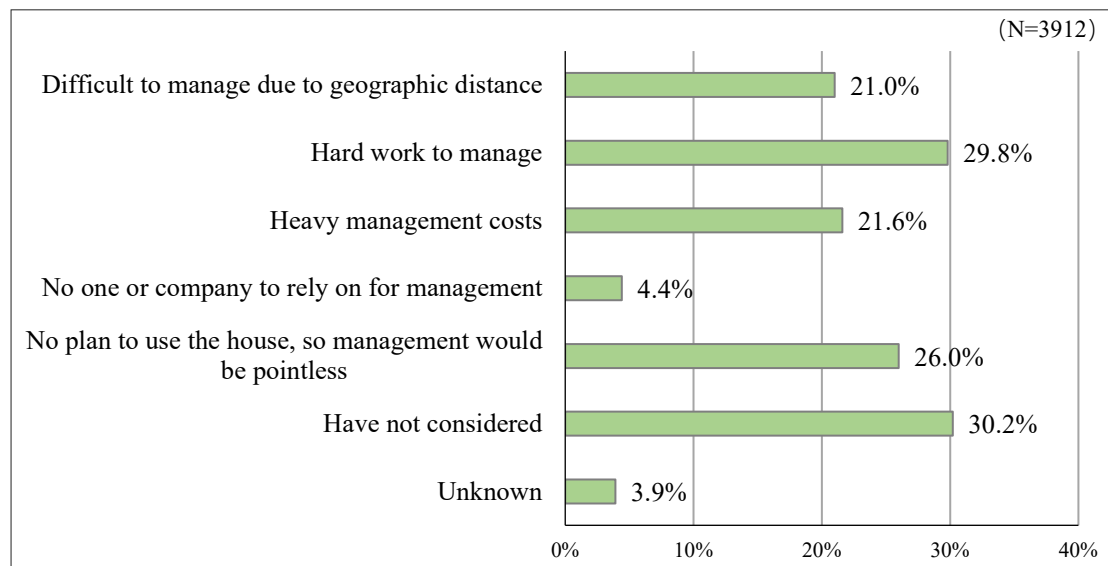


Source: < Report on the Survey of Vacant House Owners>, Housing Bureau, Ministry of Land, Infrastructure, Transport and Tourism, Housing Bureau, December 2020
<https://www.mlit.go.jp/report/press/content/001377049.pdf> (accessed in Oct. 2024)

Figure 1-2. The primary manager of the vacant house (national)

According to the 2020 Report on the Survey of Vacant House Owners conducted by the Housing Bureau of the Ministry of Land, Infrastructure, Transport, and Tourism (MLIT), the usage of professional vacant house management services remains low across Japan. Only 3.5% of respondents nationwide reported using services from real estate agents, construction companies, or other service providers to manage their vacant properties. This figure highlights a significant gap in the uptake of formal management services despite the increasing prevalence of vacant houses. Moreover, 77.33% of respondents expressed no intention of outsourcing vacant house management, signaling

a reluctance to engage external help (figure 1-2). These findings suggest that expanding professional vacant house management services will likely be gradual, potentially hindered by factors such as cost concerns, lack of awareness, or cultural preferences for managing property independently.



Source: < Report on the Survey of Vacant House Owners>, Housing Bureau, Ministry of Land, Infrastructure, Transport and Tourism, Housing Bureau, December 2020
<https://www.mlit.go.jp/report/press/content/001377049.pdf> (accessed in Oct. 2024)

Figure 1-3. Challenges in management about the vacant house (national)

The survey data reveals significant challenges related to the future management of vacant houses, as evidenced by the owners’ attitudes. Firstly, 30.2% of respondents indicated that they have not considered the future management of their vacant properties. This group represents the highest proportion of owners and suggests a widespread lack of proactive planning regarding the fate of vacant houses. This indifference or delay in decision-making could exacerbate the issue of neglected properties, particularly as Japan grapples with rural depopulation and aging demographics.

The second largest group, comprising 29.8% of respondents, expressed that managing vacant houses is difficult, highlighting property maintenance’s logistical and physical burdens. This finding aligns with broader trends showing that many owners, particularly elderly individuals or those living far from the properties, may struggle to

address the upkeep required to prevent deterioration. Without proper management, these vacant houses can cause broader harm as they fall into disrepair, creating challenges for communities, such as safety hazards and declining community aesthetics.

Additionally, 26.0% of respondents stated that they view continuous management of their vacant houses as a waste of time because they do not plan to relocate to these properties. This data shows a more profound fundamental belief that the relationship between owners of vacant houses and their ancestral or rural houses is starting to collapse. Migration, for instance, leaves rural society for a change in job prospects or a desire for urban life, which has left rural societies behind. Since these houses no longer serve, house owners would be reluctant to invest in management or maintenance, which would exacerbate the vacancy problem.

Approximately 21.0% of respondents indicated that geographic distance made it difficult to manage their vacant properties, particularly those living far away from the house's location. This issue is particularly pronounced in Japan's rural and mountainous areas, where many property owners have relocated to urban centers for employment, leaving their ancestral houses unattended. The logistical difficulties of managing these properties remotely highlight the need for innovative solutions, such as digital tools or locally based property management services, to address the growing issue of absentee ownership.

Together, the problem will likely worsen, and owners to manage voids. These three perspectives—regardless of active or low degree of willingness—are all mixed up. This absence of engagement highlights Japan's reluctance to manage its vacant properties. With a low level of vacant house management, particularly as population growth and rural depletion increase, most property owners are unprepared to manage their empty houses.

The implications of this trend are profound. As the number of vacant properties rises, the pressure on local governments to intervene and manage these houses will

intensify. Without adequate support mechanisms, such as financial incentives for management or policies encouraging the sale or reuse of these properties, the overall housing stock in rural areas may continue to deteriorate, leading to broader socio-economic challenges. Therefore, understanding the underlying attitudes of property owners is critical for developing targeted interventions that can address both the immediate and long-term challenges posed by vacant houses in Japan.

1.1.3 Issues and Countermeasures of this Study

Estimation of the number of vacant houses and control of increase ends in the Number of Vacant Houses in Japan

- Based on the most recent trend, the number of vacant houses is estimated to be 4.2 million in 2025 and 4.7 million in 2030, the target year of the next Basic Plan for Housing and Living Standards.
- Aim to reduce the number of vacant houses to around 4 million through the use of vacant houses that can be utilized by simple maintenance and the removal of unmanageable vacant houses.

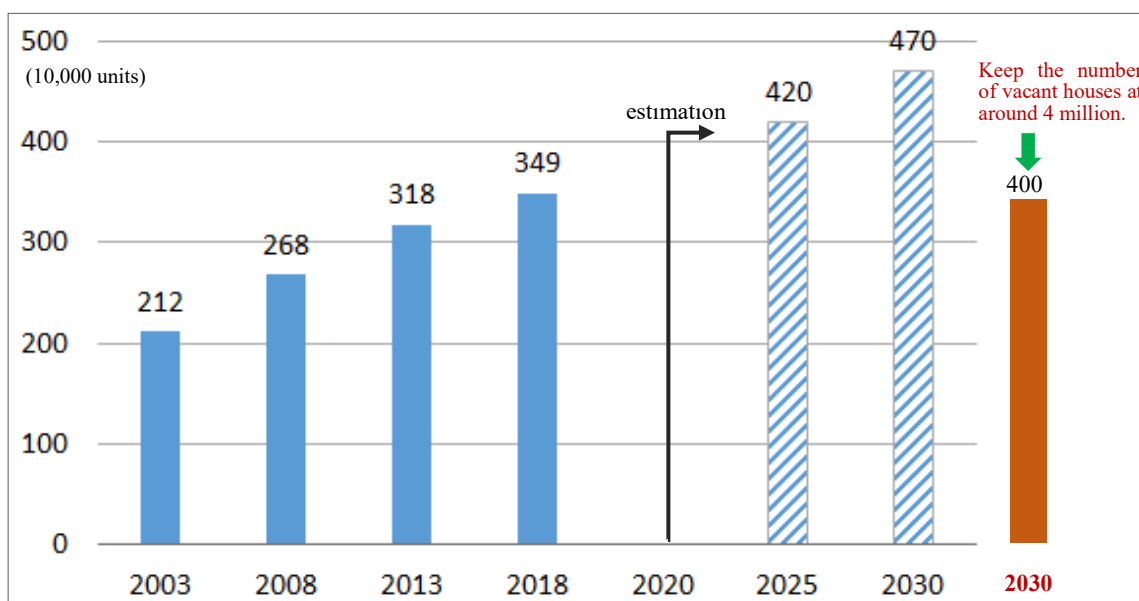


Image of the initiatives

- Use of other vacant houses (those that have been vacant for less than 10 years) that can be utilized with simple maintenance → 500,000 units
- Retirement of unmanaged vacant houses (vacant for more than 20 years, etc.) → 200,000 units → Total of about 700,000 units to be curbed

Source: The number of other vacant houses in the housing and vacant land statistics survey (Ministry of Internal Affairs and Communications) is estimated by linearly approximating the values at the four most recent points from 2003 to 2018. <https://www.stat.go.jp/data/jyutaku/2023/tyousake.html> (accessed in Oct. 2024)

Figure 1-4. Future Estimates and Control of Other Vacant Properties

As the government and society's attention to vacant houses has gradually increased in recent years, research on vacant houses has also become more mature. Regarding the local areas and revive, the government has been vigorously promoting methods and policies such as moving and settling in, carrying with starting businesses, etc., to alleviate the economic and vitality losses caused by the departure of people from

the region. In contrast, in terms of vacant houses, there has been various research on how to convert and reuse vacant houses. In March 2021, the government made the <basic plan for living>, which aimed at reducing the number of vacant houses nationwide to less than 4 million by 2030 through the utilization of vacant houses (shown in Figure 1-4).

The legal framework and policies surrounding vacant houses in Japan have evolved in recent years in response to the growing number of unoccupied properties, particularly in rural and depopulated areas. The management and resolution of this issue require a multifaceted approach involving legal, financial, and policy-based strategies. Below is a detailed exploration of the existing legal framework and policies governing vacant houses [22.25].

1) Vacant Houses Special Measures Act (2015)

The Vacant Houses Special Measures Act (空家等対策特別措置法), enacted in 2015, represents a key legal tool in Japan’s strategy for managing vacant houses. This act was introduced to address safety and sanitation concerns posed by neglected and dilapidated properties. It empowers local governments to identify vacant houses that pose significant risks and take action to ensure they are appropriately managed [16].

① Designation of “Specially Designated Vacant Houses”

Local municipalities can designate vacant properties as “specially designated vacant houses” if they meet specific criteria, such as posing safety hazards, obstructing traffic, or decaying. Once designated, local authorities can order owners to repair or demolish the property.

② Penalties for Non-Compliance

Suppose property owners fail to comply with repair or demolition orders. In that case, local governments can impose fines and, in extreme cases, carry out the demolition themselves, with the costs charged to the owner.

③ Tax Incentives

The Act reduces or removes tax deductions on property taxes for vacant houses. Traditionally, vacant houses enjoy tax benefits, but under the new legislation, these deductions are removed for properties deemed unsafe or unmaintained, encouraging owners to take responsibility for upkeep or sale.

While the Vacant Houses Special Measures Act was a crucial step in addressing immediate safety concerns, it primarily focuses on enforcement and risk mitigation rather than promoting long-term sustainable management or reuse of these properties.

2) Akiya Banks (空き家バンク)

To promote the reuse of vacant houses, many local governments have established Akiya Banks, an online platform where vacant houses are listed for sale or rent. These banks aim to connect potential buyers or tenants with available properties, particularly in rural and depopulated Municipalities. Akiya Banks is a critical policy tool for reducing the number of vacant houses, but its success has been uneven due to various challenges^[23].

① Incentives for Buyers

To attract potential buyers, many Akiya Banks offer financial incentives, such as subsidies for renovations, tax breaks, and low-interest loans. In some municipalities, buyers can also receive relocation grants or subsidies to start businesses.

② Promotion of Rural Living

Akiya Banks are often part of broader efforts to revitalize rural areas, encouraging urban-to-rural migration and promoting sustainable rural living.

③ Challenges

Despite the availability of financial incentives, Akiya Banks faces several obstacles. Properties in remote or economically declining areas often fail to attract buyers, and renovating older, deteriorating houses can be prohibitive. Additionally, buyers often encounter bureaucratic hurdles and complex legal issues related to ownership and property transfers, which can deter interest.

Akiya Banks have great potential to reduce the number of vacant houses, but further policy support is needed to overcome the barriers to their widespread use.

3) Property Inheritance Laws and Legal Complexities

One of the significant legal challenges in managing vacant houses stems from Japan's property inheritance laws, which often lead to unclear ownership of rural properties. Many vacant houses remain unmanaged because they have been inherited by multiple heirs, some of whom may be difficult to trace, disinterested in the property, or unaware of their ownership status. The fragmented ownership structure complicates decision-making, leading to property sales or management delays.

① Multiple Heirs

Japan's inheritance laws tend to divide properties equally among heirs, resulting in several individuals owning a single property. Disagreements among heirs or difficulties in contacting all owners can prevent necessary decisions from being made regarding the sale or management of the property.

② Unclear Ownership

In some cases, especially in rural areas, property records are outdated, and ownership is not documented. This makes it difficult for local governments or potential buyers to identify and contact the rightful owners, leading to legal and administrative deadlock.

③ Lack of Incentives for Sale or Management

Many heirs may have little interest in maintaining or selling rural properties, mainly if they live far away in urban centers and do not see the property as an asset.

Efforts to address these legal challenges may include reforms that streamline inheritance procedures, provide more evident property records, and incentivize the sale or transfer of ownership for unmaintained properties.

4) Tax Policies and Incentives

Taxation is crucial in managing vacant houses, as taxes can incentivize or discourage owners from adequately managing their properties.

① Property Tax Adjustments

As part of the Vacant Houses Special Measures Act, vacant houses designated as unsafe lose their tax breaks, which traditionally reduced property tax for vacant houses. This adjustment encourages owners to sell, renovate, or demolish unsafe properties.

② Inheritance Tax

Inheriting a property often comes with significant tax burdens, discouraging heirs from keeping or investing in the property. Simplifying inheritance tax laws or providing tax breaks for those who renovate or sell inherited properties could encourage more proactive management of these houses ^[24].

③ Capital Gains Tax

When selling vacant houses, particularly older or inherited properties, owners face capital gains taxes, which can deter sales. Offering temporary tax reductions or exemptions for the sale of vacant properties could help incentivize the transfer of ownership to those willing to restore or use the houses.

5) Related Population

The related population typically includes individuals with ties to rural areas, such as those who visit periodically for cultural or familial reasons or those interested in rural lifestyles without committing to permanent residency. These individuals often possess a personal or emotional connection to the community, which could be harnessed to encourage their involvement in managing vacant houses. Engaging this group could create a new category of managers interested in maintaining the property, even for future use or relocation.

Involving the related population in vacant house management offers a promising solution to the growing issue of unoccupied properties in Japan. By providing incentives, facilitating remote management, and integrating legal frameworks, the related population can play a pivotal role in revitalizing rural communities and preventing the further deterioration of vacant houses. Encouraging collaboration between the local community and related residents will strengthen community ties and

contribute to long-term sustainability and economic growth in these areas ^[21].

6) Reuse of Vacant Houses

Reusing vacant houses as guesthouses, meeting places, and other forms of accommodation is a highly effective countermeasure to address the issue of vacant houses in Japan, particularly in rural and depopulated areas. This strategy revitalizes neglected properties and contributes to local economic development, sustainable tourism, and cultural preservation.

In recent years, there has been a growing interest among university research labs and architectural studios in addressing the problem of vacant houses through innovative reconstruction and repurposing. These institutions have studied the issue and completed numerous exemplary projects that serve as models for future efforts in rural revitalization. By converting vacant houses into functional spaces, such as accommodation and cultural facilities, these projects have demonstrated the potential to breathe new life into abandoned properties while benefiting the surrounding communities. An example is the Echigo-Tsumari Art Triennale, where several vacant houses were repurposed into accommodation and catering facilities during the festival. These transformations have been highly praised for their aesthetic and functional contributions, blending traditional architectural elements with modern design to create spaces that cater to tourists and visitors. The success of these projects highlights the importance of using local resources creatively to boost tourism, stimulate economic activity, and foster social engagement in rural areas ^[24].

The involvement of academic and professional architectural entities in the reconstruction of vacant houses is greatly beneficial to promoting the revitalization of rural areas. Their work demonstrates the potential and promise of innovative design as a powerful tool in addressing social and economic challenges in depopulated municipalities. By creating spaces that support tourism, community gatherings, and cultural exchange, these projects have shown that vacant houses can be successfully reintegrated into the local economy and social fabric, making them key components in

rural revitalization efforts.

7) Future Policy Directions

Considering the ongoing challenges surrounding vacant house management, several future policy directions can be considered to address the problem more effectively:

① Public-Private Partnerships (PPPs)

Encouraging public-private partnerships could bring private sector investment and expertise into renovating and repurposing vacant houses. Local governments could collaborate with developers to turn vacant properties into community centers, co-working spaces, or eco-tourism facilities ^[27].

② Simplifying Bureaucratic Processes

Streamlining legal and administrative processes related to property ownership transfer, particularly for inherited properties, could reduce the time and effort required to manage or sell vacant houses. A more straightforward framework could lead to a higher uptake of Akiya Bank services and encourage owners to act.

③ Encouraging Sustainable Use of Vacant Properties

Policies promoting the sustainable use of vacant houses, such as retrofitting houses for energy efficiency or converting them into shared community spaces, could align with broader environmental goals while addressing the vacant house issue.

The above discussion highlights various issues and challenges related to vacant houses in Japan, focusing on policies, laws, supporting countermeasures, relevant groups, and specific reuse strategies. While authorities have developed a relatively comprehensive set of strategies, including the Vacant Houses Special Measures Act, Akiya Banks, and tax reforms, the management of vacant houses continues to face significant challenges. Legal complexities, such as inheritance issues and low demand for remote properties, create barriers to effective property management. Additionally, efforts to involve the related population and promote adaptive reuse through tourism and cultural initiatives have shown promise but are still limited in scale. The ongoing

impact of vacant houses on the local environment and society remains a concern, requiring continued focus on sustainable solutions, enhanced community involvement, and innovative partnerships. Despite the existing framework, vacant house management in Japan will need ongoing refinement and proactive measures to mitigate its effects on rural revitalization and social cohesion.

1.2 Research Issues and Purpose

1.2.1 Research Issue

In the face of an aging and declining population, Japan's intermediate and mountainous areas encounter more profound challenges regarding population revitalization and environmental sustainability than urban areas. As highlighted in the background of this study, while the Japanese government and societal organizations have implemented policies and measures to address the growing problem of vacant houses, these efforts face significant obstacles due to rural depopulation and the difficulty of managing properties in remote areas with limited transportation infrastructure. For many owners, the practical value of these rural properties has diminished due to shifts in economic opportunities and lifestyle preferences toward urban living, leading to reluctance to invest in property maintenance or management, exacerbating the vacant house crisis.

In this context, the related population—individuals with ties to rural areas—is crucial in managing rural social spaces and driving revitalization efforts. The Ministry of Agriculture, Forestry and Fisheries has proposed developing strategies related to the related population in rural areas to cultivate leaders who can successfully revitalize rural communities by involving urban residents in experiencing rural life and work, regularly visiting rural areas, and eventually moving to rural areas. Additionally, they aim to cultivate a subset of related population tourist' members—such as those participating in agricultural experiences or skiing activities—who consistently engage with rural communities through repeated visits. This engagement fosters local economic growth and enhances social and economic vitality within these regions.

Despite these efforts, it is not difficult to find that people who own vacant houses in the local area have already been linked to the rural society of the local area due to their upbringing and work in the rural areas. However, due to later migration and other

life changes, this link faces a change towards weakening (out-migrant residents). Continuously managing one's property in rural mountain towns is also a bond that maintains the link between the population and the rural mountain town society. Stimulating the potential contributions of this related population is essential for the revitalization and sustainable development of rural mountain towns, highlighting the importance of integrating their role into broader rural management and revitalization strategies.

1.2.2 Research Purpose

This study focuses on intermediate and mountainous areas, with vacant houses and their owners as the primary research subjects. By examining the current state of vacant house management and owners' leisure activities or social connections during their commuting visits, this research seeks to explore the relationships between these related populations and local rural societies. The research aims to quantify the contribution of a group referred to as the "commuting population" to the sustainability of local communities. Though they no longer reside in the rural areas where they grew up, these individuals maintain strong ties by regularly visiting and managing vacant properties. Often owning vacant houses in their hometowns, these residents continue engaging in local events and social activities, contributing to the community's sustainability. Despite their essential role, the public or policymakers have not yet given them enough attention or corresponding support strategies. As a result, this study seeks to bring attention to the importance of out-migrant residents in supporting communities with declining populations and to propose their involvement as a foundation for future policymaking and community support initiatives.

The study first analyzes the essential attributes of these out-migrant residents and their vacant house properties to understand the current state of vacant house management in the study areas. Following this, the research will examine the connection between the residents and their rural origins through (1) the frequency and

the temporal expenditure of commuting visits, the purpose of their commuting visits, and (2) the relationship between their commuting Behavior and the local rural society. To discuss the relationship between their commuting Behavior and the local rural society, the study will focus on i) their participation in local community activities, ii) their social associations not directly tied to the local community, and iii) their recreational activities during commuting visits. By considering vacant house owners and their families as a unique category of residents, this study attempts to quantify their role and impact on local rural society.

The study will select Shimogo and Aizubange towns in the Aizu area of Fukushima Prefecture as the research areas, both depopulated areas. The analysis will be conducted independently for each town, followed by a comparative study to identify commonalities and differences. The aim is to assess the potential of the commuting population as contributors to community sustainability, explore ways to promote their roles, and propose strategies for better engagement and support. Beyond increasing the number of individuals involved, the study hopes to serve as a foundation for discussions on integrating this population more substantively into the local community.

1.3 Research Methods

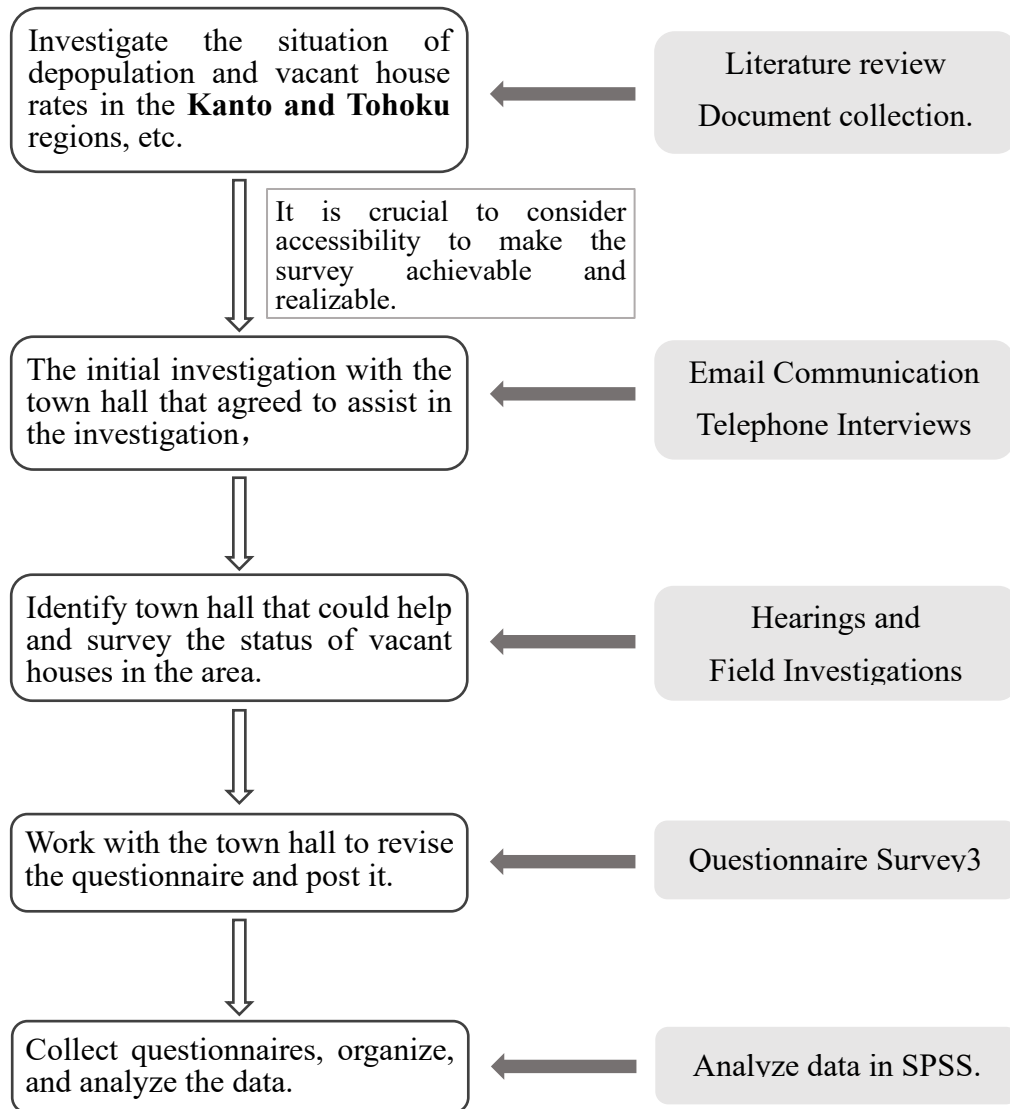


Figure 1-5. Investigative Process and Methodology of the Thesis

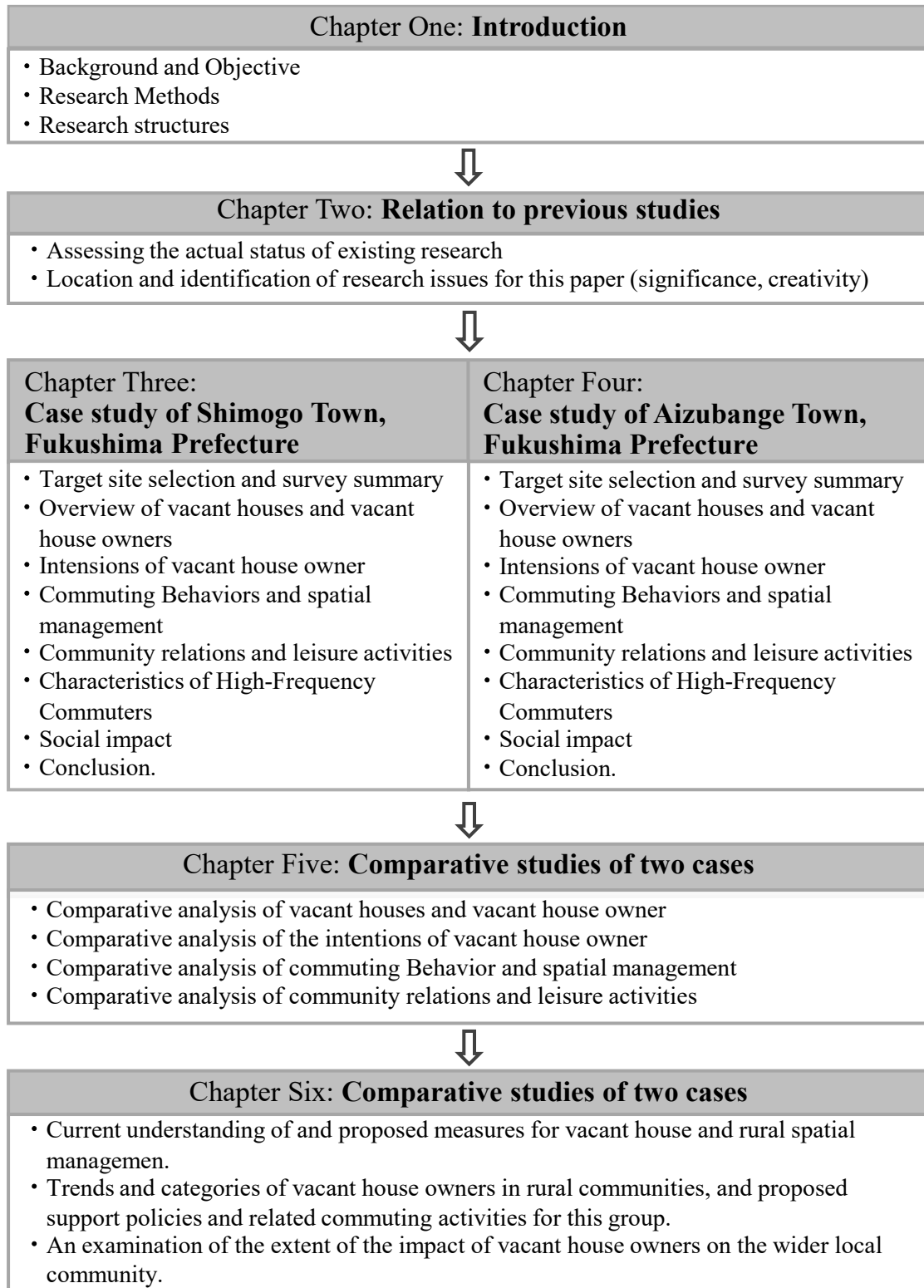
First, before entering the formal investigation, much information was gathered and searched, mainly to select the investigation area. Suitable survey respondents needed to be in depopulation areas and have enough vacant houses to ensure a sufficient sample of data could be received. After getting in touch with the local government and confirming whether they could be the survey's partner and object, it is necessary to carry out several telephone interviews until the intention to cooperate is established. Then, the field investigation and hearing survey should begin. Through the hearing

investigation from the local government, the primary number of vacant houses and some basic information about the commuting population would be grasped. The field investigation is mainly aimed at capturing the general appearance of vacant houses in the settlement (degree of vacancy and abandonment in appearance, approximate number in the settlement, etc.).

During the field survey, questionnaires are completed according to the requirements of the local government. Meanwhile, according to the local government real estate registry, the government counts the number of vacant house owners. It distributes the questionnaires to conduct the questionnaire survey after the number of samples and the contents of the questionnaires have been confirmed.

The questionnaires sent back answered are collected within 2-3 months after the questionnaires are mailed out. Then, the data of these answers are sorted and counted, and finally, the data are analyzed. Before completing my research paper, I also made a report to the local government after analyzing the data.

1.4 Thesis Structure



Reference

- [1] Ministry of Agriculture, Forestry and Fisheries: about the intermediate and mountainous areas <https://www.maff.go.jp/j/nousin/tiiki/sesaku.html> (2024.9.07 final readings)
- [2] Tokumi Odagiri: Rural Villages Will Not Disappear, Iwanami Press 2014
- [3] Tsutsum Yukikoi. Report on a case study of an initiative in a rural area with low development pressure on the study of landscape formation initiatives and plans that enhance the area's attractiveness. Proceedings of the Kansai Branch Conference of the City Planning Institute of Japan, 22(2024).
- [4] The 3rd Workshop on Recovery Agriculture: Reconstruction Strategies for Multiple Futures. 4(2), 2024.
- [5] Noboru Hashizume, Status and future challenges of measures for mountainous areas, Agricultural Research Vol.51 No.2, 2016
- [6] Noboru Hashizume, Functions of Rural Communities Weakened by Depopulation and Aging: Dynamic Statistical Analysis and Estimation of Future of Rural Communities, Agricultural Problems Research, Vol. 47, No. 1, 2015
- [7] Hiroki Yamada, Hiromitsu SEKI, a study on the relation between place attachment and local cultural heritage: Focusing on regional characteristics, individual attributes, and changes due to the COVID-19 pandemic. J. Archit. Plan., AIJ, Vol. 89, No. 821, 1314-1325, Jul. 2024
- [8] Masaya Ota, Yan LI, the role and significance of the community hub reusing the closed school in the mountainous area by diverse entities--a Case study of "TSUKU-RASSERU" in Toyota City, Aichi Prefecture, Japan. J. Archit. Plan., AIJ, Vol. 89, No. 822, 1414-1425, Aug. 2024
- [9] < Report on the Survey of Vacant House Owners>, Housing Bureau, Ministry of Land, Infrastructure, Transport and Tourism, Housing Bureau, December 2020
- [10] Mitsuhiro Seki: Industrial Promotion of Local Regions and Intermediate and Mountainous Areas Shimane Model of Hope and Comprehensive Research. New Reviews,09.2007
- [11] Toshima Nakanishi, The Aim of the Shimane Research Center for Inter-mountainous Areas - In the face of the threatened existence of inter-mountainous communities. Journal of the Agricultural Civil Engineering Society, 67(5),1999
- [12] Yusaku Yamashita: Folklore in Practice: "Rural Folklore" and the Problems of the Midlands and Mountain Areas in Contemporary Japan. Agricultural, Rural, and Fishery Culture Association, 2008
- [13] Noboru Hashizume. The Systematized Problems of the Rural Policy: Focusing on the Direct Payment System to Farmers in Hilly and Mountainous Areas, Japan Agricultural Economics Association Conference, Agricultural Economics Research Vol. 88, No. 1, 83-98, 2016
- [14] Koranashi Takehiko. A Study on Reconstruction of Rural Districts and Agriculture—Through Analysis of Articles of "Nihon Keizai Shimbun," Design Studies, Volume 59 (2012) Number 6, 2012
- [15] Tsubasa Arikawa, Makoto Tsukai, etc., The Analysis on the Transition of Characteristics in the Intermediate and Mountainous Areas, Journal of the City Planning Institute of Japan, No.44-

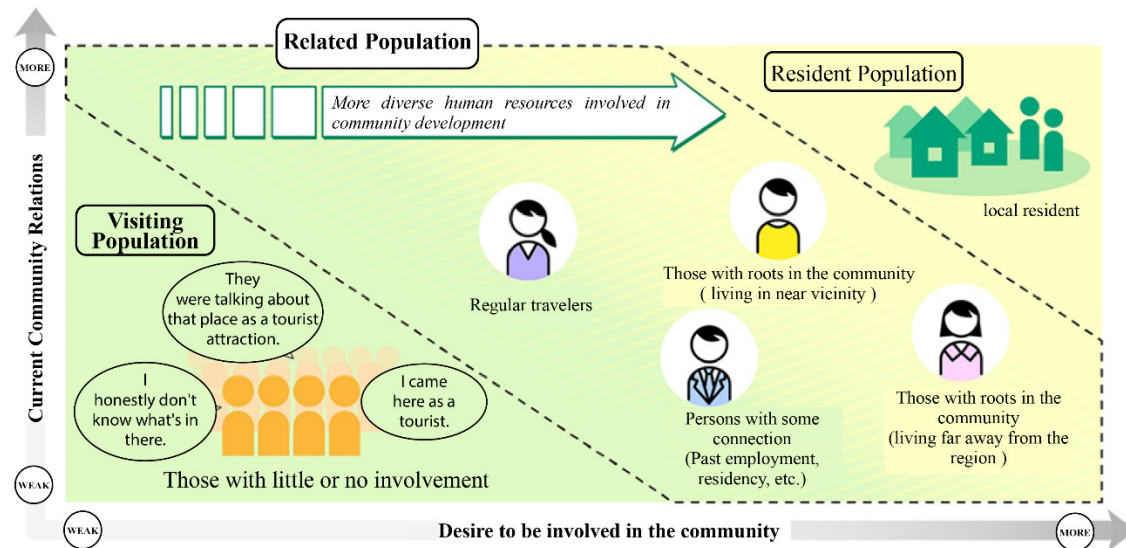
3, October 2009

- [16] Kohyama Satomi. An Analysis of the Rulemaking Process for Managing the Vacant Properties - For a Better Living in Hilly and Mountainous Areas: A Case of Toyota City, Journal for Interdisciplinary Research on Community Life vol.7, 2016, pp. 1-20
- [17] Comprehensive Research and Development Organization (Organization), Kazuhiro Ueda: Advanced Space for a Recycling-Oriented Society: The Intermediate and Mountainous Region Suggesting a New Japan. Agricultural, Rural, and Fishery Culture Association, 2000
- [18] Hashizume Don: Requirements for Revitalization of Mid-Mountainous Areas - Statistical Analysis of Agricultural and Rural Area Revitalization. Japan Agricultural Statistics Association, 2005
- [19] Status and issues of vacant house policy and Directions for consideration. Ministry of Land, Infrastructure, Transport and Tourism. 2022.10
- [20] 2023 Housing and Land Survey Results of The Preliminary Count of The Number of Houses. Ministry of Internal Affairs and Communications. 2024.04.30
- [21] Makiko Fujihira, The Possibility for Maintenance and Management of Vacant House by the Sliver Human Resources Center, Journal of the Japanese House Economics Society Vol 70 No. 11 739-755 (2019)
- [22] Noriko Akita, Actions for Unoccupied House Measures Based on the Special Law about The Promotion of Unoccupied Houses--Case Study at Matsudo City, Chiba Prefecture. Journal of the City Planning Institute of Japan, Vol.52 No.3, October 2017
- [23] Haruka Wake, Takehito Ujihara, etc., Study of Effective Measures for Market Circulation of Vacant Houses -- Based on Stated Preference Survey to Vacant House Owners. Journal of the City Planning Institute of Japan, Vol.54 No.3, October 2019
- [24] Keita Nakashima, etc., Attitude-Behavior Changes for Prevention of Vacant Houses, Journal of the City Planning Institute of Japan, Vol.55 No.3, October 2020
- [25] Mizuno Ayaka, etc., Status of countermeasures for vacant houses and lots in Japan and a cooperation method with policies for a compact city, Journal of the City Planning Institute of Japan, Vol.51 No.3, October 2016
- [26] Yukihiro Saito, A Discussion about Sustainability of Rural Space Quality: What and how is the framework of spatial management in rural areas where the devastation is progressing, Journal of Rural Planning Vol. 34, No. 3, December 2015
- [27] Regional Revitalization and Measures for Utilizing Vacant Houses, Report on the 23rd Academic Lecture Meeting, URBAN HOUSING SCIENCES, November 2015

Chapter 2. A Review of Prior Research and the Orientation of this Study

2.1 The Explanations of Relevant Concepts Involved in this Study

According to the Ministry of Internal Affairs and Communications website, the term “related population” refers to individuals who are neither “permanent residents” who have relocated to the area nor “exchange residents” who visit primarily for tourism. Instead, the related population consists of people who engage with the local community in various ways, maintaining connections through regular visits, participation in local events, or involvement in community projects. This group significantly bridges the gap between permanent and temporary visitors, contributing to regional development and sustainability through their ongoing interactions with rural areas.



Source: the official website of the Ministry of Internal Affairs and Communications

<https://www.soumu.go.jp/kankeijinkou/about/index.html> (accessed in Oct. 2024)

Figure 2-1. Investigative Process and Methodology of the Thesis

2.1.1 Exchange Population

The exchange population refers to individuals who visit a particular area, in contrast with the permanent or resident population. These visits can be for various purposes, such as commuting, education, shopping, cultural activities, sports, tourism, and leisure ^[2]. As shown in the figure. 2-1 of the three population types, the exchange population has the weakest correlation to the local society in this picture. The term “exchange population” generally refers to tourists. While it is important to note that the exchange population has the potential to serve as a gateway to a related or settled population, the relationship with the local area tends to be superficial and transitory, and local governments tend to focus on the economic benefits of tourists' visits. Even if the relationship with the local community is superficial and transitory, it is essential not to ignore the impact and stimulation it can have on the local community. It is also not uncommon to see tourism projects and activities in which the exchange population is converted into a related or permanent population, such as tourism development for resettlement purposes, ownership systems about agriculture, and exchanges with residents. Although the effect couldn't be reliably calculated, converting the exchange population into a related or permanent population is an expected research topic.

From the research perspective of the tourism discipline, while the exchange population typically interacts with a area temporarily, it is essential to recognize that the exchange, resident, and related populations are not fixed categories. Individuals can move fluidly between these groups, transitioning from temporary visitors to more deeply involved participants in local life. In areas where increasing the related population is a policy focus, the approach is not simply transitioning from a tourism policy aimed at boosting the exchange population to one focused on the related population. Instead, the policy encourages progression from exchange to a related population, fostering deeper connections and long-term involvement with the area. This strategy emphasizes cultivating stronger ties with temporary visitors, encouraging them to become more engaged and invested in the local community ^[1,3].

2.1.2 Settled Population

The settled population in an area can be divided into two main categories: original residents and migrated residents. Migrants, as they gradually integrate into the local community and establish their lives, become part of the permanent population. Masahito Kamimura has distinguished between migrants: I-turners, who move to an area without roots, and U-turners, who return to an area with previous connections ^[4]. Kamimura also highlights that these diverse groups of new residents often take on significant responsibilities and roles within the community through their active participation in local cultural festivals and public events. This involvement strengthens their ties with the local society and significantly contributes to maintaining the vitality and social cohesion of the area.

In intermediate and mountainous areas, the decline of agriculture and forestry and the deterioration of town functions present serious challenges. Local residents have taken the initiative in addressing these issues through various activities. Still, a shrinking and aging population has resulted in a shortage of human resources to carry out these efforts. In response, programs like the “Community Support Human Resource Project” have garnered attention for introducing external human resources to assist in local activities. One prominent example is the “Ministry of Internal Affairs and Communications” “Regional Development Cooperation Corps Project.” This initiative appoints individuals who have relocated from urban areas to depopulated or disadvantaged regions as “regional development cooperation corps members” (corps members) to integrate them into the community. These members live in the area for a designated period, supporting the agriculture, forestry, and fisheries industries and assisting with the daily lives of local residents. The aim is for these corps members to settle permanently in the area after their term of service, making it an incredibly significant program in mountainous areas with severe population decline ^[5].

Conversely, from the perspective of the resident population, many of these settled

migrants were once part of the exchange or related population. This transition from temporary visitors or occasional participants to permanent residents illustrates the fluidity between these categories. It underscores the importance of fostering deep connections to promote long-term settlement and community engagement. By encouraging migrants to integrate into the social and cultural fabric of the area, they can play a crucial role in sustaining and revitalizing local communities.

Meanwhile, in Heewon CHOI's research, there is also the viewpoint that the most critical and fundamental issue in shaping the future of depopulated areas and establishing a sustainable vision is securing a permanent population. This long-term population retention is essential for these areas' vitality and continued existence. Therefore, future measures in depopulated areas should prioritize areas directly tied to residents' daily lives and areas recognizable as essential living environments. Regardless of the overall size of the area, the focus should be on those communities where the quality of life and essential services can be maintained, as these will be key to attracting and retaining residents. Addressing this at the local, livable scale will be crucial for successfully revitalizing depopulated areas ^[6].

2.1.3 Related Population

The “related population” refers to individuals who live outside an area but regularly commute or engage with the area. According to the “Ministry of Internal Affairs and Communications”, this population is categorized into three groups based on their nature and characteristics. The first category includes “extraterritorial supporters”—professionals, students, and volunteers actively participating in regional management and development. These individuals bring external knowledge, skills, and resources to assist in the growth of local areas. For example, university professors may conduct research projects that address regional development issues, creating opportunities for local engagement and fostering development. The support project driven by professors can not only lead students and volunteers to provide support on

the ground with practical actions but also inspire students and enthusiasts to launch more support projects by themselves and actively participate in them. The “Super Commuting” project, initiated by Mr. Shinichi Moriya from Shibaura Institute of Technology along with two students, exemplifies this, as it encourages bringing people back to their hometowns and forming a “trusting related population” with solid potential for local development ^[8].

The activities of students and volunteers play a significant role in expanding the related population and contributing to the vitality of these areas. By participating in local projects, they not only enhance their learning but also help stimulate economic and social development. Noda-sensei highlights the critical role that extraterritorial supporters can play in regional development, particularly as the local permanent population ages. However, the sustainability of these support efforts is often temporary, and the balance of responsibilities between local communities and external experts or volunteers is a topic of ongoing debate. Despite these challenges, the contributions of extraterritorial supporters are essential and must be considered in discussions about the future of regional development ^[9].

Another essential part of the “related population” is “people with regional roots”, who maintain strong connections to their hometowns through familial ties. Professor Goto refers to this group as “out-of-area family members” when their parents or older relatives still reside in the local areas ^[10]. As the resident population ages, they frequently travel back to their hometowns to support their elderly relatives. Their visits are often centered around nursing care, shopping, hospital visits, or assisting their family members in daily life. This group’s primary connection to the local area lies in their family ties, as their parents and relatives remain rooted in these communities. These out-of-area family members are crucial in maintaining social and familial bonds with their hometowns. During their visits, they often act as informal caretakers while contributing to local life and regional sustainability.

In addition to the groups, houses owned by original residents often become vacant

when parents pass away or relocate. In such cases, some individuals inherit these houses and return to their hometowns to manage the properties, while others assist their parents in maintaining vacant houses. For these individuals, the primary connection to the local area is through tangible assets, such as houses or farmland, that require ongoing management. In this study, they are called “vacant house owners,” a specific category of “commute residents^[10].” These individuals, although no longer permanent residents, maintain a functional and emotional link to the local area through their responsibilities in property management, thus playing an essential role in the ongoing relationship between out-migrants and their rural origins. Their involvement in managing these properties contributes to both the preservation of local assets and the potential revitalization of rural areas.

Finally, some fall outside the above categories even among the related population. These people stay in vacation houses and have developed ties to the local areas through work or sightseeing. They are anyone connected to local areas, and Professor Yamazaki and Sakuma are referred to as “related” to the area^[12]. An increasing number of elderly individuals, upon reaching retirement age, are choosing to leave their familiar urban environments in pursuit of a so-called “country lifestyle” in areas with a rich natural environment. This trend includes moving to locations such as U-turn areas, their original hometowns, depopulated rural areas, or dedicated senior towns designed for retirees. One of the popular options for this demographic is acquiring a “vacation house”, which allows them to experience rural living on a more flexible basis. This shift reflects a growing desire among retirees to reconnect with nature and enjoy a slower pace of life, often in areas that were once considered undesirable due to depopulation but are now seen as appealing for their tranquility and natural beauty. These migrations also bring opportunities for revitalizing rural economies and communities through the presence of new residents^[13].

In addition to focusing on vacant houses and the settled immigrant population as strategies for addressing depopulation and decline, the role of the related population

has garnered increasing recognition in recent years. As local areas grapple with aging populations and a shortage of local development leaders, there is a growing realization that human resources outside the community can be crucial in stimulating regional revitalization. The related population has become an essential component of local development efforts. Young people outside the area are beginning to move into these areas, bringing new energy, ideas, and leadership potential.

Economically, related residents contribute by paying local taxes, supporting local businesses, and utilizing goods and services within the community. Their engagement helps boost economic activity in areas often suffering from stagnant markets due to population decline. Furthermore, they can play a significant role in fostering social cohesion and unity by participating in community activities and events. Such engagement helps maintain these areas' social fabric, encouraging the development of networks that can sustain local initiatives and projects over the long term.

From a cultural perspective, the related population is vital in upholding and passing down regional traditions and cultural heritage. Their presence offers a unique opportunity to integrate new ideas and perspectives while preserving the cultural identity of the local area. In doing so, they can help create a sustainable model for regional development that balances modernization with the conservation of cultural and social assets.

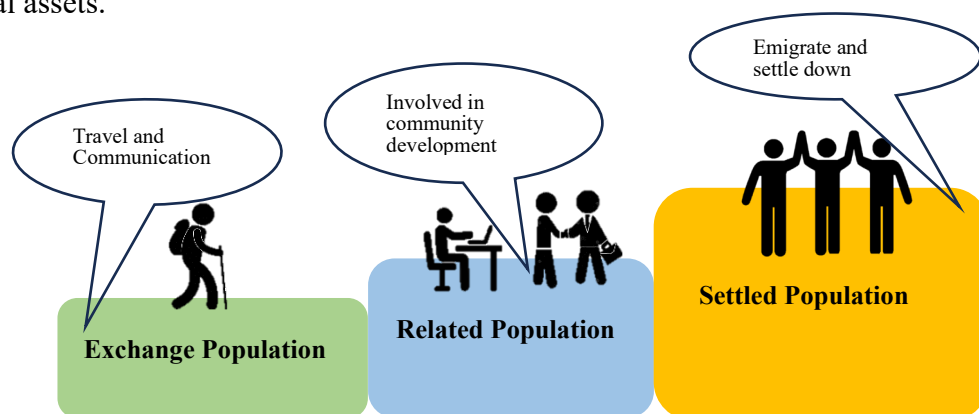


Figure 2-2. The conceptual ladder of exchange, related and settled population

The potential for collaboration between the related population and permanent residents is significant. These groups can work together to build a sustainable, resilient community by fostering meaningful exchanges and shared goals. Stronger social ties and the influx of new ideas and resources provide a roadmap for a more dynamic and prosperous future. In this context, the related population not only alleviates some of the challenges brought about by depopulation but also actively participates in local communities' rejuvenation and long-term sustainability.

2.1.4 Vacant House

In Japan, the term “vacant house” (空き家) refers to unoccupied residential properties for an extended period. The Ministry of Internal Affairs and Communications defines vacant houses broadly, but their classification includes various categories depending on their condition, ownership status, and intended use. The issue of vacant houses has grown significantly, particularly in rural and depopulated areas, where the effects of urban migration, aging populations, and declining birth rates are most pronounced. Vacant houses present various challenges, including deterioration, safety hazards, and the loss of valuable property assets. Classifying vacant houses in Japan is critical for understanding their potential reuse and the strategies required for their management.

Categories of Vacant Houses

Vacant houses in Japan can generally be divided into four main categories based on their use and status, as outlined in government surveys such as the Housing and Land Survey by the Ministry of Internal Affairs and Communications:

1) Vacant Houses for Sale (売却用空き家)

These are houses that are unoccupied but are listed for sale. Property owners or real estate agents typically manage them, and the goal is to sell them to new owners. Although technically vacant, these houses are often in better condition than other vacant

properties due to ongoing maintenance in anticipation of sale. This category includes houses waiting to be transferred through the real estate market.

2) Vacant Houses for Rent (賃貸用空き家)

These properties are unoccupied but available for rental. They are either privately owned and listed for rent or part of larger housing complexes managed by local municipalities or private landlords. As with properties for sale, houses in this category tend to be in relatively good condition, as they are prepared to accommodate future tenants.

3) Secondary Residences (別荘などの二次的住宅)

These properties are used as vacation houses or secondary residences. They are typically located in rural areas or areas known for their natural beauty, where owners may only visit seasonally or for short-term stays. While technically vacant for most of the year, secondary residences represent a different form of vacancy, as they are maintained for periodic use rather than permanent residence.

4) Other Vacant Houses (その他の空き家)

This category encompasses houses that are neither for sale nor rent and are not used as secondary residences. Many of these properties are abandoned, disrepair, or unmanaged for extended periods. The owners may be deceased, untraceable, or have no interest in maintaining the property. These houses often pose significant challenges, as they can deteriorate rapidly, becoming safety hazards and negatively impacting the surrounding environment. This category is the most problematic regarding policy intervention, including houses with unclear ownership or inheritance disputes.

The Housing and Land Survey defines a vacant house as any residential building that has not been resided continuously for at least one year. Houses for sale or rent have clear paths for reuse and reintegration into the housing market. At the same time, secondary residences require a different approach, as their owners may not wish to

occupy them permanently. The most challenging category, the other vacant houses, necessitates policy interventions, including Akiya Banks, tax incentives, and legal reforms to address ownership and encourage reuse.

In summary, the classification of vacant houses in Japan reflects the diverse nature of the issue, ranging from properties actively on the market to houses that have been abandoned. Addressing the problem requires tailored strategies that account for these properties' condition and ownership status, with a particular focus on those that are unmanaged and pose risks to local communities. The management of vacant houses is not only a matter of real estate but also a significant concern for rural revitalization and sustainability [14,16].

2.2 Relevant Prior Studies

2.2.1 Sustainable Development of Depopulation Settlements and Correlation with the Related Population

Mr. SAKUMA's book and papers discuss sustaining rural communities through cooperative activities and highlight various strategies for revitalizing depopulated rural areas. The research examines how rural communities can be "inherited" or "passed down" to future generations by focusing on three key areas: the utilization of vacant houses, migration strategies, and fostering collaboration between local and external stakeholders [17]. Especially emphasizes the importance of "rural cooperation power" (農村協働力) in ensuring the sustainability of depopulated towns. It underscores the need for ongoing efforts involving local residents and external supporters, including returning former residents and volunteers, to maintain and rebuild rural communities.

Mr. OTANI has described the concept of Dual- residence (二地域居住) in Japan refers to individuals maintaining two houses, one in an urban area and another in a rural area, where they reside periodically. Unlike traditional vacation houses, both locations serve as living bases. This practice has grown in popularity as urban residents seek to

incorporate more diverse lifestyles, spending extended time in rural communities while maintaining their primary residence in the city. However, as the study highlights, this dual-residence model can present challenges related to integrating into existing rural communities, where long-standing social customs and relationships can sometimes create friction with newcomers. Building a harmonious relationship between two-place residents and local communities requires balancing different expectations and addressing issues such as shared infrastructure and community involvement. Ultimately, smooth communication and mutual understanding are essential for fostering positive relationships between urban-rural residents and the existing rural population ^[18].

The paper investigates the phenomenon of former residents returning to abandoned towns in the Tajima area of Hyogo Prefecture to maintain environmental elements such as farmlands, forests, and graveyards. It explores the reasons behind these return visits and the activities undertaken by the former inhabitants, revealing that while the former residents derive personal satisfaction from maintaining their ancestral lands, they do not necessarily perceive these actions as having broader environmental or communal benefits. The study also notes that the descendants of these former residents are generally not inclined to continue the practice, largely due to complications in land ownership and lack of interest. Additionally, the paper highlights the challenges associated with passing down the responsibility of managing these abandoned towns to future generations. This study is relevant to understanding how the maintenance of abandoned rural areas by former inhabitants intersects with issues of land ownership and the sustainability of rural communities ^[23].

2.2.2 The Management of Vacant Houses and Commuting Population

A few studies consider the management of vacant houses in rural areas by commuting population from the viewpoint of vacant house management. For example, Hirata et al. (2010), < The Interrelation Between Vacant House Maintenance and The Location of Its Owner's Residence >, found that the distance between the vacant house

owner's residence and the level of management was not proportional to the distance between the owner's residence and the vacant house. The proportions are polarized even when the current address of the owner of the vacant house is near the vacant house. It is generally assumed that the further an owner lives from their vacant house, the more likely they are to abandon its management. However, research reveals that abandoned vacant houses often occur among those with shorter commuting distances to their vacant properties. In contrast, individuals with a commuting time of around 1.5 hours when returning to their hometown tend to exhibit stable management and utilization of their vacant houses. This group is more likely to become "dual-residence" residents, maintaining both urban and rural houses, and they also show the most extraordinary inclination towards "I-turn" migrating--a return to rural living. This finding suggests that proximity is not the sole determining factor for effective vacant house management but rather a complex interaction of personal motivations, lifestyle choices, and intentions to relocate back to rural areas eventually^[19].

The study, Yusa et al. (2006), <vacant Houses and Their Management in Hilly Rural Areas> (J. Arch Plan., AIJ, No. 601, pp. 111–118), investigates the status of vacant houses in the hilly regions of Japan, specifically focusing on Hayakawa Town. The research aims to understand the increasing problem of vacant houses, their locations, and their current management conditions, such as weeding gardens and ventilating houses. It also seeks to grasp the future intentions of vacant house owners regarding the management of their properties. The study reveals that some towns face severe challenges through field surveys and interviews, with many vacant houses leading to potential town collapse. Moreover, while many owners desire to preserve their properties, they cannot often manage them adequately. The study concludes that there is a pressing need for new organizations to manage vacant houses, as the current management approaches by owners are insufficient to maintain the properties correctly. The research highlights the importance of community-based management solutions and suggests that treating vacant houses as public resources could help preserve these rural

areas. The management of vacant houses in rural areas and commuting population. It also categorized vacant house managers and pointed out that the purpose of return visits by the high-frequency management type was to socialize and work together ^[20].

The paper titled <Distribution of Vacant Houses in Mountain Towns and Actual Conditions of Relationship between Owners of Vacant Houses and Local Communities> focuses on understanding the distribution of vacant houses in mountain towns, particularly in Nagawa Town, Nagano Prefecture. It examines the interaction between vacant house owners and local communities. The study identifies key factors influencing the presence of vacant houses, such as socioeconomic conditions, geographic characteristics, and the availability of local services. The research highlights that while the physical distance from urban centers is a factor, emotional attachment to the community and involvement in local activities also play a critical role in whether owners maintain ties with their rural properties.

The paper also discusses the challenges of utilizing vacant houses, noting that efforts such as “Akiya Banks” face difficulties due to low registration rates. Additionally, the study examines the role of former residents who continue to visit for family or community events, pointing out that their involvement is essential for preserving the social fabric of these depopulated rural areas. Finally, the study suggests that fostering better relationships between vacant house owners and local communities while addressing structural issues, such as access to public services, will be key to tackling the growing vacant house problem in Japan’s rural regions ^[26].

2.2.3 The Commuting Behaviors and Commuting Population

Some studies also show support during commuting visits for households where the commuting population (parents remain in the community in rural areas). Hosota (Feature and Meaning of Participation in Agricultural Labor in Highland by Non-Resident Members of Resident Family, 2003), for example, explores how non-resident family members outside the area provide crucial labor during critical agricultural

periods. The study finds that their involvement varies according to the life stages of both resident and non-resident family members, and this labor significantly complements the declining workforce in rural areas. The paper emphasizes the need to recognize the contributions of these non-resident family members, suggesting that their participation plays a vital role in preventing agricultural abandonment in intermediate and mountainous areas. The findings underline the importance of incorporating commuting resident family members into agricultural planning and support systems to sustain rural agriculture and the change from complementing work to an indispensable role in maintaining the agricultural industry with the increase in household age of farm households ^[21].

The paper <The Characteristics of Activities for Maintaining Rural Community by Collaboration with Non-Residents of Family Members> (KOBAYASHI, etc. 2018) explores the role of non-resident family members (他出子) in maintaining rural communities, with a specific focus on Nishiotaki, Iiyama City, in Nagano Prefecture. It examines how these non-residents contribute to the upkeep of rural areas through participation in local events and activities despite not living in the region full-time. The research categorizes non-residents' involvement into three types: those participating in recreational activities, those involved in required community activities (such as festivals and maintenance work), and those participating in both. The study highlights that while the number of non-residents contributing to the community has increased over time, the burden of community upkeep often falls on a limited number of people. The paper concludes that involving a broader range of non-residents and individuals with no familial ties is essential to ensure the sustainability of rural communities facing depopulation and aging populations ^[22].

Mr. Negishi's study (A Study on Out-Migration Participation Consciousness to Regional Activity Support in Their House) points out that i) Many out-migrants desire to contribute to regional activities in their hometowns after relocating. ii) Those willing to participate tend to maintain strong connections with their hometown, often returning

for festivals and maintaining relationships with local acquaintances. iii) The primary difference between those who participate and those who wish to participate is the opportunity or chance to get involved. It also proposed an approach for each of the two groups (Active participants and potential participants in activities) based on an analysis of the factors that affect the willingness and experience of out-migrants to participate in community activities. Individuals who have relocated from their original hometown may begin to experience nostalgia after residing in a new environment for an extended period. Consequently, they might develop an interest in engaging with activities in their former hometown over time, such as the birth of a child and bringing their children to participate in festivals during their commute^[24]. This demonstrates that the behavior of commuting is a crucial link between out-migrant populations and local rural communities, with this connection possessing significant untapped potential for enhancing regional interactions and invigorating economic vitality.

Kai et al. analyzed the correlation between the presence or absence of communal management and farmland management activities and the time required to return to the house. They noted that those living within a 30-minute radius were likelier to participate in these activities. This study highlights the relationship between former residents of the Tanba region and their continued connection to their hometowns, mainly focusing on the geographical distribution of their workplaces, most of which are in the Kinki region. The research found that many of these individuals reside within an hour's distance from the Tanba region, especially in urban areas like the Hanshin region, making Tamba a rural area relatively close to urban centers, unlike more remote rural areas. The study suggests that the proximity of urban centers affects how former residents engage with their hometowns. For example, many of the respondents live within a 30-minute distance from their hometowns, but despite this proximity, the rural living conditions are not necessarily ideal. This indicates that new strategies may be required to address the needs of these communities, particularly in defining the roles of those who support the rural areas^[25].

Additionally, the study references the idea that the primary causes of town depopulation are not only the small size of towns or the rapid decline in farming households but also the poor access to public services, such as government offices and schools. This underscores the importance of developing location-specific strategies to sustain rural communities.

2.3 Positioning of this Study

There are many examples of people from outside the area, known as the “related population,” who are beginning to enter the area as change-makers. While previous studies share a common focus on the issue of vacant houses and community involvement, few have examined the broader spectrum of relationships, including participation in local activities and personal interactions, household-level leisure activities, and the connections between these aspects. Furthermore, a notable lack of research attempts to quantitatively assess the role of vacant house owners by considering them as a specific category of residents. Compared to the 2000s, when major studies on vacant house management were conducted, today’s situation has been further complicated by the ongoing aging and depopulation of rural areas. Therefore, clarifying the current trends in this context is particularly significant.

This study aims to fill this gap by exploring the evolving role of vacant house owners as a type of resident, assessing their interactions with the local community, and quantitatively evaluating their contributions to the sustainability and revitalization of rural areas. This research builds on existing studies and offers new insights into the changing dynamics of rural depopulation and vacant house management in an era of accelerated aging and depopulation.

Support for regional revitalization from outside the area, including connected populations, local vitalization cooperators, and local government support programs for immigrants related to local development, has become more common. This paper focuses on people who previously lived in rural settlements of mountain areas but have

since moved out. This group is larger than the number of local vitalization cooperators and new settlers. They are known as “move-out residents” in the field of rural planning studies in Japan and are a “connected population.” Despite moving away, they remain connected to their local community as they need to commute regularly and manage vacant houses in their hometowns. There are also other situations where these “move-out residents” frequently return to their hometowns to assist their elderly parents who still reside there [27].

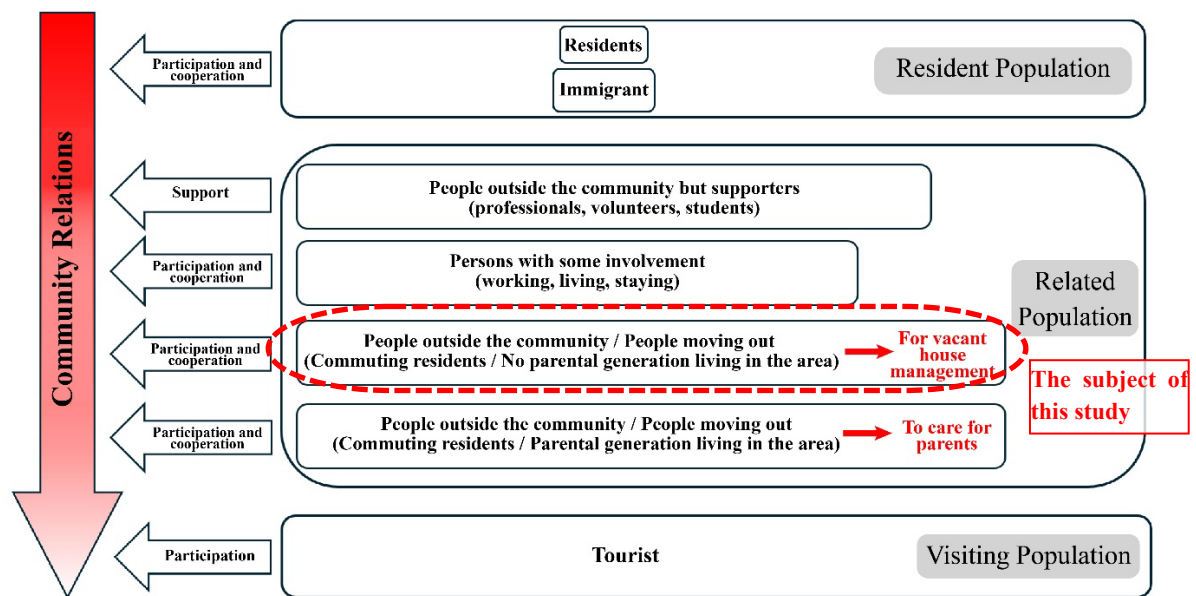


Figure 2-3. The position of the related population in this study

Focusing on the role of vacant house owners within the “related population”, this study shares overlapping concerns with previous research in the area. However, it is positioned as a primary and novel investigation that aims to explore these issues more comprehensively. The distinct characteristic of this research is its holistic examination of the commuting behaviors of vacant house owners, encompassing aspects such as space management, community participation, and leisure activities. By adopting this comprehensive perspective, the study seeks to quantitatively clarify the role of “commute residents” in sustaining and revitalizing the local community. This approach addresses gaps in the current body of literature. It provides a clearer understanding of the broader impact of vacant house owners as part of the related population,

contributing valuable insights into rural sustainability strategies.

2.4 Position of Commuting Population in Related Population

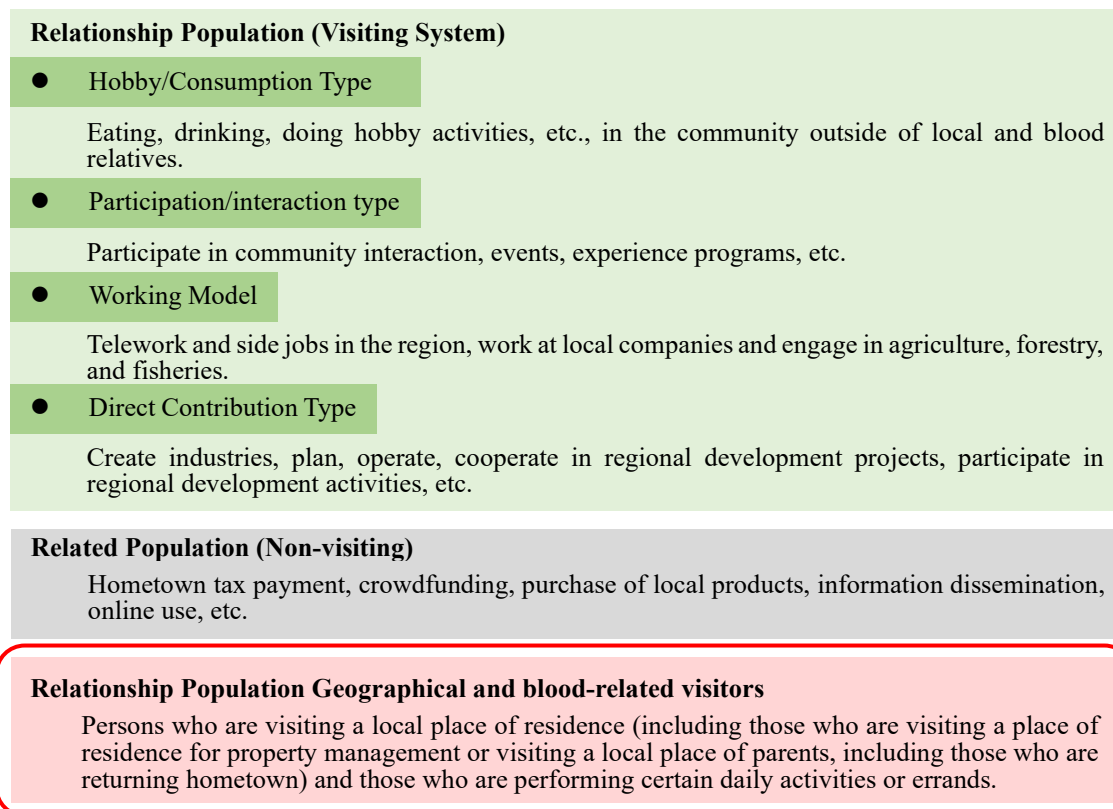
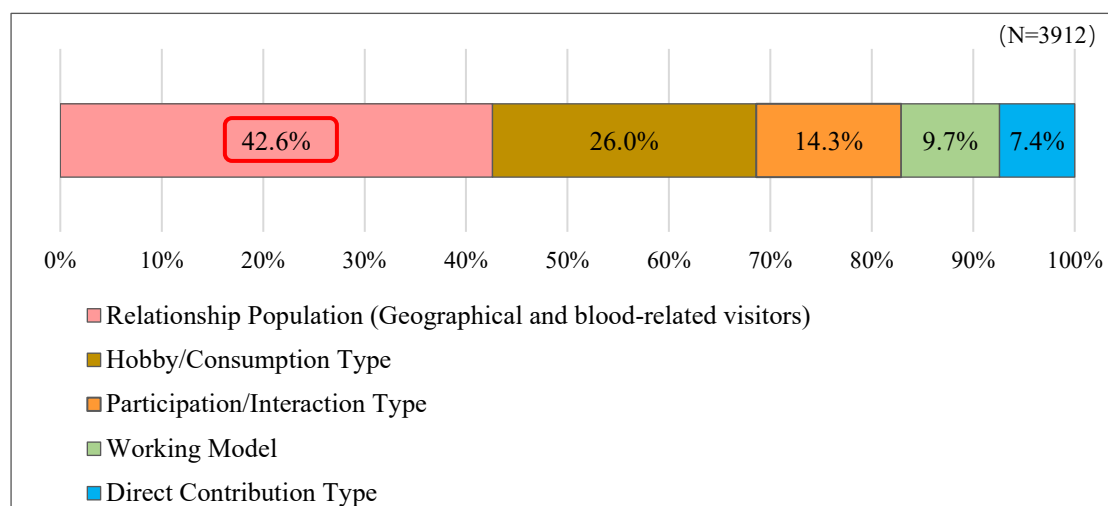


Figure 2-4. The Ministry of Land, Infrastructure, Transport and Tourism’s classification of related population

According to a 2020 survey report by the Ministry of Land, Infrastructure, Transport, and Tourism, the “related population” is further classified into three categories: “related (visiting),” “related (non-visiting),” and “geo-related or blood-related visitors.” The “related (visiting)” group includes individuals who maintain a relationship with an area through periodic visits and engaging in local activities or cultural events. On the other hand, the “related (non-visiting)” group connects with the area but does not regularly visit, often maintaining ties through remote involvement or other forms of engagement. Lastly, the “geo-related or blood-related” visitors have direct familial or geographic ties to the area, such as former residents or those with ancestral roots, who maintain a deeper connection through family visits or heritage

preservation efforts. This nuanced classification allows a more detailed understanding of how different groups of related populations contribute to rural sustainability and vacant house management. The Related Population (Non-Visiting) contributes indirectly to their hometowns or areas despite not physically visiting. Their support includes “hometown tax payments (furusato nose),” participating in “crowdfunding” initiatives, “purchasing local products,” disseminating information about the area through “online platforms,” and utilizing online services that support local businesses. These non-visiting related individuals maintain a connection with the area by engaging economically and socially through digital means, which, while not involving direct physical presence, plays a significant role in supporting local economies and fostering a sense of community involvement. Their activities provide financial and promotional support crucial for rural revitalization efforts.



Source: <Questionnaire Survey on Community Relations> (Ministry of Land, Infrastructure, Transport and Tourism, September 2020) (based on population and number of people in the three major metropolitan areas) <https://www.mlit.go.jp/report/press/content/001377049.pdf> (accessed in Oct. 2024)

Figure 2-5. Percentage of visitors related by geography or blood (national)

As Fig. 2-5 shows, the proportion of “local and blood-related visitors” accounts for over 40% of the total related population, and this group primarily consists of “out-migrants”. While this segment may not contribute as directly or significantly to local revitalization efforts or the promotion of community activities as other related population groups, their connection to the community remains long-term and stable.

This enduring relationship is often rooted in familial ties or ancestral links to the area. While their involvement might not be as active, their continued connection provides an important foundation for potential future engagement with the local community. This group's presence offers opportunities for sustained support and involvement in local affairs, even if their immediate contributions are more indirect.

2.5 Methods for Determining Vacant Houses

The “Ministry of Land, Infrastructure, Transport, and Tourism” defines a “vacant house” as a building that has remained unoccupied or unused for more than one year. In the context of statistical data, vacant houses specifically refer to those without any resident households, excluding properties that are only occupied during the daytime and houses that are still under construction.

Whether a building is occupied is determined based on the following items:

- 1) Residential appearance and use
- 2) Whether people come and go
- 3) Water, electricity and gas usage
- 4) Property registration records, property tax information, and owner's certificate of residence
- 5) Is appropriate management being carried out?
- 6) Owner's claim

Cities and townships generally use five criteria to determine whether a building is classified as a vacant house:

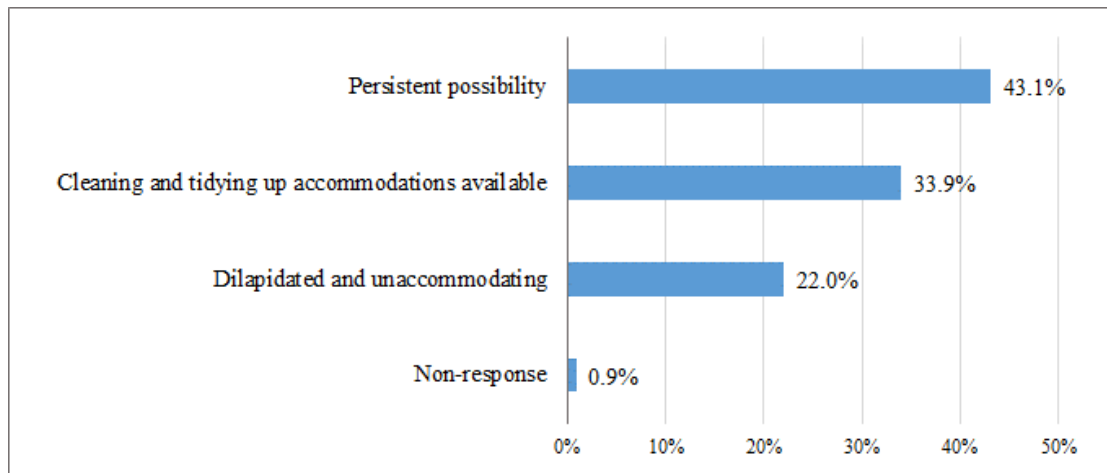
- 1) **Appearance and Condition:** The physical condition and intended purpose of the building are key indicators. In rural areas, most houses are single-family dwellings. Vacant houses that have not been maintained or used for an extended period often show signs of neglect, such as dilapidation. Criteria include the degree to which the building leans and the extent of damage to the roof and outer walls.
- 2) **Frequency of Visits:** Another criterion is the frequency of people visiting the

property. In rural areas, close-knit communities allow for inquiries with neighbors about the status of the house. Many vacant house owners in rural areas entrust neighbors to oversee the property in their absence, and the information provided by neighbors can be a valuable factor in determining whether a house is indeed vacant.

- 3) Utility Usage: The status of water, electricity, and gas supplies is also investigated. These utilities serve as a reliable indicator of whether the house is in use. If the owner has suspended water, electricity, or gas services for more than a year, it can generally be determined that the house is not being used regularly^[28].
- 4) Based on the real estate registration records, information on fixed asset tax payments and related content on the owner's residence ticket: The owner's residence information, real estate registration records, and fixed asset tax payment data are examined. If there is a discrepancy between the owner's current address and the address of the vacant house, it can be concluded that the owner does not reside in the rural area permanently. In such cases, the house is likely vacant and unused for an extended period.
- 5) Property Management Status: The state of the property's management is another key criterion. Vacant houses are often surrounded by accumulated garbage or waste, and the courtyards or surrounding areas may be overgrown with weeds. The overall lack of upkeep and management indicates that the house is vacant.
- 6) Owner's Declaration: In some cases, the owner has directly expressed their intention to abandon management of the property to government departments. This may include decisions to give up inheritance rights or offers to donate the house for free, further confirming that the house is vacant and not being used.

In this study, the concept of vacant houses primarily refers to those that are neither for sale nor for rent, falling under the category of "other types" of vacant houses (as detailed in section 2.1.4). During the investigation process, the local government had already conducted surveys related to vacant house countermeasures, so the number of

vacant houses was largely confirmed based on factors such as the house’s appearance and the use of utilities like water and electricity. However, some of these houses may include “weekend residences” or villas. Therefore, it is necessary to verify whether the owner’s current address matches the vacant house address in the property tax register. Where these addresses do not match, they are considered the primary research objects for this study. This ensures that the focus remains on genuinely vacant houses that require management and intervention.



Source: A vacant house owner survey was conducted by the author in Nanmokumura village, Gunma, in 2018.

Figure 2-6. Vacant house usage status in Nanmokumura Village (for reference)

Since this study^[29] focuses primarily on the “return behavior of vacant house owners” and their relationship with the local community, the survey deliberately excludes vacant houses where “owners are unknown” or the properties have already been demolished. Likewise, “newly constructed vacation houses” are also omitted from the study’s scope, as they do not align with the research focus on long-term vacant properties and their owners’ connections to rural areas. By limiting the survey to relevant cases, this study ensures a more accurate examination of vacant house management and the social dynamics involved.

2.6 Determining Vacant Houses in this Study

1. Shimogo Town

The town surveyed vacant houses in 2018 to ascertain the status of vacant houses. The survey was conducted on **501** potentially vacant buildings identified based on **water supply shutoff information (shutoff over 1 year)** and administrative district survey information. Secondly, according to the record status of the fixed assets tax register of Shimogo Town, the **property taxpayers with different addresses from the house location** are selected for secondary confirmation with the number **330**. The difference is due to the number of vacation houses for people who return home during long vacations such as the year-end and New Year holidays. Their houses are used as vacation homes. In addition, the Shimogo government office also conducted a field investigation of these 330 vacant houses. Finally, it was confirmed that 307 vacant houses were confirmed, and the remaining 23 could not be entirely accurate for other reasons, such as unclear owners.

water supply shutoff information (shutoff over 1 year): 501 unit



property taxpayers with different addresses from the house location: 330 unit

2. Aizubange Town

The method of identifying vacant houses in Aizubange town differs from that of Shimogo in the initial stage. Aizubange Town mainly mobilized the power of the community association, and the number of vacant houses **in the form of field visits by the community association was 710** (survey in 2020). Secondly, according to the record status of the fixed assets tax register of Shimogo Town, the people of **property taxpayers with different addresses from the house location** are selected for secondary confirmation with the number **475**. At the time of the survey, 43 questionnaires were returned because the address could not be delivered. This may be

due to the wrong address in the fixed asset tax register, or it may be because 43 vacant houses have lost their managers completely.

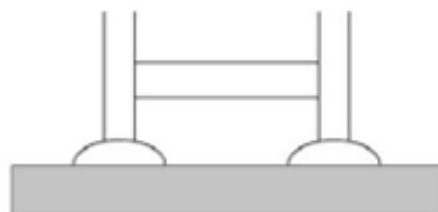
field visits by the community association: 710

property taxpayers with different addresses from the house location: 475 unit

In addition, the Aizubange government office also conducted a field survey on the extent of damage to the appearance of vacant houses, mainly to get a more precise grasp of the actual damage and usable conditions of vacant houses.

The primary basis of the survey on the current situation of vacant houses is as follows:

- 1) Whether the foundation of the house has a cornerstone and whether the external wall is well coated: the collapse of the house with a cornerstone foundation is relatively low. When the outer wall is fully coated, it is stronger in terms of disaster resistance, heat storage, and durability. Evaluation using scores (10-50, worst case where no score is 50)



with a cornerstone foundation



without a cornerstone foundation

- 2) Whether the overall structure of the house is complete: the degree of damage and peeling of the foundation, pillars, outer walls, and roofs is assessed by scores (15-100 points, the most damaged is 100 points).

Evaluation of the column



A case where some columns are tilting.



A case where column deformation is severe. There is a risk of collapse.



A case where multiple parts of the column are damaged.



A case where the columns and beams are severely damaged or deformed, posing a risk of collapse.

Evaluation of the outer walls



A case where part of the exterior wall finishing material has peeled off, exposing the underlying surface.



A case where the exterior wall has peeled off, severely exposing the underlying surface and creating holes that penetrate the wall structure.

*The image is sourced from: "Aizubange Town Vacant House Countermeasure Plan", referenced from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) Housing Bureau, Housing Environment Improvement Division – "Evaluation Categories of the Vacant House Status Survey Form, Key Points for Judgment by Evaluation Items," etc. <https://www.town.aizubange.fukushima.jp/uploaded/attachment/8015.pdf> (accessed in Sep. 2024)

Evaluation of the roofs



A case where some roof tiles have detached or shifted, causing water leakage.



A case where part of the asphalt roof has shifted, causing water leakage.

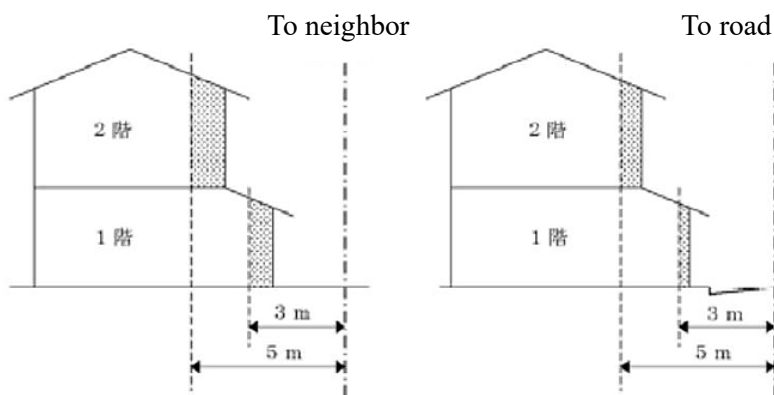


Case where part of the asphalt roof has shifted, causing water leakage.



A case where the eaves' baseboard and supporting wood have deteriorated, causing the eaves to sag.

- 3) Fire-proof structural condition: evaluate whether the outer wall and roof are inflammable materials and whether the outer wall has the potential to cause the spread of fire. (10-50, 50 for the most dangerous situation)



Exterior wall at risk of collapse.

*The image is sourced from: "Aizubange Town Vacant House Countermeasure Plan", referenced from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) Housing Bureau, Housing Environment Improvement Division – "Evaluation Categories of the Vacant House Status Survey Form, Key Points for Judgment by Evaluation Items," etc. <https://www.town.aizubange.fuku-shima.jp/uploaded/attachment/8015.pdf> (accessed in Sep. 2024)

The outer walls and roofs are exposed to wood materials, and the fire resistance is poor



- 4) Whether the house has drainage equipment: whether it has drainage pipes for rainwater. (10-30 points, 30 points when not at all)

Case of broken drainage pipe



*The photos of the foundation, pillars, and exterior walls are from the Aizubange Town Vacant House Countermeasures Plan References. The author takes photos of the roof and drainage facilities.

Reference

- [1] Tahara Hiroki, etc., Examining the Possibility of Transforming the Exchange Population into the Related Population--The Relationship between Fostering Involvement Awareness Through Tourism Experience and Continued Community Involvement Intent, *Journal of Japan Institute of Tourism Research the Tourism Studies*, 2023. 3/Vol. 34/No.2 PP. 49~64
- [2] Hirokazu Sakuno, The significance and potential of related populations in a society with a declining population, *Journal of Economic Geography*, Vol. 65, 2019, pp. 10-28
- [3] Morishige Masayuki, etc., Implementing Community Development through Typology of Engagement with Outsiders--The Case of Long-stay Projects in Kushiro City, Hokkaido, *Journal of Japan Institute of Tourism Research the Tourism Studies*, 2020. 9/Vol. 32/No.1 PP. 47~59
- [4] Masahito Kamimura, etc., Characteristics of Residential Locations and Demographic Structural Trends of the Shiraho Rural Settlement on Ishigaki Island, *Journal of Asian Architecture and Building Engineering*, vol.17 no.3 September 2018, pp. 425-432
- [5] Kotaro Fusayasu, Current Status of and Issues for Rural-Regeneration Supporters toward Making a Living and Settling in a Rural Area A Case of Okoshi Area Supporters in H City, Okayama Prefecture, *Journal of the Society for Rural Planning*, Vol. 34, Special Issue of Papers, November 2015, pp.207-212
- [6] Heewon Choi, etc., The Typological Analysis of Depopulated Areas by Analyzing Living Environment Conditions and Population Characteristics--Analysis of Population Mesh Data and Nationwide Questionnaire to Local Government, *AIJ J. Technol. Dis.* Vol. 28, No.69, 870-875, Jun. 2022, pp. 870-875
- [7] Kohei Sakiyama, etc., Vacant Housing Management in Rural Areas for Immigrant Integration: A Case Study in The Irokawa Area of Nachikatsuura Town, Higashimuro County, Wakayama Prefecture, *J. Archit. Plan.*, AIJ, Vol. 89, No. 818, 674-679, Apr. 2024, pp. 674-679
- [8] 超帰省とは .HP: <https://chokisei.studio.site/>
- [9] Mitsuru Noda, Chapter 3: External human resources and related population, *Rural Planning Research Review*, Tsukuba Press, 50-71, 2022
- [10] Shoko Hosoda, Harnhiko Goto, etc., Feature and Meaning of Participation in Agricultural Labor in Highland by Non-Resident Members of Resident Family--In the Case of AkadaKu in Shinko Chiku, Nagano City, *J. Archit. Plan*, AIJ, NQ. 574, 69-76, Dec. 2003
- [11] Yukihiro Saito, etc., Commuting Behaviors of Vacant House Owners and Their Relationship with Rural Society in Mountainous Areas, *Journal of Environmental Information Science*, 2020 (1) , 1-11
- [12] Yamazaki, Yoshito and Yasutomi Sakuma (eds.) (2017), *Making a community to be Lived in Communication, Migration, and Commuting to Survive and Thrive*, Gakugei Press.
- [13] Mieko Banba, Transformation of residential patterns in villas, *Urban Residential Studies* No. 89 2015 SPRING, pp. 13-17
- [14] Hiroki Baba and Kimihiro Hino, Factors and Tendencies of Housing Abandonment--Analysis of A Survey of Vacant Houses in Kawaguchi City, Saitama, *The Architectural Institute of Japan, Department of Design, Proceedings* Vol. 83, No. 749, 1263-1271, Jul. 2018
- [15] Hiroko Saito, A vacant house problem considering from 'life' and 'place' point of views, *Urban*

Housing Studies 104, 2019 WINTE, pp. 5-11

- [16] < Report on the Survey of Vacant House Owners>, Housing Bureau, Ministry of Land, Infrastructure, Transport and Tourism, Housing Bureau, December 2020
- [17] Yasutomi Sakuma, Potential of Collaboration in Rural Communities through the Activities to Create Inheritable Communities, Journal of Rural Planning Vol. 36, No. 4, Mar. 2018
- [18] Koji Otani, Dual-residences and Local Community Cases Study for Building Relationship, Journal of the Japan Real Estate Institute / Volume 32, Issue 2, Sep. 2018.
- [19] Hirata Takayuki, etc., The Interrelation Between Vacant House Maintenance and The Location of Its Owner's Residence—A Case Study in Kimino Town, Wakayama Prefecture, Proceedings of the Research Conference on Housing Department of the Architectural Institute of Japan 5, 41-48, 2010
- [20] Toshihiko Yusa, etc., Vacant Houses and Their Management in Hilly Rural Areas—A case Study Hayakawa Town, Yamanashi Prefecture, J. Arch Plan., AIJ, No. 601, pp. 111–118, Mar. 2006
- [21] Shoko Hosoda, etc., Feature and Meaning of Participation in Agricultural Labor in Highland by Non-Resident Members of Resident Family--in the Case of Akadaku in Shinko—Chiku, Nagano City, J. Archit. Plan., AIJ, No. 574, pp. 69–76, Dec. 2003
- [22] Yukiho Kobayashi, etc., The Characteristics of Activities for Maintaining Rural Community by Collaboration with Non-Residents of Family Members: A Case Study of Nishiotaki, Iiyama City, Nagano Prefecture, Journal of the Rural Planning Society Vol. 37, No. 3, pp. 320-327, December 2018
- [23] Tomoaki Kai, etc., Research on Past and Current Condition of Going to Abandoned Towns by Former Inhabitants in Tajima Area, Hyogo Prefecture, J. Archit. Plan., All, vol 79 No, 686, 125-129, Jan. 20140
- [24] Ryota Negishi, etc., A Study on Transfers' Participation Consciousness to Regional Activity Support in Their Hometown--Case of Transfers from Nakamiyaji-Cho, Chichibu City, Saitama Prefecture, Journal of the City Planning Institute of Japan, No. 40-3, October 2005
- [25] Tomoaki Kai, etc., A Study on the Continuation of Extremely Aged Towns through Support by the People Originally from, LRJ 71(5), 2008
- [26] Hatsune Asakawa, etc., Distribution of Vacant Houses in Mountain Villages and Actual Conditions of Relationship between Owners of Vacant Houses and Local Communities: A Questionnaire Survey of Towns in Nagawa Town, Nagano Prefecture, Research on Rural Life, (68) No. 1, pp. 1-8, 2025
- [27] Yukihiko Saito, Tomohiko Yoshida, Hong Nan, The Moving-Out Residents' Role in the Sustainability of Local Society--A case study in Seimou region, Gunma Prefecture, in Aizu region, Fukushima Prefecture and Kyoutanba region, Kyoto Prefecture, Research Collection, and Practical Research Report No. 50, pp.269-279, Research Institute of Housing and Urban Development, 2023
- [28] Noriko Akida, Actions for unoccupied house measures based on the special law about the Promotion of Unoccupied Houses--A Case study at Matsudo city, Chia prefecture, Journal of the City Manning Institute of Japan, Vol. 52 No.3, pp. 969-974, October 2017

Chapter 3. Survey and Analysis of Shimogo Town

3.1 Research Area and Survey Summary

3.1.1 Selection of Subject Land of Fukushima Prefecture

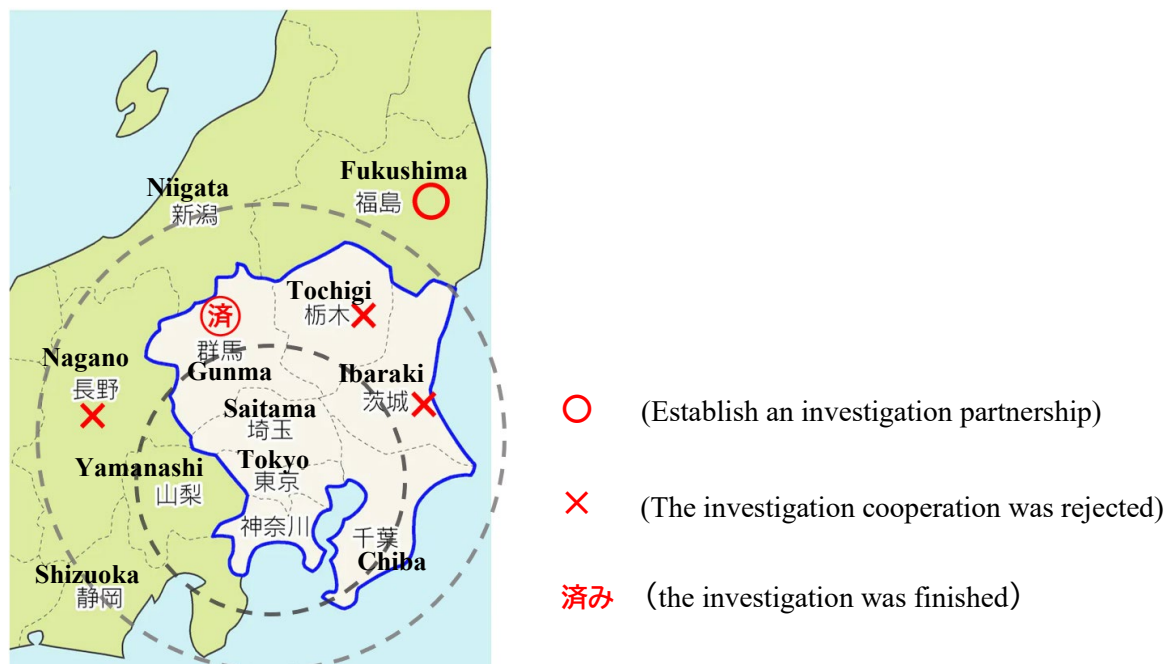


Figure 3-1. The geographical location of the survey area.

First, considering the convenience of the investigation, the location was chosen by prioritizing areas close to the Kanto region (within a 3-hour drive from Tokyo). In addition, people who move out of rural areas generally move to major cities or local cities, which is also a factor in choosing the investigation area centered around Tokyo. As a result, Gumma Prefecture, Tochigi Prefecture, and Ibaraki Prefecture were selected as the primary investigation areas, with the research in Gumma Prefecture completed in 2018. To ensure comparability in the study, it was planned to continue searching for the following research sites within the Kanto region.

Given that this study requires substantial cooperation from local governments, confirming their willingness to collaborate is critical. However, after failing to establish

contact with certain local governments in the Kanto region, the investigation target area was expanded to Fukushima Prefecture in the Tohoku region, which was ultimately selected as the final investigation site. This adjustment allowed the study to proceed while maintaining a focus on areas where local government cooperation was feasible.

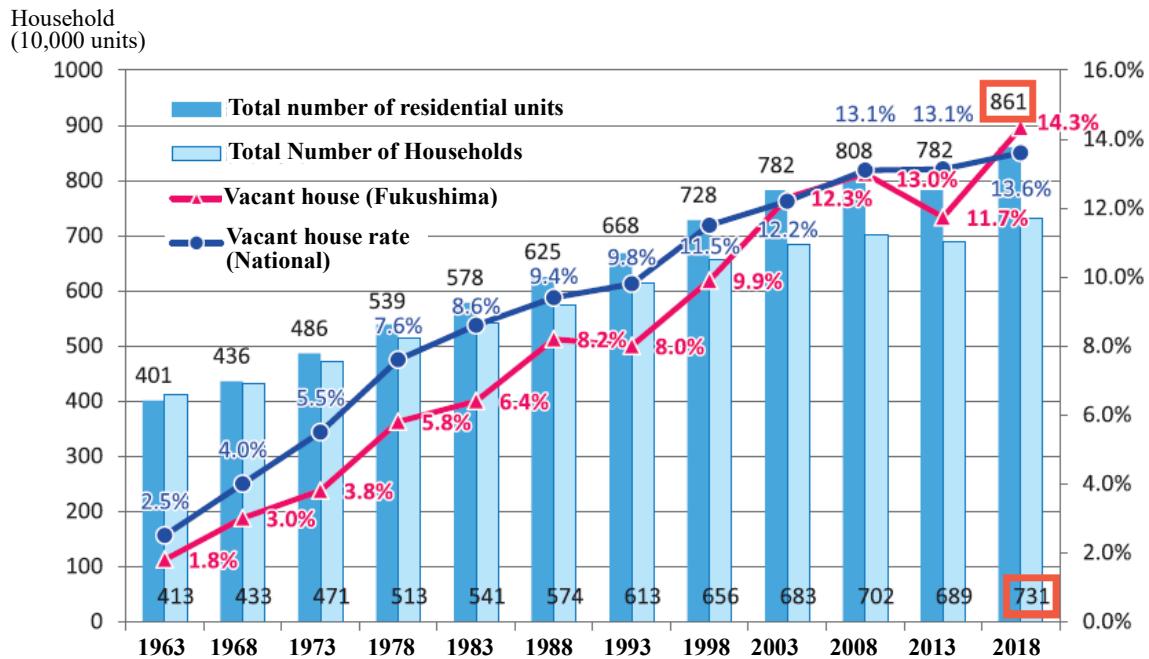
3.1.2 The Current Status and Vacant House Conditions in Fukushima Prefecture

Fukushima Prefecture is in the southern part of the Tohoku region, Japan's third-largest prefecture by area, covering approximately 13,783 square kilometers. The geography of the prefecture is diverse, with three distinct regions: Aizu, Nakadori, and Hamadori. Each of these regions has unique topographical and climatic features. Aizu, in the west, is characterized by mountainous terrain and high-altitude areas, with long winters and significant snowfall. Nakadori, in the central part, serves as the agricultural heart of the prefecture and houses its administrative capital, Fukushima City. Hamadori, along the eastern coast, faces the Pacific Ocean and is known for its mild climate and fishing industry.

As of the most recent data, the population of Fukushima Prefecture has been in steady decline due to a combination of factors, including aging demographics, rural depopulation, and the lingering effects of the 2011 earthquake and nuclear disaster. The current population stands at approximately 1.8 million, a sharp decline from previous decades. Like many rural regions in Japan, Fukushima faces challenges related to aging, with a substantial portion of the population over the age of 65. Depopulation has been particularly severe in the mountainous and rural areas of Aizu, where younger generations have migrated to urban centers such as Tokyo, leaving behind shrinking communities and vacant houses.

The prefecture's geography and population trends have created significant challenges, particularly in managing rural spaces, infrastructure, and community sustainability. However, Fukushima also benefits from its agricultural richness, diverse natural resources, and historical heritage, making it an essential area for studies on rural

revitalization and sustainable development.



Source: Ministry of Internal Affairs and Communications, Housing and Land Survey (2008)

<https://www.pref.fukushima.lg.jp/sec/11045b/> (accessed in Sep. 2024)

Figure 3-2. Changes in the number of households, the number of houses, and the vacancy rate (Fukushima Prefecture)

This graph illustrates the trends in household numbers, housing units, and the vacancy rate in Fukushima Prefecture over several decades, from Showa 38 (1963) to Heisei 30 (2018). The total number of households and housing units, represented by light and dark blue bars, respectively, show a steady increase over time, reaching their peak in 2018. However, the rate of vacant houses, indicated by the red line for Fukushima and the dotted blue line for the national average, has also risen significantly during this period. In Fukushima, the vacancy rate increased from 1.8% in 1963 to 14.3% in 2018, surpassing the national average of 13.6%. Notably, the vacancy rate in Fukushima saw sharper rises between Heisei 20 (2008) and Heisei 30 (2018). This upward trend in vacant houses reflects the challenges of depopulation and aging communities in rural areas, which have contributed to the growing number of unoccupied houses in the prefecture.

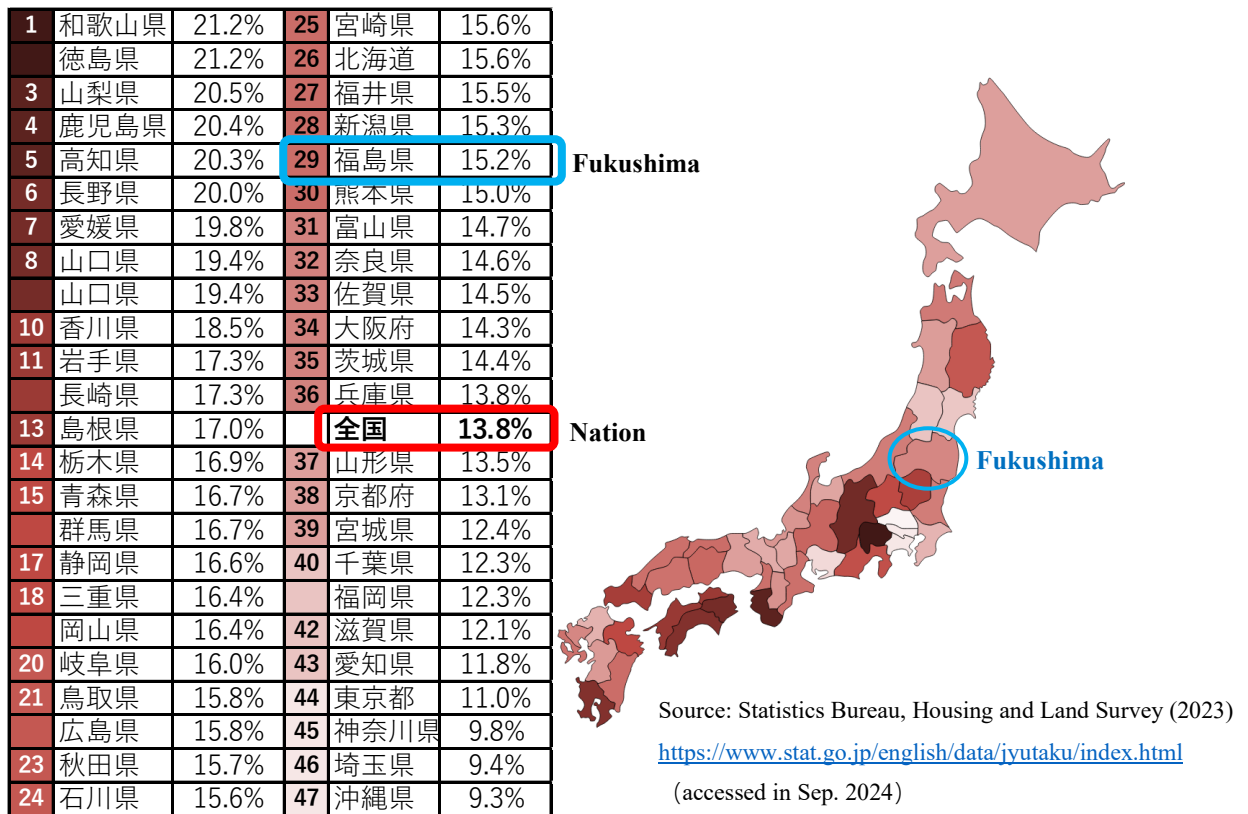


Figure 3-3. National and Fukushima Prefecture vacant house rate statistics

Figure. 3-3 Ranks Japanese prefectures by their rate of vacant houses, with the national average set at 13.8%. Fukushima Prefecture is ranked 23rd, with a vacancy rate of 15.2%, which is higher than the national average. This indicates that Fukushima faces significant challenges with vacant housing, likely due to factors such as depopulation and the effects of past natural disasters. Prefectures like Wakayama and Tokushima are at the top of the list, with the highest rate of vacant houses at 21.2%. In comparison, prefectures like Kanagawa (9.8%), Tokyo (11.0%), and Okinawa (9.3%) have the lowest rates, suggesting fewer issues with vacant houses. Fukushima’s rate, though not the highest in Japan, highlights ongoing difficulties in managing vacant properties in the prefecture.

The rise in the rate of vacant houses across many rural and regional areas in Japan, including Fukushima, is often attributed to depopulation and aging. As younger generations move to urban centers like Tokyo, Osaka, and Nagoya for better employment opportunities, rural areas are left with aging populations that eventually

lead to the abandonment of homes as elderly residents pass away or move to care facilities. This phenomenon, particularly prevalent in rural areas, exacerbates the vacant house problem.

Fukushima Prefecture has faced unique challenges due to the Great East Japan Earthquake and the Fukushima Daiichi nuclear disaster in 2011. The aftermath of these events led to widespread evacuations, leaving many houses unoccupied. Due to prolonged evacuation after the nuclear accident, many houses have deteriorated, becoming uninhabitable due to weathering, animal damage, and earthquake effects. To support the reconstruction of areas affected by the nuclear disaster, the government has funded two projects: one for demolishing houses that are no longer suitable for living due to long-term evacuation and another for decontaminating houses and residential areas affected by radioactive substances. Currently, these projects are available in certain parts of the “Specified Reconstruction and Revitalization Base Areas.” such as Namie, Tomioka, Ōkuma, and Futaba town. The government allows residents to apply for house demolition within one year after the evacuation order is lifted. The Ministry of the Environment reported that as of the end of 2022, demolition had been completed for 17,380 properties, accounting for 96.4% of the total applications received. This aggressive response has helped to curb the surge in vacant houses.

3.1.3 Vacant House Rate and Aging Rate Statistics by Area in Fukushima Prefecture

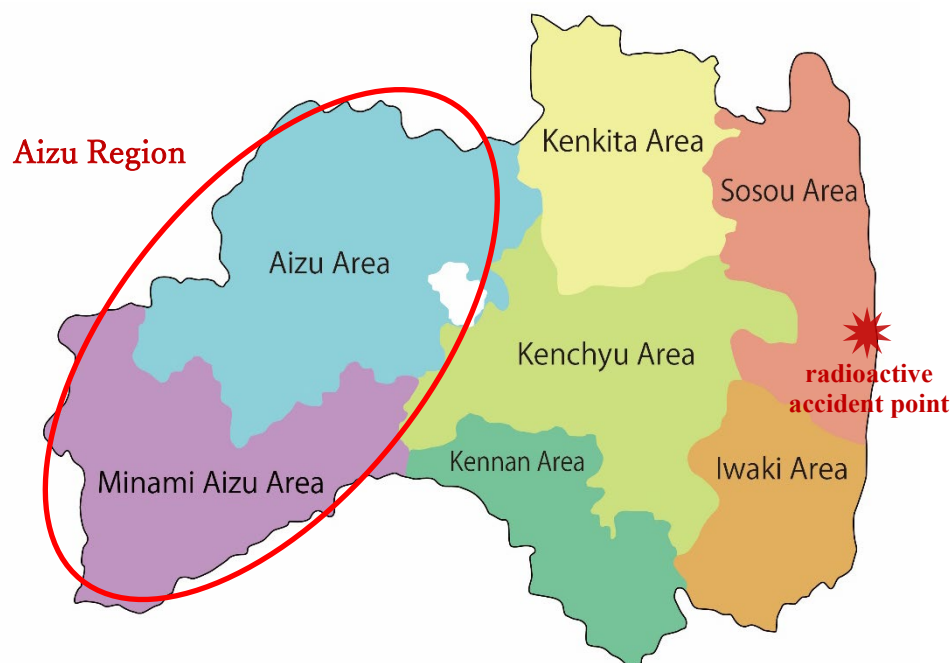
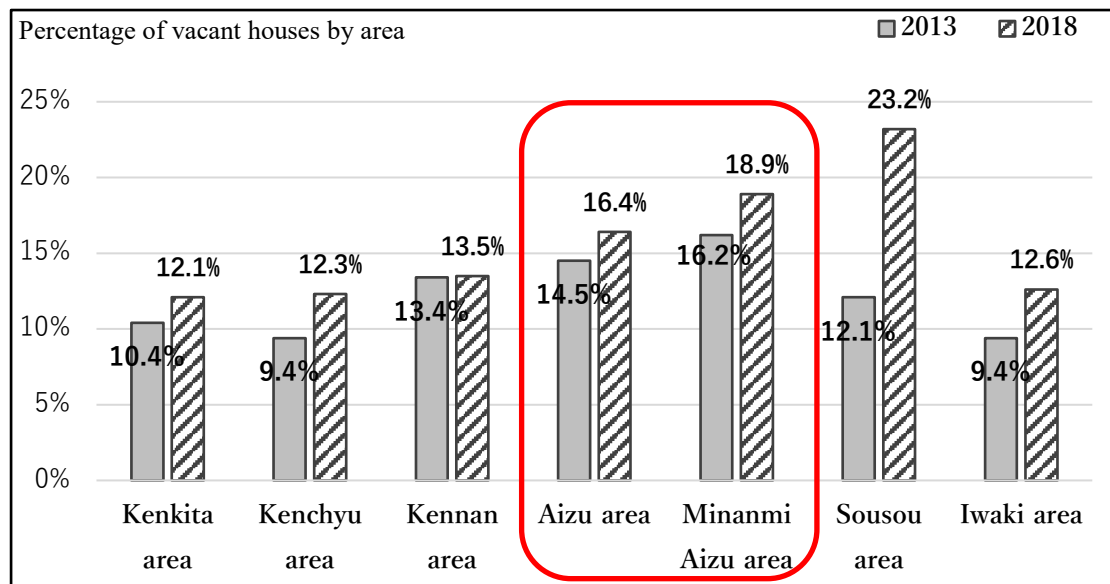


Figure 3-4. The geographical relationship between the Aizu region of Fukushima Prefecture and the location of the nuclear accident

Although the local government of Fukushima Prefecture had expressed a cooperative intention to support our investigation, the “Great East Japan Earthquake” occurred in 2011, leading to a nuclear contamination event in the eastern coastal area of Fukushima Prefecture, particularly in Futaba-gun (south part of Sosou Area). Following the disaster, many residents relocated, not only from the core area directly affected by the nuclear accident but also from surrounding areas. This mass relocation led to a sharp increase in vacant houses. Due to the persistence of nuclear contamination, many of these houses remained unmanaged for years, resulting in their complete abandonment. However, this situation represents a relatively special case and falls outside the scope of this study.

Although there are a significant number of vacant houses in the eastern part of Fukushima Prefecture, they are not included in this study due to their unique circumstances. Instead, the focus of this investigation is on the Aizu region, which was

selected for study because the number and condition of vacant houses align with normal trends seen across Japanese society—such as aging, population decline, and the outflow of residents for various reasons. After thorough discussions with the local government, it was confirmed that the Aizu region was largely unaffected by the nuclear disaster due to its geographic distance from the eastern part of Fukushima Prefecture and its location far from evacuation zones and hazardous areas. This makes it a suitable region for examining the more typical factors contributing to vacant houses in rural Japan.



Source: Fukushima Prefectural Statistics Division (2020)

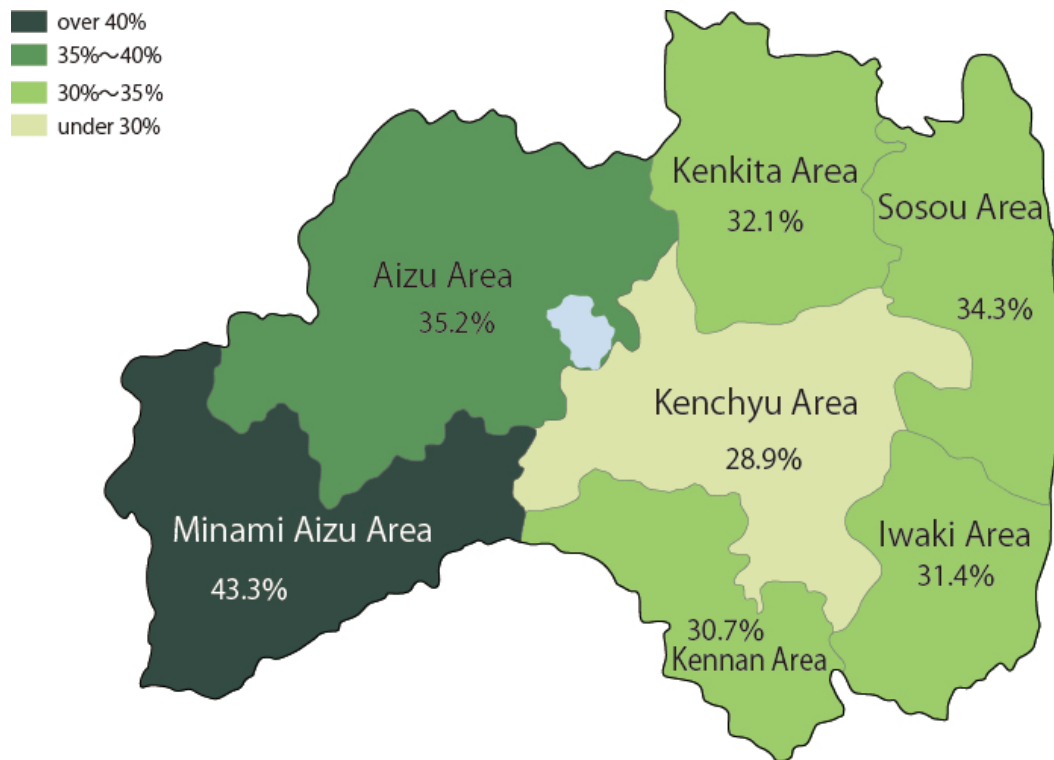
Figure 3-5. Percentage of vacant houses by area in Fukushima Prefecture (from Fukushima Prefectural Statistics Division)

Figure 3-5 shows the rate of vacant houses in Fukushima Prefecture by area over the past 5 years from 2013 to 2018. It is easy to see that the area with the most significant increase in vacancy rate is the Sousou area, which has increased from 12.1% five years ago to 23.2%, an increase of nearly 10%. Sousou is exactly where the nuclear accident occurred, and this data confirms that there has been a significant increase in vacant houses in the area since the nuclear accident. The vacancy rate in the Iwaki area has also increased by more than 3% in the past 5 years, which may be because the Iwaki area is located south of the Sousou area and is, therefore, also affected by the nuclear accident. This proves that the incident has caused residents in the surrounding areas to

move out, resulting in more vacant properties in the areas around the incident site.

In addition, we can see that the second and third places in terms of vacancy rate are Minami Aizu area and Aizu area, both of which exceeded 15.2% (the average vacancy rate of Fukushima Prefecture) by 2018. The data shows an increase in the rate of vacant houses in all areas over these five years, with the Minami Aizu rate rising from 16.2% to 18.9%. The Kenchyu and Kenkita areas had lower rates of vacant houses, though they, too, saw increases from 9.4% to 12.3% and 10.4% to 12.1%. Overall, this graph highlights the growing problem of vacant houses in Fukushima, particularly in rural and disaster-affected areas like the Sousou area.

The vacant house problem in areas farther away from the disaster center was significantly impacted by both the direct aftermath of the Great East Japan Earthquake and the nuclear disaster, as well as the resulting social and economic shifts. The combination of outmigration, economic downturns, and aging populations created an environment where vacant houses became more common, even in areas not physically affected by the disaster. These indirect effects continue to pose a challenge for rural revitalization efforts across Japan.



Source: Fukushima Prefectural Statistics Division (2020)

Figure 3-6. Aging rate by area in Fukushima Prefecture

With respect to the aging rate, the Aizu area and Minami Aizu area have the highest rates of 35% and 43%, respectively, in the entire Fukushima Prefecture, i.e., the aging rate for the entire Aizu region is 39% (shown in Fig. 3-6).

According to the map of municipalities with depopulation relations created by the Ministry of Internal Affairs and Communications' Evacuation Countermeasures Department in 2016, it has been determined that the western part of Fukushima Prefecture, mainly the Aizu area, is already a depopulation area. At the same time, the Aizu area is one of the areas in Fukushima Prefecture where vacant houses were not affected by the evacuation of the nuclear power plant accident.

3.1.4 Selection of Investigation Area

Based on the purpose and characteristics of this study, the selection of the research area must satisfy the following essential conditions. These conditions are also referenced from the research conducted in Gunma Prefecture in 2018:

1) Depopulated municipalities:

The research area must be a rural, depopulated municipality. Depopulated municipalities are defined as municipalities where the population has significantly decreased over time, leading to a reduced working-age population, an ageing demographic, and difficulty in maintaining social and economic functions. According to the <Special Measures Law for Sustainable Development of Underpopulated Areas>, the following characteristics define an underpopulated area: a population reduction rate of 30%-40% or more between 1960 and 2015, a population of 35% or more aged 65 or over, and a ratio of 15-30-year-olds of 11% or less. Additionally, in terms of finances, the average financial strength index from 2009 to 2022 must be 0.51 or lower, and public revenue must be 4 billion yen or less ^[1]. This often results in fewer public services, limited local economic opportunities, and rising numbers of vacant houses. Based on the above demographic and aging characteristics, these depopulation-related municipalities often face more severe challenges in the issue of vacant houses, and due to the significant aging problem, there will also be more severe problems in the management of vacant houses. Focusing on such areas allows the study to investigate the challenges of vacant house management in municipalities most affected by rural depopulation.

2) Consistency with National Vacant House Trends:

The selected region should reflect the normal development trend of vacant houses in Japan, meaning it should not have been affected by recent disasters or other external factors that could distort the rate of vacant houses. This will ensure that

the findings are representative of the broader challenges of vacant house management in rural Japan.

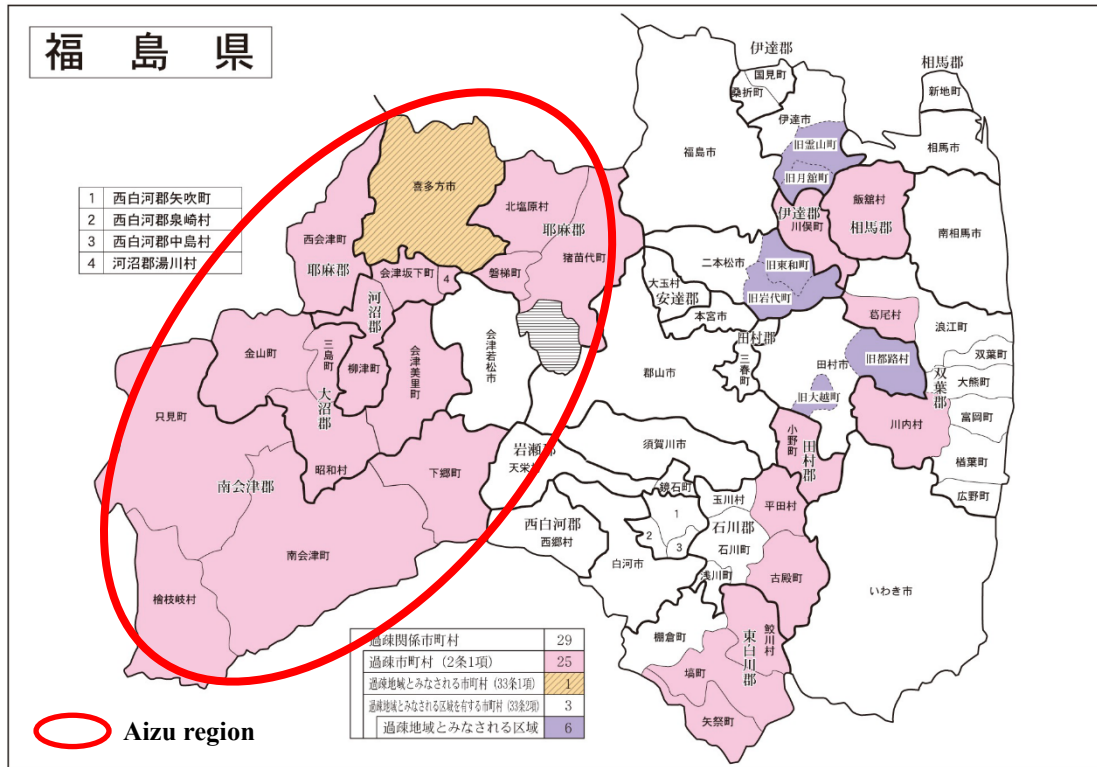
3) Sufficient Number of Vacant Houses:

To ensure a valid and reliable dataset for later analysis using SPSS, the research area must have enough vacant houses. Based on the 2018 survey experience in Gunma Prefecture, the return rate for questionnaires was around 30%, so the number of vacant houses identified should be at least 300 to ensure a minimum of 100 returned samples for analysis. Additionally, due to privacy concerns, the surveyor will not have direct access to the current addresses of vacant house owners, meaning the local government must handle the distribution of questionnaires. To avoid overwhelming the local government staff and to maintain manageable cooperation, the number of vacant houses to be investigated should be limited to 500 or fewer.

4) Local Government Support:

Obtaining active support and assistance from the local government is a crucial condition for successfully completing the survey. Cooperation with local officials will be necessary not only to access the data on vacant houses but also to ensure efficient distribution and collection of surveys, as well as to facilitate any additional logistical support required during the research process.

These conditions ensure that the study will provide a comprehensive and representative analysis of vacant house management in underpopulated rural areas, with a sufficient sample size to support meaningful statistical analysis.



Distribution of Fukushima depopulation-related municipalities by prefecture (April 2016)
https://www.soumu.go.jp/main_content/000456268.pdf (accessed in Sep. 2023)

Figure 3-7. The Status of depopulation-related municipalities in Fukushima Prefecture.

According to the <Special Measures Law for Sustainable Development of Underpopulated Areas>'s report, in the western region of Fukushima Prefecture, except for the cities of Aizuwakamatsu and Kitakata, the rest of the area has been designated as depopulation-related municipalities. The western part of Fukushima Prefecture, the Aizu region, is west of the Ou Mountains, which extend from the north to the central part of the prefecture, and together with the Echigo Mountains, which extend to the border with Niigata Prefecture, form a mountainous area of great ups and downs. It is located geographically within the Japanese intermediate and mountainous areas. Therefore, the entire Western Aizu region in Fukushima Prefecture can be chosen as the base of investigation for this study. Furthermore, the area has not been affected by the Fukushima nuclear accident, and the changes in vacant houses are normal, so we will consider the number of vacant houses in various rural areas throughout the entire Aizu region to select specific investigation targets.

Table 3-1. The number of vacant houses in the Aizu region

Municipalities	Households	Vacant Houses ¹
Minamiaizu town	6,406	1,290 (until 2021)
Inawashiro town	5,245	950(until 2021)
Aizumesato town	7,252	830(until 2021)
<u>Aizubange town</u>	5,775	<u>475(until 2021)</u>
<u>Nishiaizu town</u>	2,521	<u>362(until 2020)</u>
<u>Shimogo town</u>	2,162	<u>330(until 2019)</u>
Kanayama town	1,011	282(until 2021)
Tadami town	1,813	236(until 2019)
Kitashiobara town	1,056	202(until 2022)
Yanaizu town	1,255	130(until 2019)
Bandai town	1,167	110(until 2020)
Syouwa village	634	159(until 2023)
Yugawa town	1,019	46(until 2018)
Mishima village	712	unknown
Hinoemata village	197	unknown

Refer to the population and number of households in the basic resident register on the Fukushima Prefecture website in 2022. Refer to the plans for dealing with vacant houses created by the local government.

As shown in Table 3-1, by collecting the vacant housing survey and countermeasures plans of each city and town in the Aizu region, we obtained the number of vacant houses in each city and town. Since the countermeasures plans were completed at different times in each municipality, the statistical time for the number of vacant houses is not uniform (from 2018 to 2023). The number of vacant houses in Mishima Village and Hinoemata Village could not be determined from previous data collection. Meanwhile, the number of total resident families was also too small to study, so they were excluded from the surveyable population. The areas that finally met the quantitative requirements were Aizubange Town, Nishi-Aizu Town, and Shimogo Town, which has several vacant houses in the range of 300-500. After contacting and communicating with the local governments, Shimogo Town and Aizubange Town reached an agreement to cooperate with us and finalized the survey, which was first introduced in Chapter 3 about Shimogo Town.

3.1.5 Introduction of Subject Land—Shimogo Town

1) Geography

Shimogo Town, located in the Minamiaizu area in Fukushima Prefecture, is characterized by its mountainous terrain as part of the Ou Mountains. The town is known for its rugged landscape, with steep slopes, dense forests, and the Tadami River flowing through, adding to its natural beauty and attracting tourists. The climate is humid continental, with cold, snowy winters and mild summers, making it a popular winter destination. Due to geography, agriculture is primarily limited to valleys and terraced fields, with crops such as rice and cold-resistant vegetables being staples. Historically, Shimogo is famous for Ouchi-juku, a well-preserved Edo period post-town that draws visitors interested in traditional Japanese culture. It is a post station on the Aizu-Nishi Kaido (Shimono Kaido, or South Mountain Road) that runs from Aizu Wakamatsu to Imaichi. Ouchijuku has been selected as an Important Preservation District for Groups of Traditional Buildings, preserving the town's old townscape. The town's isolated geography has preserved its traditional way of life. It also presents challenges related to depopulation and the rise of vacant houses, making it a relevant area for studying rural vacancy issues in Japan.

Shimogo Town borders Tenei Town and Nishigo Town to the east, Showa Town and Minami Aizu Town to the west, Nasushiobara City in Tochigi Prefecture to the south, and Aizu Wakamatsu City and Aizu Misato Town to the north. Surrounded by mountains such as the Nasu Mountains, the Agano River (Okawa River) runs through the center of the town from southwest to northeast, and major roads have been built along the Okawa River, which is dotted with towns and magnificent valleys, such as the nationally designated natural monument "To no Hetsuri." About 87% of its area is covered with forests, making it a town of lush greenery.^[3]

The climate of this town is strongly influenced by the side of the Sea of Japan, with hot and humid summers, cool mornings and evenings, and cold winters with heavy

snowfall. (Overview of Shimogo Town, from the Shimogo Town website and wiki)

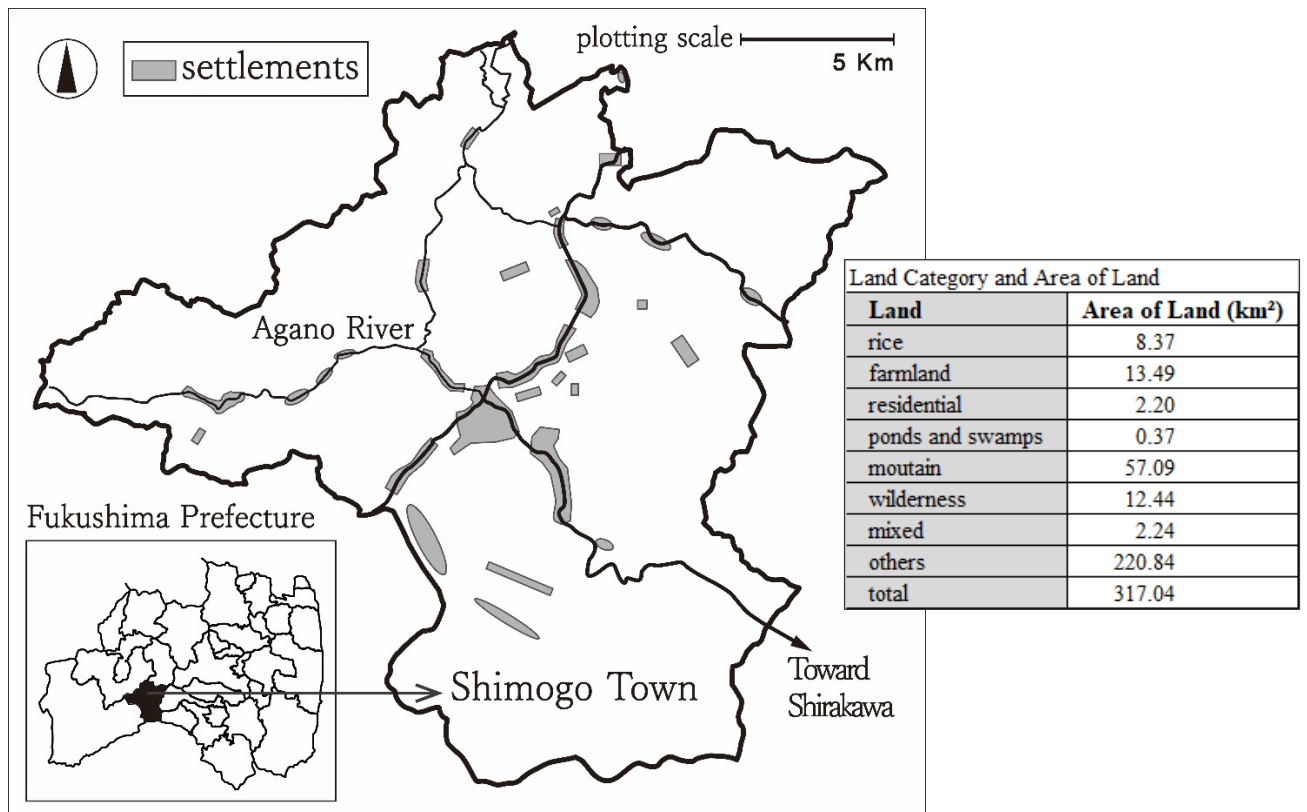
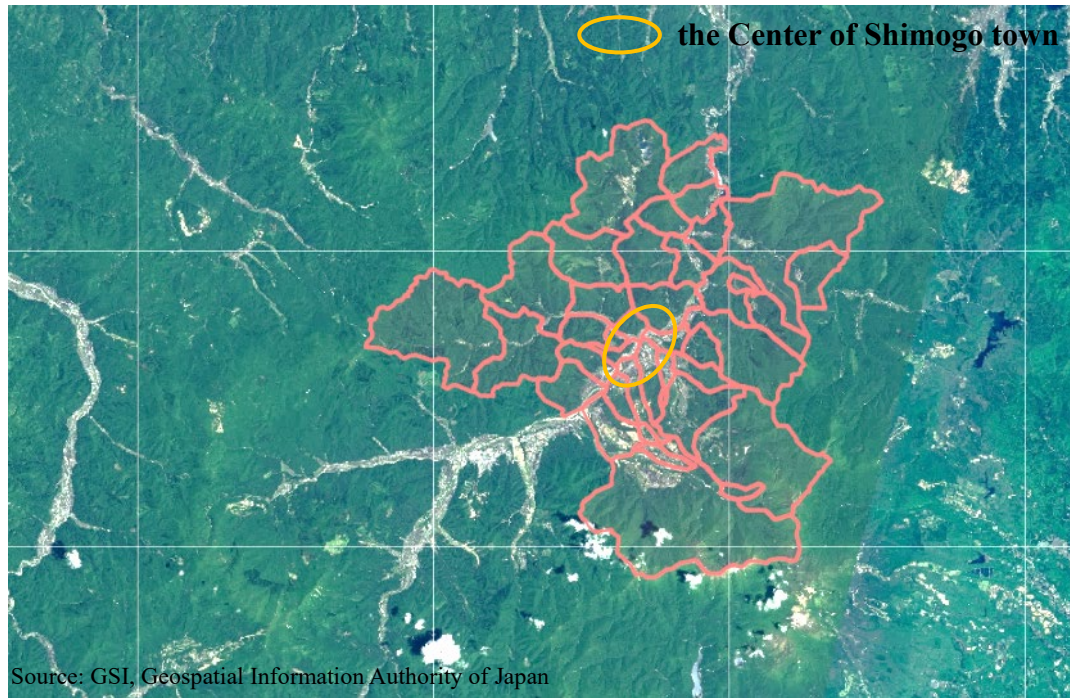


Figure 3-8. Topographic and area-wide maps of Shimogo Town

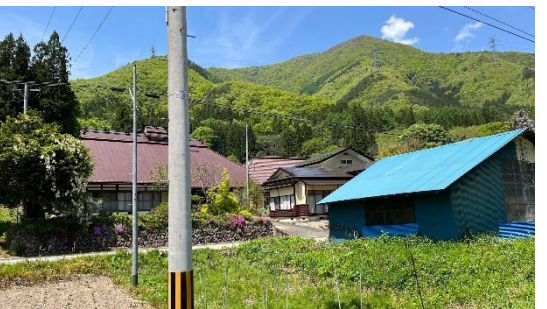
Upon closer examination of the topographic map, Shimogo Town displays the

characteristics of a typical mountainous settlement, with a concentration of towns in the relatively flat central area. These central settlements are located on flatter terrain, making them suitable for agriculture and habitation. In contrast, other settlements are more sparsely distributed along the mountainous terrain, often following the course of the main traffic routes that wind through the hills and valleys.

Shimogo covers a total area of 317 square kilometers, of which 8.37 square kilometers are dedicated to fields used primarily for cultivating cold-resistant crops. Additionally, 13.49 square kilometers are paddy fields, which are typically found in the flatter, more central parts. The remaining 220 square kilometers, accounting for approximately 87% of the total area, consist of forests and other mountainous terrain. This large percentage of forested and mountainous land reflects the town's highly rural and rugged nature, where the steep topography limits agriculture. The dispersed settlement pattern along traffic routes is typical of such areas, where accessibility to roads dictates where smaller towns can form amidst the difficult terrain.

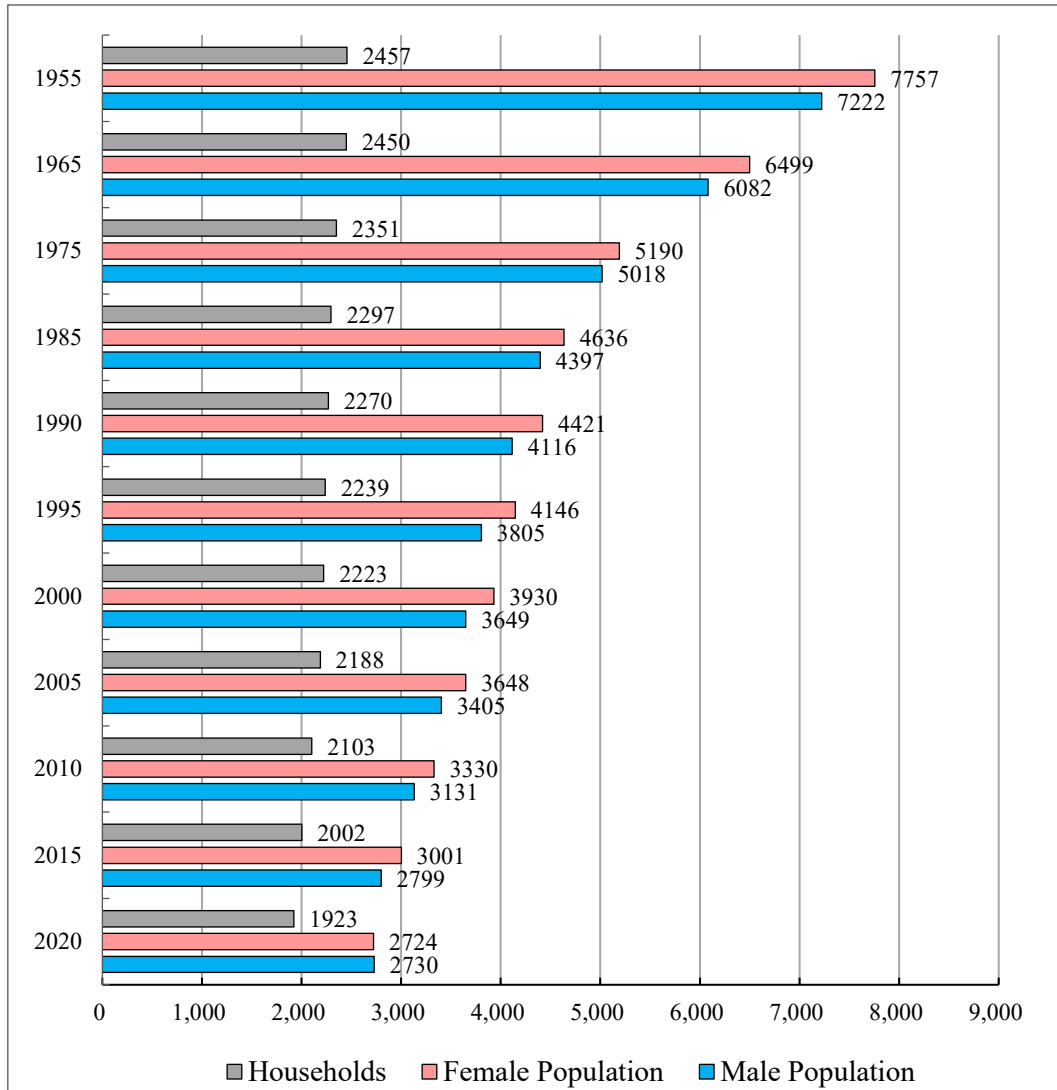
The author presents photographs from a field survey of Shimogo Town, which clearly illustrates the characteristic strip-shaped settlements following the main roads. The settlements situated along the mountain roads exhibit typical mountainous area features, with houses and buildings nestled into the hilly terrain. In contrast, the settlements located in the central area of Shimogo Town are positioned on relatively flat terrain, with expansive areas of paddy fields and farmland surrounding them. This juxtaposition of mountainous settlements and flat, agriculturally rich areas highlights the diverse geographical landscape of Shimogo Town, where the topography directly influences settlement patterns and land use.

Photos of different settlements of Shimogo town (by author)



2) Population

On April 1, 1955, Narahara Town, Asahida Town, and Egawa Town merged to form Shimogo Town. In 1955, the population of Shimogo Town was 14,979 people (2457 households). In 2020, the population was 5,069 (1923 households).



Source: National Census 2020 refers to the Fukushima Prefecture Current Population Survey (December)

<https://www.pref.fukushima.lg.jp/sec/11045b/2020kokusei.html> (accessed in Sep. 2024)

Figure 3-9. Population projections of Shimogo Town

This graph displays the total population, number of households, and gender distribution of a specific area over a period. The X-axis represents the number of populations, while the Y-axis lists the specific years, beginning from 1955 to 2020.

① Total Population:

The total population shows a steady decline over the years, starting from 14,979 people in 1955 to 5,454 people in 2020.

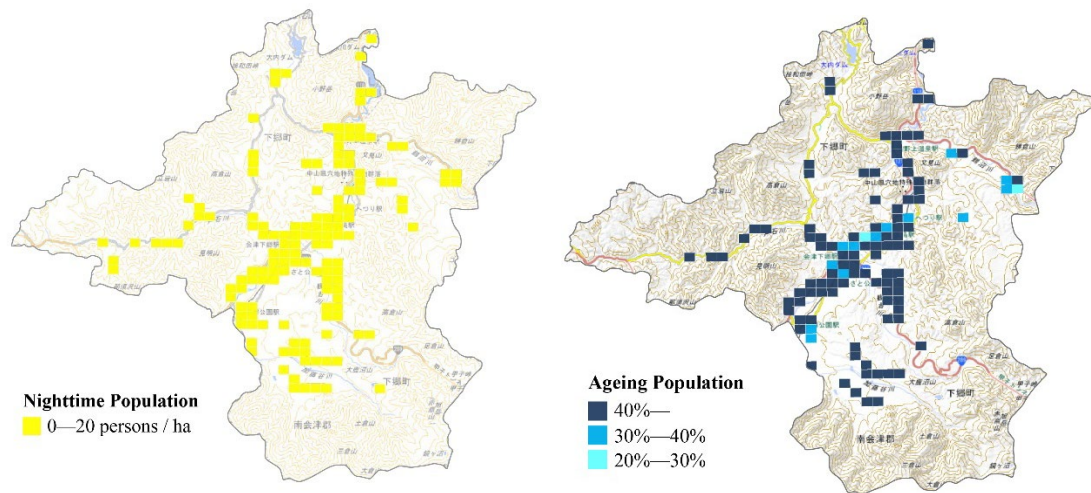
② Number of Households:

The number of households represented by small grey bars and corresponding figures on the left side of each bar has declined in recent years. It started at 2,457 households in 1955 and declined to 1,923 households by 2020.

③ Male and Female Population:

The gender distribution is displayed in each bar, with males shown in dark gray and females in light gray. Both genders see a steady decrease in numbers, but females consistently outnumber males throughout the period. For example, in 1955, there were 7,757 females and 7,222 males, and by 2020, the numbers dropped to 2,724 females and 2,730 males.

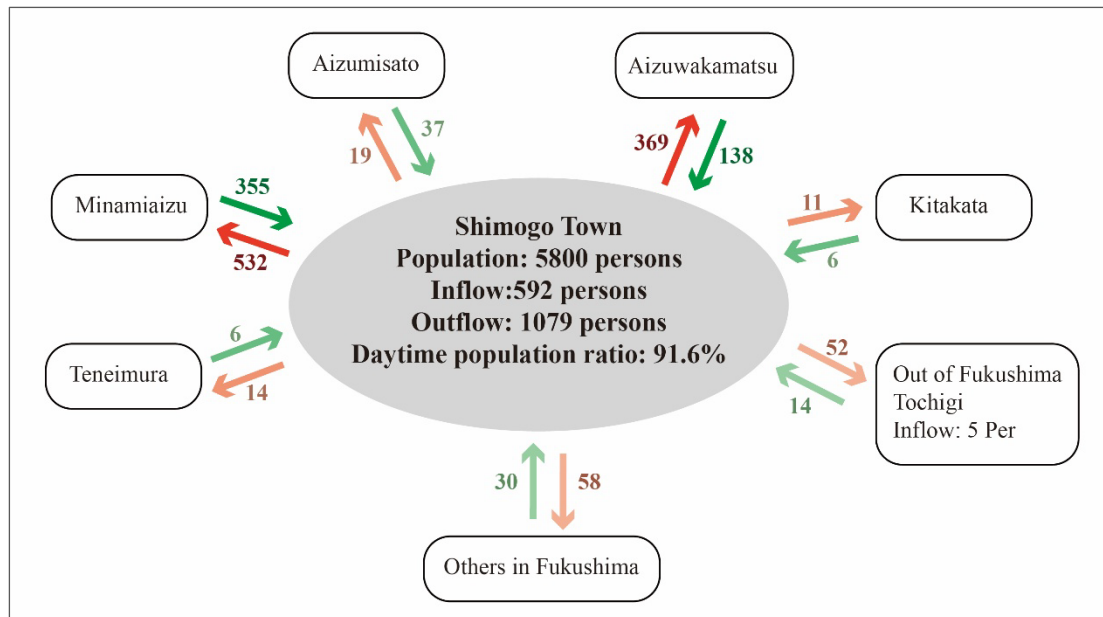
In summary, this graph depicts a gradual depopulation of the area over the decades, with the number of households remaining relatively stable while both male and female populations steadily decrease. This is indicative of broader trends seen in many rural areas of Japan, where declining birth rates and aging populations contribute to shrinking community sizes.



Source: Urban Structure Visualization Plan <https://mieruka-v4.kashika.net/population-publictransport-2015/> (accessed in Sep. 2024)

Figure 3-10. Nighttime population and Ageing population in Shimogo Town

This figure illustrates the spatial distribution of nighttime population density and the ageing population in Shimogo Town. The left map highlights areas with a nighttime population density of 0–20 persons per hectare, depicted in yellow, indicating a generally low residential density across most regions. In contrast, the right map visualizes the proportion of elderly residents, with different shades of blue representing varying degrees of aging: dark blue signifies areas where the elderly population exceeds 40%, medium blue represents regions with 30%–40%, and light blue denotes areas with 20%–30%. A clear spatial pattern emerges, showing that areas with lower nighttime population density tend to have a higher proportion of elderly residents, suggesting ongoing demographic challenges such as depopulation and aging in certain parts of Shimogo Town.



* Shirakawa City (inflows: 0, outflows: 17), Saigo Town (inflows: 6, outflows: 6)

Source: National Census information 2020

<https://www.town.shimogo.fukushima.jp/material/files/group/12/Senryaku.pdf> (accessed in Sep. 2024)

Figure 3-11. Population flows in and out of neighboring municipalities of Shimogo Town

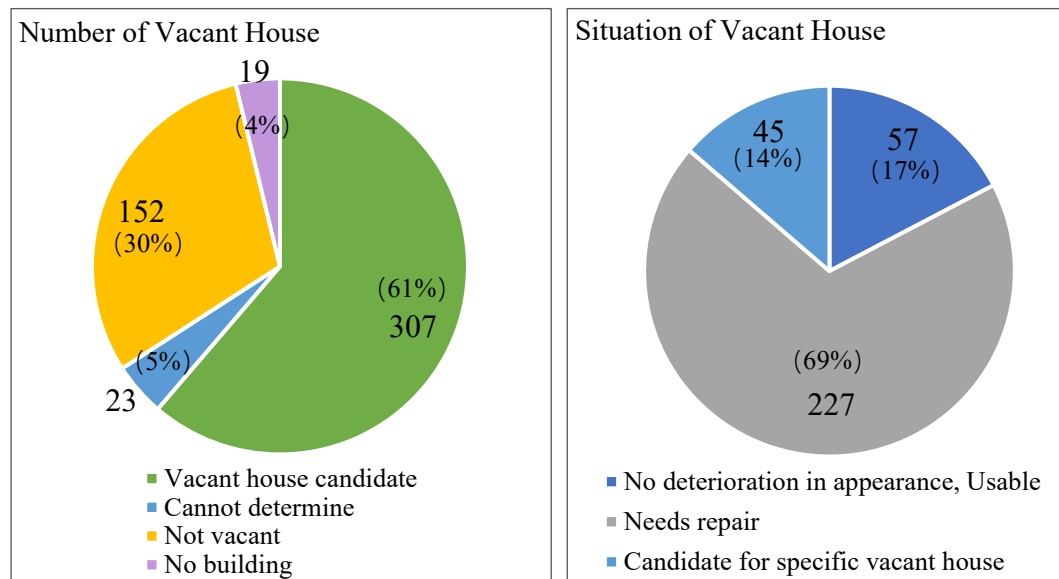
The town's workforce comprises an estimated 3,000 individuals, of which approximately 1,000 commuters to neighboring cities, namely Aizuwakamatsu and Minami Aizu. The major industries in the town are agriculture and tourism, which encompass lodging, food services, retail trade, electronics and auto parts manufacturing, and construction.

Based on the graph, it is evident that Shimogo Town has a significantly higher number of daily outgoing workers compared to incoming workers. Aizuwakamatsu City and Minamiaizu Town have the highest number of outgoing workers, and they are the primary commuting areas in Shimogo Town.

3) Vacant hose situation in Shimogo Town

After determining the intention to cooperate, field research was conducted in Shimogo town in 2022. Field surveys were conducted in all 39 settlements. Especially in the mountainous areas, there were many cases of collapsed and severely damaged houses, which means that the houses have been abandoned for a long time and cannot be utilized at all. On the other hand, in the central area or areas closer to the central area, the degree of damage is relatively minor, and most of the vacant houses can be repaired and reused.

A survey of vacant houses was conducted in 2017 by the Shimogo Town government. This survey was conducted on 501 potentially vacant buildings identified based on water supply shutoff information and administrative district survey information. As a result of the field survey, a total of 330 buildings were identified as candidate vacant buildings, including 307 houses, “candidate vacant buildings,” and 23 houses “cannot be determined” buildings.



Source: Shimogo Town's plan for dealing with vacant houses 2020 (accessed in Sep. 2024)

<https://www.town.shimogo.fukushima.jp/material/files/group/2/6f584f8af0b7615307867c9061bfbc49.pdf>

Figure 3-12. Confirmation and survey results of vacant houses in Shimogo Town

According to the investigation by the local government, out of the 501 households whose waterways were closed, 66% were identified as vacant properties. In contrast,

4% of the households are now on vacant land with no buildings, suggesting that the owners have demolished the buildings. However, 30% of the households were not actually vacant, as these properties may be villas or weekend vacation homes that cannot be considered vacant properties. Following the identification of 330 vacant properties, the Shimogo Town government further assessed the current utilization status of these houses. The results revealed that 227 houses, or approximately 69%, needed repairs, indicating that a significant portion of these properties had fallen into disrepair. Additionally, 45 houses were classified as specific vacant properties, meaning their condition was particularly dangerous, either unsuitable for use or posing a threat to the surrounding environment and residents. On the positive side, less than 20% of the vacant properties were found to be in good condition and maintained well enough to be used immediately. This data underscores the challenges Shimogo faces in managing vacant houses, with the majority requiring significant intervention to prevent further degradation or safety hazards.

Photos of vacant houses in different settlements of Shimogo town



4) Industry and Economy

Basic Indicators of Agriculture, Forestry, and Fisheries			
Area (ha)		Total households (unit)	1953
Total land area	31704 ha	Agricultural management entities	368
Cultivated land area	1110 ha	Agricultural households (unit)	637
Rice field area	623 ha	Self-sufficient farm households	281
Field area	483 ha	Sales farm households	356
Forest area	27334 ha	Principal farm management entities	35
Total population (persons)	5264	Semi-principal farm management entities	58
Households engaged in agriculture for more than 60 days	517	Part-time farm management entities	264
Agricultural workers (including management)		Forestry management entities	6
Fisheries employment	...	Fisheries management entities	...
Agricultural settlements (Count)	39		
Direct farm product sales facilities	8		
Fishing ports	-		
Number of fishing vessels	...		

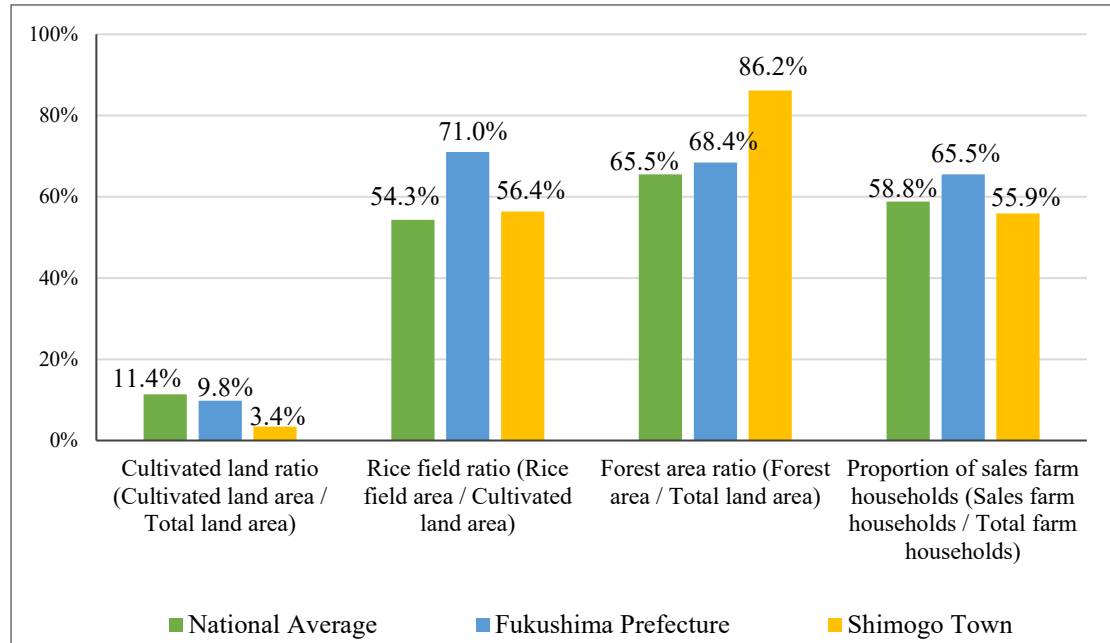
(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/362/index.html>

Figure 3-13. Basic indicators of agriculture, forestry, and fisheries in Shimogo Town

This image presents key indicators for agriculture, forestry, and fisheries in Shimogo Town. The data is divided into three main categories: land area, population and employment, and community information. The total land area is 31,704 hectares, with 1,110 hectares designated for farming, including 623 hectares for rice paddies and 483 hectares for fields. Forestland occupies most of the area, amounting to 27,334 hectares. The total population is 5,264, of which 517 individuals (or 0.8%) are involved in agriculture, including managerial roles. In terms of households, there are 1,953 households, of which 368 are engaged in agricultural activities. Within this, 637 households are involved in self-sustaining farming, 356 in sales, and 58 in non-primary farming activities. The area contains 39 agricultural settlements and 8 direct sales facilities for agricultural products. The data reflects a strong emphasis on forestry and small-scale agriculture, with limited direct involvement in fisheries or large-scale commercial farming.

Shimogo Town is predominantly focused on rice cultivation with an intricate network of farming operations dedicated to buckwheat, flower, vegetable, and livestock production. The town is also home to several factories engaged in the production of

electronics, auto parts, and street furniture. However, the working population of Shimogo Town has been decreasing year by year, with 3,042 people in 2007, a decrease of 30.4% compared to 1995 [5].



(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/362/index.html>

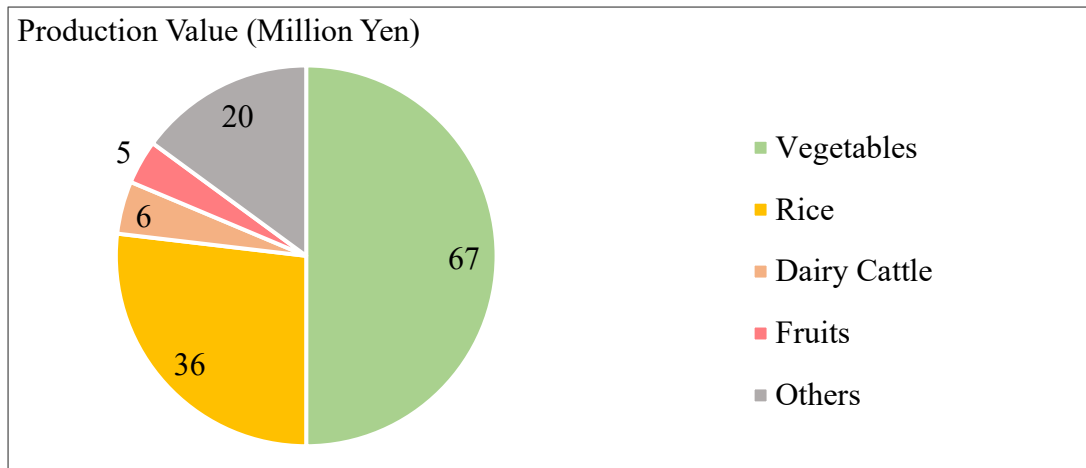
Figure 3-14. Agricultural land and farming ratios of Shimogo Town

Figure 3-14 compares key land use and agricultural indicators between Shimogo Town, Fukushima Prefecture, and the national average. Notably, Shimogo Town exhibits a significantly lower cultivated land ratio (3.4%) compared to the national average (11.4%) and Fukushima Prefecture (9.8%), suggesting limited agricultural land availability. In contrast, the forest area ratio in Shimogo Town (86.2%) is considerably higher than both the national average (65.5%) and Fukushima Prefecture (68.4%), indicating that the town is predominantly covered by forests. These trends highlight Shimogo Town’s reliance on forestry rather than agriculture, shaping its land use and economic activities accordingly.

Category	Production Value (Million Yen)	Number of Agricultural Management Entities (unit)
Total Agricultural Production Value (Estimate) (Million Yen)	134	368
Total Cultivation Production Value (Million Yen)	122	0
Rice Production Value (Million Yen)	36	268
Cereal Production Value (Million Yen)	-	1
Miscellaneous Grains Production Value (Million Yen)	-	36
Legumes Production Value (Million Yen)	0	17
Tuber Crops Production Value (Million Yen)	1	19
Vegetables Production Value (Million Yen)	67	88
Fruits Production Value (Million Yen)	5	19
Flowers Production Value (Million Yen)	×	0
Industrial Crops Production Value (Million Yen)	1	16
Seedlings, Tree Saplings, Others Production Value (Million Yen)	×	0
Total Livestock Production Value (Million Yen)	13	0
Beef Cattle Production Value (Million Yen)	1	2
Dairy Cattle Production Value (Million Yen)	6	0
Milk Production Value (Million Yen)	×	1
Pork Production Value (Million Yen)	0	3
Chicken Production Value (Million Yen)	5	3
Egg Production Value (Million Yen)	5	0
Broiler Production Value (Million Yen)	-	0
Other Livestock Products Production Value (Million Yen)	-	0
Processed Agricultural Products Production Value (Million Yen)	-	0

(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/362/index.html>

Figure 3-15. Agricultural output (estimated) of Shimogo Town



(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/362/index.html>

Figure 3-16. Breakdown of Agricultural Production Value of Shimogo Town

This pie chart presents the breakdown of agricultural production value in terms of

different categories, measured in 10 million yen. The data reveals that vegetables account for the largest share, with a production value of 67 million yen, followed by rice at 36 million yen. The others category contributes 20 million yen, while dairy cattle and fruits represent relatively smaller shares, at 6 million yen and 5 million yen, respectively. These figures highlight the prominence of vegetable and rice production in the region's agricultural economy, while other sectors play a more limited role.

5) Sightseeing and Culture

Shimogo Town in the Aizu region of Fukushima Prefecture is rich in history, culture, and natural beauty, making it a notable destination for both tourists and cultural enthusiasts.

① Ouchijuku

The famous attraction in Shimogo Town is Ouchi-juku, a former post town from the Edo period. It was once a key stop along the Aizu Nishi Kaido, a route connecting Aizu with Nikko and other important locations. The town's traditional thatched-roof houses have been carefully preserved, offering a glimpse into Japan's historical architecture and rural lifestyle. Ouchi-juku is now a popular destination for visitors looking to experience traditional Japanese culture and enjoy local specialties such as negisoba (soba noodles eaten with a green onion as chopsticks).

② To-no-Hetsuri

Another must-visit natural attraction in Shimogo is To-no-Hetsuri, a series of dramatic, weathered cliffs along the Okawa River. The word 'Hetsuri' means 'cliff' in the local dialect, and this scenic spot offers stunning views of unique rock formations carved by the river over millions of years. The area is especially popular in the fall when the changing leaves create a breathtaking backdrop.

③ One of the most Historical Landmarks

Shimogo Town is dotted with historical landmarks, including ancient temples and shrines, many of which are linked to the long history of the Aizu region. Visitors can explore various local temples and enjoy the serene rural atmosphere that these places

provide.

④ Outdoor Activities

Due to its mountainous geography, Shimogo offers various outdoor activities for nature lovers. The area is ideal for hiking, camping, and fishing, with many trails leading through the forests and along the riverbanks. The area's abundant natural beauty is a significant draw for tourists seeking to explore Japan's rural landscapes.

The town's culture is deeply rooted in its history as a rural, mountainous community. The preservation of Ouchi-juku and the celebration of local festivals reflect the pride the community takes in its heritage. Shimogo's unique blend of traditional architecture, local cuisine, and natural beauty creates a distinctive cultural identity that attracts both domestic and international visitors.

In summary, Shimogo Town offers a mix of historical experiences, natural beauty, and cultural activities, making it a vibrant location for tourism. Its historical post town, scenic landscapes, and lively festivals allow visitors to immerse themselves in both the cultural past and the natural charm of the Aizu region. The area is dotted with tourist attractions such as 'Ouchijuku,' which retains the atmosphere of an inn town from the Edo period, To-no-hetsuri, a series of oddly shaped rocks and mysterious stones, and Yunokami hot spring, a hot spring full of the charm of travel. With the opening of the Koshi Road on Route 289, most tourists come from the Tokyo metropolitan area. Still, in recent years, the number of foreign tourists has been increasing.



The photos of Ouchijuku sightseeing (from the author)

6) Traditional Events and Performing Arts

Shimogo Town is home to several traditional festivals that celebrate local culture. The Ouchi-juku Snow Festival is held in February and draws visitors to experience the picturesque winter scenery of the post-town, with snow-covered thatched roofs and illuminations. The festival also features traditional performances, food stalls, and cultural demonstrations. Additionally, the Shimogo Autumn Festival showcases local music, dance, and crafts, highlighting the town's rich cultural heritage and strong community spirit.

The details about these festivals are Tsubotate Festival (May 5), Onodake Mountain Opening (last Sunday in May), Ouchijuku Tea Ceremony (second Sunday in June), Ouchijuku Hanatsu Matsuri (July 2), Mikurayama Tanabiraku Festival (mid-July), Shimogo Furusato Festival (late July), Narioka Daikon Kajiri Festival (September 19 in lunar calendar), Ouchijuku Snow Festival (second Saturday and Sunday in February), Nakayama Snow Moon Festival (mid-February) Specialty products)

7) Specialty Products



The photos of Specialty Products in Shimogo Town (from the author)

Shimogo Town is known for its rich agricultural products and traditional handicrafts, which are closely tied to the area's natural environment and heritage. Key

specialty products include Negi (green onions), famously used in the local dish negisoba, and high-quality soba (buckwheat noodles) made from locally grown buckwheat. The town also produces mountain vegetables (sansai), such as fiddlehead ferns and butterbur, as well as Aizu rice, which is prized for its flavor. Additionally, Shimogo is known for its traditional handicrafts and locally brewed sake, which are made from pure mountain water and local rice. These specialty products reflect the town's deep connection to its land and traditions, contributing both to its economy and cultural identity.

Soba (buckwheat noodles), apples, Junen (egoma), Junen miso (miso), shingorou (local cuisine), wild vegetables, nameko mushrooms, shiitake mushrooms, ayu, rainbow trout, char, landlocked salmon, Aizu jidori chicken, and edible hozuki (ground cherry).

3.1.6 The spatial morphological characteristics of settlement in Shimogo Town

Based on Table 3-2, the characteristics of settlement distribution in Shimogo Town are mainly reflected in 1) the settlements distributed along the river: many settlements are distributed along the river, using the flat land of the valley area to build housing and develop agriculture. These settlements are usually small in scale but concentrated, especially along the banks of rivers. 2) Mountain settlements: Some settlements in the mountains are relatively scattered, mainly living on forestry and traditional agriculture. Geography limits access to transportation and modern facilities but preserves much of the traditional culture and way of life. In addition to geographical features, there are also some settlements related to cultural characteristics: for example, the Yunogami hot spring area and tourist settlements formed by relying on hot spring resources. Hot spring hotels dominate it and are also the gateway to famous attractions such as Daiuchi. Then there's Ochi: a historic, traditional settlement known for its ancient houses with thatched roofs and an important cultural heritage site in Japan.

Category 2: “い\のり” (Mountainous Space)

According to the modern dictionary, it refers to areas where people entered deep into the wilderness or valleys, representing ancient locations for shared activities such as summer grazing or prayer rituals.

This space represents a communal area within a wild field or forest, often serving as a site for ancestral worship or agricultural rituals. It is closely associated with traditional livelihoods and seasonal activities. Space is marked by its integration with natural surroundings, such as mountains and fields, symbolizing a harmonious connection with nature.

Category 3: “かわら” (Riverbed)

In the modern dictionary, it represents the lower-lying flatlands formed by rivers, often connected to small-scale habitation and agriculture, including pathways and settlements along the riverbanks.

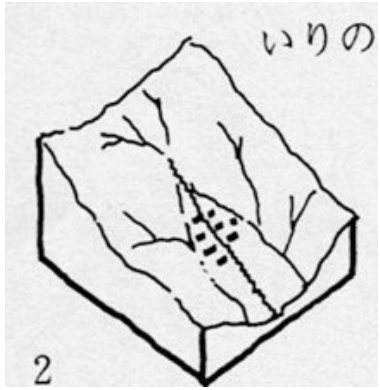
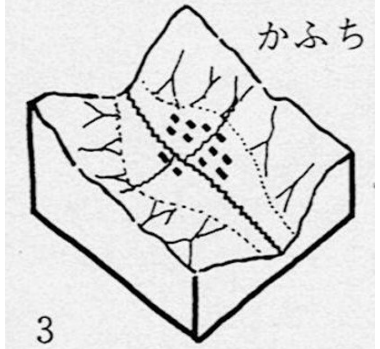
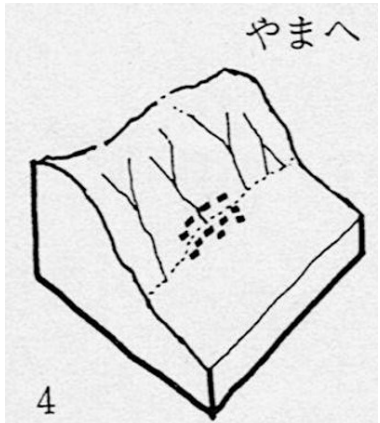
This area refers to spaces along riverbanks and valleys where small-scale settlements often emerged. The proximity to rivers makes it significant for agricultural and fishing activities, as well as for daily life practices. The flatlands formed by the river are central to the inhabitants' livelihood and the natural landscape's utility.

Category 4: “やまへ” (Mountain Vicinity)

It is defined as the area near or surrounding a mountain, symbolizing human interaction with the mountain's resources and spiritual significance.

The space surrounding mountains represents the boundary between human activity and wilderness. It includes areas where communities interact with the mountain's resources, such as forests or shrines at the mountain's base. This type of space is significant for human habitation, cultural practices, and the spiritual role of mountains in the local landscape.

Table 3-2. The spatial morphological characteristics of settlement in Shimogo Town

Feature type	Settlement name	characteristic
	<p>Ōaza koaka, Ōaza Nakayama, Ōaza Sakatomi Ōaza OUchi Ōaza Konumasaki Ōaza Takatsu Ōaza Edamatsu Ōaza Shirowa</p>	<p>The settlements are relatively scattered and depend mainly on forestry and traditional agriculture. The settlement is located deep in the mountains, relatively inaccessible, and at a high altitude</p>
	<p>Ōaza Yunokami Ōaza Yagoshima Ōaza Shionō Ōaza Okuda Ōaza Nakazum</p>	<p>Distributed along the river, using the flat land of the valley area to build housing and develop agriculture. These settlements are usually small in scale but concentrated, especially along the banks of rivers</p>
	<p>Ōaza Aikawa Ōaza Omatsukawa Ōaza Sawada Ōaza Otokane Ōaza Ochiai</p>	<p>Around the base of the mountain, the surrounding foothills, the lower slopes, or the outskirts. Settlements are usually distributed in blocks.</p>

*The information referenced comes from the book (Illustrated Settlements: Their Space and Planning), edited by the Architectural Institute of Japan (日本建築学会).

3.1.7 Method of Survey

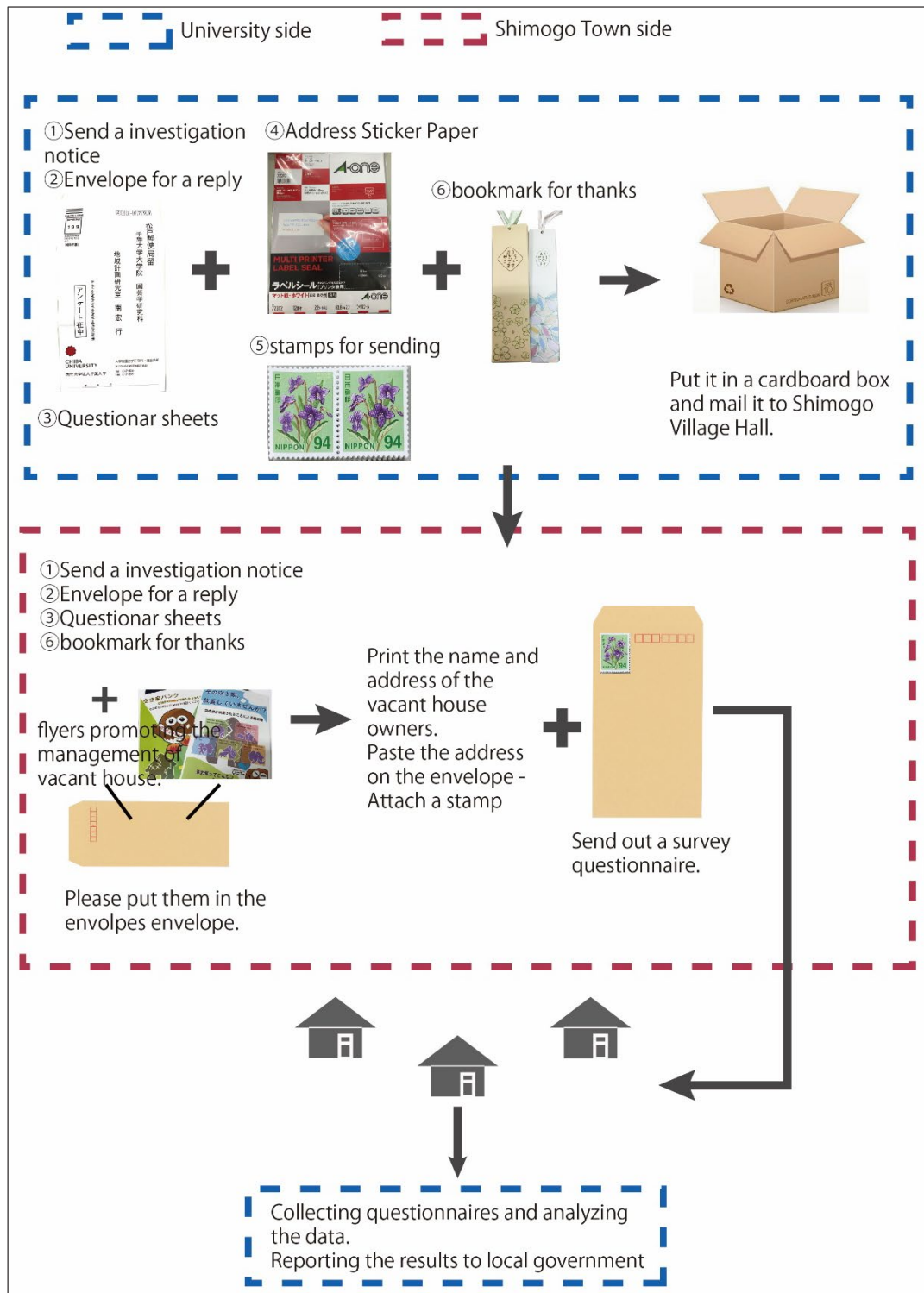


Figure 3-17. The process of cooperating with the local government about the questionnaire survey

Due to privacy protection regulations, researchers were unable to obtain the current addresses of the vacant house owners directly. As a result, the questionnaires had to be prepared, printed, and distributed by the local government staff. The overall cooperation process, as illustrated in Figure 3-17, shows that the university was primarily responsible for preparing the questionnaires and related documents, while the researcher covered the mailing costs. The local government was tasked with organizing the mailing addresses based on the tax register, managing the ceiling, and mailing the questionnaires. This collaborative process ensured that the privacy of the vacant house owners was respected while still allowing for the effective distribution of the survey.

Table 3-3. The Survey Summary in Shimogo Town

Items	Concrete Contents
Method of Survey	Questionnaire survey by post
Survey Period	February-March 2022
Survey Area	Shimogo Town, Fukushima Prefecture
The number of questionnaires delivered	320 cases
number of valid responses	111 cases
Definition of survey subjects	Vacant house owners living outside of Aizubange town and being certified by the municipality based on the tax register, excluding weekend residences ²
Summary of survey items	<ol style="list-style-type: none"> 1) Years of a vacant house, how was it obtained 2) Respondents, relationship to the last resident, and place of residence. 3) Intention to utilize vacant houses, events to participate in if available 4) Frequency of commuting, management of vacant house, weeding, farm work 5) Options to sweep the tombs, make a greeting, or attend the funeral. 6) The options of personal socializing and participation in community activities 7) Frequency of recreation enjoyed indoors and outdoors 8)

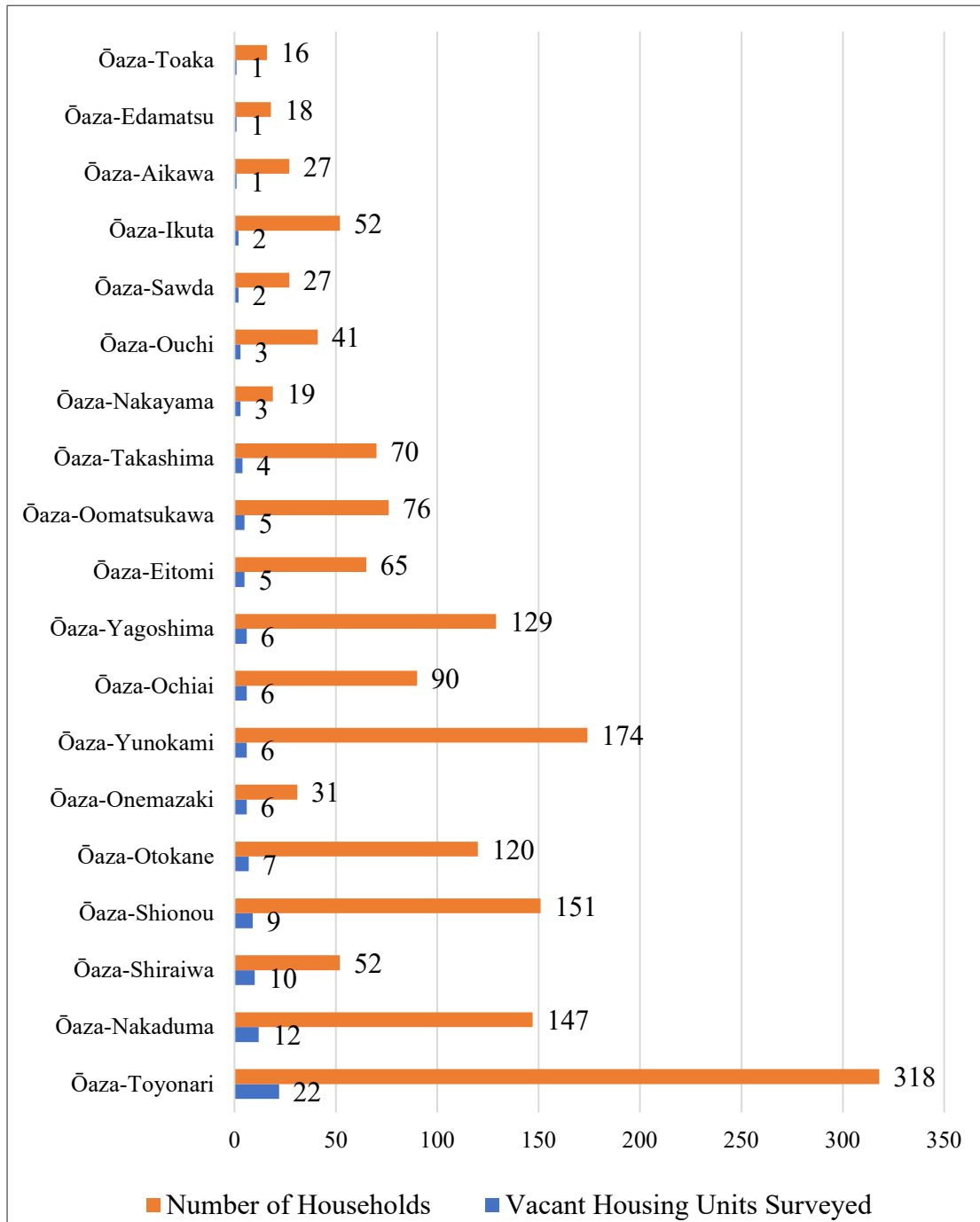
Regarding eligible vacant houses, the Town's 2017 survey for the Vacant Houses and Other Vacant Buildings Program identified 501 vacant houses that included temporary uses such as weekend residences. Excluding these temporary uses, the town

identified 330 vacant houses as vacant, but mailed questionnaires were sent to 320 houses with known addresses of the owned households.

Although it is the individual who owns a vacant house, there are cases in which a family member of the same household returns to the house separately, and this study targets vacant house-owning households rather than vacant house owners because it is thought that including such returning behavior will better reflect the actual situation. In addition, since the Shimogo Town Office Civil Affairs Division responded that “there are almost no cases of two-family dwellings reported as two households (on the resident registration form),” the analysis in the following Chapter was conducted assuming that the number of resident households in the town is the same as the number of dwelling units in the town.

The analysis will first analyze the history of vacant houses, respondents' demographics, and place of residence to determine their intentions to rent or sell vacant houses and their intentions regarding new connections with the community. Next, the frequency of return visits, vacant house management, and mowing will be analyzed to see the relationship between the history of vacant houses and the respondents' place of residence. We also analyze participation in community activities, personal socializing in the community, and leisure time activities to examine their relationship. Furthermore, we assume that vacant house-owning households are a type of resident and estimate the social impact regarding population, space management, and community. Finally, significant considerations are summarized, and recommendations are made.

There were 114 copies collected, a 36% response rate, and 111 valid responses. As shown in Table 3-2 Survey Summary, the survey items include the history of vacant houses, respondent demographics, frequency of return behavior such as space management and community relations, intention to use vacant houses, and purpose of commuting. At the end of this chapter, we will provide a detailed survey questionnaire and a report on the specific investigation and confirmation of vacant houses in the Shimogo Town area.



Source: e-Stat (e-Stat), <Census Boundary Data by Town, Street, Character, etc.,> 2020

Figure 3-18. The Collection Results by Settlements in Shimogo Towns

Figure 3-18 shows the distribution of vacant property owners in various settlements from the 111 questionnaires surveyed. Among them, the Oaza-Toyonari settlement had the highest, reaching 22, which is in the town center area of Shimogo Town. The base of houses is the largest, and the population is the densest, so the

corresponding number of vacant houses is also more significant. This does not necessarily indicate that the area has the most serious vacant house problem. Suppose the overall number of households in each settlement and the number of vacant houses deduced according to the recovery ratio are compared and observed together. In that case, it can be found that the problem of vacant houses in settlements like Oaza-Nakayama (number of vacant houses/numbers of resident households, 3/19), Onemazaki (6/31), and Shirokawa (10/52) is relatively serious instead because the number of vacant houses in these settlements has already reached half of the number of resident households. What's more, in settlements like Sawada and Takashima, as of 2023, there are no resident households that stay throughout the year. Within the settlements, only people have moved out and returned to the town to manage the vacant houses. These findings highlight that while some areas have more significant numbers of vacant houses, smaller settlements with a high rate of vacant houses face more critical challenges in maintaining a sustainable population.

In the following chapters, we will conduct a detailed analysis of each item in the survey questionnaire.

3.2 Vacant Houses and Vacant House Owners

3.2.1 Process of Vacant Houses

20% of vacant houses are “5 years old or less”, 42% are “10 years old or less”, and 22% are “20 years old or more”. We've done similar surveys in Nanmokumura Village, Gunma Prefecture before. In Nanmokumura Village (previously reported), approximately 40% of the houses are “less than ten years old,” and more than 20% are “more than 20 years old,” a trend like that in Shimogo Town. Field inspections confirmed that a small number of houses have been destroyed, or the owner households are unknown.

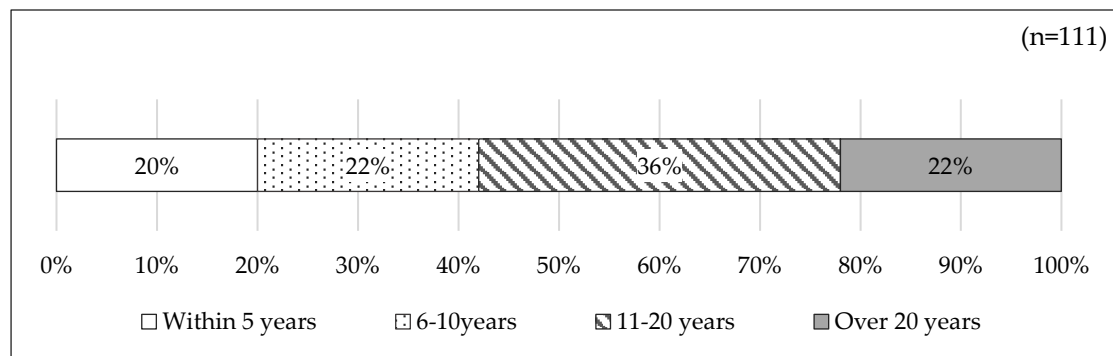


Figure 3-19. Number of years the house has been vacated

The figure reveals that 58% of the vacant houses in Shimogo Town have been unoccupied for more than 10 years, indicating long-term abandonment, which poses significant challenges for management and potential reuse. Additionally, while 20% of the houses have only been vacant for less than 5 years, representing a more manageable state of disrepair, most properties are likely in poor condition due to their prolonged vacancy. This emphasizes the need for timely interventions to prevent further deterioration of these houses.

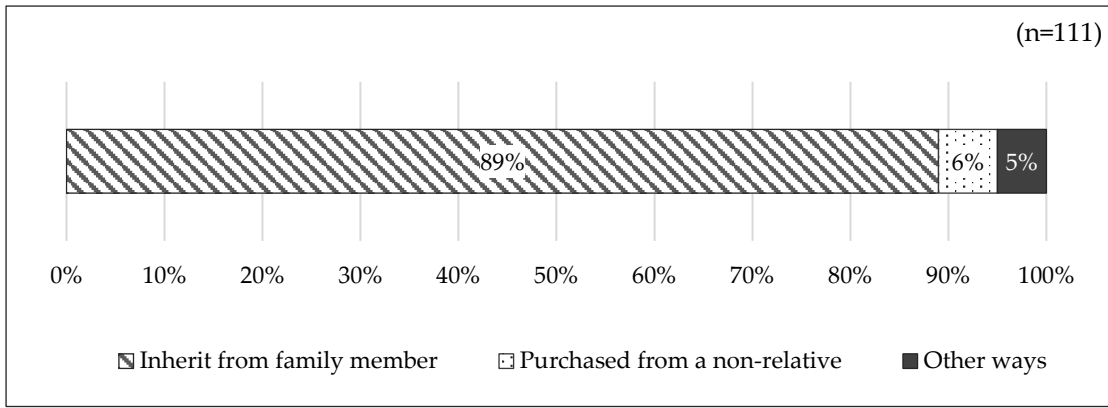


Figure 3-20. How the house was vacant

Taking this into account, vacant houses have continuously occurred in recent years due to the aging population. Purchase of used houses from outside relatives (generally considered as vacation house use by third parties) accounts for 6%, and 89% are vacant houses owned by households that have moved out of the area.

3.2.2 Respondent Attributes

Based on an analysis of the survey data, it was found that only 20% of the respondents were under the age of 60, while 29% were between the ages of 60 and 70. Most respondents, 51%, were found to be 70 years or older, with 16% being 80 years or older. This data suggests that even in the case of properties that have been passed down to the younger generation, the children's generation is aging.

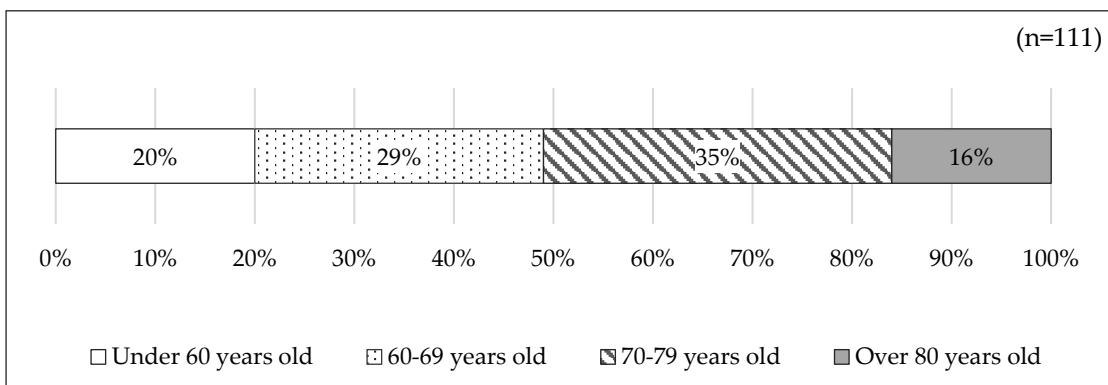


Figure 3-21. Age of Respondents

While 23% of the respondents were owned by the “owner or spouse at the time

the house became vacant” who moved out of the house, 63% were owned by the “child generation,” and 14% were owned by “others”. Others are presumed to be sibling households of the owner at the time the house became vacant, non-relatives, etc. (inferred from preliminary interviews with the Shimogo Town Hall). Thus, in more than half of the vacant houses, it is confirmed that the owner at the time the house became vacant has passed away, and the child generation has inherited the property.

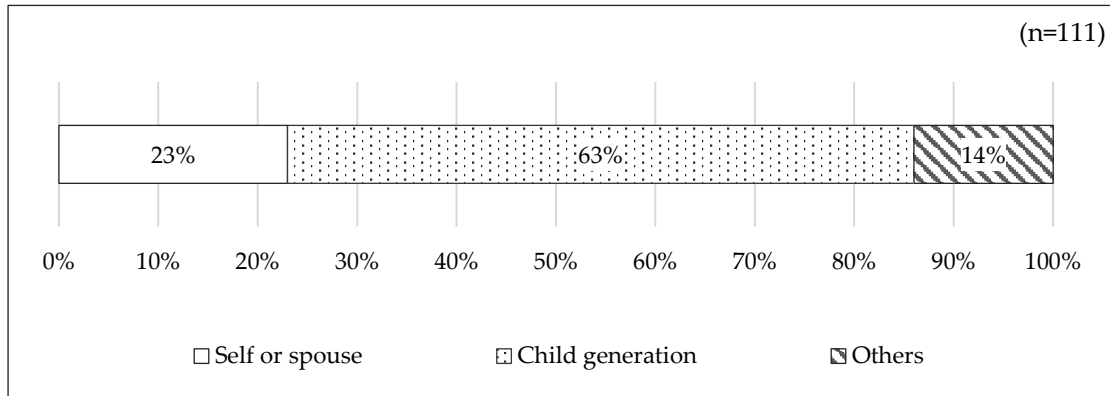


Figure 3-22. Relationship between Respondents and Last Resident

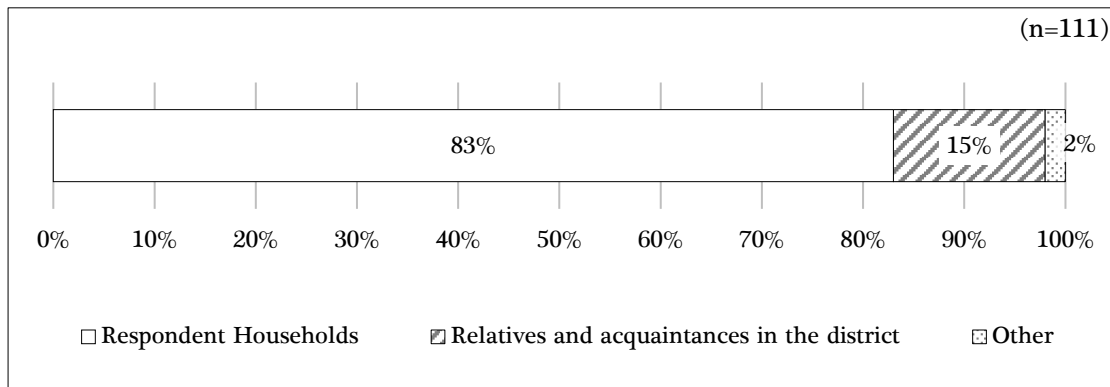


Figure 3-23. Managerial Attributes

Most houses, precisely over 80%, are managed by households who responded to the survey. However, it is worth noting that approximately 20% of unoccupied houses are being managed by either neighbors or relatives.

3.2.3 Residence of Vacant House Owners

More than half of the vacant house-owning households reside in Fukushima Prefecture. 29% live in “Shimogo Town's main commuting area and adjacent Aizu Wakamatsu City and Minami Aizu Town” (commuting area); 42% live in the Kanto area; and only 6% live outside the prefecture and the Kanto area. Only 6% live outside the prefecture and the Kanto area.

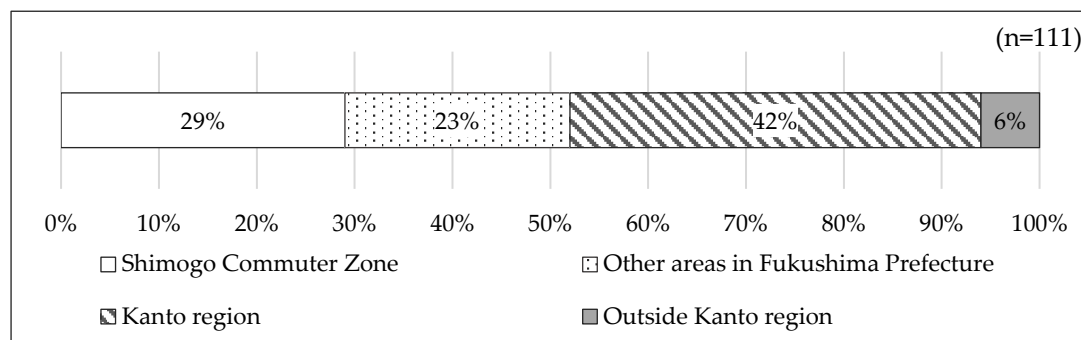


Figure 3-24. Residence of vacant house owners

(Based on the 2020 Shimogo Town Population Vision and Shimogo Town's Comprehensive Strategy for Creation, Aizu Wakamatsu City and Minami Aizu Town, adjacent regional cities within Shimogo Town, were defined as the main commuting areas. Kanto region: Tokyo, Kanagawa, Saitama, Gunma, Tochigi and Chiba prefectures)

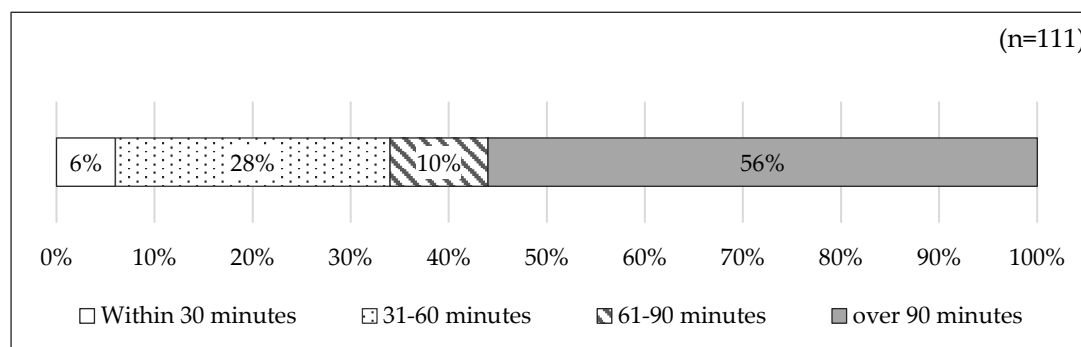
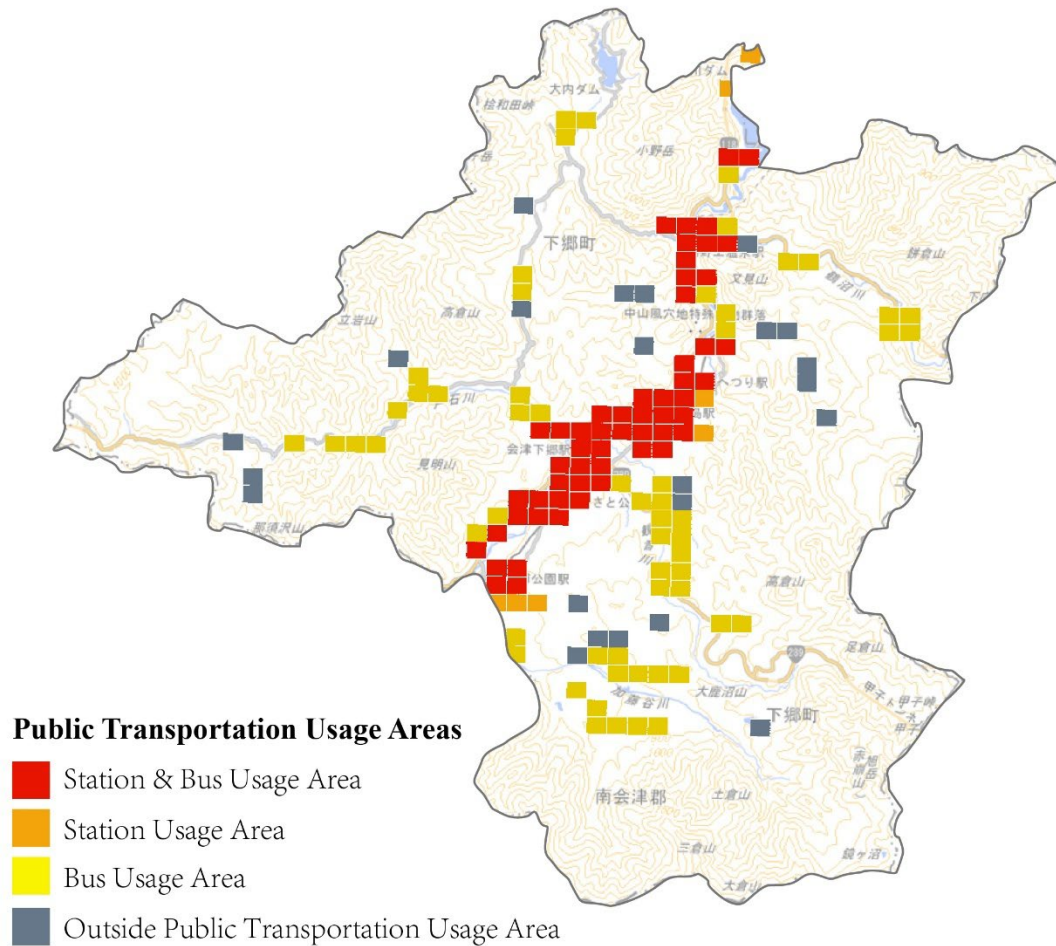


Figure 3-25. Costing time for commuting behavior

Next, looking at the return time of vacant house owner households, 34% of them return within 60 minutes, 44% return within 90 minutes, and 56% return more than 90 minutes. Only 6% of the households that return within 30 minutes do so, and none of them live in the town. From the crosstabulation of residence and return time (data

omitted), about 80% of those within 60 minutes reside in the commuting area and about 20% in other areas of the prefecture; about 90% of those over 90 minutes reside in the Kanto region and outside the Kanto region, and about 10% in other areas of the prefecture.



Source: Urban Structure Visualization Plan <https://mieruka-v4.kashika.net/population-publictransport-2015/> (accessed in Sep. 2024)

Figure 3-26. Public transportation usage area in Shimogo Town

This map illustrates the spatial distribution of public transportation usage areas within the region. The classification includes station and bus usage areas (red), station usage areas (yellow), bus usage areas (orange), and areas outside public transportation coverage (gray). The concentration of red and yellow zones along the central corridor suggests that public transport accessibility is highest in these regions, likely reflecting the presence of key transit hubs. In contrast, peripheral areas marked in gray indicate

limited or no access to public transportation, highlighting potential challenges in mobility and accessibility for residents in these zones. This spatial pattern underscores the importance of transport planning and infrastructure development in ensuring equitable access to public transportation services.

3.3 Intentions of Vacant House Owner

3.3.1 Intention to Rent or Sell a Vacant House

39% responded, “may lend,” 60% responded, “may sell,” and 35% responded, “neither intends to lend nor intends to sell.” About 90% of respondents who answered either “may lend” or “may sell” also answered “may sell,” while only about 60% answered “may lend.”

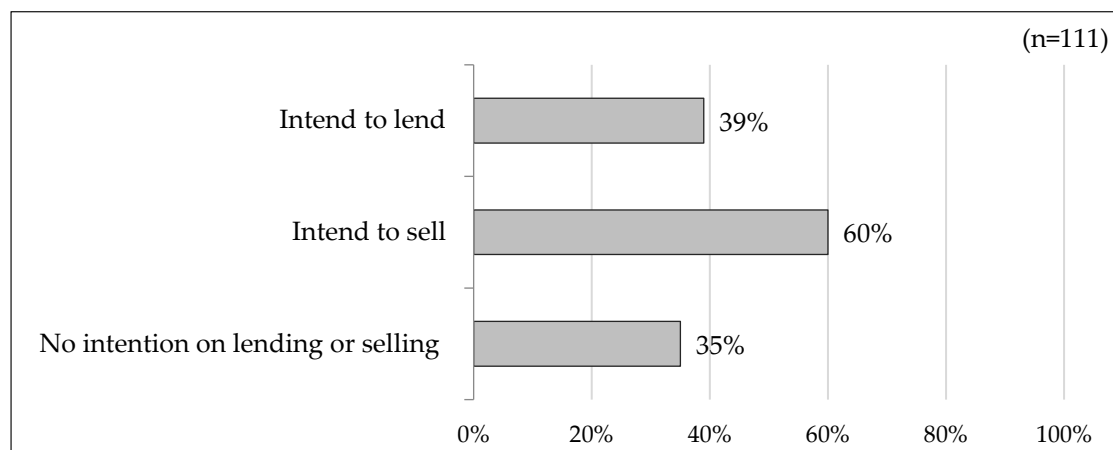


Figure 3-27. Intention to rent or sell a vacant house (multiple responses)

When those who responded that they “do not intend to rent or sell” were asked why, 63% said, “for convenience and enjoyment when returning home (if there is a vacant house),” 37% said, “may live there in the future,” 61% said, “because it is my ancestral home.” About 37% said, “It is difficult to organize my belongings. In addition, 26% said they were “worried about who would rent it,” and 16% said, “The procedures are troublesome.” The following factors were also cited: 1) the value that the “house” as a traditional family form and the “house” the same, “because it is my ancestral home,” 2) the demand-supply mismatch whereby the owner households frequently return and

stay in vacant houses in good condition, which are preferred by migrants and others, and are unwilling to give them up, but on the contrary, vacant houses in poor condition do not need for use by the owners and are also not preferred by migrants and others. On the other hand, vacant houses in poor condition are not favored by immigrants, etc., as the owner households do not have a need to use them (inferred from preliminary interviews with Shimogo Town Hall).

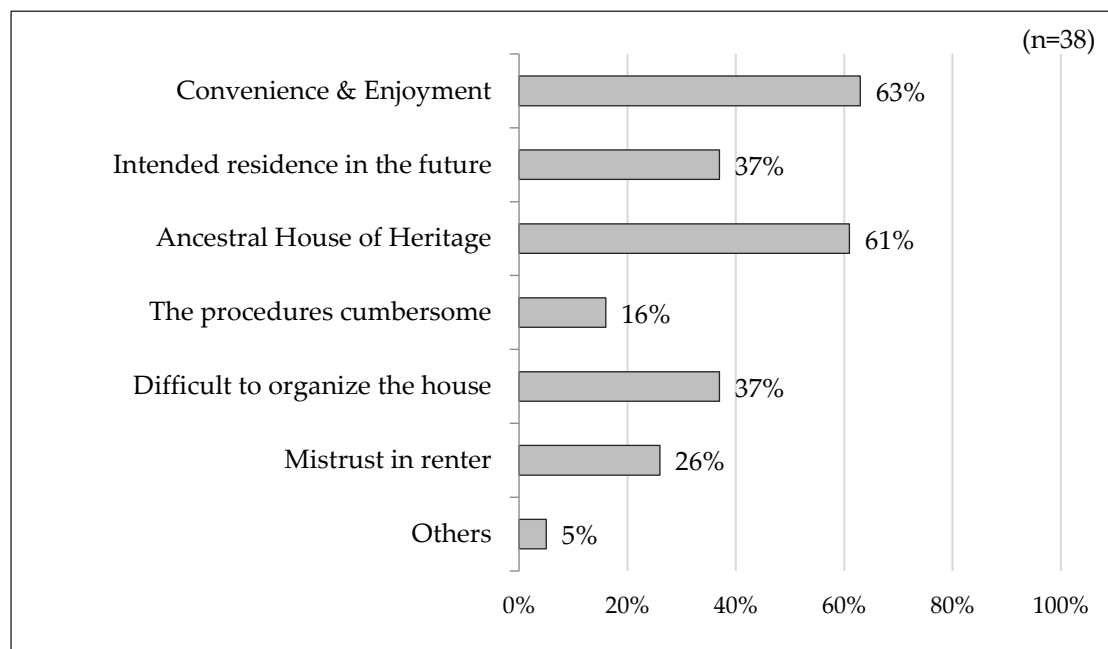


Figure 3-28. Reasons for not intending to rent or sell (multiple responses)

3.3.2 Participation in Events and Community Activities in the Local Area

Based on the awareness of the issue of promoting the relationship between vacant house-owning households and the local community, hypothetically speaking, respondents were asked to provide examples of “events they would like to participate in if they were local.” As a result, 41% responded to “consultation on management of vacant houses.” Still, only 17% and 16% responded to “exchange events among residents and returning households” and “places for returning households such as rest area cafes,” respectively. On the other hand, about 45% of respondents answered that “nothing in particular” was necessary. Although the “consult the action on the

management of vacant houses” may include some reluctance to outsource management, a little more than half of them, including two groups, think that it would be good to have a new framework for communication among the community, local government, and households returning home. On the other hand, a little less than half of the respondents consider a new framework that adds to the current situation and communication to be troublesome.

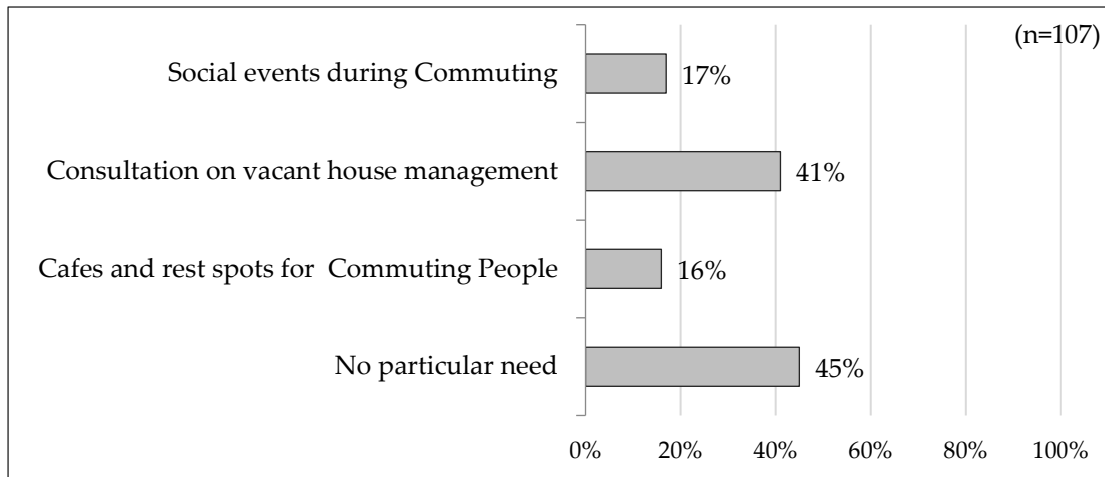


Figure 3-29. Participation in events and community activities in the local area (multiple responses)

3.3.3 Consideration of the Future of Vacant Houses

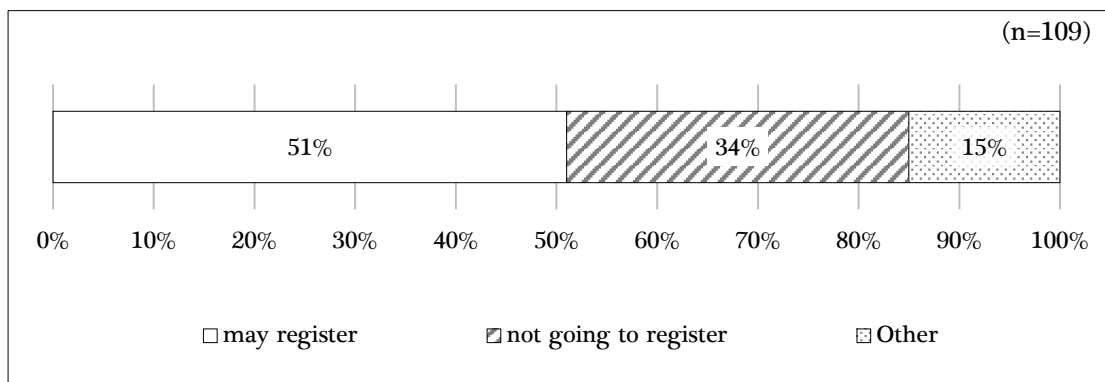


Figure 3-30. Intention to register as a vacant house bank.

About 50% of the respondents were willing to register, and more than 30% had no

intention of registering. Compared to the number of registrations, this indicates that the number of potential optimistic respondents is large. For example, with the cooperation of the Regional Development Cooperation Volunteers, the registration of vacant houses in the bank could be increased by proactively approaching each house individually.

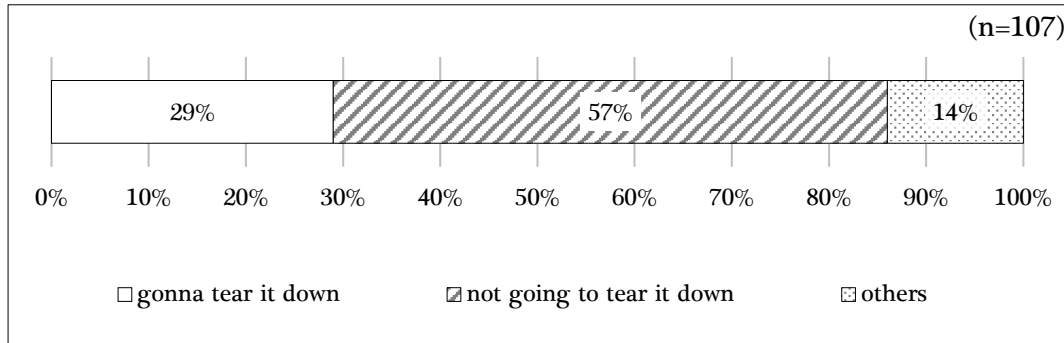


Figure 3-31. Intent to Demolish Vacant Houses.

About 30% intend to demolish vacant houses, and about 60% do not intend to demolish them, leaving only a tiny number in the demolition group. Since demolishing a house involves a financial burden, it is thought that there are hurdles to the actual demolition.

3.4 Commuting Behavior and Space Management

3.4.1 Frequency of Commuting, Management of Vacant Houses, and Weeding

Regarding the frequency of return trips, 27%, 64%, and 14% of the total sample respectively return “once a month or more,” “several times a year or more (including once a month or more),” and “less than once a year. Compared to Nanmokumura Town, a similar trend of around 30% returning “more than once a month” is observed, confirming the existence of a group of high-frequency returnees.

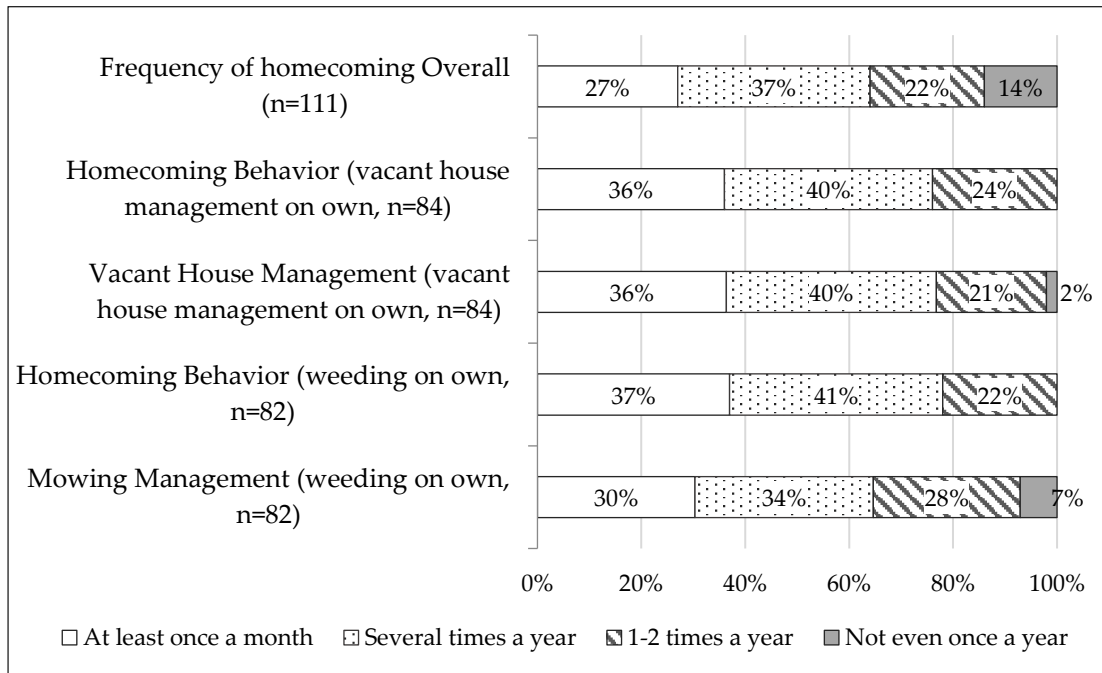


Figure 3-32. Frequency of commuting, vacant house management, and grass-cutting

Next, we look at the difference between the frequency of return trips and the frequency of management, limited to households that return home at least once a year and manage the households themselves.

First, for “households that return home at least once a year and manage vacant houses themselves,” the frequency of return home is 36% for “at least once a month” and 76% for “several times a year (including at least once a month),” and 24% for “once or twice a year. When this is compared to the frequency of managing vacant houses, the frequency of returning home and the frequency of managing vacant houses generally coincide (98%).

Next, for “households that return home at least once a year and mow the grass themselves,” the frequency of returning home is 37% for “at least once a month,” 78% for “several times a year (including at least once a month),” and about 22% for “1-2 times a year. Compared to this frequency of returning home, the frequency of mowing decreases by 7% each for “more than once a month” and “several times a year.” This suggests that while it is common for households to open the doors and windows of

vacant houses to ventilate them each time they return home, a certain number of households cut the grass on a limited basis, depending on the season.

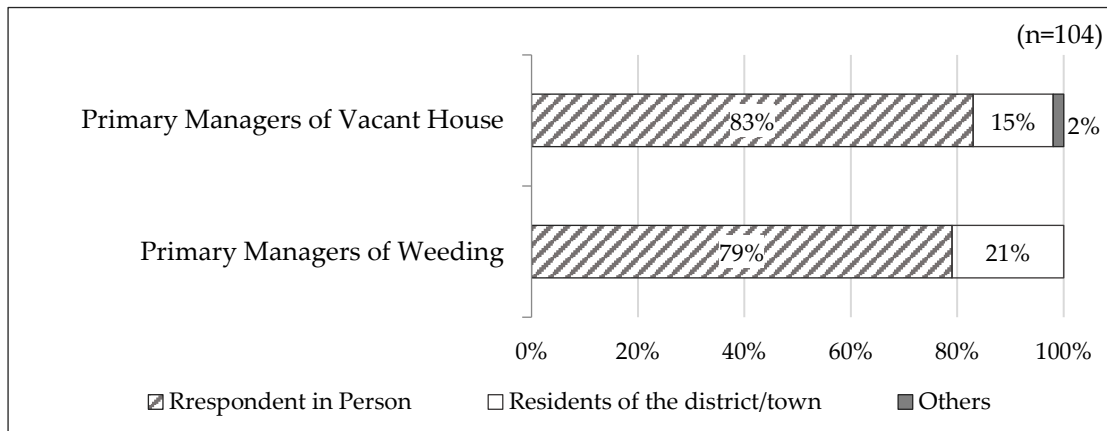


Figure 3-33. The situation of the managers of vacant houses and weeding

On the other hand, 15% of vacant house management and 21% of mowing management were outsourced to neighbors or relatives. Looking at the frequency of vacant house and grass-cutting management that is outsourced, 42% of vacant house management (76% managed by themselves) and about 32% of grass-cutting frequency (64% managed by themselves) are “a few times a year” or more. That percentage decreases to about 50% to 60% for those who manage by themselves.

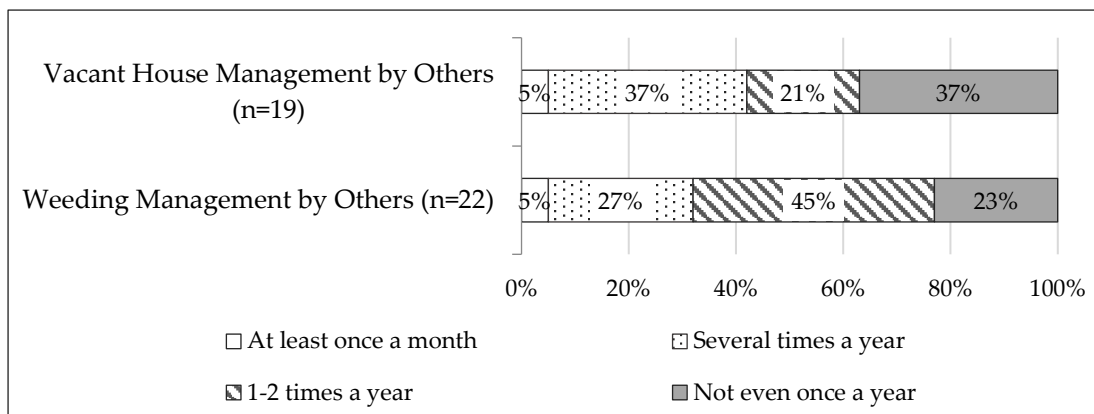


Figure 3-34. The frequency of entrusting the management of houses and weeding within the town to others

④ Reference Example

Among abandoned vacant houses, more than half have been vacant for more than

NO.79 (Ouaza Konumasaki)

Age:95 years old

Vacant house belongs to oneself or spouse

The house has been vacant for more than 20 years

I live in Minami Aizu, Fukushima prefecture.

Time to return home: within 30 minutes

Frequency of returning home: none

No house management.

A few times a year, someone else mowing the grass.

No farming

Visit the graveyard in the district and go to the district funeral. I don't visit my relatives or neighbors.

Local personal interaction: no participation in community activities: no participation

Enjoy outdoor and indoor: no

The only purpose of returning home is to visit the grave. In the future, I would like to rent or sell vacant houses, and I am interested in registering with the vacant house bank, but I am not thinking about demolishing them. In addition, there is no need for communication activities and rest areas for returnees.

20 years. Owners are aging, and in many cases, even though they live in the Kanto area and the Shimogo neighborhood, they do not return to their homes or manage them. Community activities and connections with others are also scarce, indicating that they ask others to manage their properties only to mow the grass. The main characteristic is that they return home only temporarily, mainly to visit graves or for funerals.

3.4.2 Frequency of Commuting and Residence of Vacant House Owner

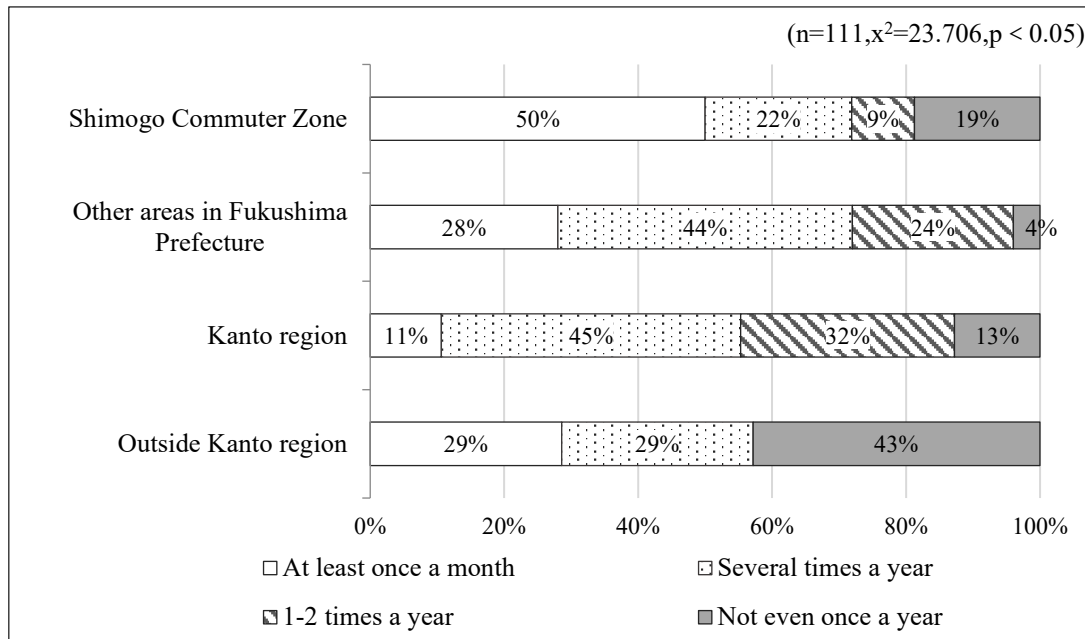


Figure 3-35. Frequency of vacant property management based on the owner's residential category

This figure presents the frequency of visits to a specific area based on the respondents' residential zones. The residential zones are categorized into four kinds: Aizu commuter zone, other areas in Fukushima Prefecture, Kanto region, and outside the Kanto region. 50% of respondents in the Aizu commuter zone visit at least once a month, the highest among all regions. The group outside the Kanto region has the highest percentage of respondents who visit less than once a year (43%). This means that the close commuting status could help vacant house owners manage their homes more frequently. However, it is worth noting that 29% of vacant house owners living outside the Kanto region return to the province at least once a month. Nearly 20% of those who live in the Aizu commuter zone rarely return to their hometown. This means that distance is not the only factor that affects the frequency of vacant house owners. This means that distance is not the only factor that affects the frequency of vacant house owners. The energy of vacant house owners and their willingness and interest to return will affect the frequency of their return. When they have the intention or interest to

return regularly, the factors of distance and longer time spent may not affect them, which is also the “polarization phenomenon” of the frequency of return mentioned by Mr. Hirata in his research. That is, the owners of vacant houses living in the near and far areas have frequent and stable returnee behavior.

⑤ Reference Example

NO.22 (Oaza Onumazaki)

Age:78

Inherit a vacant house from parents

Vacant years: 5--10 years failed

Living in Sendai City, Miyagi prefecture, time to commuting about 2 hours 40 minutes

Frequency of returning home: more than once a month

Manage the vacant house and mow more than once a month.

Status of farm work: more than once a month, such as in summer

They visit the graves in the district, greet relatives and neighbors, and attend the funerals of the people in the district.

Personal community: at least once a month. Community participation: roughly participation

Outdoor and indoor fun: more than once a month

The purpose of returning home is to visit the grave, manage the property, make friends with relatives and friends, and enjoy the fun of returning home. I want to sell vacant houses in the future, and I am also interested in registering with the vacant house bank, but I intend to demolish them.

3.4.3 Frequency of Commuting and the Vacancy Years of the House

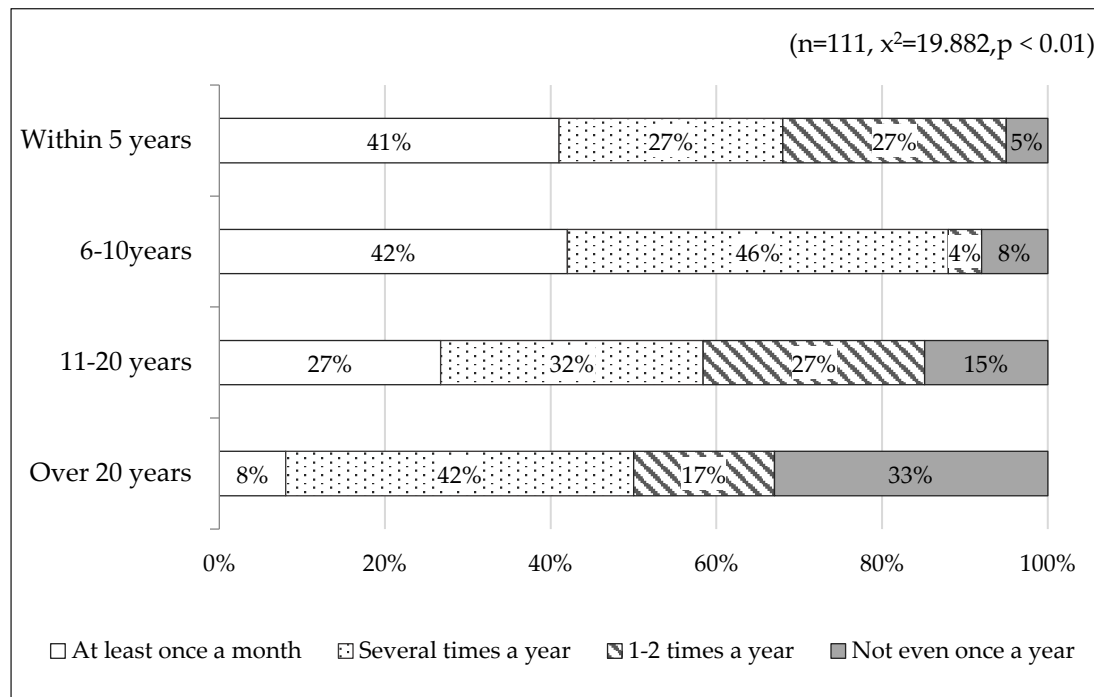


Figure 3-36. The frequency of managing vacant properties based on the classification of the years of vacancy of the houses

About 40% of respondents who have owned a vacant house for “less than ten years” (41% for “less than five years” and 42% for “5 to 10 years”) manage vacant houses “at least once a month”. In the “10 to 20 years” category, 27% of respondents manage vacant houses at least once a month, while the percentage decreases to 8% in the “over 20 years” category. When it comes to “over 20 years,” 33% do not manage vacant houses, but conversely, 67% do so “at least once a year,” even after 20 years have passed. In general, there is a noticeable decrease in the frequency of vacant house management when the house has been vacant for more than ten years.

3.4.4 Agricultural Work During Commuting

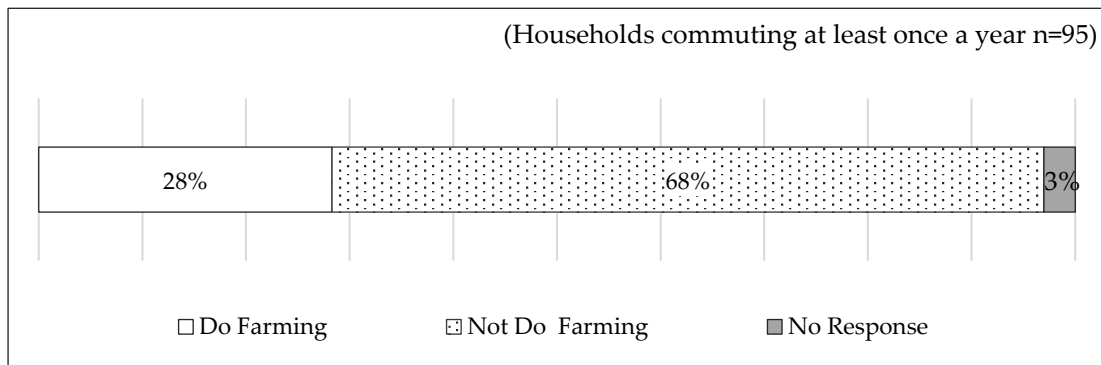


Figure 3-37. The management status of agricultural land for vacant house owners

While 28% of “households returning home” (referring to households that own vacant houses, excluding households that return “less than once a year,” hereafter the same) report that they “do farm work,” 68% report that they “do not do farm work.”

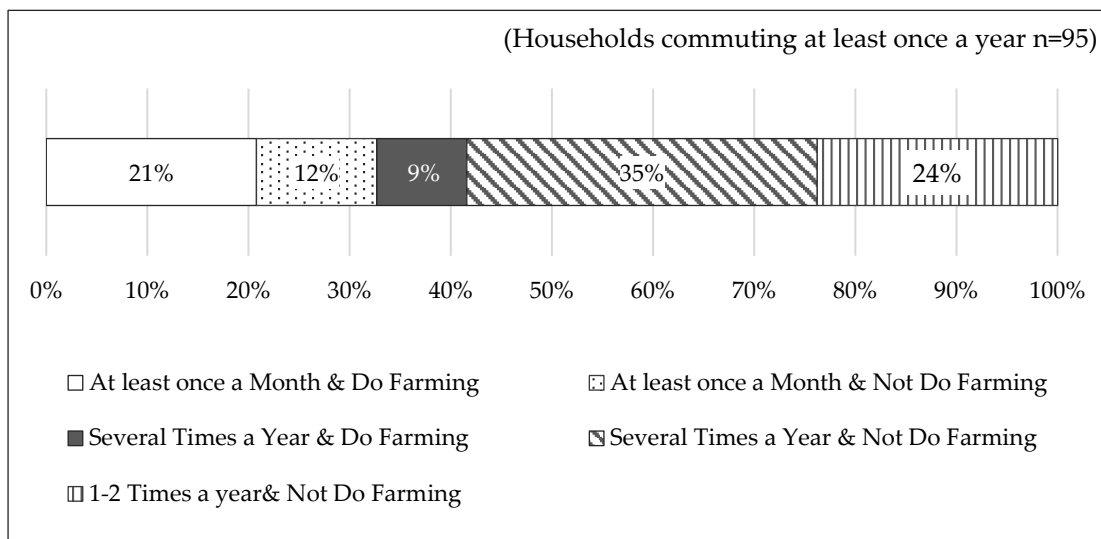
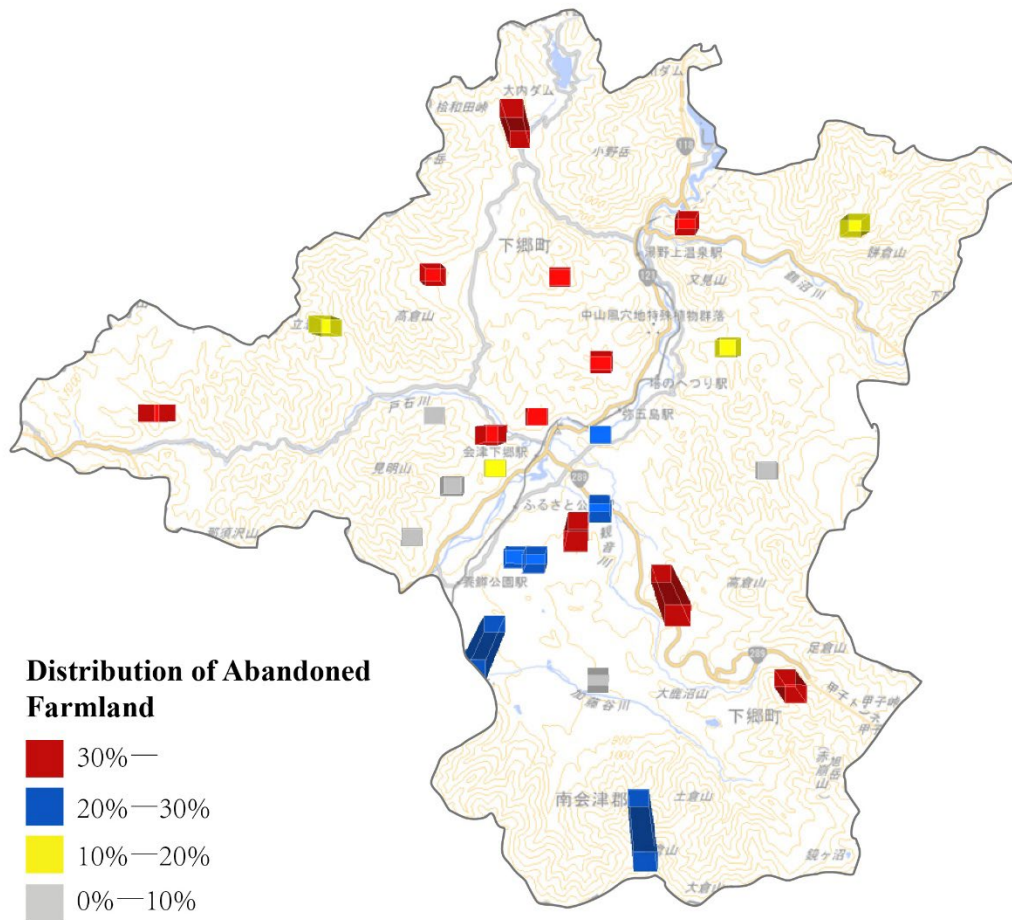


Figure 3-38. The management status of agricultural land for the owners of vacant houses with regular commuting

About 30% of households returning home do work, and by frequency of return, about 60% (= 21%/ (21%+12%)) of households returning home “once a month or more” and about 20% (= 9%/ (9%+35%)) of those returning home “several times a year or more” do farm work. It can be inferred that the former grow crops that require high-frequency work, while the latter grow crops that can be managed coarsely.



Source: Urban Structure Visualization Plan <https://micruka-v4.kashika.net/population-publictransport-2015/>
 (accessed in Sep. 2024)

Figure 3-39. Distribution of abandoned farmland in Shimogo Town

This map presents the distribution of abandoned farmland within the region, categorized by abandonment rates. The classification includes areas with over 30% abandonment (red), 20%–30% abandonment (blue), 10%–20% abandonment (gray), and 0%–10% abandonment (yellow). The spatial distribution indicates that higher abandonment rates are concentrated in certain localized areas, particularly in the central and southern parts of the region. The presence of extensive abandoned farmland may reflect challenges such as rural depopulation, declining agricultural activity, and difficulties in farmland maintenance.

Table 3-4. Management status of communal forest

Management approach	remarks
Residents of the town manage the property themselves.	Frequency: 1-3 times a year
Outsourced to forestry cooperatives.	Subsidies (Forestry Human Resources Development Support Program Subsidies)
Stopping management.	Separations have lost their value.

The table and notes summarize the management status of communal forests. The management methods are categorized as follows:

- ① Self-management by residents within the settlement: Maintenance is performed 1-3 times per year.
- ② Entrusting management to forestry cooperatives: This method includes financial subsidies (e.g., for forestry workforce development support programs).
- ③ Ceasing management: In some cases, the forests have lost their value over time and are no longer maintained.

The management status of communal forests can be summarized based on three main methods: self-management by residents within the settlement, where maintenance is performed 1-3 times per year; entrusting management to forestry cooperatives, which includes financial subsidies such as those forestry workforce development support programs; and ceasing management, in cases where the forests have lost their value over time. Regarding ownership, transferred residents typically retain ownership rights to communal forests after moving out, without relinquishing their rights. In terms of management, most transferred residents do not actively participate in daily management activities but continue to pay regular management fees. Interviews with local residents revealed that when transferred residents return home, they occasionally visit the communal forest with local residents to perform simple maintenance tasks, such as clearing branches and paths, typically about twice a year. This demonstrates a continued, though limited, connection between transferred residents and the communal forests.

3.5 Community Relations and Leisure Activities

Regarding the relationship between vacant house-owning households with the community, we first look at visits to graves, greetings, and attendance at funerals, which are considered customary and ritualistic.

Next, we divide the analysis into two categories: (informal) personal socializing, in which the implementation and participation in activities are left to the free will of the individual, and (formal) participation in community activities involving community organizations, together with leisure activities that are completed by the household.

3.5.1 Community Relations

First, respondents were asked whether they visited graves, sent greetings, and attended funerals. 86%, 89%, and 88% of the respondents answered that they visit graves, visit family members, and attend funerals, respectively. In other words, “visiting graves,” “greeting relatives,” and “attending funerals” are everyday activities for vacant house-owning households that return home at least once a year.

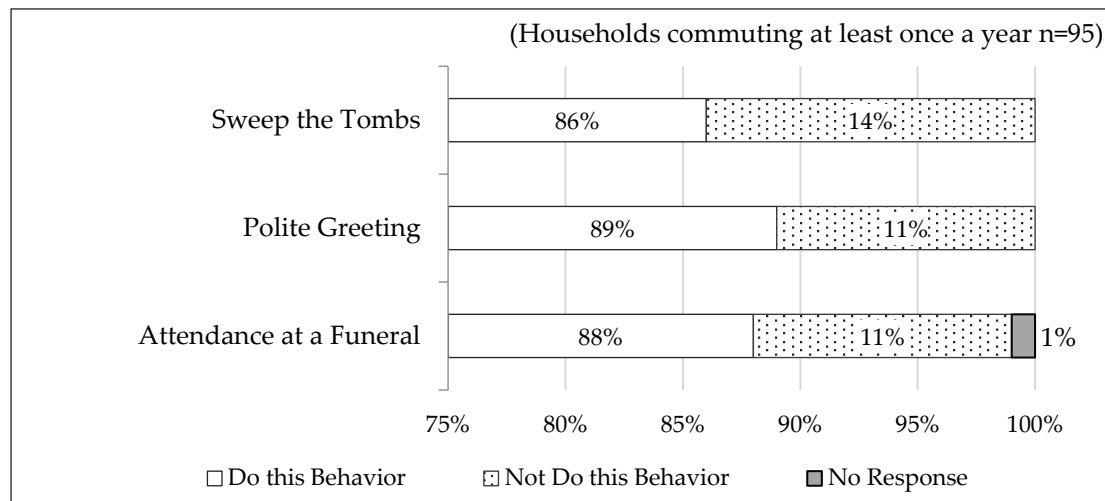


Figure 3-40. The fundamental social activities of vacant house owners

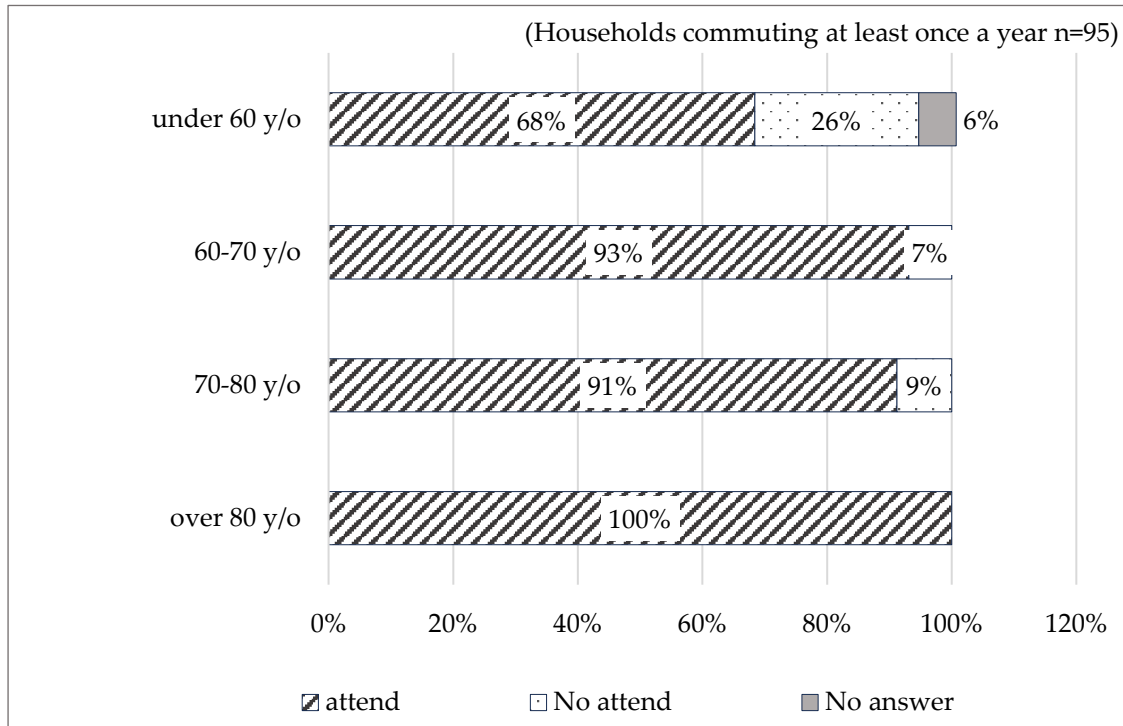


Figure 3-41. Funeral attendance and age of vacant house owners

An analysis of the owners of vacant houses who attended the funeral shows that almost all the people aged 80 and over attended the funeral of another person in the community. This shows that the early movers have deep relationships with the local community and that social connections such as relatives and friends exist.

In rural communities, attending funerals for community members is considered an essential duty. As a result, those who attend funerals return home more frequently but often do not actively participate in community activities. However, as individuals, they do tend to enjoy indoor and outdoor activities when they return home.

⑥ Reference Example

NO.31 (Ouaza Eitomi)
 Age:70
 vacant house belongs to oneself or the spouse
 The house has been vacant for more than 20 years
 Living in Shirakawa City, Fukushima prefecture, Commuting time: less than 1 hour
 Frequency: several times a year
 I take care of the vacant house and mow myself several times a year.
 No farming
 Visit the cemetery in the district, greet relatives and neighbors, attend the funeral of the district
 Local personal contacts: several times a year
 Participate in community activities: do not participate
 Enjoy outdoors and indoors: several times a year
 The purpose of the visit is to visit graves, manage property, and gather with relatives and friends. I want to rent or sell vacant houses in the future, and I am also interested in registering with vacant house punk, but I have no intention of demolishing them. I am looking forward to creating a rest area for visitors.

3.5.2 Personal Association and Participation in Local Activities in the Community

Personal association means some socializing in the community (going up to the house for tea, having dinner, etc.) is practiced by 80% of households returning home, 45% “several times a year or more,” and 9% “once a month or more.

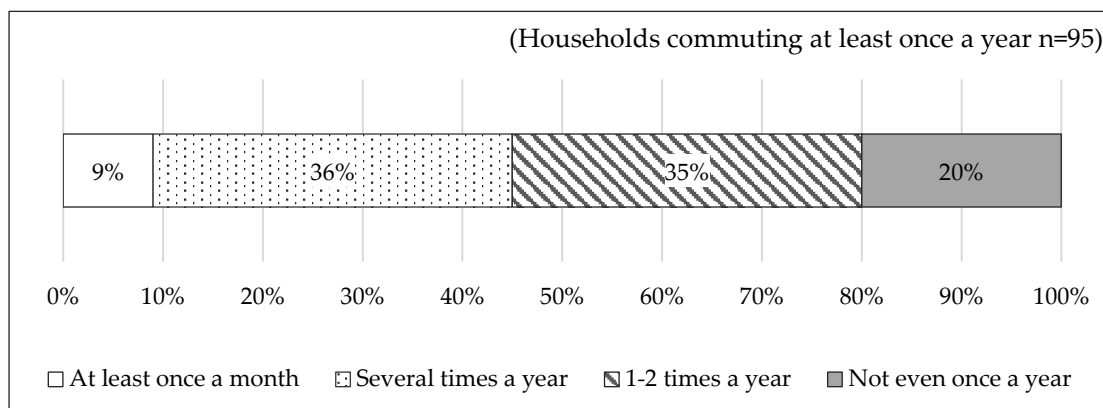


Figure 3-42. Personal association in the community of vacant house owners

Conversely, 63% of households “rarely participate” in community activities (communal mowing, festivals), 25% “sometimes participate,” and 12% “usually participate. Personal socializing, like visiting graves, attending funerals, and making

the rounds, is also an everyday activity for 80% of the households returning home. On the other hand, only about 40% of the respondents participate in community activities. It is noteworthy that the groups that “socialize personally at least once a month” and “generally participate in community activities” each account for about 10% of the respondents.

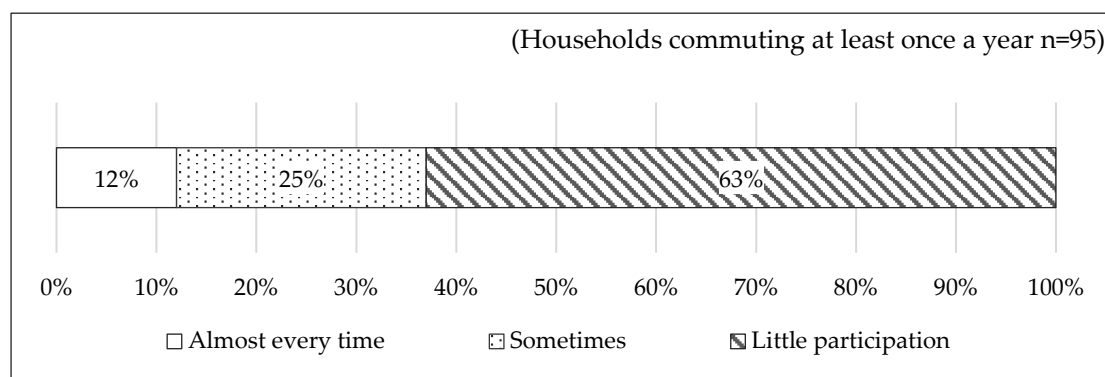


Figure 3-43. Participation in Community Activities of Vacant House Owners

Activities such as eating meals and drinking tea with people in the local community are relatively private social behaviors, which reflects that the owners of vacant houses still have personal contact with individuals in the local community when they return to their hometown. Participation in local community public activities generally refers to local festival activities and public activities organized by autonomous bodies, such as weeding and snow removal. The owners of vacant houses who are able to participate in these activities still maintain close ties with the local community because, in rural society, such regional activities themselves are a means of promoting collaboration and communication between people. People who can actively participate in regional activities when they return to their hometown undoubtedly also reflect a higher degree of regional contribution.

3.5.3 Leisure Activities and Motivation for Commuting

The respondents were asked about the frequency of their leisure activities upon returning home, which were divided into “activities enjoyed indoors (in a vacant house)” (relaxing, family gatherings, etc.) and “activities enjoyed outdoors” (walking, hiking in

the mountains, gathering wild vegetables, BBQ, fishing, mountain work, etc.). The results showed that 19% of the respondents selected “activities to enjoy indoors” at least once a month, 36% selected “several times a year,” 19% selected “1-2 times a year,” and 26% selected “never enjoy.” The same trend was seen in the “Outdoor activities” category. However, slightly more respondents selected “once a month or more” than the indoor category, with 24% selecting “once a month or more,” 27% selecting “several times a year,” 22% selecting “once or twice a year,” and 26% selecting “I never enjoy outdoor activities.”

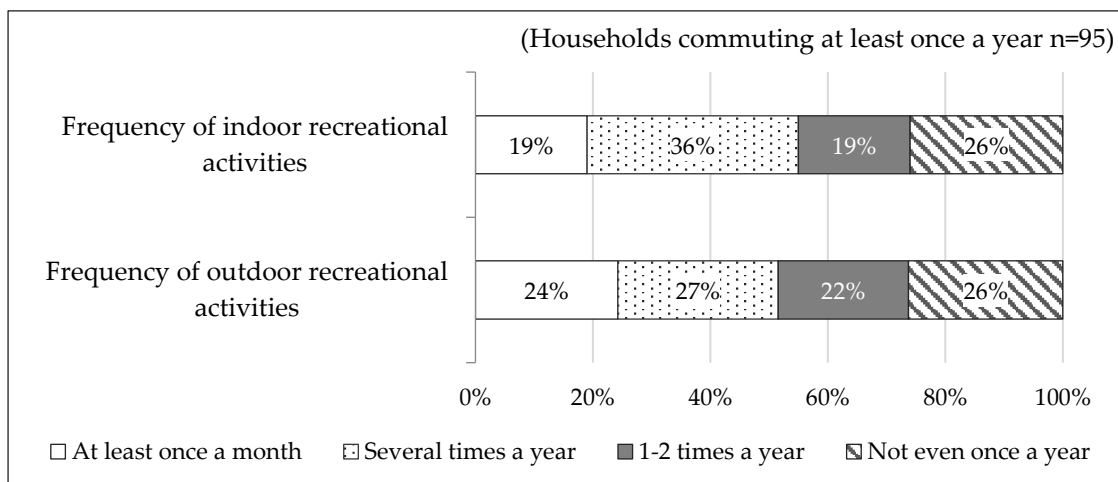


Figure 3-44. Frequency of activities to enjoy indoors and outdoors of vacant house owners

In other words, more than 70% of both indoor and outdoor households engage in leisure activities more than once a year (including more than once a month and several times a year), and many of the approximately 30% who return home more than once a month (31% of households return home more than once a month when excluding those returning less than once a year from Figure 3-31) (approximately 60% ($19\%/31\% = 0.61$) for indoors and approximately 80% ($24\%/31\% = 0.77$)), indicating that they engage in leisure activities when they return home.

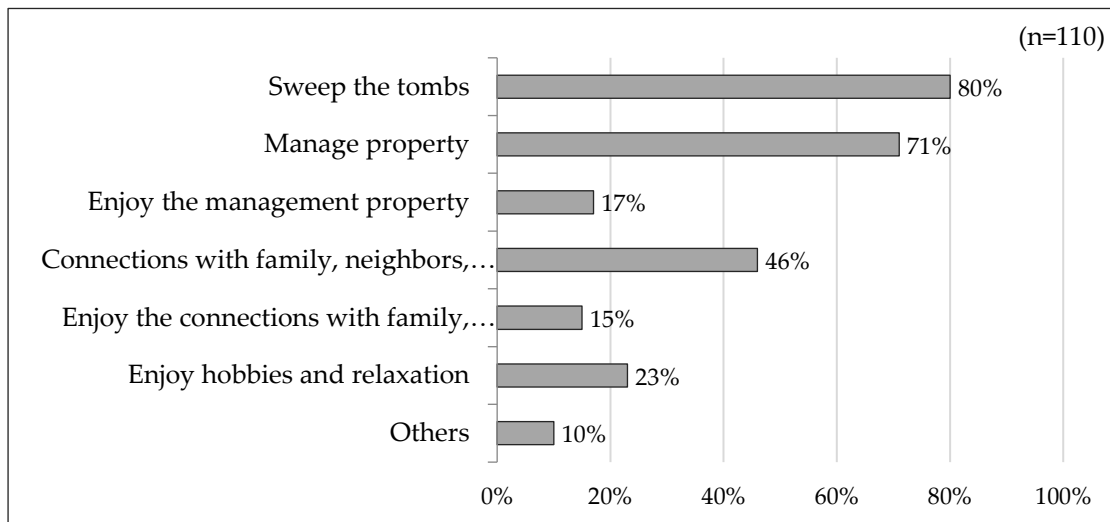


Figure 3-45. The purpose for the commuting of vacant house owners

In general, it is thought that the original purpose of the return trip of vacant house-owning households is for property management (maintenance of ancestral residences, farmland, and graves), such as visiting graves and managing vacant houses and farmland. However, it is not uncommon for owners or their spouses to enjoy staying in the hometown where they were born and raised or to enjoy recreation in the rich natural environment, which is inferred to be a motivation for some owner households to return home.

In other words, household-completed property management in private spaces is considered the basic return behavior. In contrast, household-completed leisure activities (outdoor enjoyment activities) in town spaces (74% of the total) and “personal socializing” in private and town spaces (80% of the total) are apparently “household-completed activities” and “interaction with residents.” Although these activities are different, there is a significant overlap between them (62% of the total). Some of them (40% of those who engage in “outdoor recreational activities” or “personal socializing”) participate in “community activities” in town spaces.

3.5.4 Factors Influencing Participation in Local Activities

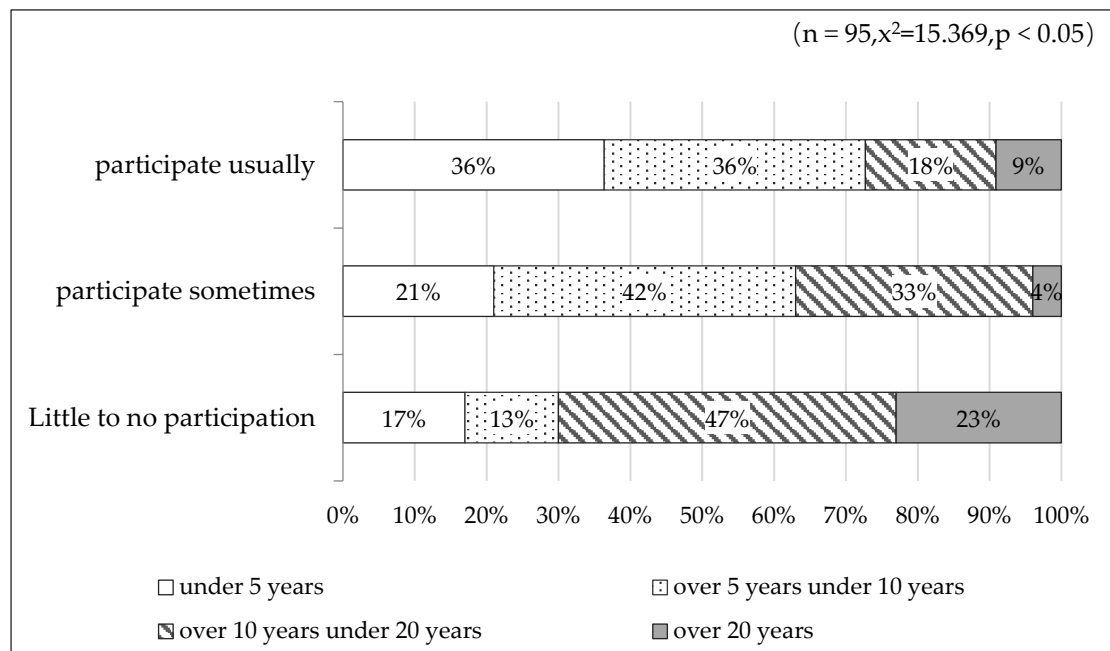


Figure 3-46. Community activities participation × years of the vacant house

As shown in this figure, community participation tends to decrease as the duration of house vacancy increases. Those with shorter vacancies (under 5 years or 5-10 years) are more likely to engage regularly in community activities, with 36% of each group usually participating. In contrast, respondents with houses vacant for longer periods (over 10 or 20 years) are more likely to have little to no participation, with 47% and 23%, respectively, in this category. This data underscores a concerning trend where extended vacancy is linked to reduced involvement in community activities, highlighting the urgent need to address potential social disengagement.

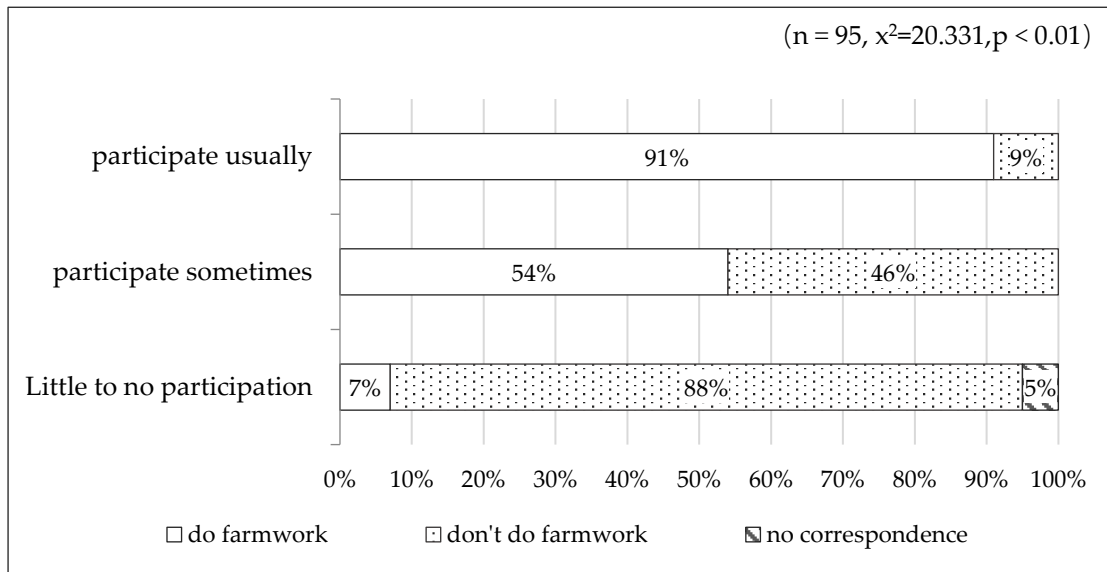


Figure 3-47. Participation in community activities × agriculture work

Owners with fewer years of vacant houses tend to manage and return to their homes more frequently. They are more likely to participate in community activities through a high frequency of return visits. Continued farm work may also make the process of returning home more enjoyable.

3.5.5 Community Activities, Personal Socializing, and Outdoor Activities

At the end of this chapter, we looked at the relationship between “personal socializing,” “community activities,” and “activities to enjoy outdoors” (in the previous section, we analyzed “activities to enjoy indoors” and “activities to enjoy outdoors,” but it is assumed that “activities to enjoy outdoors “ are more motivating to return home in terms of enjoying the difference in the environment from their place of residence.

First, we examine the relationship between “community activities,” which has the lowest participation rate among the three types of activities, and “outdoor recreational activities” and “personal socializing. Only 40% [=37%/ (100%-8%)] of those who participated in “outdoor activities” or “personal socializing” took part in “community activities. In other words, if “outdoor recreational activities” or “personal socializing” are the stages of having some relationship with the community, participation in

“community activities” can be inferred to be at a stage where the level of involvement has deepened.

Table 3-5. Activities for socializing and enjoying the outdoors, as well as community activities.

Item	Item count	Percentage
Personal association or outdoor recreation and participation in community activities	35	37%
Personal association or outdoor recreation and no participation in community activities	52	55%
No personal association or outdoor recreation and participation in community activities	0	0%
No personal association or outdoor recreation and no participation in community activities	8	8%
total	95	100%

Table 3-6. Socializing and Outdoor Fun Activities

Category	Item count	Percentage
Association & Leisure Type (Personal association and outdoor recreation)	59	62%
Only Association type (Personal association and no outdoor recreation)	17	18%
Only Leisure type (No personal association and outdoor recreation)	11	12%
Property Management type (No personal association and no outdoor recreation)	8	8%
total	95	100%

Next, we look at the relationship between “outdoor recreation activities” and “personal socializing”. The “outdoor recreation/personal socializing” type includes 62% of those who engage in both activities, the “personal socializing only” type includes

18%, the “outdoor recreation only” type includes 12%, and the “property management” type includes 8% who do not engage in both activities and limit their activities to managing personal property such as vacant houses and graves. The “property management” group, which did not engage in either of these activities and limited their activities to managing personal property such as vacant houses and graves, accounted for 8%.

In other words, household-completed property management in private spaces is an essential return activity, while household-completed leisure activities in town spaces (74% of all “outdoor enjoyment activities”) and “personal socializing” in private and town spaces (80% of all activities) are seemingly different as “household-completed activities” and “interaction with residents.” Still, there is a significant overlap (62% of all activities). Although these activities are apparently different, there is a significant overlap between them (62% of all respondents), and some of them (40% of those who engage in “outdoor recreational activities” or “personal socializing”) participate in “community activities” in town spaces.

3.6 Population characteristics of vacant house owners with a high frequency of commuting

Through the above analysis and research, we can't find that people with a high degree of communication back home will highly manage their own houses and, at the same time, have more connections with the local regional society. Therefore, this section mainly analyzes the basic attributes and characteristics of people with a high degree of commuting, as well as the specific depth of their connections with the regional society.

Table 3-7. Chi-Square Test Results for High-Frequency Return Factors

Chi-square test results for high-frequency return factors			
	Chi ²	p-value	Degrees of Freedom
Vacant years	22.541	p < 0.05	9
Age of owner	7.576	0.577348	9
Current residence	26.551	p < 0.05	9
Frequency of vacant house management	264.248	p < 0.001	9
Farming	41.270	p < 0.001	6
Association	80.943	p < 0.001	9
Participation in community activities	42.681	p < 0.001	6
Outdoors enjoyment	120.008	p < 0.001	9

First, we analyzed the commuting frequency, the main attributes of vacant house owners, and their behavior after returning to their hometown. After analysis, it is found that in addition to the age of the owner and the frequency of commuting (0.5773), the number of years of vacant houses, the current address of the owner, the frequency of managing vacant houses, whether there is farming behavior, the frequency of association behavior with local residents, the frequency of participating in local community activities, and the frequency of enjoying outdoor are all correlated with the high frequency of returning home behavior ($p < 0.05$, $p < 0.001$).

3.6.1 The Relationship Between High-Frequency Commuters and Local Community

Fig. 3- 42 illustrates the characteristics of vacant house owners who engage in high-frequency commuting activities. It is divided into several categories, highlighting factors such as age, duration of vacancy, participation in community activities, outdoor enjoyment, and social interactions. Key observations include:

First of all, in the age group of owners, it can be found that the proportion of the frequency commuting age group is roughly the same as the overall age group proportion. The largest share is among people aged 70 to 80, at nearly 40%. Among the people with a high frequency of commuting, the proportion of ultra-elderly people over the age of 80 is relatively small, only 7%, which is half less than the overall population (14%).

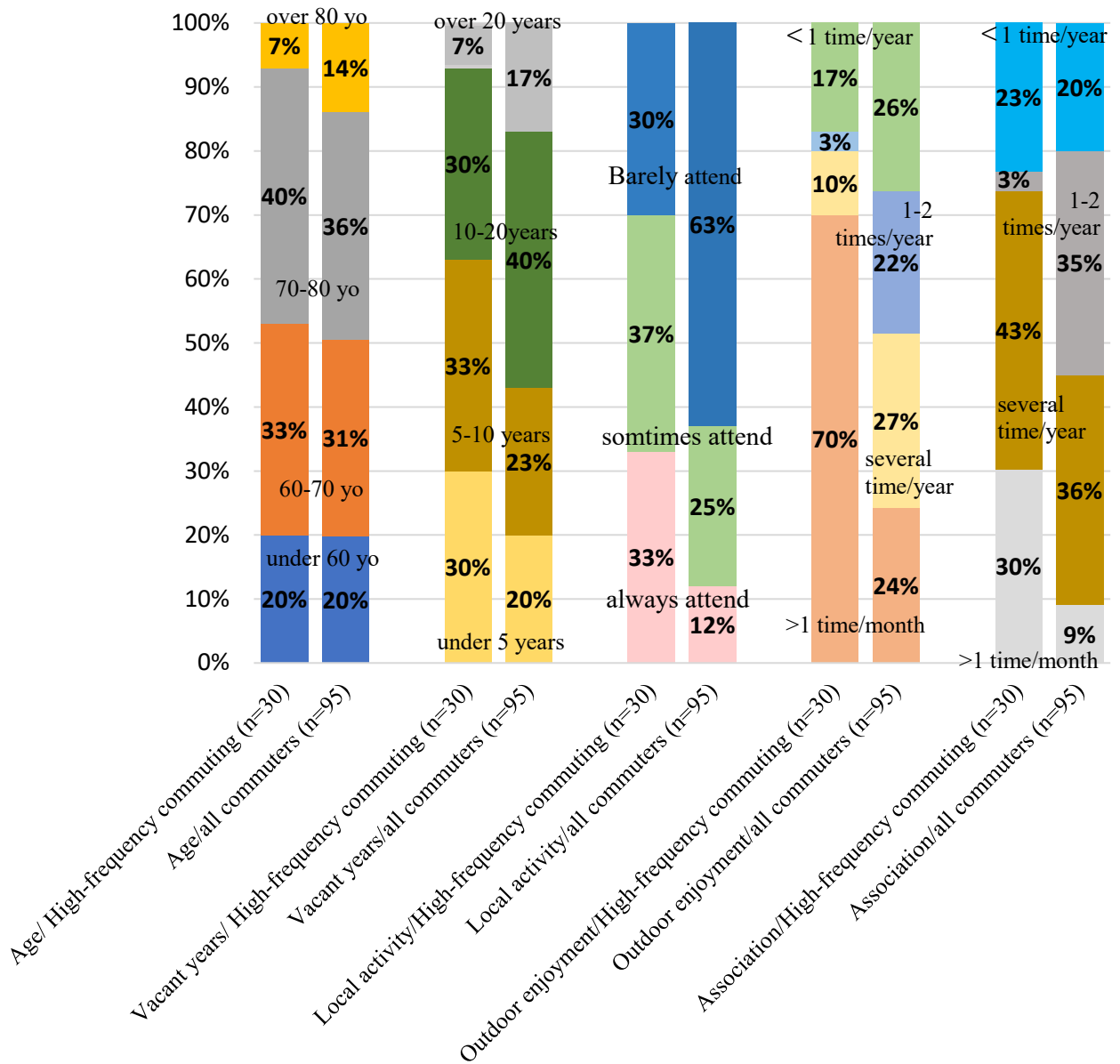


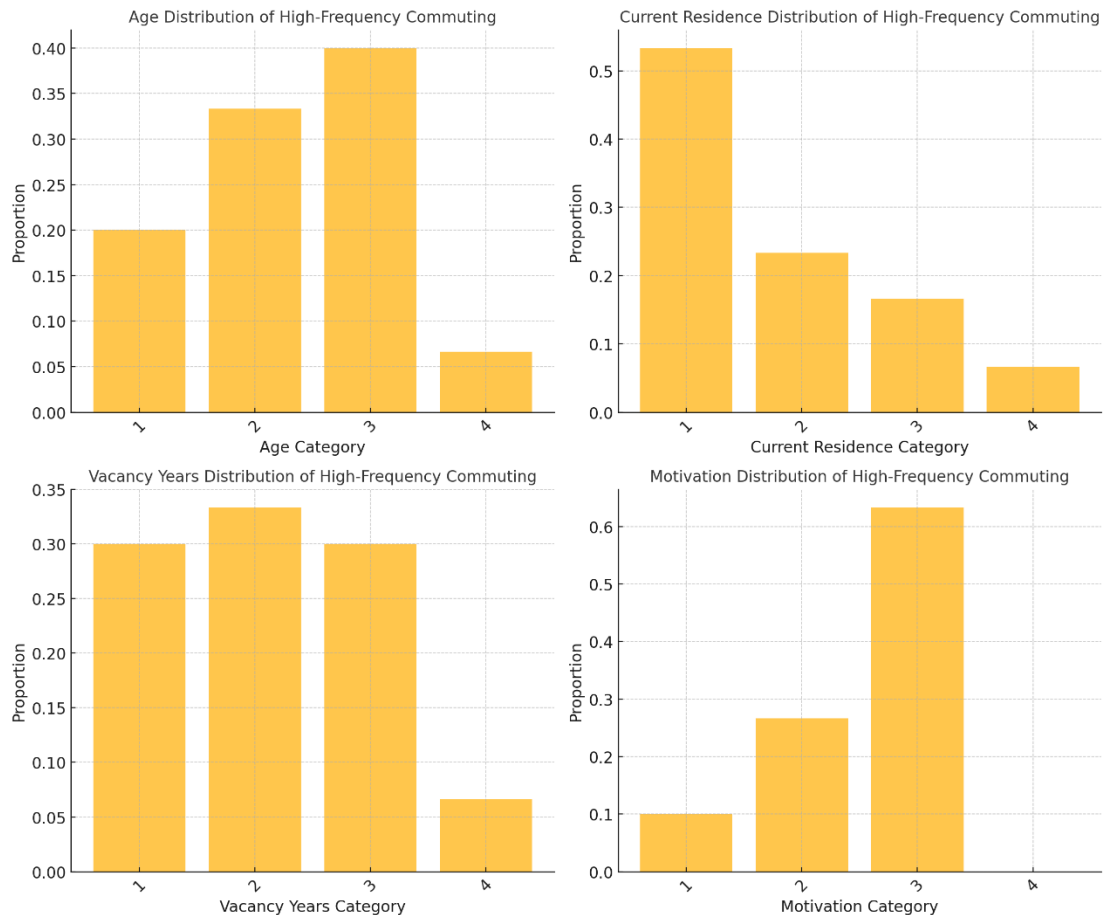
Figure 3-48. Characteristics of vacant house owners who engage in high-frequency commuting behavior

Next, in the vacant age group, more than 60% of the homes owned by high-frequency commuters were vacant for less than 10 years, compared with about 50% of the population as a whole. In this group, the difference in the number of years the house has been vacant for the people with high frequency of commuting is gradually revealed, indicating that the owners of the house vacant for less than 10 years are more frequent commuting and managing the house.

Then, when it comes to participating in local activities, enjoying the outdoors, and socializing with local celebrities, there are significant differences between those who commute home with high frequency and the overall population. People who commute to their hometown frequently and participate in social activities, socialize with local people and enjoy outdoor leisure are basically three times the proportion of the whole population, especially in enjoying outdoor leisure. The proportion of people who commuted more frequently and enjoyed outdoor life more frequently (more than once a month) was as high as 70%, compared with 24% of the population as a whole. These three sets of data can show the behavior state of people who commute back to their hometown with high frequency, that is, they fully enjoy the outdoor natural life, actively respond to the local social activities, and maintain private social behaviors with local residents. We can predict that this part of the emigration crowd, although far away from home in distance, but still very close to home in the heart. This significant trend gap is also evidence that people who commute more frequently back home can have a positive impact and contribute to the local community while managing their own property back home.

3.6.2 Characteristics Analysis of High Frequency Commuters

This section uses logistic regression models and descriptive statistics to summarize the characteristics of people who commute home with high frequency, so as to understand the factors affecting this group of people. The comparator considers the age, current address and motivation of the commuters as the basic attributes. At the same time, the vacant years of the house can reflect the length of the years of the transfer away from the hometown to a certain extent, so it is also used as one of the basic attributes to weigh.



Age:1: under 60YO. 2: 60-70 YO. 3:70-80 YO. 4: over 80 YO.
 Residence: 1: Shimogo Commuter Zone. 2: Other areas in Fukushima Prefecture.
 3: Kanto region. 4: Outside Kanto region.
 Vacancy years: 1: Within 5 years. 2:6-10years. 3:11-20 years. 4: over 20 years
 Motivation: 1: For the administration of property. 2: To communicate with friends and family. 3: Enjoy returning to their hometown with interest

Figure 3-49. Motivation Distribution of High-Frequency Commuting

First of all, as shown in the descriptive statistics in Figure 3-49, Group 3 in the Age category (70 to 80 years old) has the most obvious age characteristics of high-frequency commuters. In comparison, group 4 (owners over 80 years old) has the smallest impact factor, which indicates that the age of people who commute home with high flatness is an aging population, especially higher than that of people under 60 years old in group 1. As for the current residence, the most obvious feature is No. 1 (Shimogo Commuter Zone), which indicates that proximity makes it easier to promote high-frequency commuting and manage the population from a geographical level. In terms

of the vacant years of houses, it is obvious that there are very few people who commute to houses with high frequency that exceed the limit of more than 20 years, which proves that houses with long abandoned years are more likely to face the problem of low management conditions. Finally, regarding the motivation of returning to hometown, it can be clearly seen that the impact factor of group 3 exceeds 0.6, which is the highest value of the impact factor, indicating that interest in commuting and returning home is an important factor contributing to the high frequency of commuting back home.

Table 3-8. Classification Report for Logistic Regression

Category	Precision	Recall	F1-score	Support
Low/Medium Frequency (Class 0)	94.10%	94.10%	94.10%	17
High Frequency (Class 1)	83.30%	83.30%	83.30%	6
Overall Accuracy	91.30%	91.30%	91.30%	23

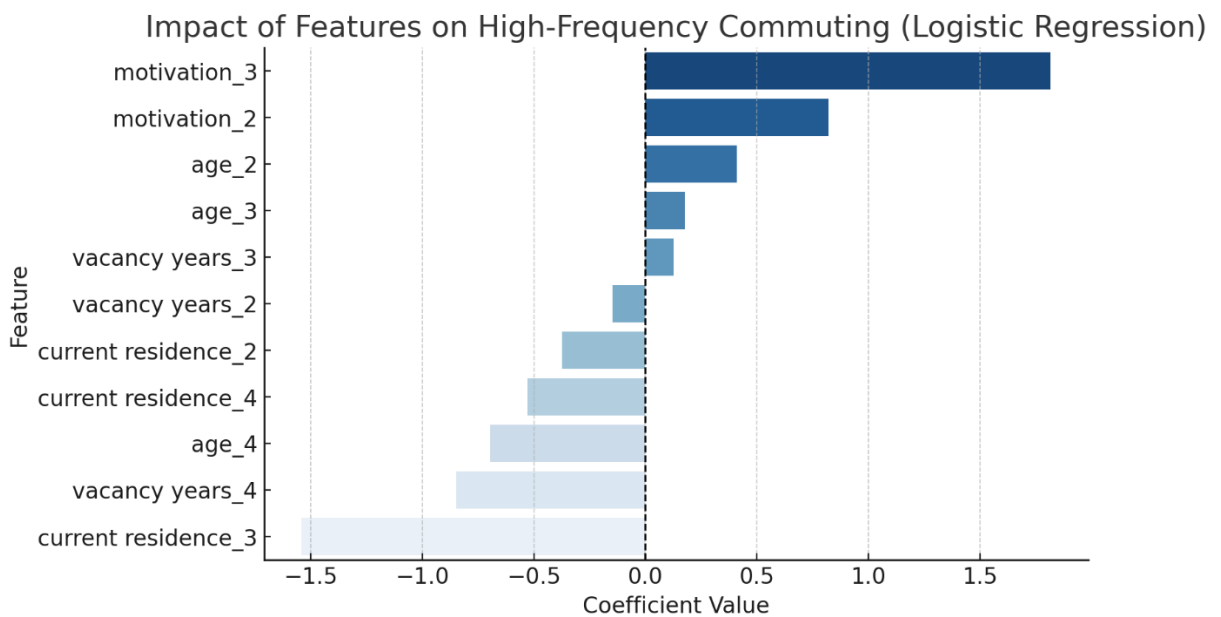


Figure 3-50. Impact of Features on High-Frequency Commuting (Logistic Regression)

According to the regression coefficient of the logistic regression model, the visual chart shows that the variable homecoming purpose, enjoying the homecoming and seeing it as a pleasure, is the most important factor affecting the high frequency of commuting home. Then came motivation number two: returning home to connect with friends and family. The motivation of returning home has a very significant effect on

the high frequency of returning home. Meanwhile, age also affects the high frequency of returning home to a certain extent, and in the negative direction, the residence in Kanto has a negative correlation with the high frequency of commuting

3.7 Estimation of Social Impact

The goal of this study is to quantify the contribution of vacant house-owning households to the community, assuming that they are a type of resident in an aging and depopulated area, and to provide the essential data to promote and support their contribution through policy. The analysis of the “social impact” of vacant house owners in a area facing aging and depopulation has significant implications for both policy development and community sustainability. Based on the ideas presented, the following are key reasons why this analysis is essential:

1) Quantifying Contribution of Vacant House Owners:

By treating vacant house owners as a type of resident, this analysis seeks to quantify their contributions to the local community. Vacant house owners often maintain ties with the area, return periodically, and engage in various activities that can have economic and social impacts. Understanding the extent of their involvement can help assess the potential for integrating this group more effectively into local revitalization efforts.

2) Developing Policy Support:

The goal of the research is to use the findings as a foundation for developing policies that promote and support the contributions of vacant house owners. Suppose vacant house owners are found to engage with and support the community in meaningful ways. In that case, policymakers can create targeted strategies, such as incentives for house maintenance, community participation programs, or tax benefits, to encourage their continued involvement and support.

3) Sustaining Rural Communities:

In areas experiencing depopulation, identifying and leveraging the potential of all types of residents, including vacant house owners, is critical for sustaining local communities. These individuals can contribute to local economies, help preserve cultural heritage and engage in community-building efforts. Their contributions, though indirect, can be essential to maintaining the vitality of the area.

4) Optimizing Resource Allocation:

By analyzing the behaviors of vacant house owners and their percentage of overall households (20.1% in this case), local governments can better understand how much of the population is transient or non-permanent. This helps in allocating resources efficiently, such as for infrastructure maintenance, public services, and community planning.

5) Understanding Broader Social Dynamics:

The analysis can shed light on the broader social dynamics in depopulated areas. Vacant house owners may maintain an emotional or familial connection to the area, which could be utilized to foster community engagement or attract future residents. Understanding how these owners interact with the community offers insights into how rural areas might reinvent themselves by incorporating part-time residents or visitors into long-term planning.

In summary, analyzing the social impact of vacant house owners is crucial for identifying their role in sustaining rural communities, informing policy decisions, and optimizing resource allocation in areas facing aging and depopulation. This approach could provide a foundation for future strategies aimed at revitalizing underpopulated areas and supporting long-term community well-being.

Table 3-9. Details for Estimation of Social Impact

NO	Item	Calculation method
1	Resident Households	1996 [①]
2	Households with Vacant House	501 [②]
3	Rate of Households with Vacant Houses Households of Vacant House/ (Resident Households + Households of Vacant House)	$\frac{②}{①+②}$ (20.1%) [③]
4	Commuting Households (households with Vacant House that have commuting at least once a year)	$330 \times 0.86 + 171$ (454) [④]
5	Percentage of Commuting Households Commuting households/ (commuting households + resident households)	$\frac{④}{④+①}$ (18.5%)
6	High-frequency Commuting Households (Households commuting at least once a month)	$330 \times 0.27 + 171$ (260) [⑤]
7	Percentage of High-frequency Commuting Households High-frequency Commuting Households/ (High-frequency Commuting Households + Resident Households)	$\frac{⑤}{⑤+①}$ (11.5%)
8	Commuting Households Engaged in Farming	$④ \times (27/95)$ (129) [⑥]
9	Percentage of Commuting Households Engaged in Farming	$\frac{⑥}{⑥+①}$ (6.1%)
10	Households with Vacant Houses Engaged in Weeding	$② \times (93/111)$ (419) [⑦]
11	Percentage of Households with Vacant Houses Engaged in Weeding	$\frac{⑦}{⑦+①}$ (17.3%)
12	Households with Vacant House Engaged in Vacant House Management	$② \times (94/111)$ (424) [⑧]
13	Percentage of Households with Vacant House Engaged in Vacant House Management	$\frac{⑧}{⑧+①}$ (17.5%)

Note: In the text, “vacant house households” is used when the population is all vacant house-owning households, and “commuting households” is used when the population is “vacant house-owning households that return home at least once a year,” but the results do not differ because the absolute number of households is calculated.

Therefore, we estimate the ratio of vacant house-owning households to the total number of vacant house-owning households (the sum of vacant house-owning households and resident households), assuming that vacant house-owning households are residents by action. First, based on the town's 2017 Basic Resident Ledger and Vacant Household Action Plan, we estimate the number of resident households to be 1996 and the number of vacant households to be 501. In the previous chapters, the survey covered 320 of the 330 cases identified by the township as vacant houses for which survey forms could be mailed. Still, in this chapter, we used 501 vacant households in the broadest sense, including weekend dwellers, to use the population of vacant houses in the estimation. Thus, as of 2017, the overall vacancy rate for the entire town of Shimogo was 20.1% [$501 / (501+1996)$].

Note that until the previous chapter, the analysis was conducted separately for vacant house owner households and returning households that return home at least once a year. Hence, the notations in Table 5 are also mixed, but since the absolute number of households is estimated, the results remain the same and are not problematic. Weekend-dwelling households, which were removed from the scope of this survey, were calculated as 171 households that return home at least once a month (= 501-330). Furthermore, the decimal point in the number of households was rounded down to the nearest whole number.

Evaluating the number of vacant houseowner households from the perspective of the population in terms of the percentage of return trips of the sample, the number of households that return home at least once a year is 454 [=330*0.86+171 No. 4] (“return home at least once a year” totals 86% in the graph of “Overall frequency of return trips” in Figure 11, multiply by 0.86) and the number of households that return home at least once a month is 260 households [=330*0.27+171, No. 6] (the graph of “Overall frequency of return home” in Figure 11 shows that “return home at least once a month” is 27% in total, so multiply by 0.27), and if households that return home at least once a year are considered residents, 18.5% of the total (residents and households returning

home at least once a year) [=454/(454+1996), No. 5], and 11.5% [=260/(260+1996), No. 7] if households returning home at least once a month are considered as residents.

From the perspective of space management, vacant house owner households engaged in agricultural work were estimated to be 129 [=454*(27/95), No. 8], accounting for 6.1% of all households [=129/ (129+1996), No. 9]. The number of vacant house-owning households engaged in mowing was estimated to be 419 [=501*(93/111), No. 10], accounting for 17.3% of all households [=419/ (419+1996), No. 11]. Furthermore, the number of vacant house-owning households managing the main house is estimated to be 424 [=501*(94/111), No. 12], accounting for 17.5% of all households [=424/ (424+1996), No. 13].

This is an attempt to quantify the role of vacant house owner households for convenience while considering the limitations of qualitative differences in activities between vacant house owner households that return to their homes and residents who live in their homes all the time.

3.8. Survey of residents' attitude towards vacant houses

The vacant house has an impact on the rural environment, so it is necessary for residents to understand and view the vacant house. For residents, the survey includes basic information such as age, number of family members, years lived in the house, and involvement in business or neighborhood management of vacant houses. For those who have moved out, it focuses on the number of years the house has been vacant, its history, the current manager, and the person's place of residence. Additionally, the survey examines the frequency of commuting home, management of the vacant house, mowing frequency, and farm work status. Both groups are asked about their interactions with neighbors, participation in community activities, attitudes toward vacant houses (negative, familiar, or indifferent), and whether vacant houses affect their daily life and living environment. This structure provides a comprehensive view of the relationships between residents, vacant houses, and the surrounding community.

Table 3-10. Content for residents about the hearing survey

	a resident	person who has moved out
	Basic information such as age, number of family members, etc.	
Summary of Survey Items	Years lived in	Number of years the house has been vacant and its history
	business	Current manager, place of residence
	Whether or not to help manage vacant houses in the neighborhood	Frequency commuting home, frequency of vacant house management, frequency of mowing, farm work status
	Status of interaction with neighbors and participation in community activities	
	Attitudes toward vacant houses (negative, familiar, indifferent) Whether vacant houses are affecting their daily life and living environment	

Table 3-11. Details about the hearing survey

	resident	Issues of concern	person moving out
NO.1 Ōaza Sakatomi	55 years old, male, family of 4, resident for 30 years. He is engaged in farming with his wife and son. He often gets together with his close friends in the community and participates in most of the activities in the community. He also sometimes goes to other towns to help with snow removal and other work.	The original owner has multiple children but has never seen the other children return home to manage the property and is concerned that the vacant house will be utterly unmanaged in the future. In addition, many activities in the town are understaffed due to the population outflow.	After the original owner passed away, the children's generation managed the house. 40s female, vacant for 13 years, currently living in Tokyo. She returns home once or twice a year to manage the house. She rarely interacts with people in the community and does not participate in community activities.
NO. 2 Ōaza Edamatsu	61 years old, a single man, and There are no children, and the interpersonal communication with the town is reflected in the chatting when farming and greeting when meeting on the road. Participates in community activities and does not help manage vacant houses.	I am very worried about the impact of vacant houses on the environment, and I hope the owners can take active responsibility and try their best to help the management of vacant houses. Still, I do not think that the appearance of vacant houses has affected the living environment.	no vacant house around the neighbor

NO.3 Ōaza Nakazum	81 years old, a single woman, and has lived in the community for over 40 years. Her daughter returns home once a month and has weekly tea parties with friends in the town. She does not participate in community activities and does not help manage her vacant house.	The number of vacant houses in the community is increasing, and we feel we are getting used to not feeling particularly affected by other people's vacant houses. However, we are concerned about their own homes becoming vacant and do not want to inconvenience others in doing so.	After the original owner passed away, the child generation managed the house; a male in his 60s has lived in the vacant house for 11 years, currently lives in Fukushima City, and returns home several times a year to manage the house. He returns home several times a year to manage the house. He is a greeter but does not participate in community activities.
NO.4 Ōaza Nakazum	67 years old, a single woman, and has lived in the community for over 40 years. Usually, she takes an active part in the activities of the colony and will also have dinner with friends in the town. His son, who lives in the nearby city of Shin-Shirakawa, returns to the province every two months or so to visit his parents.	Although there are vacant houses in the colony and it is not known who the manager is, in order to ensure the environmental safety of the colony, the residents will organize voluntary and regular maintenance of the shooting down, which has become an active project.	There's a specific vacant house not far from the house, whose owner is unknown and has been unmanaged for more than 20 years.
NO.5 Ōaza Ochiai	33 years old, female, family of 3, husband works at a wood factory in Shimogo Town. She has lived in Shimogo Town for 7 years since she married, has participated in most of the community activities, and frequently interacts with people in the community.	Although he lives in a town in the center of Shimogo Town and there are no vacant houses near his house, he is concerned that the entire town environment will be affected by the increase in vacant houses. He is concerned that one day he will look out his window and see a vacant house.	no vacant house around the neighbor
NO.6 Ōaza Shionou	I am 70 years old, married, have a family of 2, and have been a resident for 40 years. Frequently participates in cultural festivals. His son lives in Fukushima City and returns to the province several times a year.	Worries about younger generations leaving the town, leaving properties unmanaged, and the community losing its cultural identity.	40s male, lives in Yokohama. Returns every few years but are disconnected from community events and maintenance responsibilities.

NO.7 Ōaza Shionou	62, male, family of 3, lives with 80-year-old mother. He has lived in the community for more than 40 years. He is engaged in farming, frequently interacts with people in the community, and often participates in community activities. He usually helps his neighbors mow their grass and take care of the vegetables they grow in their garden.	Neighbors have moved out but do not affect others environmentally, as they frequently return home to maintain their houses.	The owner is a man in his 60s who moved to Tokyo for work. He returns home at least once a month to manage the property and sometimes stays for long periods during the summer. He always participates in community activities if they are held when he returns home.
NO.8 Ōaza Takatsu	68 years old, family of 2, resident for over 40 years. Her daughter returns home once a month and has weekly tea parties with friends in the town. She does not participate in community activities and does not help manage her vacant house.	The growing number of people moving out of the town is worrying, the population in the settlements is getting older, there is a feeling that vacant houses and population outflow will worsen in the future, and there is concern about the lack of Labor	70s female, moved to Minamiaizu town for better healthcare access and live with son. Occasionally visits as several times per year. They will not stay in the house for a few days and leave on the same day, so the weeds around the house are not taken care of, and the environmental condition is poor.

The main population is concerned about the vacant house, which is mainly reflected in 1) the concern about the impact of the vacant house itself on the environment and 2) Worry about the impact of population loss and labor shortage caused by vacant housing. Some owners with frequent management and frequent commutes have managed their homes well enough that residents who live nearby don't feel affected by vacant houses. It is worth noting that the residents of Shia-go town would spontaneously manage the completely damaged vacant houses on a regular basis to maintain the environment of the colony, which in turn formed a communication and cooperation activity within the colony and promoted communication among residents.

3.9. Conclusion

3.9.1 Future About the Vacant Houses, Vacant House Owners, and Space

Management

About 40% of the houses have been vacant for less than ten years, confirming that vacant houses have been continuously occurring in recent years, and the frequency of vacant house management is noticeably lower for houses that have been vacant for more than ten years. The above indicates that for vacant houses that have been vacant for less than ten years, it is desirable for local governments, etc., to “prepare for their utilization and maintenance, and approach household owners.

About 30% of all households return home at least once a month. Those households that manage vacant houses and cut grass on their own and return home at least once a month generally manage vacant houses every time they return home, and about 80% of them cut grass at the same frequency. At the same time, about 60% of them do farm work. The “households that return home more than once a month,” so to speak, are actively engaged in space management.

About 30% of vacant house owner households live within a 60-minute time distance, and about 80% of these households live within commuting distance of the town. Still, for households that return home regularly, more than once a year, the frequency of return trips correlates with the distance between vacant houses and places of residence. It is recommended that support for return activities, such as the “proximity discount” in urban areas, be provided for vacant house-owned households that return home regularly.

A field survey was conducted to understand the perceptions of local residents regarding vacant houses. The findings indicate that when vacant house owners frequently return to manage their properties, their neighbors and other settlement residents tend to be less sensitive to the presence of vacant houses and generally do not

perceive them as negatively affecting their daily lives.

3.9.2 Relationship of Vacant House Owner with the Community

It was found that (1) household-completed leisure activities and personal socializing and (2) participation in community activities, which are not ritualistic and based on free will, do not parallel with each other, but rather that a portion of the group that engages in (1) engages in (2). About 60% of households that return home at least once a month engage in activities that they enjoy outdoors, and about 80% engage in activities that they enjoy indoors, suggesting the existence of a segment that positions returning home as a leisure-like activity.

Therefore, rather than simply asking these households to participate in the local community (community activities), it is recommended that they be given respect and support for activities such as leisure time activities and personal socializing when they return home (e.g., creating opportunities for interaction among returning residents, creating places other than vacant houses where they can stop by, etc.) to create sustainable relationships between the community, local government, and vacant house-owning households. This will create a sustainable relationship between the local community, local government, and the households that own vacant houses.

People who pay attention to the high frequency of commuting back home can find that the motivation to return home has a strong influence on the high frequency of returning home behavior. Therefore, whether it is to stimulate the interest of house owners to return hometown, respect their willingness to communicate with local relatives and friends frequently, and carry out activities or provide support strategies on this basis can effectively promote high-frequency commuting behavior. Those who commute home with high frequency not only have positive management status in terms of space management but also can make sustainable contributions to the local society.

3.9.3 Impact of Vacant House Owners on the Community

Assuming that vacant house-owning households are some residents, the respective percentages of vacant house-owning households that (1) return home at least once a year, (2) engage in mowing, and (3) manage the main house account for just under 20% of the total of residents and vacant house-owning households, and similarly, the respective percentages of vacant house-owning households that (1) return home at least once a month and (2) engage in farm work. Each of these percentages accounts for less than 10% of the total. In other words, they make a specific contribution to the sustainability of local communities from the perspective of population and space management. Although it is not uncommon to find organizations of people who have moved out of their homes, such as a native-born association, there are currently few concrete measures taken by the local government to consider them as a kind of resident and expect them to make a positive contribution to the local community. This report will serve as an argument for considering measures to sustain local communities by treating vacant house-owning households as residents of a particular type.

Reference

- [1] Distribution of depopulation-related municipalities by prefecture, Office of Depopulation Control, Local Administration Bureau, Ministry of Internal Affairs and Communications, Apr. 2022
- [2] Tsubasa Suzuki, Research on sparsely populated settlements in Oe Town Current situation of sparsely populated settlements and future measures, Journal of The Society of Art Engineers of Japan No. 53 Sept. 2010
- [3] Shimogo Town HP Various statistical data:
<https://www.town.shimogo.fukushima.jp/shimogo/gaiyou/299.html>
- [4] Shimogo Town Population Vision and Comprehensive Strategy for the Creation of Shimogo Town, Shimogo Town General Policy Division, Apr. 2020
- [5] Shimogo Town's plan for dealing with vacant houses, etc. Shimogo Town General Policy Division, 2018
- [6] Aizu Metropolitan Area Public Transportation Network Formation Plan, Fukushima Prefecture, six cities, towns, and towns in the Aizu region, 2020
- [7] Yukihiro Saito, Tomohiko Yoshida, Hong Nan, The Moving-Out Residents' Role in the Sustainability of Local Society--A case study in Seimou region, Gunma Prefecture, in Aizu region, Fukushima Prefecture and Kyoutanba region, Kyoto Prefecture, Research Collection, and Practical Research Report No. 50, pp.269-279, Research Institute of Housing and Urban Development, 2023
- [8] Yukihiro SAITO, Commuting Behaviors of Vacant House Owners and Their Relationship with Rural Society in Mountainous Areas, Journal of Environmental Information Science 2020(1), 1-11, 2020
- [9] e-Stat (e-Stat), <Census Boundary Data by Town, Street, Character, etc.,> 2020
- [10] Geoshape Municipal ID Data Set (prepared by CODH), Census Boundary Data Set > Standard Area Code List > Shimogo, Fukushima Prefecture (07362)
<https://geoshape.ex.nii.ac.jp/ka/resource/07362.html>

Chapter 4. Survey and Case Study Analysis of Aizubange

Town, Fukushima Prefecture

4.1 Research Area and Survey Summary

4.1.1 Selection of Investigation Land

The methodology for the selection of target sites and the way cooperation with local authorities was requested to assist in the survey have been described in detail in Chapter 3. After the investigation in Shimogo Town was completed (kindly refer to section 3.1.1-3.1.4), we contacted Aizubange Town and succeeded in obtaining permission to conduct the investigation. The questionnaires for Aizubange Town and Shimogo Town were modified very slightly depending on the requirements of the local government.

4.1.2 Introduction of Subject Land—Aizubange Town

Geography

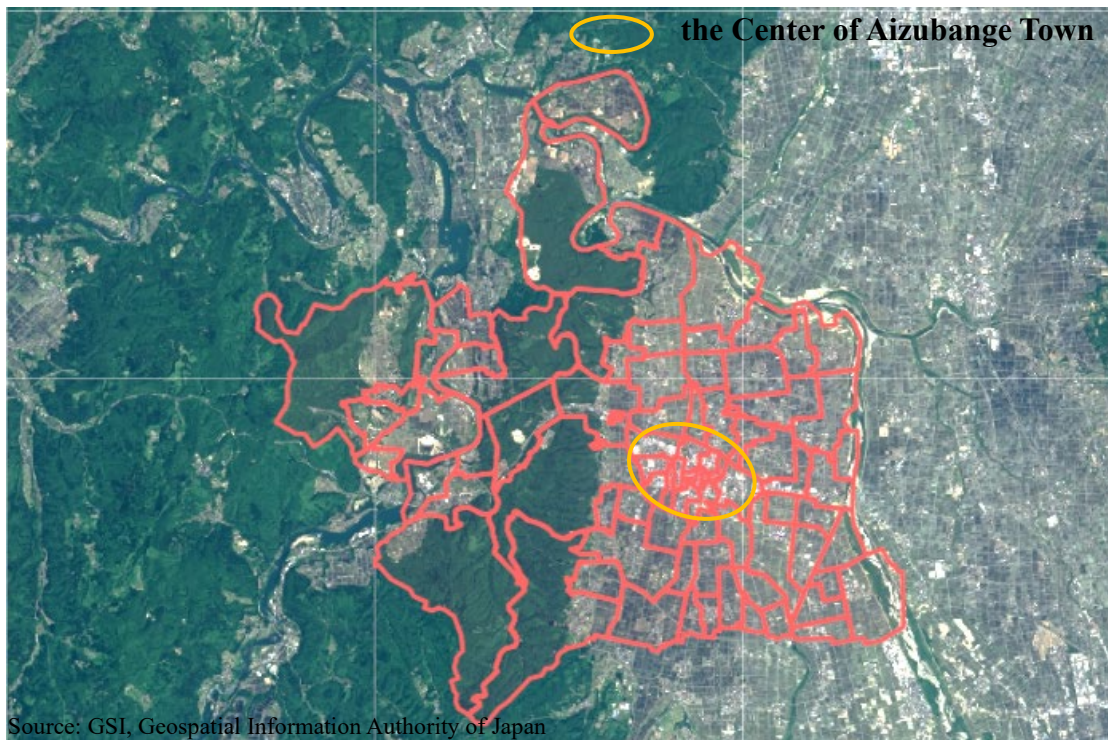
Aizubange Town, located in the western part of the Aizu Basin, is characterized by a diverse geographical landscape. The central part of the eastern side of the town consists of a relatively flat basin area, which is predominantly covered with rice paddies. In contrast, the western part of the town is mountainous, with large expanses of forests. The Agano River flows from the east to the north of the town. At the same time, the Tadami River runs through its western part, contributing to the area's natural beauty and providing vital water resources for agriculture.

Historically, Aizubange Town has been a significant transportation hub. Since ancient times, it has prospered as an important commercial center. During the Edo

period (1603–1867), a market was held regularly on the “14th day of the lunar calendar” in the old Sakashita area, marking the town as a center for trade and commerce. The Aizu Domain issued an order prohibiting markets within a 12 km radius of Sakashita, cementing its importance as a protected commercial hub. This historical significance is reflected in the nickname “Baka-Shita no Baka-San-ri,” indicating its centrality among neighboring areas such as Aizuwakamatsu, Kitakata, and Takata, all of which were equidistant at about 12 km.

Additionally, the town is historically linked to the Numata Highway, which began at the entrance of Kanemukido Pass on the old Echigo Highway. This route connected Aizubange to Numata City in Gunma Prefecture, passing through key areas such as Nanaori Pass (now part of National Route 49), Oku-Aizu, and Ozegahara. The highway served as a main road for travel and trade between these areas.

Overall, Aizubange Town's geography, historical importance as a trade center, and position as a transportation hub have shaped its development, making it an important location within the Aizu region. Its blend of agricultural productivity and historical significance continues to influence its role in the wider area today.



Source: GSI, Geospatial Information Authority of Japan

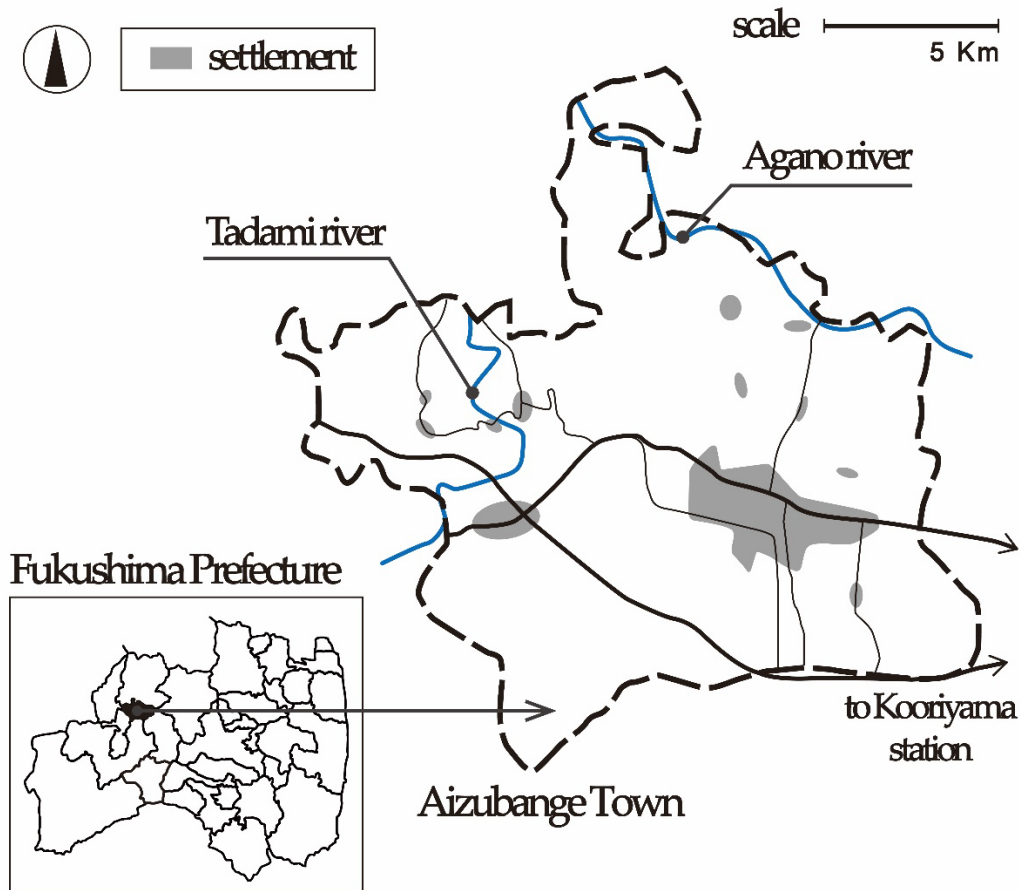


Figure 4-1. Topographic and area-wide maps of Aizubange Town

Aizubange town is situated in the western part of the Aizu Basin. The central and eastern areas of the town, where the major settlements are situated, are relatively flat and covered with rice paddies. In contrast, mountains and forests characterize the western part. The Agano River (a first-class river in Japan) flows from the east to the north of the town, and the Tadami River flows through the western part of the town (figure 4-1). The area experiences a significant difference in temperature between cold and hot seasons, which is a characteristic feature of the basin. Those who are returning home usually prefer to drive straight to Aizubange town. Visitors typically arrive at Koriyama Station in Fukushima Prefecture via the Shinkansen train first and then use the Koriyama Interchange on the Tohoku Expressway to reach Aizubange town in less than an hour.

The topographic map indicates that Aizubange Town is predominantly flat, unlike

Shimogo Town, which is predominantly mountainous. The area where most settlements are located is situated in an intermediate zone, which is relatively level, with extensive and spacious farmland.

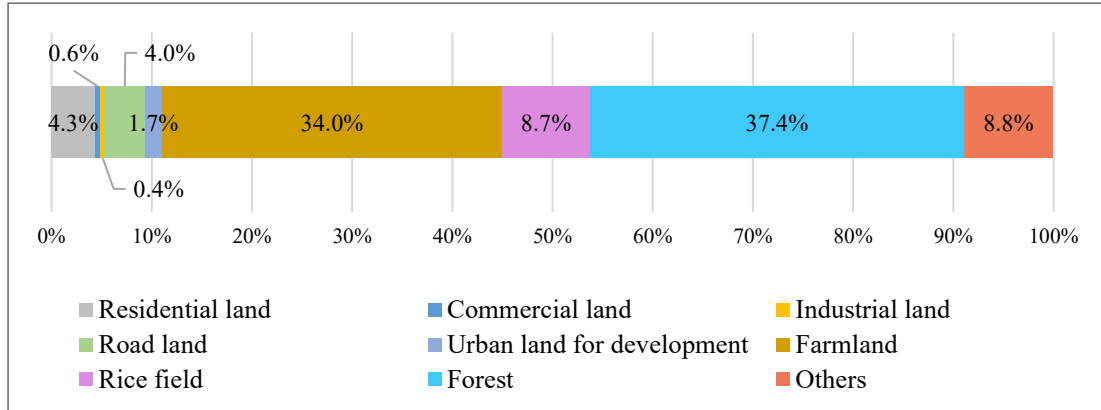


Figure 4-2. Composition of the area by land use of Aizubange Town

Figure 4-2 illustrates the land use distribution in each area, with most of the land dedicated to agriculture and forestry. Forest fields account for the largest share, covering 37.4% of the land, followed by farmlands at 34.0%. Other agricultural fields, like rice fields, take up 8.7% of the total area. Roads make up 4.0%, reflecting the infrastructure needed for connectivity. Residential land comprises 4.3%, while commercial and industrial land occupies much smaller portions, at 0.6% and 0.4%, respectively. Lastly, 1.7% of the land is used for other urban purposes, such as public facilities. Overall, this distribution highlights the predominance of agricultural and forested land in the area.

The author presents photographs from a field survey conducted in Aizubange Town, revealing signs of some living houses or settlements in the area. Unlike Shimogo Town, the terrain in Aizubange is significantly flatter, without the mountainous landscape that typically surrounds rural settlements. Instead, the area is characterized by forests and expanses of flat farmland, which dominate the local landscape. This difference in topography may influence the town's development and land use patterns, highlighting the contrast between more mountainous settlements and the open, agricultural nature of Aizubange.

Aizubange Town is located along the western edge of the Aizu Basin, characterized by gentle mountains and numerous rivers. Archaeological evidence suggests human habitation dating back to the Paleolithic era. Historically, the town functioned as a key transit point, facilitating the movement of people and goods between Aizu and Niigata via roads and waterways. This strategic position led to the construction of large burial mounds, such as Kamegamori and Chinjumori, as well as defensive structures like Jinzamori Castle.

During the Edo period, the development of the Aizu Five Highways further enhanced the town's central role in regional commerce. The town's main urban area flourished as a transportation hub, benefiting from river navigation along the Aga River and Tadami River, as well as its position on the Echigo Highway. Under the rule of Lord Gamo Tadayuki, an 11-meter-wide road stretching approximately 900 meters was constructed, forming the foundation of the town's layout and facilitating the growth of markets. The establishment of the Sakashita Magistrate's Office and other administrative institutions reinforced its status as a political and economic center.

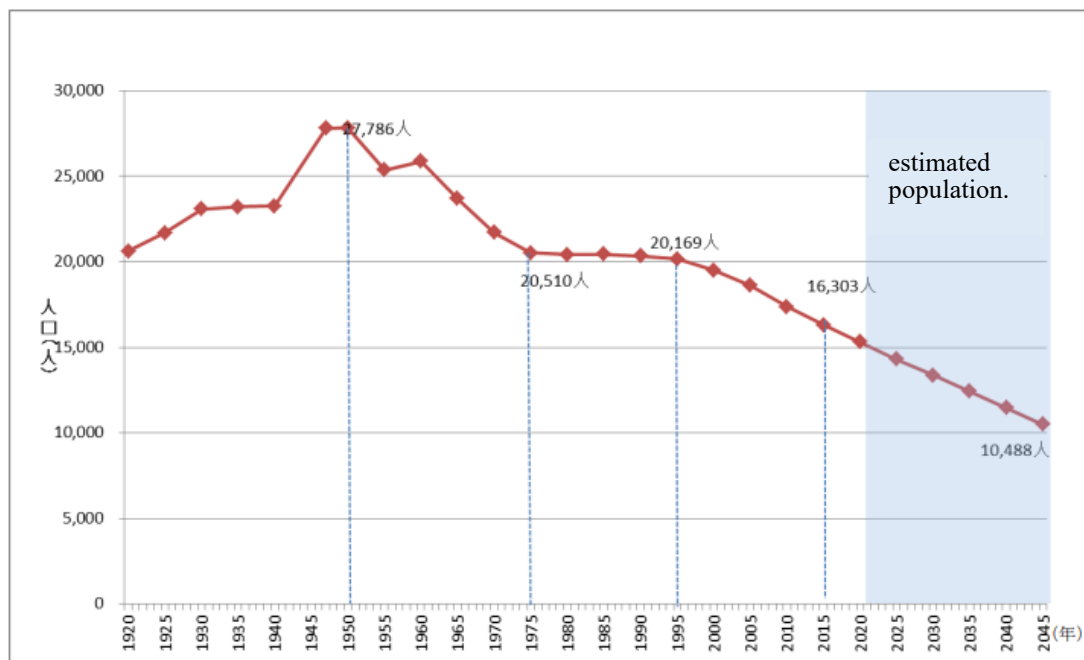
Following the Meiji period, the town continued to function as a regional hub. It was officially designated Sakashita Town in 1877 through the merger of several villages, and the Kawanuma County Office was later established. During the Taisho and Showa periods, modern infrastructure developments, including the construction of a water supply system and the opening of JR Tadami Line stations, further solidified its urban character. In recent years, the development of industrial parks and transportation infrastructure has improved employment opportunities. At the same time, the establishment of Michi-no-Eki Aizu in 2014 has enhanced regional connectivity and economic activity.

Photos of settlements in Aizubange town (by author)



Population

The population has declined from about 14,191 at present, and the aging rate will rise to 40% in 2020, which is also higher than the average of the nation (28%). The working population is about 3,000. The working population is about 3,000, of which about 1,000 commute to work outside the town, mainly to the neighboring cities of Aizu Wakamatsu and Minami Aizu. In terms of the town's major industries in terms of the working population, the main ones are agriculture and tourism-related (accommodation, food services, and retail trade), manufacturing (electronics and auto parts), and construction.

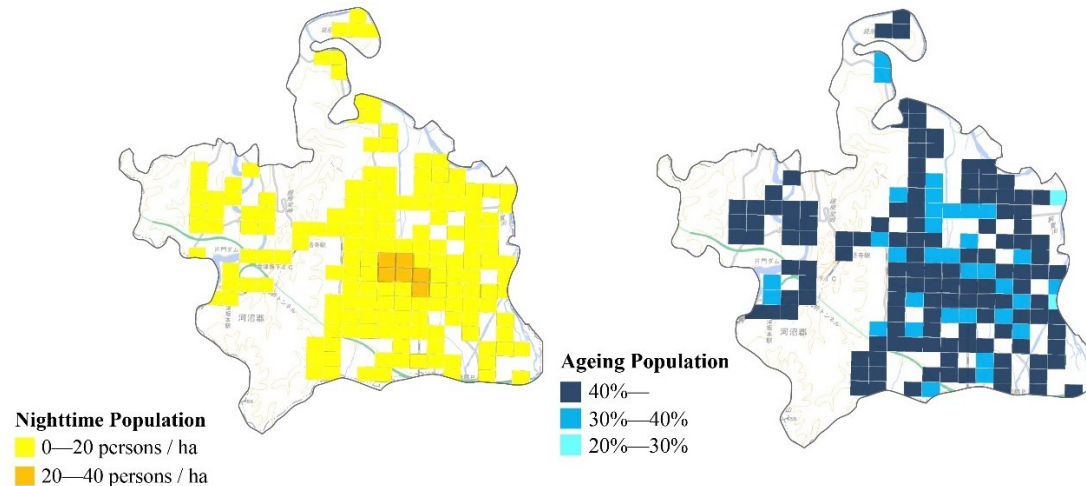


Source: Population estimates based on the National Institute of Population and Social Security Research Population estimates based on the National Institute of Population and Social Security Research <https://www.town.aizubange.fukushima.jp/soshiki/2/4222.html> (accessed in Sep. 2024)

Figure 4-3. Population Trends of Aizubange Town

According to the Census of Population, the population decline in Aizubange Town has significantly accelerated since 1995, with the total population dropping to 15,068 by 2020. This trend is expected to continue in the coming years. If the current rate of decline persists, the population is projected to decrease further, reaching an estimated

10,488 by 2045. This demographic shift highlights the ongoing challenge of depopulation in rural areas, driven by factors such as aging, outmigration, and low birth rates, posing significant concerns for the town's future sustainability and development.

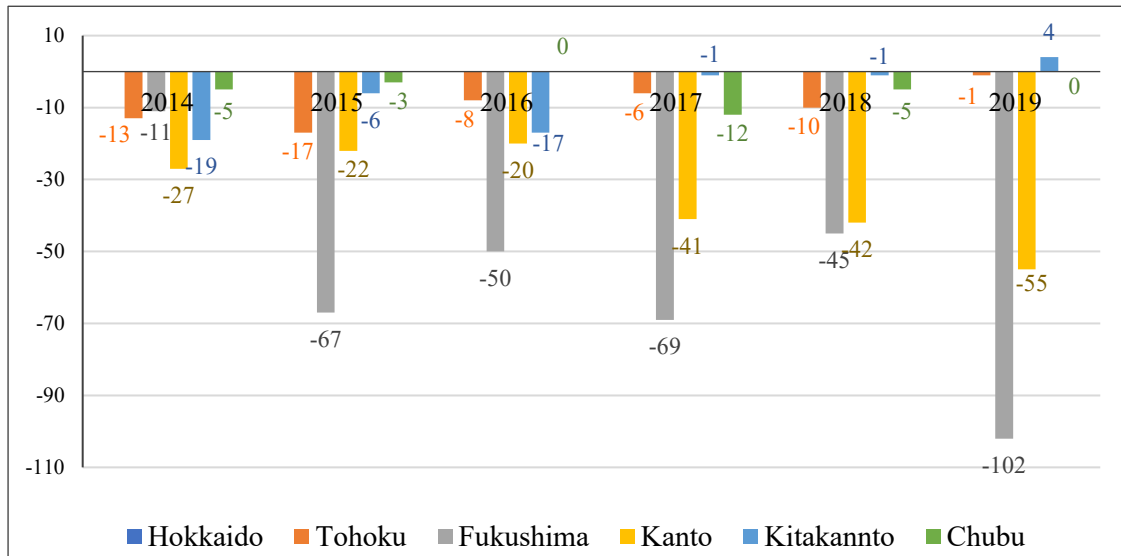


Source: Urban Structure Visualization Plan <https://mieruka-v4.kashika.net/population-2015/> (accessed in Sep. 2024)

Figure 4-4. Nighttime population and Ageing population in Shimogo Town

This figure presents the spatial distribution of nighttime population density and ageing population within the study area. The left map illustrates nighttime population density, categorized into 0–20 persons per hectare (light yellow) and 20–40 persons per hectare (dark yellow). The results indicate that population density is relatively higher in the central area, whereas peripheral regions exhibit low population concentrations.

The right map depicts the proportion of the ageing population, classified into three categories: over 40% (dark blue), 30%–40% (medium blue), and 20%–30% (light blue). The ageing population is more prevalent in the outer and less densely populated areas, highlighting demographic ageing trends in rural and suburban zones. The spatial contrast between the two maps suggests a strong correlation between low population density and a higher proportion of elderly residents, emphasizing the challenges of ageing and depopulation in certain areas.

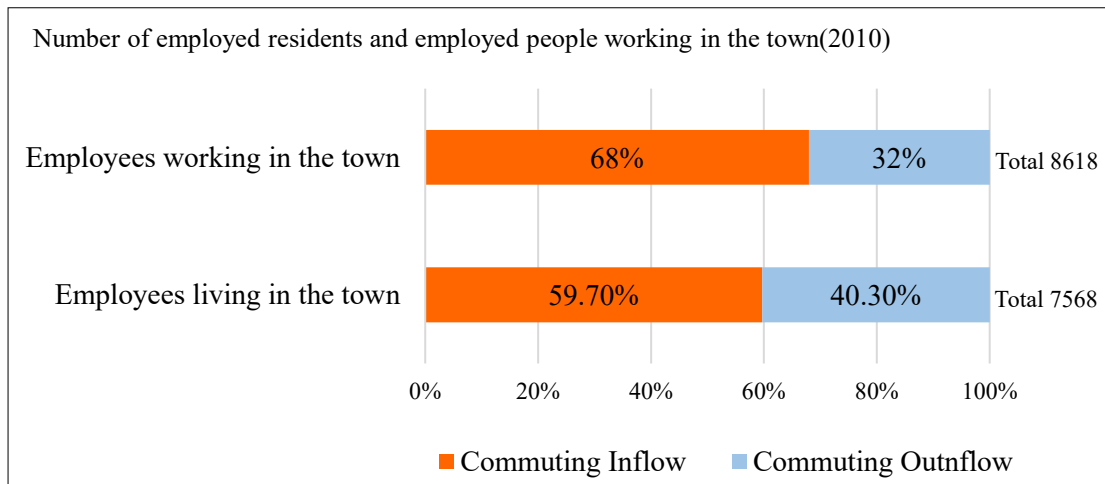


Source: Basic Resident Ledger of Aizubange Town (Japanese only) (accessed in Sep. 2024)
<https://www.town.aizubange.fukushima.jp/soshiki/2/4222.html> (accessed in Sep. 2024)

Figure 4-5. Population Movement by Regional Block of Aizubange Town

The migration status by regional block indicates a significant excess of out-migration, particularly to Fukushima Prefecture and the Tokyo metropolitan area. This trend is largely attributed to young people leaving for higher education and employment opportunities in Tokyo. Within the Tohoku region, a notable number of out-migrants are relocating to Miyagi Prefecture, specifically to Sendai City and other urban centers. Overall, the primary drivers of out-migration from Aizubange Town and similar rural areas are educational and employment prospects, leading to a steady outflow of young people to urban areas such as Tokyo and Sendai. This migration pattern exacerbates the challenges of depopulation and aging in rural communities.

The town has been designated as a depopulated area since 2021, and it is essential to propose response strategies to promote the inflow of people from outside the town and prevent the outflow of people to other areas.



Source: National Census <https://www.stat.go.jp/data/kokusei/2020/index.html> (accessed in Sep. 2024)

Figure 4-6. Employment Status of Aizubange Town

This figure presents two key aspects of the employment and commuting situation in a specific town based on data from 2010.

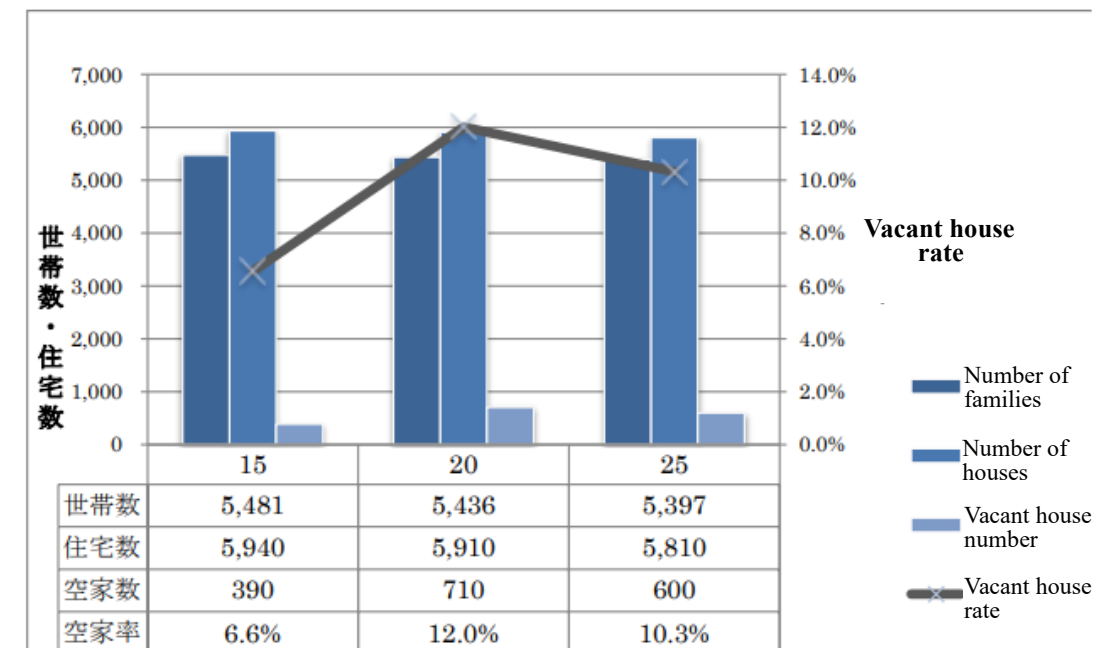
The top chart shows the employment status of residents within the town. It reveals that 59.7% of the town's residents work within the town itself, while 40.3% commute to other cities or towns for employment. In contrast, 68% of those working in the town also reside there, with 32% of the workforce commuting from outside the town.

The bottom chart highlights the commuting inflow and outflow. It shows that 2,400 workers commute out of the town for work, while 1,053 workers commute into the town from Aizuwakamatsu City. Additionally, 1,763 workers from other towns commute into this town, and 1,468 residents commute to other towns for work. This

data indicates that the town experiences a higher outflow of workers than the inflow, particularly to Aizuwakamatsu and other neighboring municipalities. This suggests a degree of reliance on nearby urban areas for employment opportunities, contributing to a net outflow of workers.

Vacant hose situation in Shimogo Town

According to the 2008 survey, the number of vacant houses in Aizubange Town witnessed a sharp increase over five years, reaching 710. However, the 2013 survey showed a slight decrease, indicating a turnaround in the trend. This could be attributed to the reduction in the total number of houses. Nevertheless, the current vacancy rate is still above 10%.



Source: Results of the Housing and Land Survey (Statistics Bureau, Ministry of Internal Affairs and Communications) <https://www.town.aizubange.fukushima.jp/uploaded/attachment/8015.pdf> (accessed in Sep. 2024)

Figure 4-7. Vacant house tendencies of Aizubange Town

This figure shows the trend in the total number of households, houses, vacant houses, and vacancy rates in Aizubange Town over three time periods: 2003, 2008, and 2013 years.

In Year 2003, the town had 5,481 households, with 5,940 houses, of which 390 were vacant, resulting in a vacancy rate of 6.6%. By 2008, the number of households decreased slightly to 5,436, while the total number of houses increased to 5,950. The number of vacant houses rose sharply to 710, and the vacancy rate spiked to 12.0%. In Year 2013, the number of households further decreased to 5,397, with 5,810 houses. The number of vacant houses slightly dropped to 600, leading to a vacancy rate of 10.3%.

The data reveals a clear trend of increasing vacant houses and a rising vacancy rate over time, despite a slight reduction in vacant houses between Year 2008 and Year 2013. The vacancy rate peaked at 12.0% in the Year 2008, illustrating a significant issue with housing vacancy in the town, driven by population decline and a growing number of unoccupied homes.

The utilization rate of 600 vacant houses for rental use is low at 11%, and many of them are vacant for an extended period. If proper management is not continued in the future, there is a possibility that the living environment in the surrounding area will be adversely affected. If proper management is not continued in the future, there is a hidden potential for adverse impact on the surrounding living environment.

According to the census results released by the Statistics Bureau of the Ministry of Internal Affairs and Communications in 2021, the total population of Aizubange town in 2020 was 15,068. This reflects a decrease of 7.6% compared to the population figure recorded five years ago. The town's aging rate in 2022 is 38.7%, which is higher than the national average of 28%. The town has a working population of approximately 3,000 people, out of which around 1,000 commute to work outside the town. They mainly travel to the neighboring cities of Aizuwakamatsu and Minamiaizu. Since the major cities of Aizu, Aizuwakamatsu, Kitakata, Aizumisato, and Yanaizu are only 12 km away from the Aizubange town, it existed as a transportation hub.

Photos of vacant houses in different settlements of Aizubange Town (by author)



Industry and economy

Basic Indicators of Agriculture, Forest, and Fisheries			
Area(ha)		Total households (units)	5306
Total land area (ha)	9159	Agricultural management entities	860
Cultivated land area (ha)	3460	Agricultural households (units)	1158
Rice field area (ha)	2930	Self-sufficient farm households	323
Field area (ha)	531	Sales farm households	835
Forest area (ha)	3010	Principal farm management entities	186
Total population (persons)	15068	Semi-principal farm management entities	141
Households engaged in agriculture for more than 60 days	1367	Part-time farm management entities	508
Agriculture workers		Forestry management entities	6
Fisheries employment	...	Fisheries management entities	...
Agricultural settlements	76		
Direct farm product sales facilities	11		
Fishing ports	...		
Number of fishing vessels	...		

(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/421/index.html>

Figure 4-8. Industrial composition and employment ratio of Aizubange Town

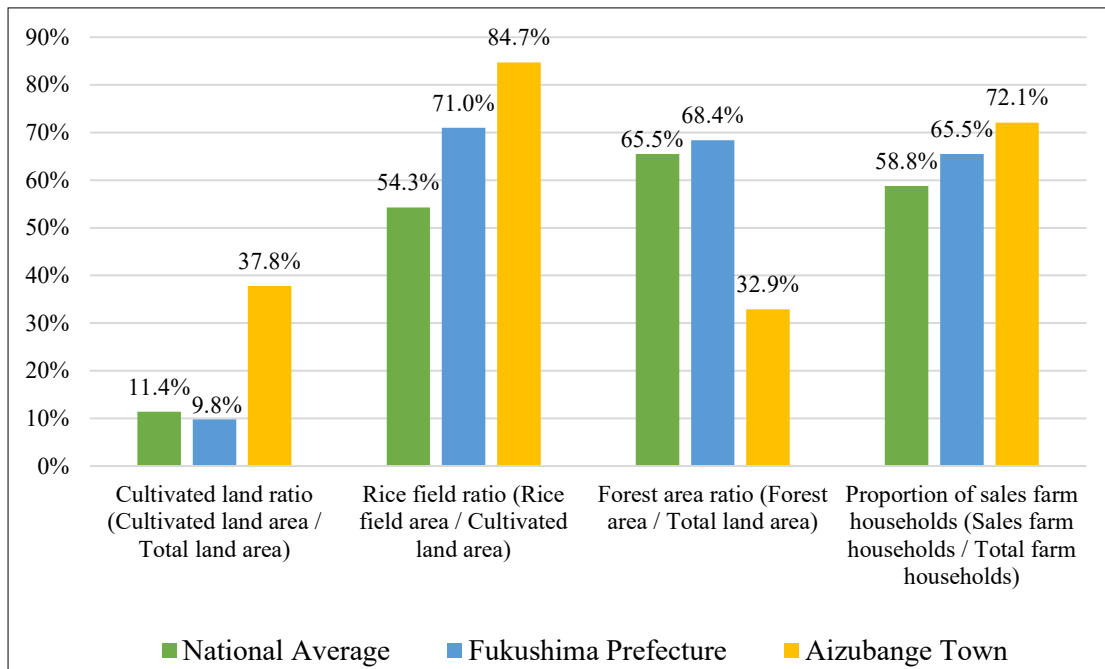
This figure provides a detailed breakdown of the basic indicators of agriculture, forestry, and fisheries in a particular area, highlighting land usage, population involved in agricultural work, and household and community metrics.

Land Area: The total land area for agriculture is 9,159 hectares, with 3,460 hectares (2.5%) used for cultivated fields, 2,930 hectares (3.0%) dedicated to paddy fields, and 531 hectares (1.3%) for other types of cultivation. The forest area covers 3,010 hectares (0.3%).

Population: The population stands at 15,068 people, with 1,367 individuals (2.2%) actively working in agriculture, including owners and workers involved in farming.

Agricultural Households: There are 5,306 agricultural households (0.7%), among which 860 are farm operators, while 1,158 are self-sufficient farming households. There are 323 part-time farming households and 835 households involved in sales.

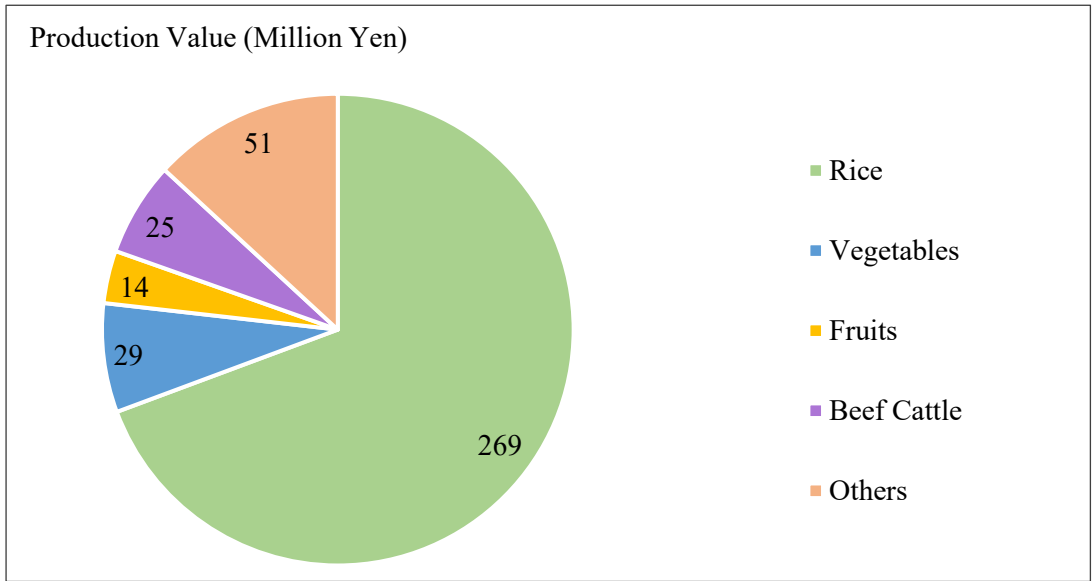
Facilities: The area has 76 agricultural settlements (1.9%) and 11 direct sale outlets for agricultural products (2.3%).



(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/421/index.html>

Figure 4-9. Agricultural land and farming ratios of Aizubange Town

This bar chart compares key land use and agricultural indicators between Aizubange Town, Fukushima Prefecture, and the national average in Japan. Aizubange Town has a significantly higher cultivated land ratio (37.8%) compared to Fukushima Prefecture (9.8%) and the national average (11.4%), indicating a strong reliance on agriculture. Additionally, the rice field ratio within cultivated land is also notably higher (84.7%) than in Fukushima Prefecture (71.0%) and nationwide (54.3%), reflecting the town’s emphasis on rice cultivation. In contrast, the forest area ratio in Aizubange Town (32.9%) is much lower than the national average (65.5%) and Fukushima Prefecture (68.4%), suggesting a smaller proportion of forested land. Moreover, the proportion of farm household sales (72.1%) in Aizubange Town exceeds that of both Fukushima Prefecture (65.5%) and the national average (58.8%), highlighting a stronger commercial agricultural presence. These trends suggest that Aizubange Town is characterized by extensive cultivated land, a predominant focus on rice farming, and a high proportion of commercial agricultural activity, while having relatively less forested land compared to regional and national averages.



(Statistical data from the website of the Ministry of Agriculture, Forestry and Fisheries) (accessed in Sep. 2024)
<https://www.machimura.maff.go.jp/machi/contents/07/421/index.html>

Figure 4-10. Breakdown of Agricultural Production Value of Aizubange Town

This pie chart illustrates the breakdown of agricultural production value in terms of different categories, measured in million yen. The data indicates that rice production accounts for the largest share, contributing 269 million yen, highlighting its central role in the local agricultural economy. Vegetables follow at 29 million yen, while beef cattle and fruit production represent smaller shares, at 25 million yen and 14 million yen, respectively. The "others" category, which includes various agricultural products, accounts for 51 million yen, reflecting a level of diversification within the sector. The dominance of rice suggests a strong reliance on paddy farming, while the presence of other categories indicates a degree of agricultural diversification. This distribution underscores the importance of rice cultivation while also emphasizing the role of other agricultural activities in supporting economic resilience and sustainability.

Overall, the figure highlights the area's heavy reliance on agriculture, with a large portion of land used for farming and forests. Most agricultural households are self-sufficient, with only a portion focused on sales and commercial farming.

As for employment by industry, males are more likely to be employed in agriculture/forestry, construction, manufacturing, and wholesale/retail. The number of

male workers in agriculture/forestry, construction, manufacturing, and wholesale/retail tends to be higher than that of female workers in agriculture/forestry, construction, and transportation/postal services. The number of male workers tends to be higher than that of female workers in agriculture, forestry, construction, and transportation/postal services.

In terms of the town's major industries, the top ones are agriculture, tourism (accommodation, food services, and retail trade), and manufacturing (electronics and auto parts). The town has been designated as a depopulated area since 2021, and it is essential to propose response strategies to promote the inflow of people from outside the town and prevent the outflow of people to other areas.

Sightseeing and culture

Aizubange Town offers a unique blend of sightseeing opportunities and rich cultural heritage deeply rooted in its history and geographical features. As a former commercial and transportation hub in the Aizu region, the town has preserved much of its traditional charm while integrating modern tourism elements. The Agano River and Tadami River, which flow through the town, offer scenic views and opportunities for activities such as fishing and river cruises, attracting nature lovers and outdoor enthusiasts. The surrounding forests and agricultural lands contribute to a serene rural landscape that provides an ideal backdrop for eco-tourism and relaxation.

Culturally, Aizubange has a strong connection to the Aizu Domain era, with its historical Sakashita market dating back to the Edo period (1603-1867), where it served as a vital trading center. Traditional festivals, influenced by its history as a protected commercial hub, continue to be celebrated, showcasing local customs, food, and crafts. The town also hosts several annual events that reflect the area's agricultural and historical significance, drawing visitors from neighboring towns and cities.

The town has a collection of ancient burial mounds, including the "Chinjumori burial mound," which have been designated as a National Historic Site. Additionally,

there are numerous cultural assets related to Buddhism that make this area a popular tourist destination.

The integration of traditional and modern elements is visible in the local architecture, with historical structures alongside newer developments designed to accommodate tourists. Additionally, the town is part of broader efforts to promote regional revitalization through cultural tourism, with initiatives such as the development of local museums and participation in regional festivals.

Traditional Events and Performing Arts

In Aizubange Town, traditional events and performing arts play a crucial role in preserving local heritage. Here are the details of the most significant traditional festivals and performing arts in the town:

a) Aizu Bandaisan Fire Festival (会津磐梯山火祭り)

Date: Annually in late August

Description: The Aizu Bandaisan Fire Festival is a grand celebration in the Aizu region. Participants carry mikoshi (portable shrines) and traditional taiko drums are performed to honor the gods for a good harvest. The festival features bonfires, a fireworks display, and folk dances, including the Aizu Bandaisan dance, which is popular across the region.

b) Aizubange Spring Festival (会津坂下春祭り)

Date: Annually in April

Description: This festival is held to welcome spring and celebrate the coming of the agricultural season. The festival procession features traditional costumes and performances, along with drumming and folk songs that have been passed down through generations.

c) Sakashita Market Festival (坂下市場祭り)

Date: Historically, it is on the 14th of every month, though specific dates may vary with modernization.

Description: This festival has historical roots dating back to the Edo period when Sakashita Market was a central hub for trade in the Aizu region. Although it has transformed into a cultural event, it celebrates the town's long-standing tradition of commerce with traditional stalls, performing arts, and local food.

d) Aizu Tajima Gion Festival (会津田島祇園祭)

Date: Annually in mid-July

Description: This festival, though rooted in the Aizu region, extends its reach to surrounding towns, including Aizubange. It features a parade of floats (dashi), traditional Noh performances, and folk music. The Aizu Tajima Gion Festival is well-known for its long tradition of blessing the year's harvest and fostering communal ties.

e) Noh Performances (能楽)

Date: Varies based on specific events and festivals

Description: Traditional Noh and Kyogen performances are part of Aizubange's cultural offering, particularly during festivals or significant town gatherings. These performances often occur during the harvest season or local temple events and are a form of classical Japanese musical drama with roots in the 14th century.

f) Oharai Festival (お祓い祭り)

Date: Annually in early January

Description: This festival marks the beginning of the New Year, focusing on spiritual purification and prayer for the health and safety of the community. It often involves the cleansing of sacred spaces and blessings from the local shrine priests.

g) Aizubange Summer Bon Odori (会津坂下夏盆踊り)

Date: Annually in August during the Obon festival

Description: This is a part of the national Obon celebrations but features the local Aizu Bon Odori, a traditional dance performed in a circle by community members. The festival is an opportunity for locals to honor their ancestors with lanterns, traditional music, and dance.

These festivals and performances play a key role in sustaining the local culture, reinforcing the bonds within the community, and promoting tourism and economic vitality. The traditional events and performing arts of Aizubange Town continue to thrive as they are passed down from generation to generation, offering insight into the town's deep historical roots and cultural identity.

Specialty Products

Aizubange Town is renowned for its agricultural heritage, producing a range of specialty products that reflect the rich natural resources and traditional farming practices of the Aizu region. The town's most notable product is Aizu rice, cultivated in the fertile lands of the Aizu Basin using the pure waters of the Agano River. The rice is highly valued for its excellent taste and texture. Additionally, Aizubange is known for its soba (buckwheat noodles), which are made from locally grown buckwheat and are celebrated for their rich flavor and smooth texture.

Other significant specialty products include Aizu miso, a fermented soybean paste with a deep flavor, and locally brewed Aizu's sake, which benefits from high-quality rice and pure water. The town also produces pickled vegetables and Aizu apples, both of which are enjoyed locally and throughout Japan. Aizu lacquerware and Aizu beef also stand out as traditional and highly regarded products, contributing to both the cultural and economic vitality of the town. These products collectively represent the rich agricultural and artisanal traditions of Aizubange, supporting local livelihoods and preserving the region's heritage.

4.1.3 The spatial morphological characteristics of settlement in Aizubange Town

Category 2: "いのり" (Mountainous Space)

According to the modern dictionary, it refers to areas where people entered deep into the wilderness or valleys, representing ancient locations for shared activities such as summer grazing or prayer rituals.

This space represents a communal area within a wild field or forest, often serving as a site for ancestral worship or agricultural rituals. It is closely associated with traditional livelihoods and seasonal activities. Space is marked by its integration with natural surroundings, such as mountains and fields, symbolizing a harmonious connection with nature.

Category 4: "やまへ" (Mountain Vicinity)

It is defined as the area near or surrounding a mountain, symbolizing human interaction with the mountain's resources and spiritual significance.

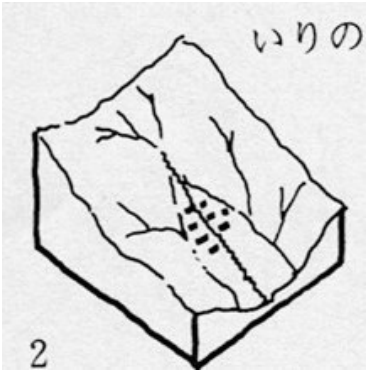
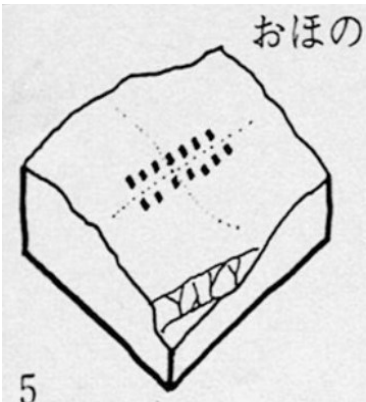
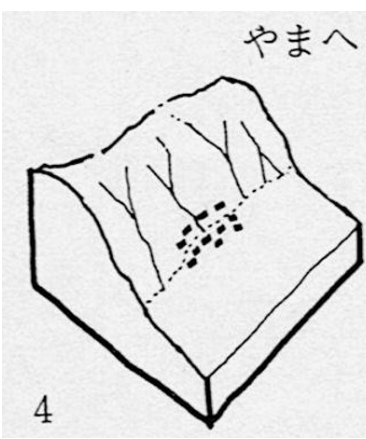
The space surrounding mountains represents the boundary between human activity and wilderness. It includes areas where communities interact with the mountain's resources, such as forests or shrines at the mountain's base. This type of space is significant for human habitation, cultural practices, and the spiritual role of mountains in the local landscape

Category 5: "おほの" (open field)

The type 5 terrain, referred to as "Ōhono," is characterized by a wide, open field with gently sloping terrain extending into the distance, creating a sense of continuity without clear boundaries. It represents a natural and well-preserved environment, often used historically for activities such as grazing, hunting, or crop rotation. The area retains its original vegetation and low levels of human intervention, making it suitable as a natural habitat for wildlife. Culturally, these spaces may have served as important

pathways or communal areas in traditional societies, holding significant historical and cultural value. Overall, this terrain exemplifies a harmonious relationship between humans and nature, maintaining both ecological and cultural importance.

Table 4-1. The spatial morphological characteristics of settlement in Aizubange Town

Feature type	Settlement name	characteristic
	<p>Ōza Tabanematsu, Ōza Toudera,</p>	<p>The settlements are relatively scattered and depend mainly on forestry and traditional agriculture. The settlement is located deep in the mountains, relatively inaccessible, and at a high altitude</p>
	<p>Ōza Ushikawa Ōza Aozu Ōza Miyakoshi Ōza Mimyou Ōza Udai Ōza Gonohei Ōza Toishima Ōza Kanagami Ōza Shindete Ōza Katsuou</p>	<p>The terrain is relatively flat, a relatively wide field, suitable for agricultural farmland around the colony</p>
	<p>Ōza Nagaishi Ōza Takaji Ōza Miake Ōza Yokazawa</p>	<p>Around the base of the mountain, the surrounding foothills, the lower slopes, or the outskirts. Settlements are usually distributed in blocks.</p>

4.14 Method of Survey

Regarding eligible vacant houses, the Town's 2018 survey for the Vacant Houses and Other Vacant Buildings Program identified 710 vacant houses that included temporary uses such as weekend residences. Excluding these temporary uses, the town identified 475 vacant houses, but mailed questionnaires were sent to 440 houses. The reason for the lack of 35 is that the government office has lost their current address.

Table 4-2. The Survey Summary in Aizubange Town

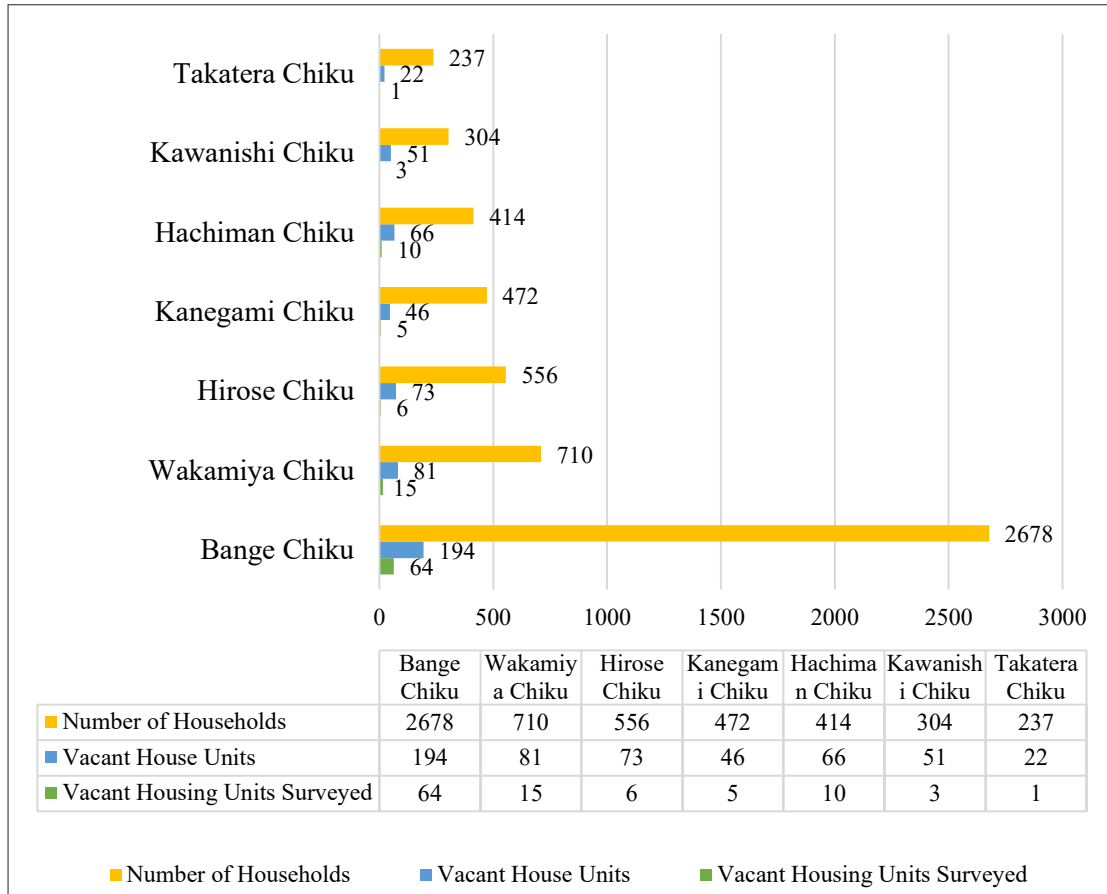
Items	Concrete Contents
Method of Survey	Questionnaire survey by post
Survey Period	August-September 2022
Survey Area	Aizubange Town, Fukushima Prefecture
The number of questionnaires delivered	475 case ¹
number of valid responses	104 cases
Definition of survey subjects	Vacant house owners living outside of Aizubange town and being certified by the municipality based on the tax register, excluding weekend residences ² 9) Years of a vacant house, how was it obtained 10) Responder's age, relationship to the last resident, and place of residence.
Summary of survey items	11) Intention to utilize vacant houses, events to participate in if available 12) Frequency of commuting, management of vacant house, weeding, farm work 13) Options to sweep the tombs, make a greeting, or attend the funeral. 14) The options of personal socializing and participation in community activities 15) Frequency of recreation enjoyed indoors and outdoors

Same as the situation in Shimogo Town, the individual who owns a vacant house, there are cases in which a family member of the same household returns to the house separately, and this study targets vacant house-owning households rather than vacant house owners because it is thought that including such returning behavior will better reflect the actual situation. In addition, since the Shimogo Town Office Civil Affairs Division responded that “there are almost no cases of two-family dwellings reported as two households (on the resident registration form),” the analysis in the following

Chapter was conducted assuming that the number of resident households in the town is the same as the number of dwelling units in the town.

The analysis will first analyze the history of vacant houses, respondents' demographics, and place of residence to determine their intentions to rent or sell vacant houses and their intentions regarding new connections with the community. Next, the frequency of return visits, vacant house management, and mowing will be analyzed to see the relationship between the history of vacant houses and the respondents' place of residence. We also analyze participation in community activities, personal socializing in the community, and leisure time activities to examine their relationship. Furthermore, we assume that vacant house-owning households are a type of resident and estimate the social impact regarding population, space management, and community. Finally, significant considerations are summarized, and recommendations are made.

There were 110 copies collected, a 25.8% response rate, and 104 valid responses. As shown in Table 4-1. At the end of this chapter, we will provide a detailed survey questionnaire and a report on the specific investigation and confirmation of vacant houses in the Aizubange Town area.



Source: e-Stat (e-Stat), <Census Boundary Data by Town, Street, Character, etc.,> 2022

Figure 4-11. The Collection Results by Settlements in Aizubange Town

This figure displays the distribution of vacant housing units surveyed across different Chikus in comparison with the total number of households in each Chiku. The Bange Chiku stands out with the highest number of households (2,678) and the most vacant houses surveyed (64). According to the previous investigation by the local government, there are 194 vacant properties in the area, and nearly one-third of the owners of vacant properties have responded to the survey. Meanwhile, the central area of the town has the lowest vacancy rate at 7.2% of the entire town. Following Wakamiya, the Wakamiya Chiku has 710 households and 15 vacant houses surveyed. The other Chikus, such as Hirose, Kanegami, Hachiman, Kawanishi, and Takadera, have significantly fewer households and vacant houses. For instance, Kawanishi Chiku has 304 households but only 5 vacant houses surveyed. This figure highlights the variation in the number of vacant houses across Chikus, with Bange and Wakamatsu Chikus

showing a higher concentration of both households and vacant units, which may indicate larger populations and families.

In the survey areas, the areas of Kawanishi, Yawata, and Hirose recorded the highest vacancy rates, at 16.8%, 15.9%, and 13.1%, respectively. Despite these high rates of vacant houses, the response rates from the property owners in these areas were notably low, with Kawanishi at 5.8%, Yawata at 15.1%, and Hirose at 8.2%. This suggests a potential correlation between the high number of vacant properties and the low engagement of property owners in managing these homes or responding to surveys. The lack of responses may indicate a reluctance or inability of owners to address the vacancy issue, possibly due to a lack of resources, interest, or connection to the local area. This presents a challenge for implementing effective vacancy management measures in these areas.

4.2 Vacant Houses And Vacant House Owners

4.2.1 Process of Vacant Houses

According to the data illustrated in Figure 4-12, 20% of the unoccupied houses have been vacant for a period of “within five years,” 59% for “within ten years,” and a mere 9% for “over 20 years.” Based on our previous surveys, it has been revealed that houses that have been vacant for over 20 years face significant management challenges. These issues include more expensive maintenance costs due to the age of the house and the age of the managers who are getting older, which is not convenient for the regular management of the vacant house. During the field survey, we also confirmed that cases such as vacant houses that have collapsed or been demolished, resulting in unaccounted ownership, are virtually nonexistent.

The persisting phenomenon of vacant houses caused by the aging and migration of the population is a pressing issue that demands attention. While only 9% of the houses are currently vacant for “over 20 years”, a significant proportion of houses have been vacant for less than a decade (approximately 60%). This situation implies that with the aging of the population, the challenge of managing vacant houses and space in the town will likely intensify in the next ten to fifteen years.

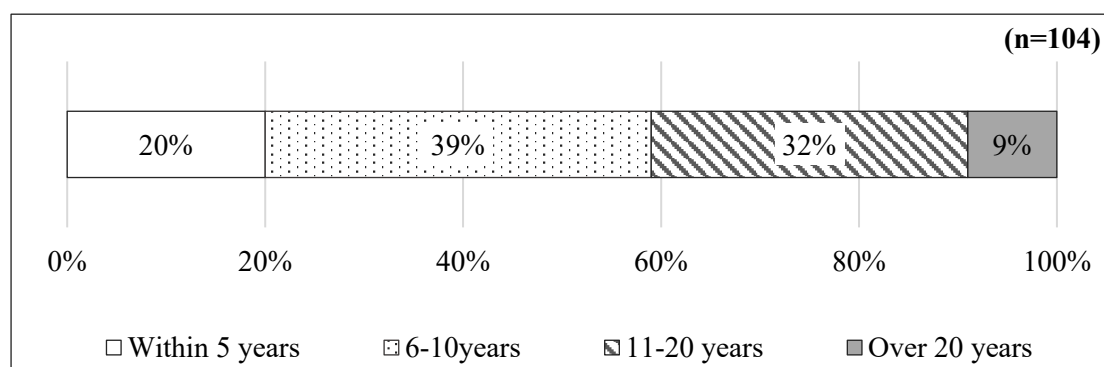


Figure 4-12. Number of years the house has been vacant

A significant 92% of vacant houses have been inherited from family members, as illustrated in Figure 4-13. This also means that around 90% of vacant houses are owned

by people who were once residents of the local area and have since moved to other areas. A mere 5% of vacant homes have been purchased from non-relative members, often for purposes like vacationing or work. During our investigation, we discovered that the houses bought from non-relatives consisted of a mix of newly constructed and second-hand houses. The state of management for these houses is relatively good. Even if the owners are unable to perform spatial management monthly, they entrust the responsibility to a specialized management company.

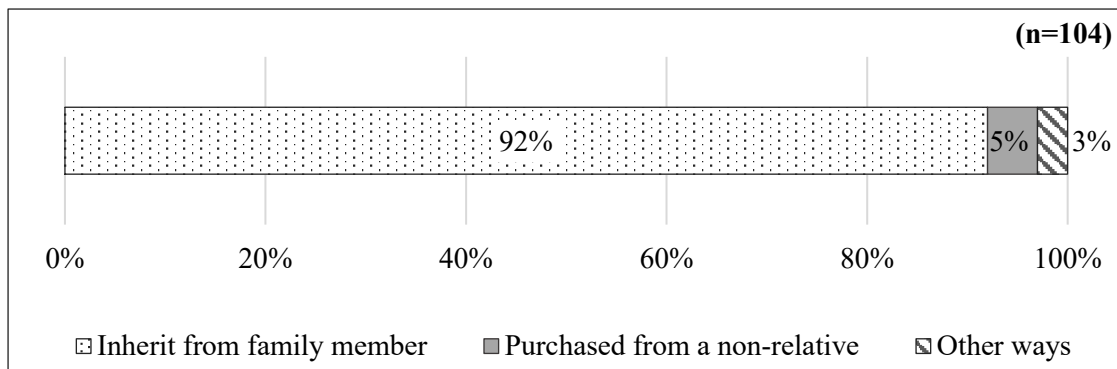


Figure 4-13. How the vacant house was vacated

4.2.2 Respondent Attributes

Focus on the age of respondents: less than 20% were under 60 years old, 43% were between 60 and 70 years old, and 40% were over 70 years old. Of these, 9% were over 80 years old, as illustrated in Figure 4-14. The average age of vacant house owners in the area is 67 years old, which indicates a trend toward an aging population. By comparing the data in Figure 4-13, it is found that among these vacant properties, 92% of them were inherited from families. In other words, although the child generation has inherited vacant houses, the main managers of vacant houses still exhibit an aging tendency, which is not auspicious for the management of vacant houses in the future.

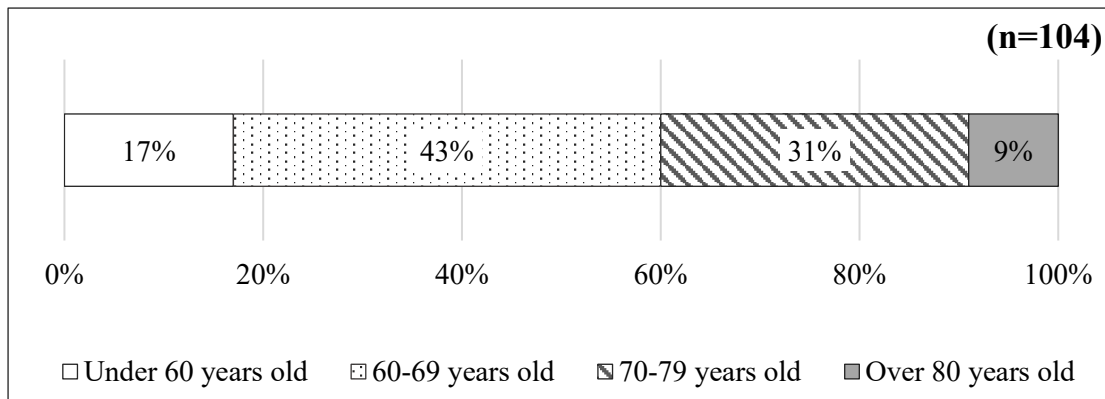


Figure 4-14. Age of Respondents

Referring to the data in Figure 4-14, while 14% of the respondents were owned by the “owner or spouse at the time the house became vacant” who moved out of the house, 66% were owned by the “child generation,” and 19% were owned by “others. Others are presumed to be sibling households of the owner at the time the house became vacant, non-relatives, etc. (inferred from preliminary interviews with the Aizubange Town Hall). Thus, in more than half of the vacant houses, it is confirmed that the owner at the time the house became vacant has passed away, and the child generation has inherited the property. These individuals are presumed to be in two situations: i) related to the previous owner as distant relatives and ii) unacquainted with the previous owner.

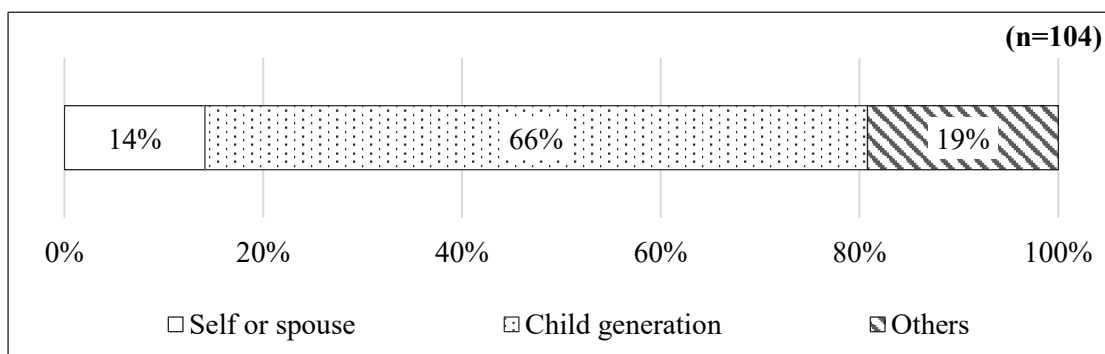


Figure 4-15. Relationship between Respondents and Last Resident

The figure 4-15 represents the management status of vacant houses in a sample of 104 households. Respondent households themselves manage most vacant houses (76%). A smaller portion, 12%, is managed by relatives or acquaintances in the town. Another 4% are under the care of others as professional House Management Companies, and 9%

of the vacant houses have no management at all. The fact that a notable portion of vacant houses is left unmanaged suggests a potential issue in maintaining these properties, which may contribute to further deterioration and challenges in vacancy management.

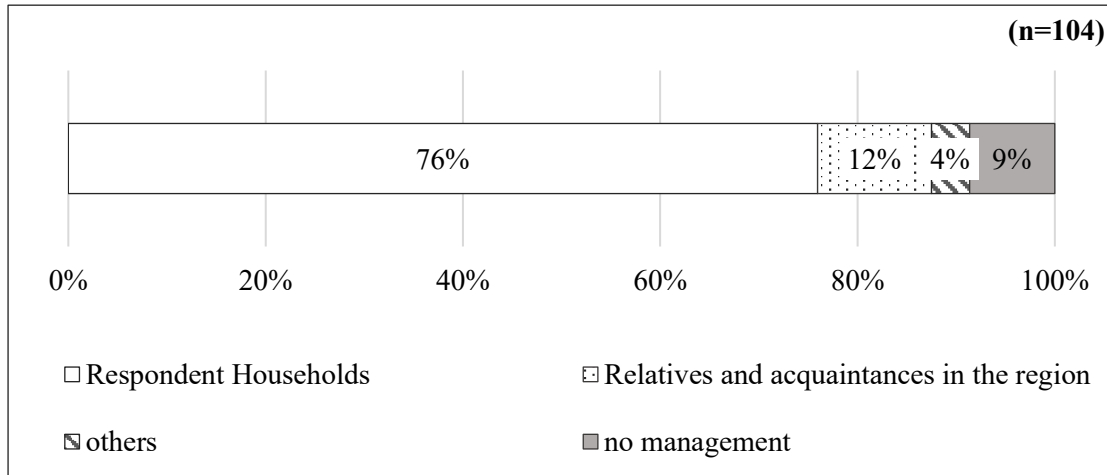
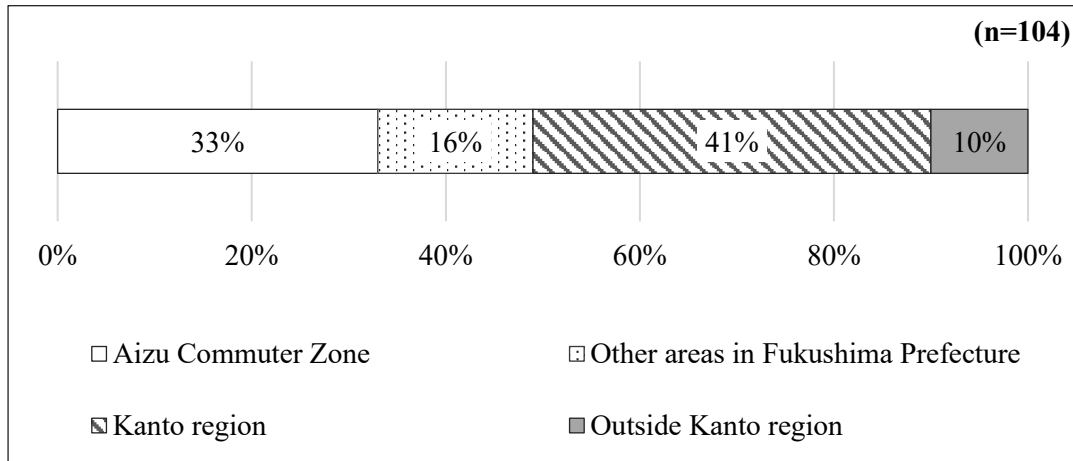


Figure 4-16. Managerial Attributes

Just as the author stated in the research background investigation, although the management of vacant properties brings burdens and troubles to the owners, many people have no intention of entrusting management companies to handle it. Thus, only 4% of the owners entrust professional companies to management. The Vacant houses are neither managed by the owners themselves nor entrusted to other professional sides. If this situation persists, troubles in management are bound to arise in the long term. How to expand and solve this in the future is a topic worthy of exploration.

4.2.3 Residence of Vacant House Owners

About half of the vacant house-owning households reside in Fukushima Prefecture. 33% live in “Aizu Town's main commuting area and adjacent Aizu Wakamatsu City and Minami Aizu Town” (commuting area); 16% live in the Fukushima Prefecture; and only 41% live “outside the prefecture and the Kanto area”. Only 6% live “outside the prefecture and the Kanto area.”



According to the Aizu Regional Public Transportation Network Formation Plan for 2022, the Aizu commuter zone consists of Aizuwakamatsu City, Kitakata City, Aizubange Town, Yukawa Village, Yanaizu Town, and Aizumisato Town. Kanto region: Tokyo, Kanagawa, Saitama, Gunma, Tochigi and Chiba prefectures

Figure 4-17. Residence of vacant house owners

An analysis of the return time of vacant homeowner households reveals that 34% of the households return within 60 minutes, 43% return within 90 minutes, and 57% take more than 90 minutes to return. Furthermore, 29% of households that return within 30 minutes are in the town. A crosstabulation of residence and return time indicates that about 80% of those who return within 60 minutes reside in the commuting area, while the remaining 20% live in other areas of the prefecture. Similarly, approximately 90% of those who take over 90 minutes to return reside in the Kanto region and outside of it, while the remaining 10% are from other areas of the prefecture.

According to the data gathered in Figure 4-17, the percentage of vacant house owners living within Fukushima Prefecture is 49%, out of which 33% reside in the Aizu commuter zone. This indicates that the majority of the vacant house owners living within Fukushima Prefecture are presently residing in the Aizu commuter zone, which is relatively closer to Aizubange Town. The Aizu commuter zone is mainly based on the “Aizu Area Public Transportation Network Formation Plan in 2022”. The objective of this plan is to create a more efficient and convenient public transportation network in the northern part of the Aizu area, which includes Aizuwakamatsu City, Kitakata City, Aizubange Town, Yukawa Village, Yanaizu Town, and Aizumisato Town ^[5]. Kanto and

outside Kanto region are all outside Fukushima Prefecture, and the percentage of vacant house owners living in these areas is 51%, so the number of owners living inside and outside Fukushima Prefecture is essentially equal. The Kanto region (Tokyo City, Kanagawa, Chiba, Gunma, Saitama, Tochigi, and Ibaraki Prefecture) has the largest proportion of vacant house owners at 41%. This indicates that most residents who move out go to or near the Tokyo metropolitan area.

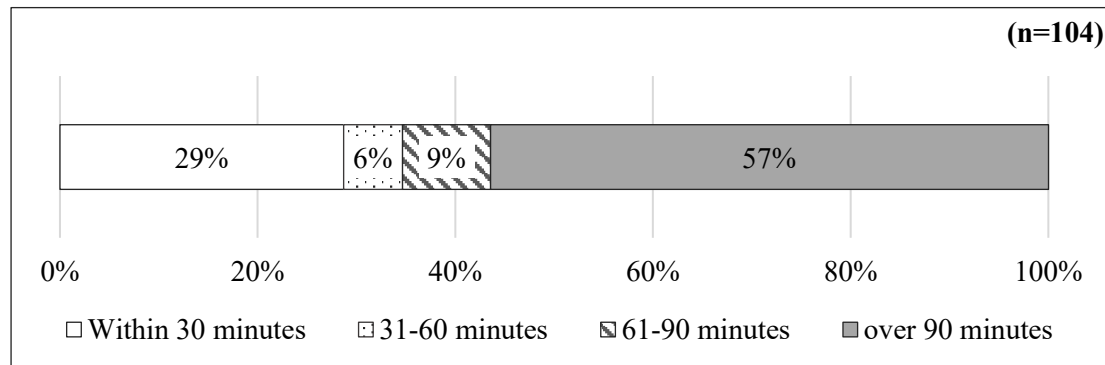
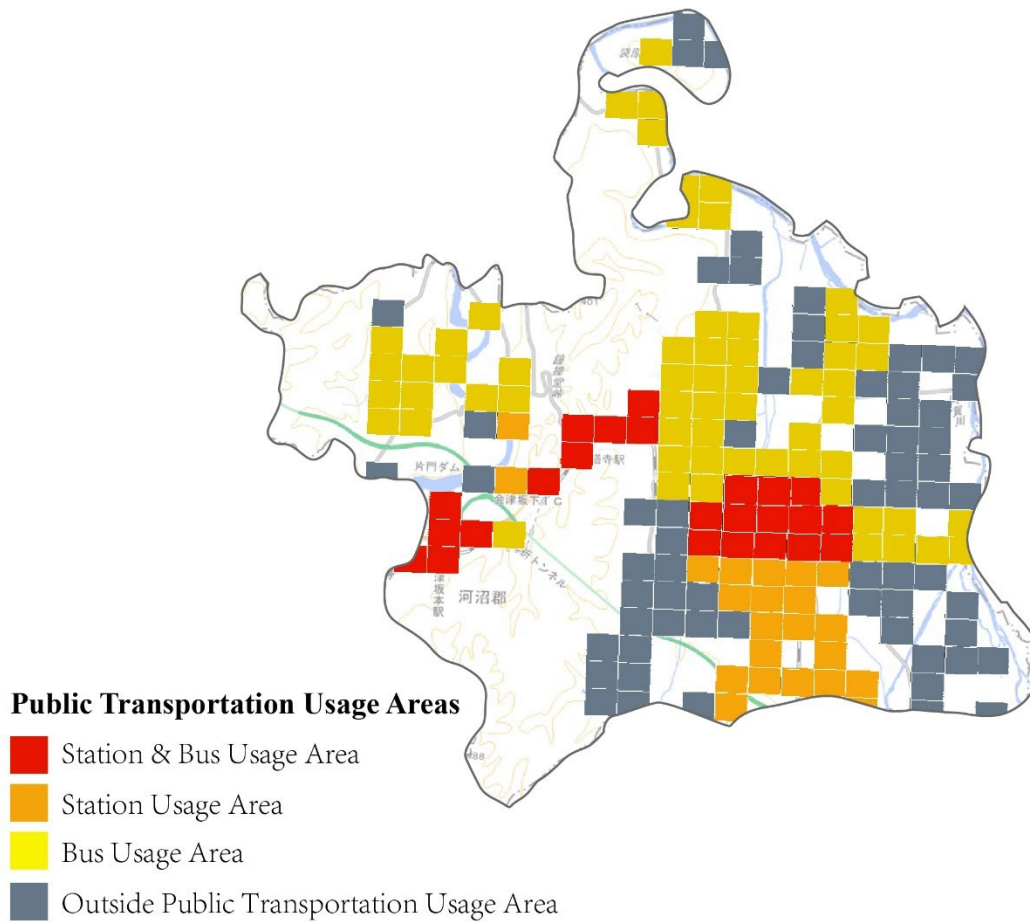


Figure 4-18. Costing time for commuting

Regarding the travel time of commuting for vacant house owners, 35% of them travel within 60 minutes, 44% travel within 90 minutes, and 57% travel over 90 minutes (as shown in Fig.4-18). Around 30% of the vacant house owners can reach their vacant house within 30 minutes. Compared with the data in Figure 4-18, we find that 90% of the people living in the Aizu commuter zone have a travel time of commuting within 30 minutes (Figure skipped).

This figure 4-19 illustrates the spatial distribution of public transportation usage areas, categorized into four zones: station and bus usage areas (red), station usage areas (yellow), bus usage areas (orange), and areas outside public transportation coverage (gray). The central region exhibits the highest accessibility, with a dense concentration of station and bus service areas, indicating a well-developed transportation network. In contrast, the peripheral and rural areas, marked in gray, fall outside public transportation coverage, suggesting potential mobility challenges for residents in these zones. The prevalence of station and bus services in urbanized areas reflects the concentration of population and economic activities, while the lack of coverage in outlying regions

underscores the need for improved transportation infrastructure or alternative mobility solutions to support equitable access across the municipality.



Source: Urban Structure Visualization Plan <https://mieruka-v4.kashika.net/population-2015/> (accessed in Sep. 2024)

Figure 4-19. Public transportation usage area in Aizubange Town

4.3 Intentions of Vacant House Owner

4.3.1 Intention to Rent or Sell a Vacant House

Through the questionnaire survey, we inquired about plans for vacant houses. Upon analyzing the data presented in Figure 4-20, we discovered that 37% of respondents expressed an inclination toward lending their house, 69% were inclined towards selling it, and 33% had no plans of selling or lending it. Among the 75 individuals who desired to get rid of their vacant house, over 90% indicated their intention to sell it, while less than 50% showed an interest in renting it out (Figure skipped).

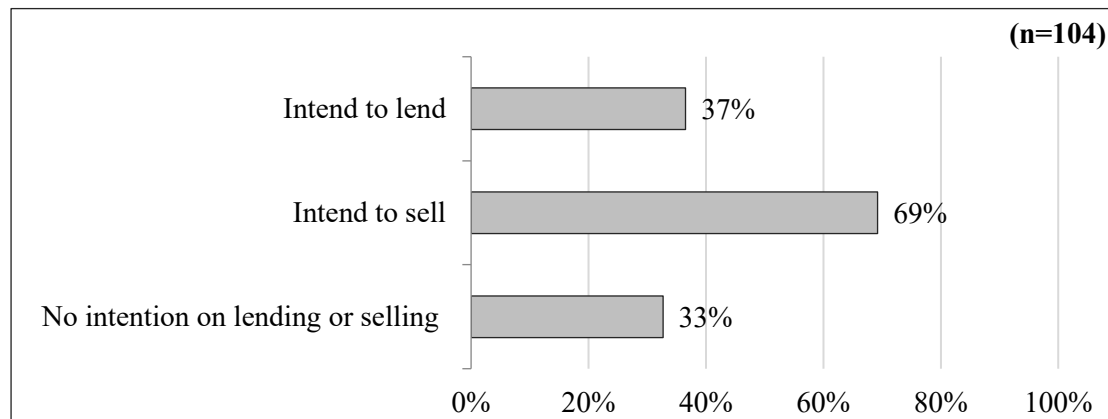


Figure 4-20. Intention to rent or sell a vacant house (multiple responses)

Out of the respondents surveyed, 33% said that they have no intention of lending or selling their house. Among those who intended to keep their house, 47% expressed “convenience and enjoyment” because they consider it convenient and enjoyable to have their own home to return to their hometown. 38% had plans to “intend residence in the future,” while 38% considered “ancestral property of heritage,” which represents cherishing their heritage. Additionally, around 32% attributed the reason to “difficulty organizing the house.” In addition, 24% choose for “other reasons,” as shown in Figure 4-21 According to some specific records in the questionnaire, “other reasons” mainly covered reasons such as demolishing the house directly or not deciding on the disposal

method at present (inferred from preliminary interviews with Shimogo Town Hall).

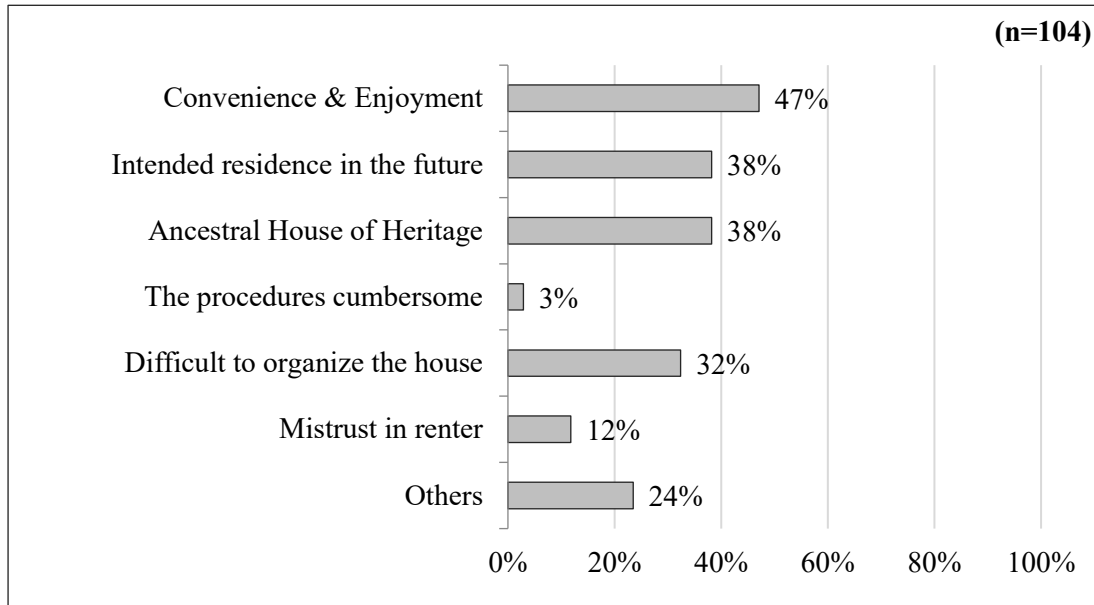


Figure 4-21. Reasons for not intending to rent or sell (multiple responses)

Focusing on the top three responses, we have observed that inherited houses hold significant value within the context of traditional family structures, often referred to as “ancestral property.” As such, owners tend to be hesitant to pass on their unoccupied properties to others. ii) Vacant house owners frequently return to and live in their own houses, which are usually in good condition and have an excellent basis for utilization. However, they are often hesitant to give them up. On the other hand, some vacant houses that are poorly maintained are not desired by the owners, but migrants or purchasers are also not interested in these types of houses. This contradiction is an issue that urgently needs to be resolved regarding the future utilization of vacant houses (inferred from previous interviews with the Aizubange Town Government Office).

4.3.2 Participation in Events and Community Activities in the Local Area

Recognizing the need for improved communication between owners of vacant houses and the local community, a survey was conducted to gauge the potential for community involvement in various activities from a local perspective (as shown in Fig. 4-18). The results show that 46% of respondents would like to participate in

“Consultation on vacant house management.” However, only 10% and 16%, respectively, would like to be involved in “Social events during Commuting” and “Cafes and rest spots for commuting people.” On the other hand, about 50% of respondents considered that there was no need. Although negative intentions such as a desire to outsource the management of vacant houses were expressed in response to the question “Consultation on vacant house management,” more than half of the respondents, including those who answered chose this item, thought that it would be beneficial to provide an opportunity for communication between the municipality and vacant house owner within the new framework. Conversely, just under half of the respondents believed that the new framework and communication outside the current situation would be problematic.

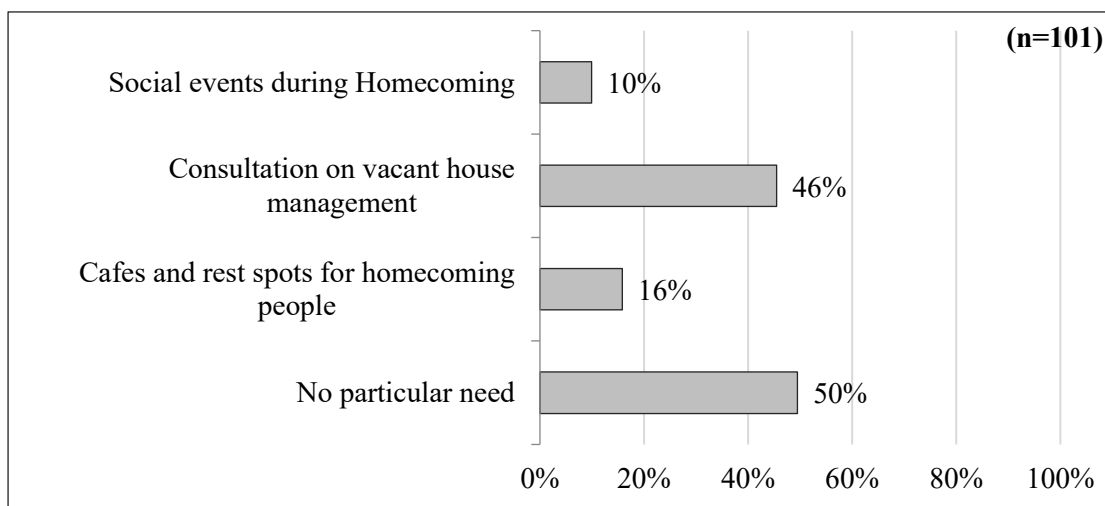


Figure 4-22. Participation in events and community activities in the local area (multiple responses)

4.3.3 Consideration About the Future of Vacant House

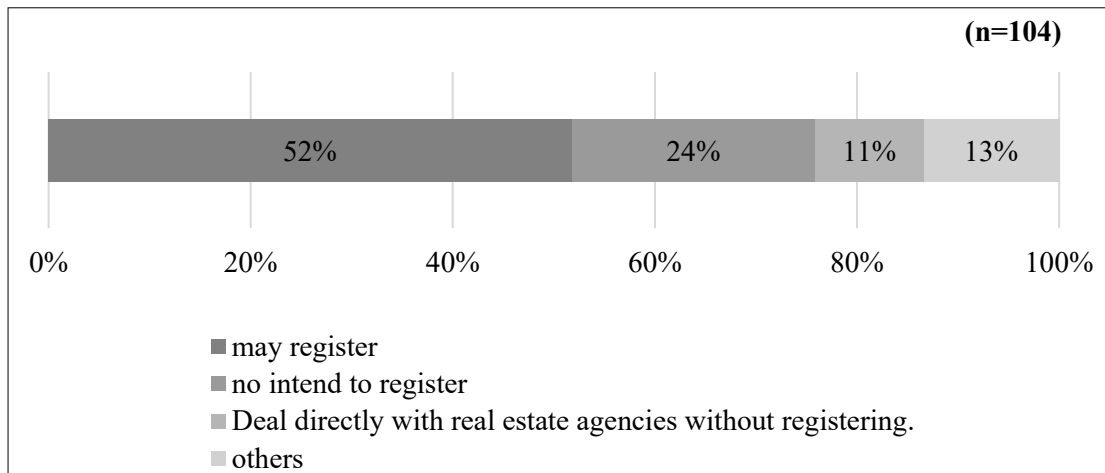


Figure 4-23. Intention to register as a vacant house bank.

The survey results are crystal clear: registering is the intelligent choice for those who want to make the most of their opportunities. In fact, about half of the respondents recognized this and expressed their willingness to register. On the other hand, only a mere 10% said they would rely on a real estate agent, while over 20% had reservations about registering. Although the Shimogo and permissive groups had similar results, the refusal group was smaller, and we can safely assume that the vast majority of people see the value in registering.

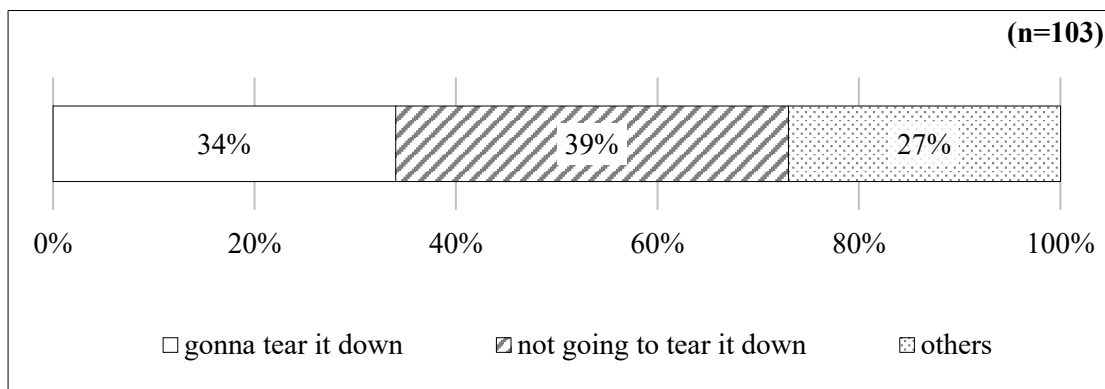


Figure 4-24. Intent to Demolish Vacant Houses.

About 30% of the respondents intend to tear it down, and about 40% have no intention of doing so. (Compared to Shimogo, the trend is similar for those who intend

to tear down their houses, but those who do not intend to tear down their houses are about 20% less likely to do so. (Compared to Shimogo, the trend is the same for those who intend to tear down their houses, but those who do not intend to tear down their houses have decreased by approximately 20%.)

4.4 Commuting Behavior and Space Management

4.4.1 Frequency of Commuting, Management of Vacant Houses, and Weeding

In terms of frequency of commuting, “at least once a month,” “at least several times a year (including at least once a month),” and “less than once a year” accounted for 34%, 65%, and 22% of the total sample, respectively (Fig. 4-21). In line with previous surveys conducted in Gunma Prefecture and Shimogo town, the trend of frequent commuting was consistent at approximately 30%, indicating the existence of a high-frequency commuting group.

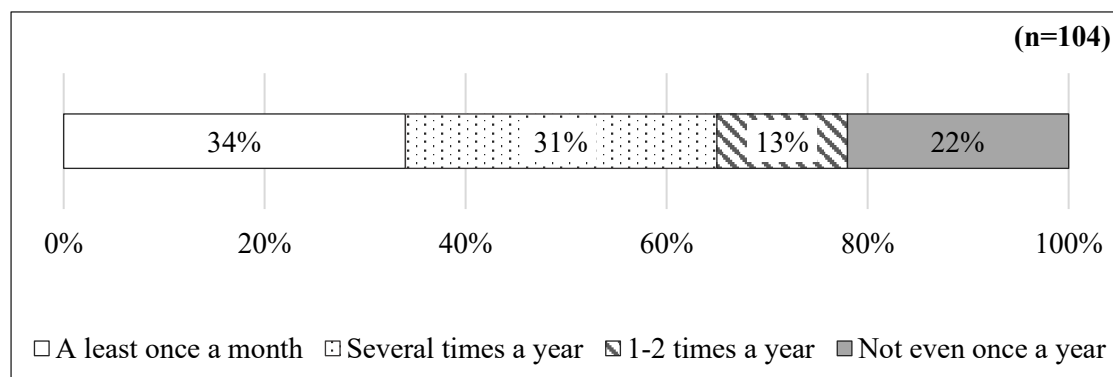


Figure 4-25. Frequency of commuting (whole questionnaire survey subject)

Since 22% of owners will hardly return to their hometown every year, they may not be able to manage their vacant houses regularly and provide steady support for the management of the rural space. In the following analysis, we will analyze the differences in frequency of commuting and management among those who return at least once a year and are personally involved in the management of their house and space.

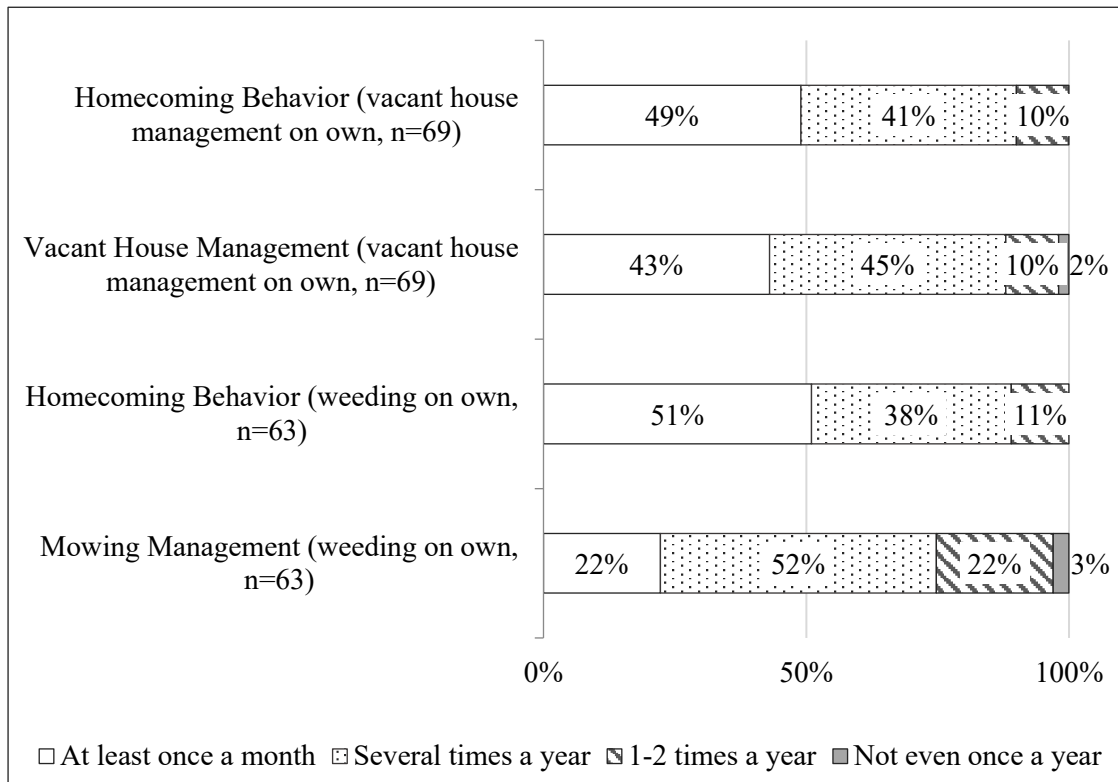


Figure 4-26. Frequency of commuting, vacant house management, and weeding

First, among owners who return to their hometown at least once a year and manage their vacant homes themselves, nearly half (49%) of vacant house owners return home at least once a month, 90% return home at least several times a year (including at least once a month), and 10% return home 1-2 times a year. The frequency of managing vacant houses was generally consistent (98%) compared to the frequency of commuting.

Secondly, regarding vacant house owners who return home at least once a year and weed themselves, the frequency of commuting is 51% for “at least once a month” and 89% for “at least several times a year (including at least once a month),” while approximately 11% return 1-2 times a year. The frequency of weed management decreased by 30% and 15% for “at least once a month” and “at least several times a year,” respectively, compared to the frequency of commuting. More than half (52%) of the vacant house owners have a frequency of “several times a year.” This suggests that owners manage their houses each time they return to their hometown. However, spatial management behaviors such as weeding are limited by seasonal and environmental

factors, and a certain number of owners will weed only during limited periods.

On the other hand, 27% of the management of vacant houses and 35% of the management of weeding were entrusted to the people living in the town as friends or neighbors, including specialized management companies. Regarding the frequency of management of entrusted vacant houses and weeding, the frequency of management of vacant houses “at least several times a year (including at least once a month)” is 42% (73% for self-managed). In comparison, the frequency of management of weeding “at least several times a year (including at least once a month)” is 30% (65% for self-managed). The percentage has decreased to about 30% compared to the percentages of “self-managed” .

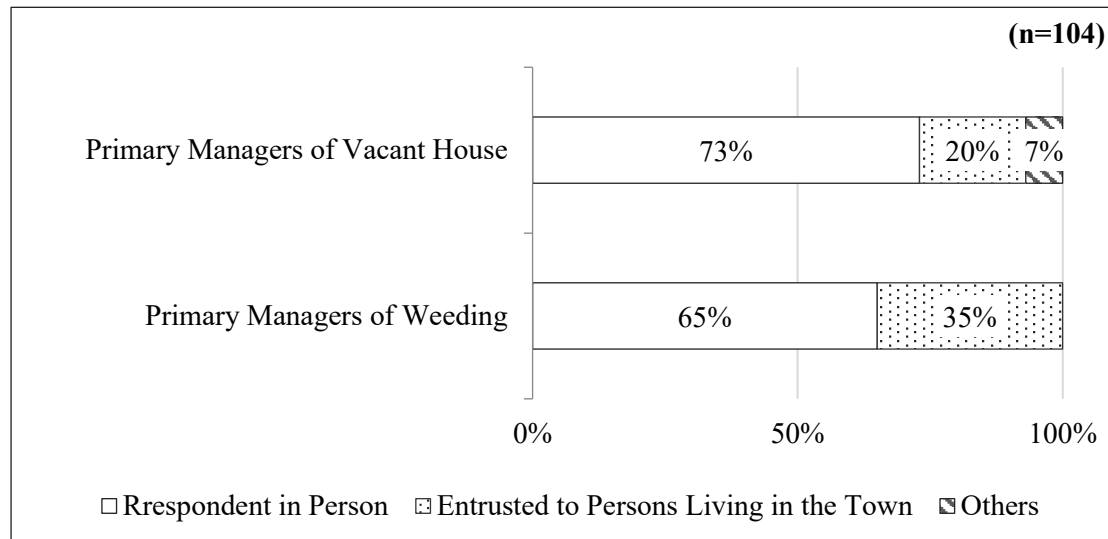


Figure 4-27. The situation of the managers of vacant houses and weeding

On the other hand, 20% of vacant house management and 35% of mowing management were outsourced to neighbors or relatives. Looking at the frequency of vacant house and grass-cutting management that is outsourced, it can be seen that 42% of vacant house management (73% managed by themselves) and about 30% of grass-cutting frequency (65% managed by themselves) are “a few times a year” or more. That percentage decreases to about 50% to 60% of those who are “managed by themselves.

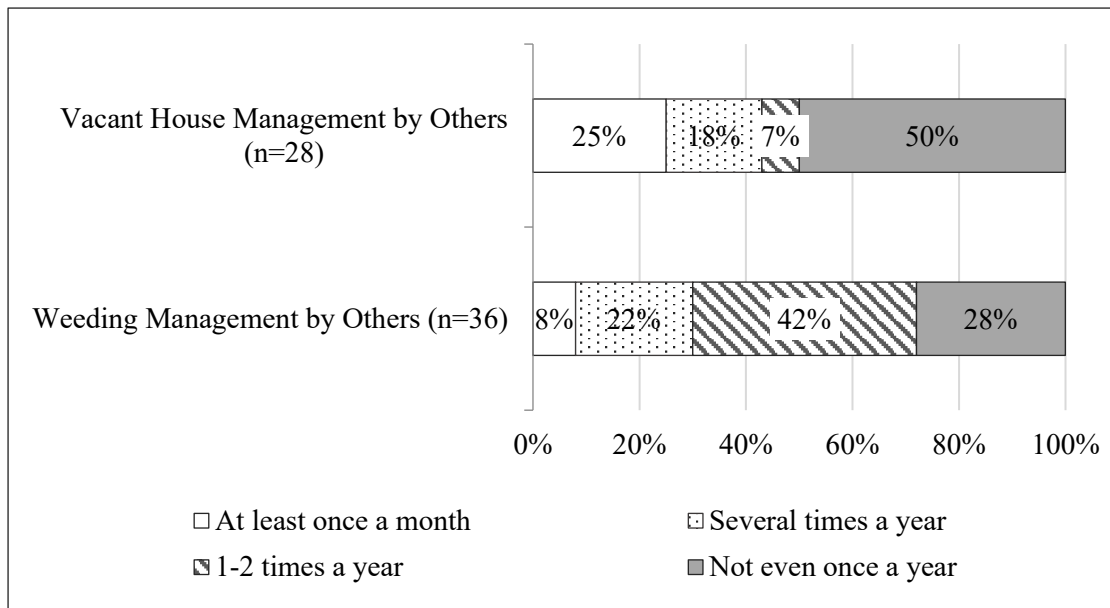


Figure 4-28. The frequency of entrusting the management of houses and weeding within the town to others

According to the data from Figure 4-28, it is known that when space management is entrusted to relatives or close neighbors in the local area, relatively simple weeding management behaviors have a relatively higher completion rate. More than 70% of them manage it several times a year, while only half of the people can achieve the management of the house several times a year. Due to privacy concerns and the greater complexity of house management, it is evident that the management of vacant houses cannot be well addressed by relying on close neighbors or others.

4.4.2 Frequency of Commuting and Residence of Vacant House Owner Household

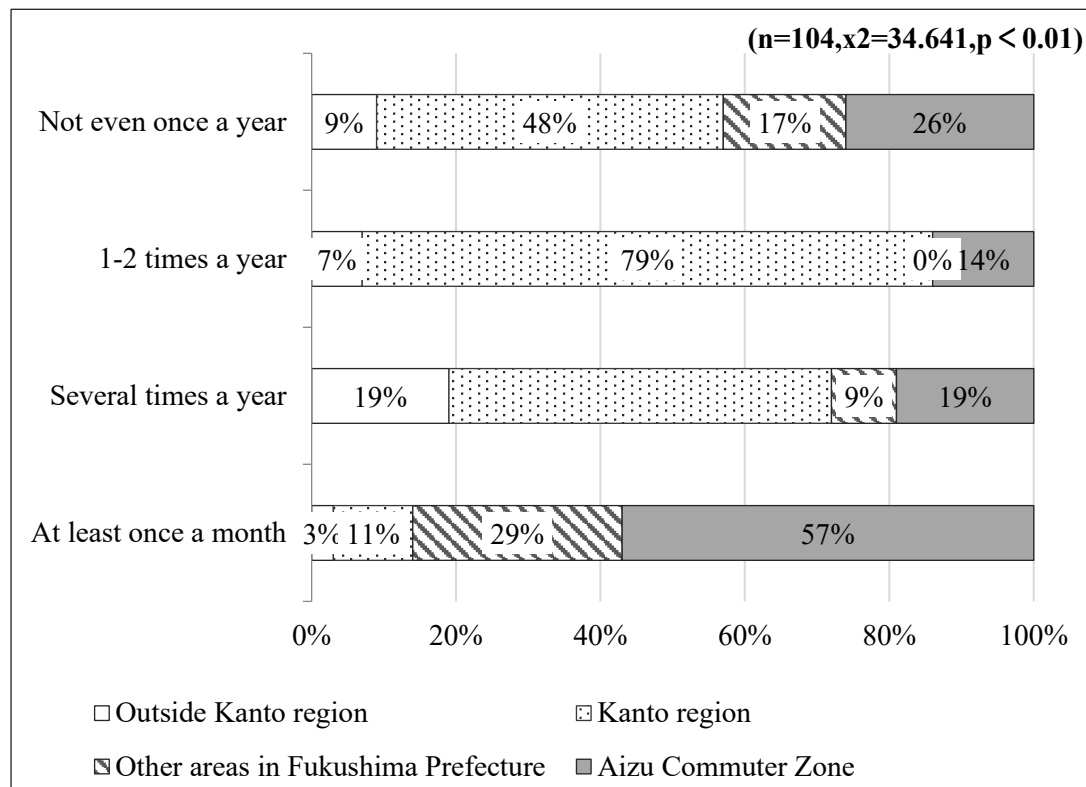


Figure 4-29. Frequency of vacant property management based on the owner's residential category

It has been observed that owners who have a commuting frequency of at least once a month tend to live in areas close to a vacant house: the Aizu commuter zone (57%). On the other hand, 26% of owners who return to their hometown less than once a year also live in the Aizu commuter zone. Therefore, it is evident that vacant house owners living in the Aizu commuter zone are polarized between those with a high frequency of commuting (at least once a month) and those with a low frequency of commuting (less than once a year). This is confirmed to be like the tendency of “polarization of neighborhood residents” pointed out by Hirata et al. in Ref. [9]. In addition, although owners living outside Fukushima Prefecture accounted for a relatively small proportion of the high-frequency commuting (14%), the frequency of “several times a year” and “1-2 times a year” is higher (72% and 86%, respectively), indicating that they also have behaviors of commuting regularly and maintain vacant houses. This lifestyle is

considered “dual location living.” These people regard Aizubange town as a second home base and maintain regular and stable contact with Aizubange town. This may have important implications for thinking about “dual location living” and the communicating relationship between urban and rural areas.

4.4.3. Frequency of Commuting and the Vacancy Years of the House

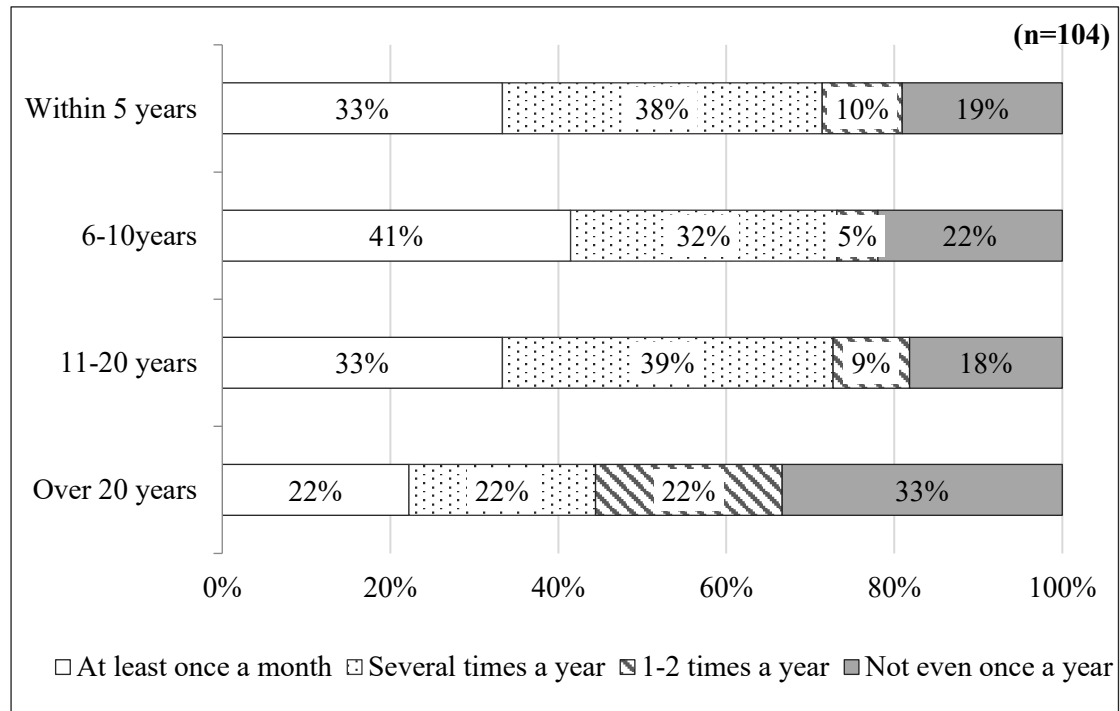


Figure 4-30. The frequency of managing vacant properties based on the classification of the years of vacancy of the houses

About 30-40% of respondents who have had a vacant house for “less than ten years” (33% for “within five years” and 41% for “6-10 years”) manage the vacant house “at least once a month.” In the “11-20 years” category, 33% of respondents manage vacant houses at least once a month, while the percentage drops to 22% in the “over 20 years” category (Figure 4-30). For these vacant houses “over 20 years”, 33% of the owners hardly manage vacant houses, while vacant houses under 20 years only account for around 20%. It is encouraging that 67% of owners manage their vacant house at least once a year, even if it has been vacant for more than 20 years. In general, there is a

noticeable decrease in the frequency of vacant house management when the house has been vacant for more than 20 years. The percentage of the frequency: “at least several times a year,” has decreased from 80% to 40% compared to houses that have been vacant for less than 20 years.

4.4.4 Agricultural Work of Returning Households

While 14% of “households returning home” (referring to households that own vacant houses, excluding households that return “less than once a year,” hereafter the same) report that they “do farm work,” 81% report that they “do not do farm work.

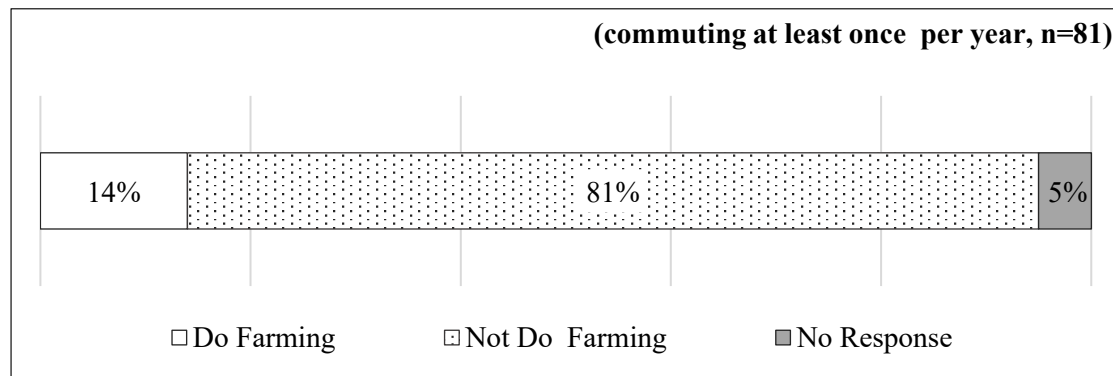


Figure 4-31. The management status of agricultural land for vacant house owners

In the investigation of Aizubange Town, it can be observed that the number of owners of vacant houses engaged in agricultural activities has decreased significantly compared to that in Shimogo Town, being only a little over 10%. This proves that the connection between the owners of vacant houses in this town and the local rural society may have become much weaker.

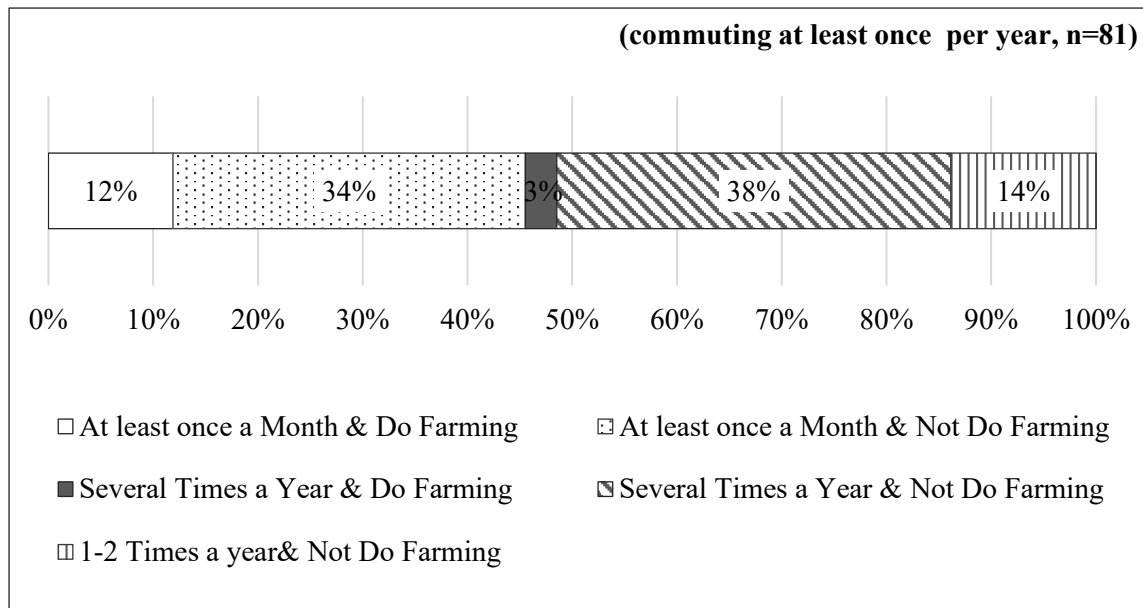
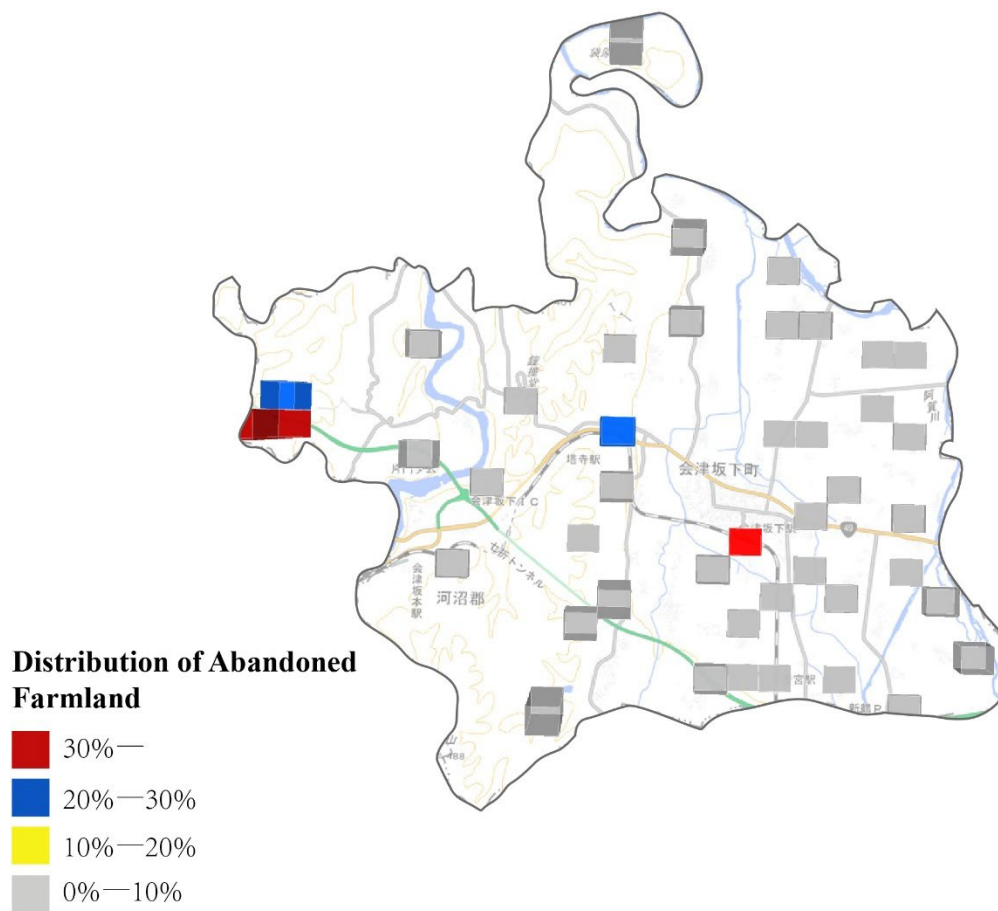


Figure 4-32. The management status of agricultural land for the owners of vacant houses with regular commutings

Since only 14% of the commuting persons are engaged in agriculture, a comprehensive analysis of the frequency of commuting shows that about 25% [= $11\% / (11\% + 34\%)$] of those who have commute with high frequency (at least once a month) are engaged in farming, and the percentage of those who have a commute several times a year are engaged in farming is 7% [= $3\% / (3\% + 38\%)$] as illustrated in Figure 4-32. In addition to the issue of vacant houses, the issue of abandoned agricultural land also exists in the mountainous area. Suppose regular commuting people are willing to develop farming locally. It could contribute to the spatial management of the local rural society in a positive direction.



Source: Urban Structure Visualization Plan <https://mieruka-v4.kashika.net/population-2015/> (accessed in Sep. 2024)

Figure 4-33. Distribution of abandoned farmland in Aizubange Town

This map illustrates the spatial distribution of abandoned farmland, categorized by the percentage of land abandonment. Areas with over 30% abandonment are marked in red, while those with 20%–30% abandonment appear in blue. Land with lower abandonment rates, specifically 10%–20% (yellow) and 0%–10% (gray), is distributed more widely across the region. The concentration of high-abandonment zones in certain locations, particularly in the southwestern and central parts, suggests potential agricultural decline due to factors such as rural depopulation, labor shortages, and economic shifts. In contrast, areas with minimal abandonment indicate more stable agricultural activity. Understanding these spatial patterns is essential for developing targeted policies to promote farmland revitalization and sustainable land management.

4.5 Community Relations and Leisure Activities

When it comes to the involvement of vacant house owners with the local community, to begin with, it should be focused on participation in sweeping tombs, exchanging greetings, and attending funerals. These are basic customs and traditions in Japanese rural society. After that, we delve into the activities that involve informal personal associations and participation in formal events organized by the municipality. The implementation and participation in these activities depend on the individual's interests and will. Finally, we analyze the relationship between the owners' leisure activities during the commuting process and their involvement in the community.

Regarding the relationship between vacant house-owning households with the community, we first look at visits to graves, greetings, and attendance at funerals, which are considered customary and ritualistic.

Next, we divide the analysis into two categories: (informal) personal socializing, in which the implementation and participation in activities are left to the free will of the individual, and (formal) participation in community activities involving community organizations, together with leisure activities that are completed by the household.

4.5.1 Community Relations

First, this section provides information on “sweeping the tomb,” “polite greetings,” and “attending a funeral.” As vacant house owners who do not regularly return to their hometowns are less connected to the local community, this section primarily focuses on those “commuting persons” who have a commute at least once a year. According to Figure 4-33, 88%, 77%, and 60% of commuting people, respectively, report that they sweep the tombs, offer courteous greetings, and attend funerals during their commuting process. It is worth noting that sweeping tombs and offering polite greetings have become common activities for commuting people with a higher percentage. Nevertheless, the number of people commuting to attend a funeral has decreased to

60%. Funerals in rural societies generally have a longer chatting and socializing component, while it seems that more commuting people are more willing to participate in some shallow regional social activities.

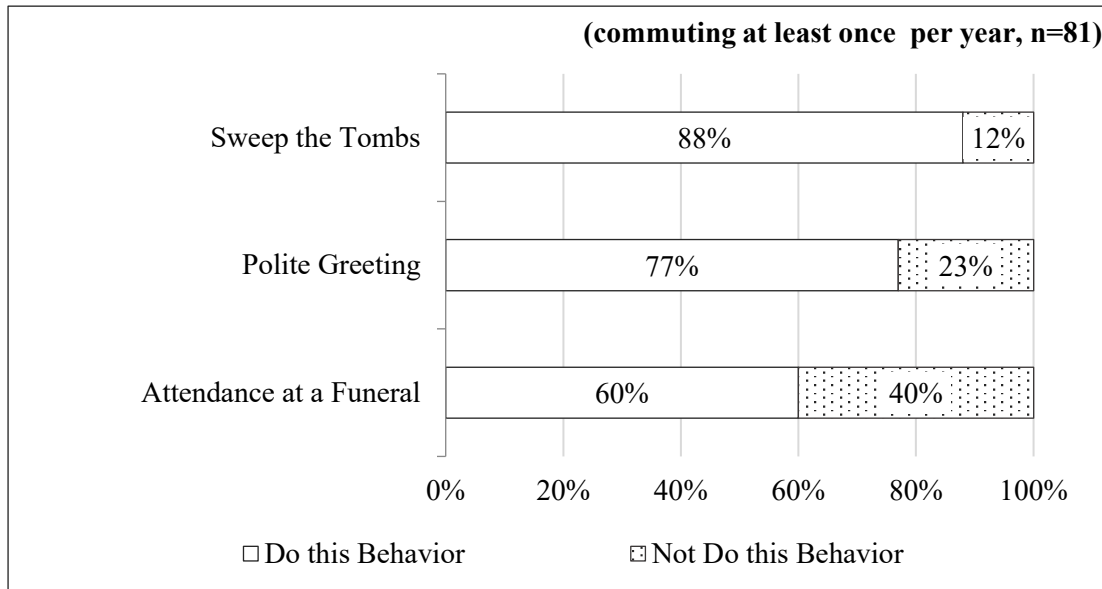


Figure 4-34. The fundamental social activities of vacant house owners

4.5.2 Personal Association in the Community

This is followed by information on participation in personal social activities. Personal socializing activities generally refer to the more intimate social gatherings that commuting people actively participate in or initiate during their commuting process, such as hosting tea parties or having dinner at someone else’s home. 70% of the home-coming people engage in personal association. Amongst them, 51% participate “at least several times a year,” and 11% participate “at least once a month,” as shown in Figure.

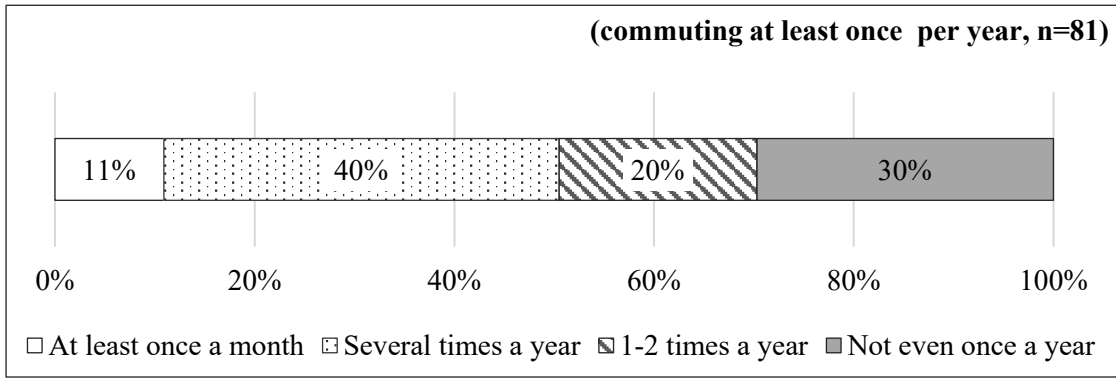


Figure 4-35. Personal association in the community of vacant house owners

Conversely, 82% of households “rarely participate” in community activities (communal mowing, festivals), 12% “sometimes participate,” and 8% “usually participate. Personal socializing, like visiting graves, attending funerals, and making the rounds, is also an everyday activity for 70% of the households returning home. On the other hand, only about 20% of the respondents participate in community activities. It is noteworthy that the groups that “socialize personally at least once a month” and “generally participate in community activities” each account for about 10% of the respondents.

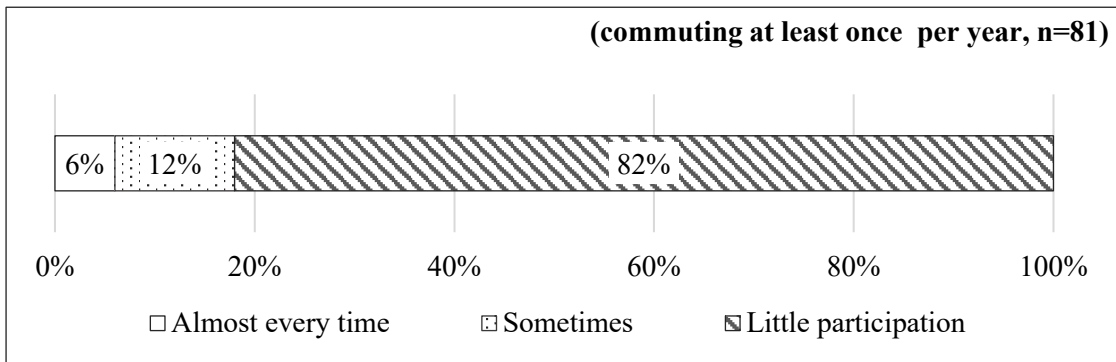


Figure 4-36. Participation in Community Activities of vacant house owners

Finally, it is about participation in formal events organized by the local community. These activities are generally regional events organized by the local government, which include participation in public weeding activities, communication meetings, and celebrations related to the history and culture of the region. According to the survey results, 82% of the commuting persons answered, “almost no participation,” 12% answered “sometimes,” and only 6% answered “almost every time”.

Based on the analysis above, it can be inferred that: i) Personal activities such as sweeping the tombs and greeting others are the most common activities that commuting individuals participate in. ii) 70% of commuting individuals engage in personal and informal social activities, which suggests that most of them maintain connections with the local community based on their interests and desires. iii) 60% of commuting individuals attend funerals, but those who participate in public and local activities are fewer than 20%. Due to the low social mobility of rural society in Japan, social relations are basically supported by personal interactions. However, the characteristics of rural society are weakening with increased urbanization. In Aizubange town, it can be concluded that commuting individuals are less interested in participating in public or social activities that are not personally related.

4.5.3 Leisure Activities and Motivation for Commuting

The respondents were asked about the frequency of their leisure activities upon returning home, which were divided into “activities enjoyed indoors (in a vacant house)” (relaxing, family gatherings, etc.) and “activities enjoyed outdoors” (walking, hiking in the mountains, gathering wild vegetables, BBQ, fishing, mountain work, etc.). The results showed that 21% of the respondents selected “activities to enjoy indoors” at least once a month, 28% selected “several times a year,” 10% selected “1-2 times a year,” and 41% selected “never enjoy.” The same trend was seen in the “Outdoor activities” category. However, slightly more respondents selected “once a month or more” than the indoor category, with 19% selecting “once a month or more,” 17% selecting “several times a year,” 14% selecting “once or twice a year,” and 50% selecting “I never enjoy outdoor activities.

After conducting surveys and field interviews, we've observed that people have varying preferences when it comes to post-commuting leisure. Some opt to stay indoors to unwind, socialize, or enjoy some downtime. On the other hand, some individuals prefer outdoor activities that allow them to connect with nature. Considering this, we've

categorized leisure activities into two types: indoor and outdoor. Indoor leisure activities include unwinding at home, enjoying family meals, and more. Outdoor leisure activities encompass a range of activities such as hiking, walking, fishing, picking wild vegetables, and having a BBQ.

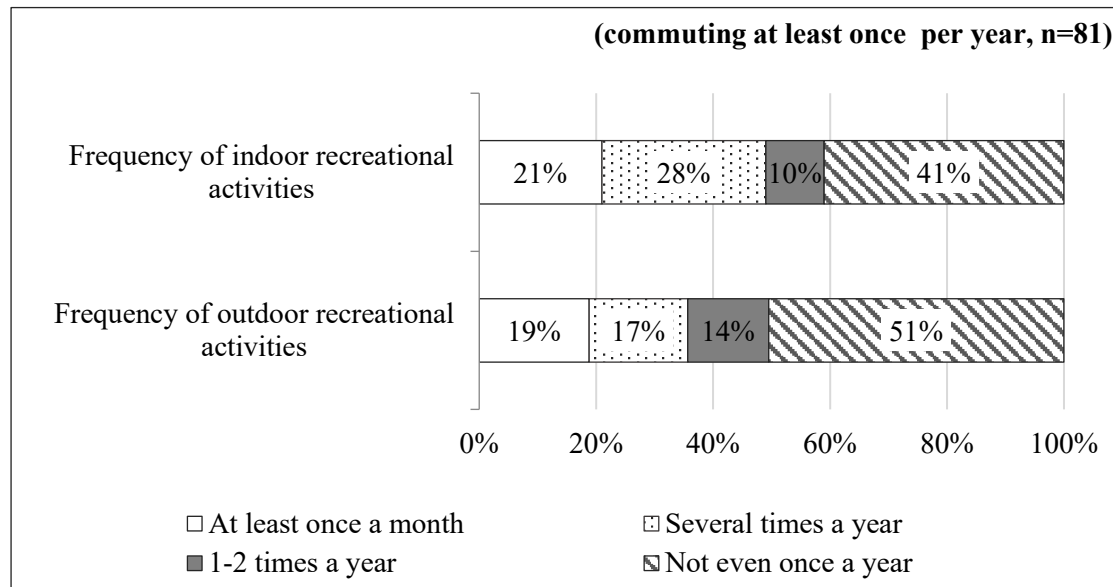


Figure 4-37. Frequency of activities to enjoy indoors and outdoors of vacant house owners

In other words, just around 50-60% of both indoor and outdoor households engage in leisure activities more than once a year (including more than once a month and several times a year), and many of the approximately 30% who return home more than once a month (31% of households return home more than once a month when excluding those returning less than once a year from Figure 4-26) (approximately 60% ($19\%/31\% = 0.61$) for indoors and approximately 80% ($24\%/31\% = 0.77$)), indicating that they engage in leisure activities when they return home.

Based on the survey results, 21% of the commuting persons reported engaging in leisure activities “at least once a month,” while 28% responded with “several times a year.” Furthermore, 10% replied, “1-2 times a year,” and 41% indicated that they have no enjoyment of leisure activity. Concerning outdoor leisure activities, the percentage of individuals who reported enjoying them “at least once a month” (19%) was similar

to those who preferred indoor activities. Additionally, 17% of the respondents replied, “several times a year,” while 14% said “1-2 times a year.” Overall, the survey results demonstrated that there is a 10% difference in the total number of people who enjoy indoor leisure activities compared to outdoor ones, as depicted in Figure 22.

The percentage of high-frequency (at least once a month) commuting persons is 43% (=35/81, reference in Fig.4-21), and almost half of them (20%/43%=0.47) enjoy indoor and outdoor leisure activities. When vacant house owners return to their hometown, they generally consider it as an original purpose to manage their ancestral house, farm and forest land, and graveyard. However, it is not uncommon for them to also enjoy a stay in their hometown or enjoy recreation in the abundance of nature. It can be supposed that outdoor recreation could also be a motivation for some of the vacant house owners to have a positive commute [6].

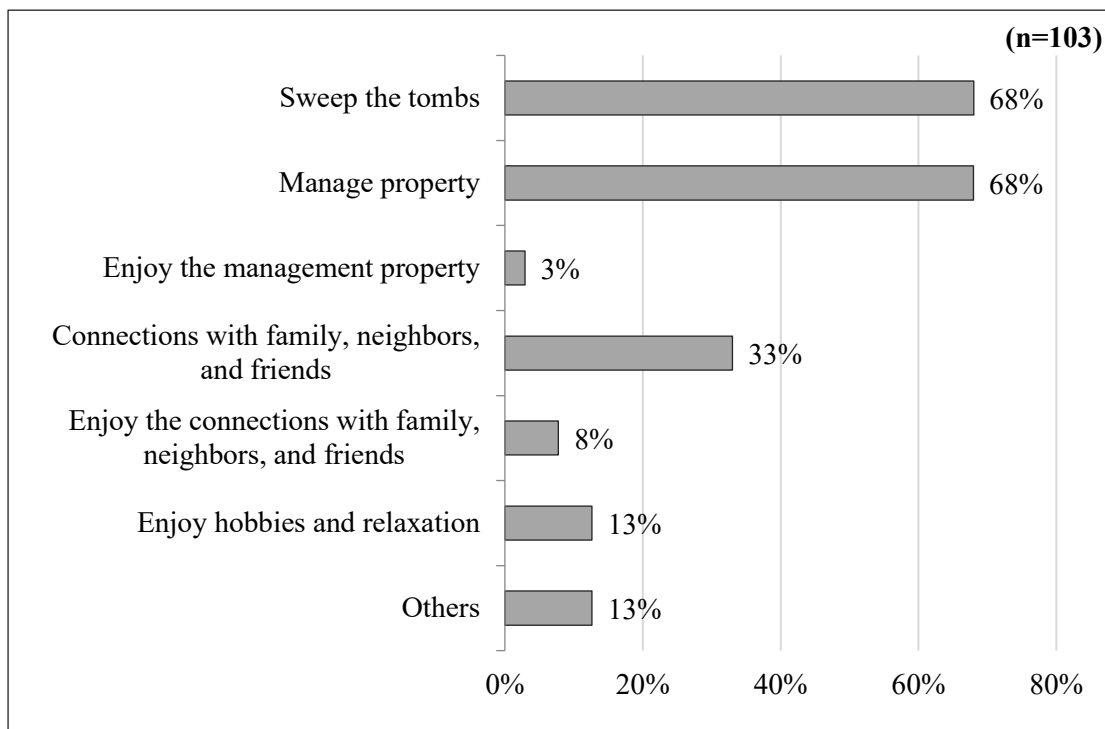


Figure 4-38. The purpose for commuting of vacant house owners

In general, it is thought that the original purpose of the return trip of vacant house-owning households is for property management (maintenance of ancestral residences, farmland, and graves), such as visiting graves and managing vacant houses and

farmland. However, it is not uncommon for owners or their spouses to enjoy staying in the hometown where they were born and raised or to enjoy recreation in the rich natural environment, which is inferred to be a motivation for some owner households to return home.

In other words, household-completed property management in private spaces is considered the basic return behavior. In contrast, household-completed leisure activities (outdoor enjoyment activities) in town spaces (74% of the total) and “personal socializing” in private and town spaces (80% of the total) are apparently “household-completed activities” and “interaction with residents.” Although these activities are different, there is a significant overlap between them (62% of the total). Some of them (40% of those who engage in “outdoor recreational activities” or “personal socializing”) participate in “community activities” in town spaces.

4.5.4 Community Activities, Personal Socializing, and Outdoor Activities

At the end of this chapter, we looked at the relationship between “personal socializing,” “community activities,” and “activities to enjoy outdoors” (in the previous section, we analyzed “activities to enjoy indoors” and “activities to enjoy outdoors,” but it is assumed that “activities to enjoy outdoors “ are more motivating to return home in terms of enjoying the difference in the environment from their place of residence.

First, we examine the relationship between “community activities,” which has the lowest participation rate among the three types of activities, and “outdoor recreational activities” and “personal socializing. Only 25% [=19%/ (100%-23%)] of those who participated in “outdoor activities” or “personal socializing” took part in “community activities. In other words, if “outdoor recreational activities” or “personal socializing” are the stages of having some relationship with the community, participation in “community activities” can be inferred to be at a stage where the level of involvement has deepened.

In the upcoming chapter, we will delve into the connection between “personal association,” “community activities,” and “outdoor recreation.” In the preceding section, we scrutinized indoor and outdoor recreation. It was deduced that outdoor recreation offers a natural setting that differs from an individual's usual living environment and is more appealing for commuting. Therefore, we have opted to delve deeper into the aspect of relishing outdoor leisure.

Table 4- 3. Activities for socializing and enjoying the outdoors, as well as community activities.

Item	Item count	Percentage
Personal association or outdoor recreation and participation in community activities	15	19%
Personal association or outdoor recreation and no participation in community activities	47	58%
No personal association or outdoor recreation and participation in community activities	0	0%
No personal association or outdoor recreation and no participation in community activities	19	23%
total	81	100%

Next, we look at the relationship between “outdoor recreation activities” and “personal socializing. The “outdoor recreation/personal socializing” type includes 43% of those who engage in both activities, the “personal socializing only” type includes 18%, the “outdoor recreation only” type includes 6%, and the “property management” type includes 24% who do not engage in both activities and limit their activities to managing personal property such as vacant houses and graves. The “property management” group, which did not engage in either of these activities and limited their activities to managing personal property such as vacant houses and graves, accounted for 24%.

In other words, household-completed property management in private spaces is an essential return activity, while household-completed leisure activities in town spaces (50% of all “outdoor enjoyment activities”) and “personal socializing” in private and town spaces (70% of all activities) are seemingly different as “household-completed

activities” and “interaction with residents.” Still, there is a significant overlap (43% of all activities). Although these activities are apparently different, there is a significant overlap between them (43% of all respondents), and some of them (50% of those who engage in “outdoor recreational activities” or “personal socializing”) participate in “community activities” in town spaces.

According to the results in Table 4-2, it was found that only 25% [= 19%/ (100%-23%)] of the commuting persons who had participated in “outdoor recreation” or “personal association” also participated in “community activities.” This implies that if “outdoor recreation” or “personal association” is the primary stage of establishing a certain relationship with the local rural community, participation in “community activities” could be considered as the stage of further involvement with the local community.

We have also analyzed the relationship between “outdoor recreation activities” and “personal association.” Among the individuals who participated in both activities, 43% belonged to the “Association & Leisure type,” 27% belonged to the “Only Association type,” and 6% belonged to the “Only Leisure type.” The proportion of the “Property Management type” was 24%, and they solely managed their personal property, such as vacant houses and tombs, without any involvement in activities (as shown in Table 4-3).

Table 4-4. Socializing and Outdoor Fun Activities

Category	Item count	Percentage
Association & Leisure Type (Personal association and outdoor recreation)	35	43%
Only Association type (Personal association and no outdoor recreation)	22	27%
Only Leisure type (No personal association and outdoor recreation)	5	6%
Property Management type (No personal association and no outdoor recreation)	19	24%
total	81	100%

To put it simply, managing property in a private space is a fundamental behavior in the commuting process. Vacant house owners engage in outdoor recreational activities (which accounts for 49% of the total) and personal association with the local community (which accounts for 70% of the total), and this clearly represents their interactions with the community. Those who participate in outdoor recreation or personal association also engage in community activities in the local area (which accounts for 25% of the total, reference in Table. 4-2), indicating a stronger connection with the local community.

4.6 Population characteristics of vacant house owners with a high frequency of commuting

Through the above analysis and research, we can't find that people with a high degree of communication back home will highly manage their own houses, and at the same time have more connections with the local regional society. Therefore, this section mainly analyzes the basic attributes and characteristics of people with a high degree of commuting, as well as the specific depth of their connections with the regional society.

Table 4-5. Socializing and Outdoor Fun Activities

Chi-Square Test with high frequency of commuting			
	Chi2	p-value	Degrees of Freedom
Years vacant	6.443	0.375	9
Age of owners	4.302	0.638	9
Current residence	19.286	p < 0.05	6
Frequency of Vacant house management	84.299	p < 0.001	6
Farming	5.966	0.397	6
Association	24.026	p < 0.001	6
Participation in Community Activities	4.411	0.353	6
Enjoy the outdoors	24.367	p < 0.001	9

The table presents the results of chi-square tests examining the relationship between various factors and an unspecified dependent variable, likely related to vacant house management. The key variables analyzed include the years a property has been vacant, the age of the owners, their current residence, frequency of vacant house management, involvement in farming, participation in associations, engagement in community activities, and enjoyment of outdoor activities. After detection, it was found that only the address of the owner, the frequency of vacant house management, participation in local social activities, and enjoyment of outdoor leisure showed significant correlation with high-frequency commuting. This is quite different from the figures for Shimogo.

4.6.1 The Relationship Between High Frequency Commuters and Local Community

Fig. 4-34 illustrates the characteristics of vacant house owners who engage in high-frequency commuting activities. It is divided into several categories, highlighting factors such as age, duration of vacancy, participation in community activities, outdoor enjoyment, and social interactions. Key observations include:

First of all, in the age group of owners, it can be found that the proportion of the high-frequency returning age group is roughly the same as the overall age group. The

largest share is more than 40% among people aged 60 to 70. Among the people with high frequency reversal, the ultra-elderly people over 80 years old account for a relatively small proportion, only 6%.

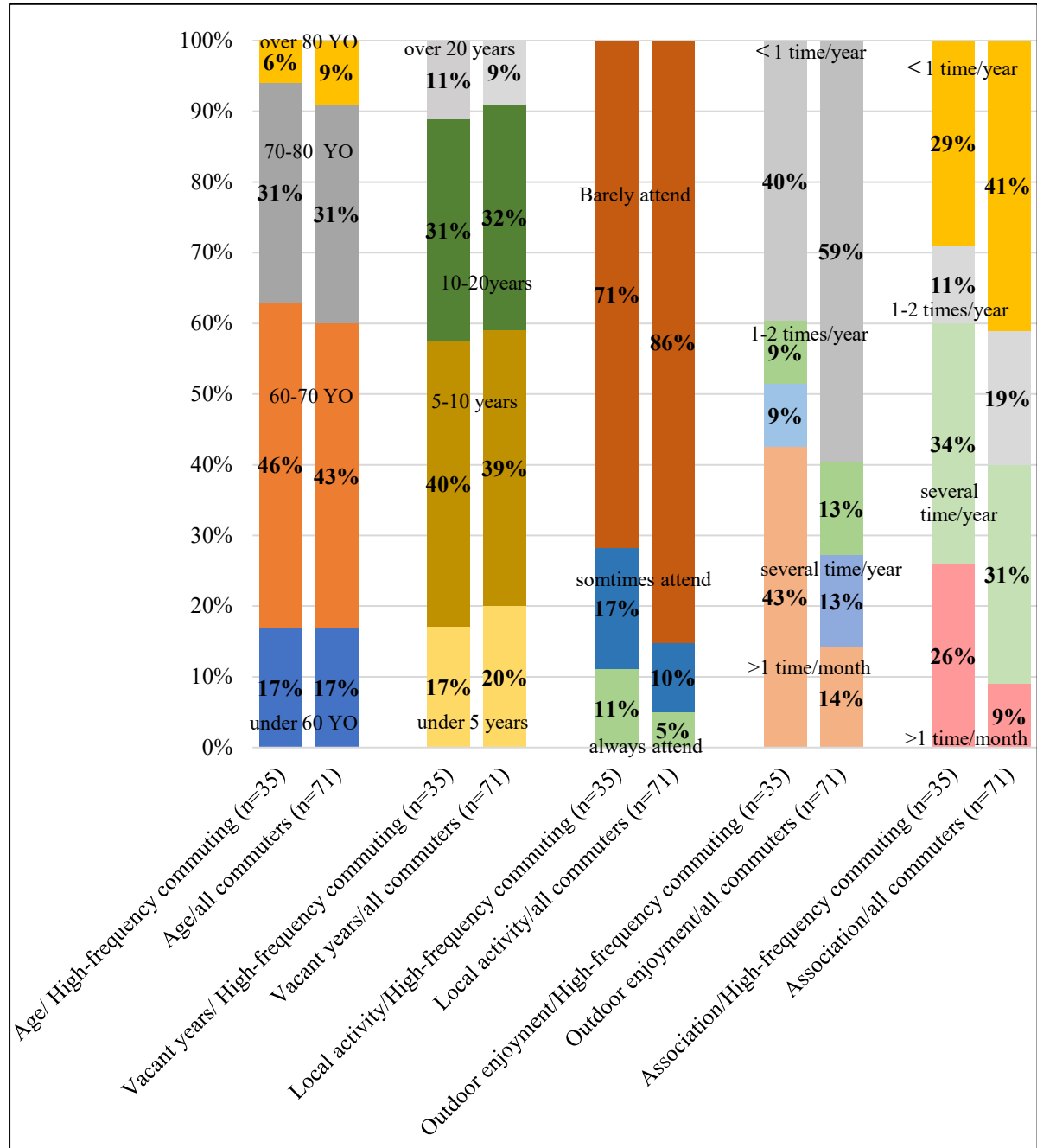


Figure 4-39. Characteristics of vacant house owners who engage in high-frequency commuting behavior

Next, in the group of vacant house years, the high frequency of commuting people owns nearly 60% of the vacant house years less than 10 years, which is the same trend

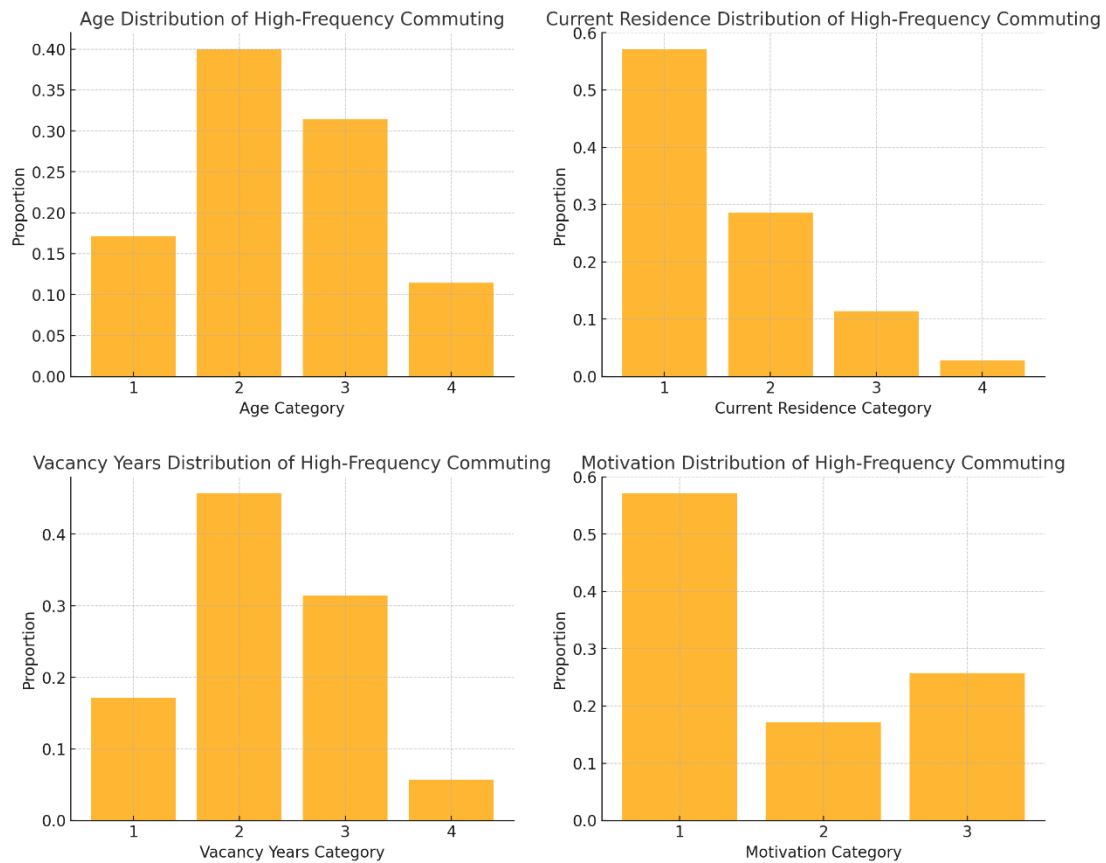
as the proportion of vacant house years less than 10 years in the whole population. In this group, the difference in the number of vacant years of the high frequency commuters remained the same as the overall population. Therefore, in Aizubange Town, the age and vacant years of vacant houses do not change significantly due to the high-frequency commuting groups.

Then, when it comes to participating in local activities, enjoying the outdoors, and socializing with local celebrities, there are significant differences between those who commute home with high frequency and the overall population. People who commute home with high frequency socialize with local people and enjoy outdoor leisure are basically three times the proportion of the whole population, especially in enjoying outdoor leisure. Those who commuted more frequently were 43% more likely to enjoy outdoor life (more than once a month), compared with 14% of the population as a whole. These two sets of data can show the behavior state of people who commute back to their hometown with high frequency, that is, they fully enjoy the outdoor natural life and actively maintain private social behaviors with local residents. However, in Aizubange town, non-participation in local regional activities seems to be a distinct feature, as even among those who commute home frequently, only 11% participate in regional activities frequently.

4.6.2 Characteristics Analysis of High Frequency Commuters

This section uses logistic regression models and descriptive statistics to summarize the characteristics of people who commute home with high frequency, so as to understand the factors affecting this group of people. The comparator considers the age, current address and motivation of the commuters as the basic attributes. At the same time, the vacant years of the house can reflect the length of the years of the transfer away from the hometown to a certain extent, so it is also used as one of the basic attributes to weigh. This section uses logistic regression models and descriptive statistics to summarize the characteristics of people who commute home with high

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Age: 1: under 60YO. 2: 60-70 YO. 3: 70-80 YO. 4: over 80 YO.

Residence: 1: Shimogo Commuter Zone. 2: Other areas in Fukushima Prefecture.

3: Kanto region. 4: Outside Kanto region.

Vacancy years: 1: Within 5 years. 2: 6-10years. 3: 11-20 years. 4: over 20 years

Motivation: 1: For the administration of property. 2: To communicate with friends and family. 3: Enjoy returning to their hometown with interest

Figure 4-40. Motivation Distribution of High-Frequency Commuting

First of all, as shown in the descriptive statistics in Figure 4-40, the group with the most obvious age characteristics of high-frequency commuters is Group 2 (60 to 70 years old). In comparison, group 4 (people over 80 years old) has the smallest impact factor, which indicates that the aging trend of people who commute home with high

frequency is not serious. As for the current residence, the most obvious feature is No. 1 (Aizubange commuting place), which indicates that the proximity is easier to facilitate the frequent commuting and management of the population from a geographical level. The convenient transportation characteristics of Aizubange town are proved here. In terms of the vacant years of houses, it is obvious that there are very few people who commute to houses with high frequency that exceed the limit of more than 20 years, which proves that houses with long abandoned years are more likely to face the problem of low management conditions. Finally, regarding the motivation of returning home, it can be clearly seen that the impact factor of group 1 exceeds 0.5, which is the highest value of the impact factor, proving that property management in Aizubange is an important factor contributing to the high frequency of commuting back home. Interest in returning home and interacting with locals is less important.

Table 4-6. Socializing and Outdoor Fun Activities

Category	Precision	Recall	F1-score	Support
Low/Medium Frequency (Class 0)	80.80%	85.50%	83.10%	69
High Frequency (Class 1)	67.70%	60.00%	63.60%	35
Overall Accuracy	76.90%	76.90%	76.90%	0

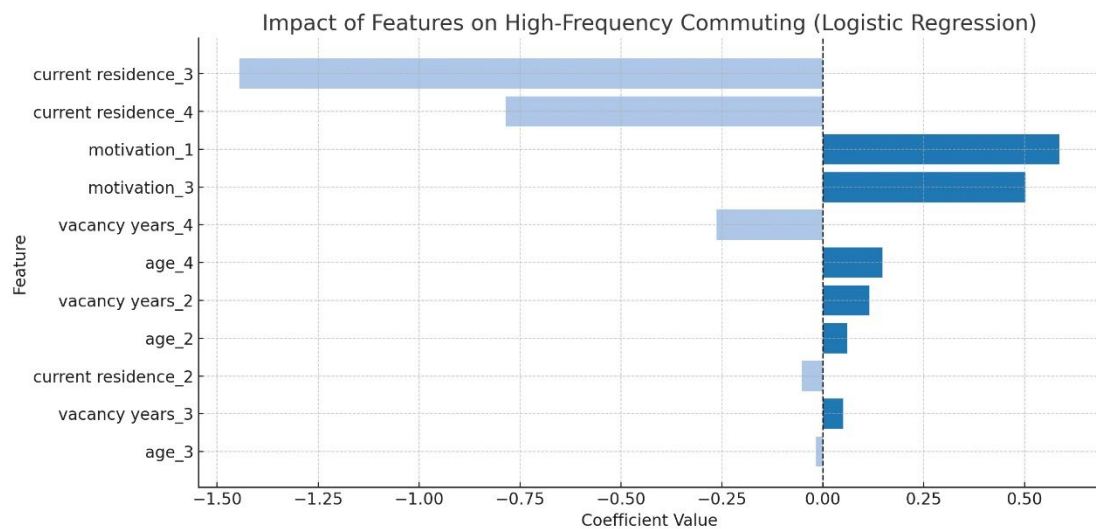


Figure 4-41. Impact of Features on High-Frequency Commuting (Logistic Regression)

According to the regression coefficient of the logistic regression model, the visual chart shows that in Aizubange town, the owners of the vacant houses has a significant

negative correlation with the high frequency of commuting back home, and the impact of commuting time on the high frequency of commuting back home is higher than that of returning home motivation. In other words, the farther away from Aizubange after the transfer, the more difficult it is for people to return home with a high frequency.

4.7 Estimation of Social Impact

The purpose of this study is to quantify the contribution of vacant house owners to the local community, assuming that they are a type of connected resident in an aging and depopulated area, and to assist in the collection of fundamental information about the vacant house while contributing to the development of advanced policies.

This section aims to determine the percentage of households with vacant houses in Aizubange Town, assuming they are considered a type of connected resident. To achieve this, we refer to the “Basic Resident Ledger and the Households of Vacant House Action Plan for 2021” of Aizubange Town, which reports that there are 5,306 resident households and 710 vacant house households. In previous chapters, the survey covered 475 cases. These 475 vacant houses are recognized by the local government mainly based on the address of the fixed assets tax register and the “Vacant House Survey and Improvement Plan of Aizubange in 2020.” The purpose is to deliver questionnaire sheets by post more accurately. In this chapter, we consider all 710 vacant houses (including “weekend houses”) to estimate the total number of vacant houses. Therefore, the overall vacant house rate for Aizubange Town in 2021 is 11.8% (Table 4-4, No. 33).

In the preceding section, the analysis was carried out separately for vacant house owners and “commuting persons” who have a commuting at least once a year. Consequently, the data in Table 5 is a combination. Nevertheless, this does not pose any issues as the calculation is based on the total number of households. Additionally, “weekend houses” were excluded from the primary analysis but were still accounted for as households that have a commuting at least once a month ($235=710-475$) in this

chapter. Otherwise, the number of households was rounded to the nearest integer.

The significance of regarding the owners of vacant houses as a type of resident and measuring the social influence of their spatial management behavior and commuting behavior was elaborated in detail in the previous section. Refer to Section 3.5. But since Aizubange Town has a much larger number of main households (more than 5,000) compared to Shimogo Town, the calculated value of the social influence percentage is relatively small and has no greater reference value. Therefore, some data characteristics of this area will be analyzed from other aspects.

Table 4-7. Details for Estimation of Social Impact

NO	Item	Calculation method
1	Resident Households	5306[①]
2	Households with Vacant House	710 [②]
3	Rate of Households with Vacant Houses Households of Vacant House/ (Resident Households + Households of Vacant House)	$\frac{②}{①+②}$ (11.8%) [③]
4	Commuting Households (households with Vacant House that have commuting at least once a year)	$475 \times 0.78 + 235$ (606) [④]
5	Percentage of Commuting Households Commuting households/ (commuting households + resident households)	$\frac{④}{④+①}$ (10.3%)
6	High-frequency Commuting Households (Households commuting at least once a month)	$475 \times 0.34 + 235$ (397)[⑤]
7	Percentage of High-frequency Commuting Households High-frequency Commuting Households/ (High-frequency Commuting Households + Resident Households)	$\frac{⑤}{⑤+①}$ (7%)
8	Commuting Households Engaged in Farming	$④ \times (11/81)$ (83) [⑥]
9	Percentage of Commuting Households Engaged in Farming	$\frac{⑥}{⑥+①}$ (1.5%)
10	Households with Vacant Houses Engaged in Weeding	$② \times (68/104)$ (465) [⑦]
11	Percentage of Households with Vacant Houses Engaged in Weeding	$\frac{⑦}{⑦+①}$ (8.1%)
12	Households with Vacant House Engaged in Vacant House Management	$② \times (76/104)$ (519) [⑧]
13	Percentage of Households with Vacant House Engaged in Vacant House Management	$\frac{⑧}{⑧+①}$ (9.0%)

From a demographic point of view, take the frequency of commuting in households of vacant houses to extrapolate for all resident households. The 606 households have a commuting at least once a year (Table 4-4, No. 4, 78% of “at least once a year” according to Fig. 4-11), and 10.3% of the total households have a commuting at least once a year (Table 4-4, No. 5). There are 397 households that have a commuting at least once a month (Table 4-4, No. 6, 34% of “at least once a month” according to Fig. 11). If the households that commute at least once a month are estimated as residents, they account for 7% (Table 4-4, No. 7) of the total.

According to the spatial management perspective, it has been estimated that 83 households own vacant houses and engage in farming (refer to Table 4-4, No. 8). This accounts for 1.5% of the total households that are currently involved in farming (refer to Table 4-4, No. 9). The number of households with vacant houses engaged in weeding

is estimated to be 465 (Table 4-4, No. 10), accounting for 8.1% of all households (Table 4-4 No. 11). Moreover, the number of households with vacant houses undertaking management of the vacant house is estimated to be 424 (Table 4-4, No. 12), accounting for 17.5% of all households (Table 4-4 No. 13).

Households with vacant houses that have a commuting regularly may have differences and limitations of contribution and involvement in the local community as compared to permanent resident households. This calculation solely aims to provide a quantitative estimation of the impact and involvement that households with vacant houses have on the foundational elements of the local area.

From the perspective of space management, vacant homeowner households engaged in agricultural work were estimated to be 83 [=660*(11/81), No. 8], accounting for 1.5% of all households [=83/ (83+5306), No. 9]. The number of vacant house-owning households engaged in mowing was estimated to be 465 [=710*(68/104), No. 10], accounting for 8.1% of all households [=465/ (465+5306), No. 11]. Furthermore, the number of vacant house-owning households managing the main house is estimated to be 519 [710*(76/104), No. 12], accounting for 9.0% of all households [=519/ (519+5306), No. 13].

This is an attempt to quantify the role of vacant homeowner households for convenience while considering the limitations of qualitative differences in activities between vacant homeowner households that return to their homes and residents who live in their homes all the time.

4.8. Conclusion

4.8.1 Future About the Vacant Houses, Vacant House Owners, and Space

Management

About 60% of vacant houses have a vacant period of less than ten years, which recognizes that the number of vacant houses has been continuing to increase in recent years. In contrast, the management of vacant houses with over 20 years of vacant period has significantly decreased in frequency of management. The local municipality is encouraged to take “preparatory measures related to utilization and maintenance” for vacant houses under ten years and proactively contact owners to encourage the early reutilization of vacant houses.

Over 30% of vacant house owners commute at least once a month. Generally, they manage their vacant house themselves with the same frequency during the commuting process and are similarly involved in weeding management. Additionally, approximately 25% of these owners also engage in farming activities. This suggests that these “high-frequency commuting persons” are actively engaging in spatial management in the local area.

In addition, more than 30% of the vacant house owners live within 60 minutes of travel time for commuting, and more than 90% of them live within the commuter area of the town. It is recommended to provide policy support for vacant house owners who commute regularly, such as preferential transport costs for commuting or housing preference, to promote more regular or frequent commuting by vacant house owners.

In Aizubange Town, people who commute back to their hometown with high frequency are mainly motivated by property management. Therefore, it proves that if the government can implement corresponding policies to arouse owners' attention to property management, it can promote the behavior of frequent commuting management.

4.8.2 Relationship of Vacant House Owner with The Community

According to the survey, almost half of the individuals who return home monthly enjoy the recreation of indoor or outdoor leisure, indicating that leisure experience could be regarded as a positive attraction that promotes commuting for some vacant house owners. Additionally, approximately 20% of people participate in community events, suggesting that in places like Aizubange town, where there has been some urbanization, there may be a decline in enthusiasm for maintaining social connections to the community (social factors) and enjoying the natural environment of the area (environmental factors).

Therefore, it is recommended that rather than simply requiring these owners to participate in the local community (community activities), activities such as recreation and personal association while commuting should be respected and supported (e.g., by creating opportunities for commuting persons or connected population to interact with each other and creating stops to stay or interact in addition to vacant houses) in order to establish sustainable relationships between the local community and the owners of the vacant house.

Although the association between the owners of vacant houses in Aizubange town and the local regional society is not as strong as that in Shimogo town, it can be found that for the people who commute back to their hometown with high frequency, the interest in commuting back to their hometown is still an important influencing factor, and more than 40% of the people who return to their hometown with high frequency enjoy outdoor leisure life.

4.8.3 Impact of Vacant House Owners on The Community

Assuming that the owner of a vacant house is a type of resident, households with vacant houses that have a commute at least once a year manage the property as vacant houses and weeds, accounting for approximately 10 percent of all residents' households

and vacant households combined. Similarly, households with vacant houses that are frequently visited for farming represent 1.5 percent of all residents' households and vacant households combined. In other words, they are estimated to have made some contribution to the sustainable development of the local community in terms of demographic and spatial management. On the other hand, some organizations or associations have been formed by "move-out residents." Still, there are currently few policies in local municipalities that have concrete measures to consider vacant house owners as a type of resident and expect them to make a positive contribution to the local community on a sustainable basis. It is hoped that this paper could provide an idea for taking measures to promote the vacant house owners as a kind of residents and continue to contribute to the sustainable development of the local area.

Reference

- [1] Distribution of depopulation-related municipalities by prefecture, Office of Depopulation Control, Local Administration Bureau, Ministry of Internal Affairs and Communications, Apr. 2022
- [2] Tsubasa Suzuki, Research on sparsely populated settlements in Oe Town Current situation of sparsely populated settlements and future measures, Journal of The Society of Art Engineers of Japan No. 53 Sept. 2010
- [3] Aizubange Town HP Various statistical data: <https://www.town.aizubange.fukushima.jp/>
- [4] Aizubange Town Population Vision and Comprehensive Strategy for the Creation of Aizubange Town, Aizubange Town General Policy Division, Apr. 2020
- [5] Aizubange Town's plan for dealing with vacant houses, etc. Aizubange Town General Policy Division, 2018
- [6] Aizu Metropolitan Area Public Transportation Network Formation Plan, Fukushima Prefecture, six cities, towns, and villages in the Aizu region, 2020
- [7] Yukihiro Saito, Tomohiko Yoshida, Hong Nan, The Moving-Out Residents' Role in the Sustainability of Local Society--A case study in Seimou region, Gunma Prefecture, in Aizu region, Fukushima Prefecture and Kyoutanba region, Kyoto Prefecture, Research Collection, and Practical Research Report No. 50, pp.269-279, Research Institute of Housing and Urban Development, 2023
- [8] Yukihiro Saito, Commuting Behaviors of Vacant House Owners and Their Relationship with Rural Society in Mountainous Areas, Journal of Environmental Information Science 2020(1), 1-11, 2020
- [9] e-Stat (e-Stat), <Census Boundary Data by Town, Street, Character, etc.,> 2020
- [10] Geoshape Municipal ID Data Set (prepared by CODH), Census Boundary Data Set > Standard Area Code List > Shimogo, Fukushima Prefecture (07362)
<https://geoshape.ex.nii.ac.jp/ka/resource/07421.html>

Chapter 5. Comparative Analysis

5.1 Comparison of Basic Information on the Two Objects

Table5-1. Investigative Process and Methodology of the Thesis

	Shimogo Town	Aizubange Town
Geography	Mountainous area	Intermediate area
Population	4,986(until 2024)	14,552(until 2024)
depopulated municipalities	yes	yes
Living Households	2,144(until 2024)	5,853(until 2024)
Aging Rate	44.8%	38.7% (national average: 28%)
Vacant house number	501 (Includes temporary use such as weekend residence)	710 (Includes temporary use such as weekend residence)
Vacant house number surveyed	320	440

The data comes from e-Stat, the Government Statistics Portal of Japan. <https://www.e-stat.go.jp/stat-search/files?page=1&query=%E4%B8%8B%E9%83%B7%E7%94%BA%E4%B8%96%E5%B8%AF%E6%95%B0&layout=dataset&metadata=1&data=1> (accessed in Feb. 2025)

Shimogo Town is a rural town located in a mountainous area, while Aizubange Town is situated in an intermediate zone. Currently, both towns have been designated as “depopulated municipalities” (過疎化市町村). Shimogo Town has a population of 5,264 and 1,923 living households, while Aizubange Town has 15,068 residents and 5,306 living households. The aging rate is significantly high in both towns, with Shimogo Town at 44.8% and Aizubange Town at 38.7%, the latter still exceeding the national average of 28%. In terms of vacant houses, Shimogo Town has 501 vacant houses, and Aizubange Town has 710, including those used temporarily, such as for

weekend residences. In this study, the number of questionnaires distributed was 320 in Shimogo Town and 440 in Aizubange Town.

Table5-2. Geographical Features: Shimogo Town vs. Aizubange Town

Category	Shimogo Town	Aizubange Town
Location	Southwestern part of Aizu region, Fukushima Prefecture	Northern part of Aizu region, Fukushima Prefecture
Topography & Terrain	Mountainous area (mountainous terrain)	Intermediate area (part of a basin)
Elevation	Approximately 500–1,500m	Approximately 170–200m
Major Mountains	Onodake, Nasudake (Sanbonyari-dake), Futakoyama, Kamigorogadake	None (surrounded by hills)
Major Rivers	Agagawa River (Ōkawa)	Agagawa River (confluence with Tadami River)
Major Lakes & Dams	Wakagō Lake (Ōkawa Dam), Ōuchi Dam	None
Land Use	Forest coverage is high (only 6.9% farmland)	Extensive farmland (agriculture is thriving)
Transportation Accessibility	Limited accessibility (many mountainous roads)	Highly accessible (well-developed highways and national roads)
Climate Characteristics	Heavy snowfall in winter (classified as a heavy snowfall area)	Relatively mild climate

The data comes from the government office homepage of Shimogo town and Aizubange town.

<https://www.town.aizubange.fukushima.jp/soshiki/2/4638.html>

<https://www.town.shimogo.fukushima.jp/index.html> (accessed in Sep. 2024)

(1) Geography and Climate:

Shimogo Town is located in the southwestern part of the Aizu region in Fukushima Prefecture. Surrounded by mountains, it is a typical rural area in mountainous areas, with an elevation ranging from 500 to 1,500 meters. In addition to the Agagawa River, the town also has lakes and dams. Due to its mountainous terrain, transportation in the area is relatively inconvenient. Furthermore, during winter, Shimogo Town experiences heavy snowfall, making it a designated heavy snowfall area.

Aizubange Town, on the other hand, is in the northern part of the Aizu region in Fukushima Prefecture. Part of the town lies within the Aizu Basin, while other areas are

classified as intermediate zones, with an elevation of approximately 170 to 200 meters. The town is home to both the Agagawa River and the Tadami River, and it enjoys a relatively mild climate.

(2) Land Use:

Shimogo Town: About 87% of the town's land area consists of mountains and forests, with minimal flat land for agriculture. Agriculture in Shimogo is mainly focused on small-scale cultivation of vegetables and rice in the valleys. The agricultural land ratio is only 6.9%.

Aizubange Town: More than 37% of the land in Aizubange is used for rice cultivation, while 8.8% is forested. Aizubange has a much more significant portion of its land dedicated to agriculture than Shimogo. The agricultural land ratio is 42.7%.

(3) Population:

Over the past 50 years, both Shimogo Town and Aizubange Town have experienced a continuous decline in population. According to population census data from the Statistics Bureau of Japan, the population of Shimogo Town decreased from 11,077 in 1970 to 5,264 in 2020, marking a 52.5% reduction. Meanwhile, the population of Aizubange Town declined from 21,720 in 1970 to 15,068 in 2020, representing a 30.6% decrease. Both Shimogo town and Aizubange town are facing the challenge of an aging population and a decline in younger residents.

(4) Economy:

The financial strength indices of Shimogo Town and Aizubange Town are 0.34 and 0.37, respectively, both lower than the national average of 0.49 and the Fukushima Prefecture average of 0.46. This indicates that both towns have relatively weak financial independence and are highly dependent on external financial support.

Shimogo town: The core industry, agriculture, is primarily centered on rice cultivation, while also incorporating a diversified farming system that includes

buckwheat, tobacco leaves, apples, and mushroom cultivation. Leveraging its rich natural environment and abundant forest resources, new promotional strategies such as green tourism, which integrates agricultural and forestry experiences with tourism, are also being developed.

Aizubange town: Agricultural management is primarily centered on rice cultivation, with higher productivity compared to the prefectural average. The manufacturing industry mainly focuses on the production of industrial machinery, commercial machinery, ceramic and stone products, and food products. The commercial sector is primarily centered on the retail of locally produced food and clothing. According to the Aizubange Town government's statistical report, the manufacturing and commercial production levels have shown a declining trend over the past 15 years.

(5) Vacant House Situation:

Shimogo Town: In Shimogo, a survey conducted in 2017 identified 330 vacant buildings, of which 227 required repairs. The town has implemented efforts to manage these properties, but the mountainous terrain and scattered settlements make management challenging.

Aizubange Town: The situation in Aizubange is somewhat different, as the vacant house rate is about 10.3%. Although the number of vacant properties is growing, the town's flat geography makes it easier to manage vacant properties, and the local government has been proactive in addressing the issue.

(6) Cultural Heritage and Tourism:

Shimogo Town: Known for its historical sites such as Ouchi-juku, a preserved Edo-period post town, Shimogo attracts visitors interested in traditional culture and history. Its festivals, such as the Ouchi-juku Snow Festival, play a significant role in its tourism.

Aizubange Town: While Aizubange is less focused on tourism, it has a strong connection to traditional festivals, including the Sakashita Market Festival and local folk arts. However, the town's focus is agriculture rather than tourism.

In summary, Shimogo Town and Aizubange Town share challenges such as depopulation and vacant houses, but they differ significantly in geography, economy, and cultural focus. Shimogo Town's economy is more reliant on tourism, while Aizubange is primarily agricultural.

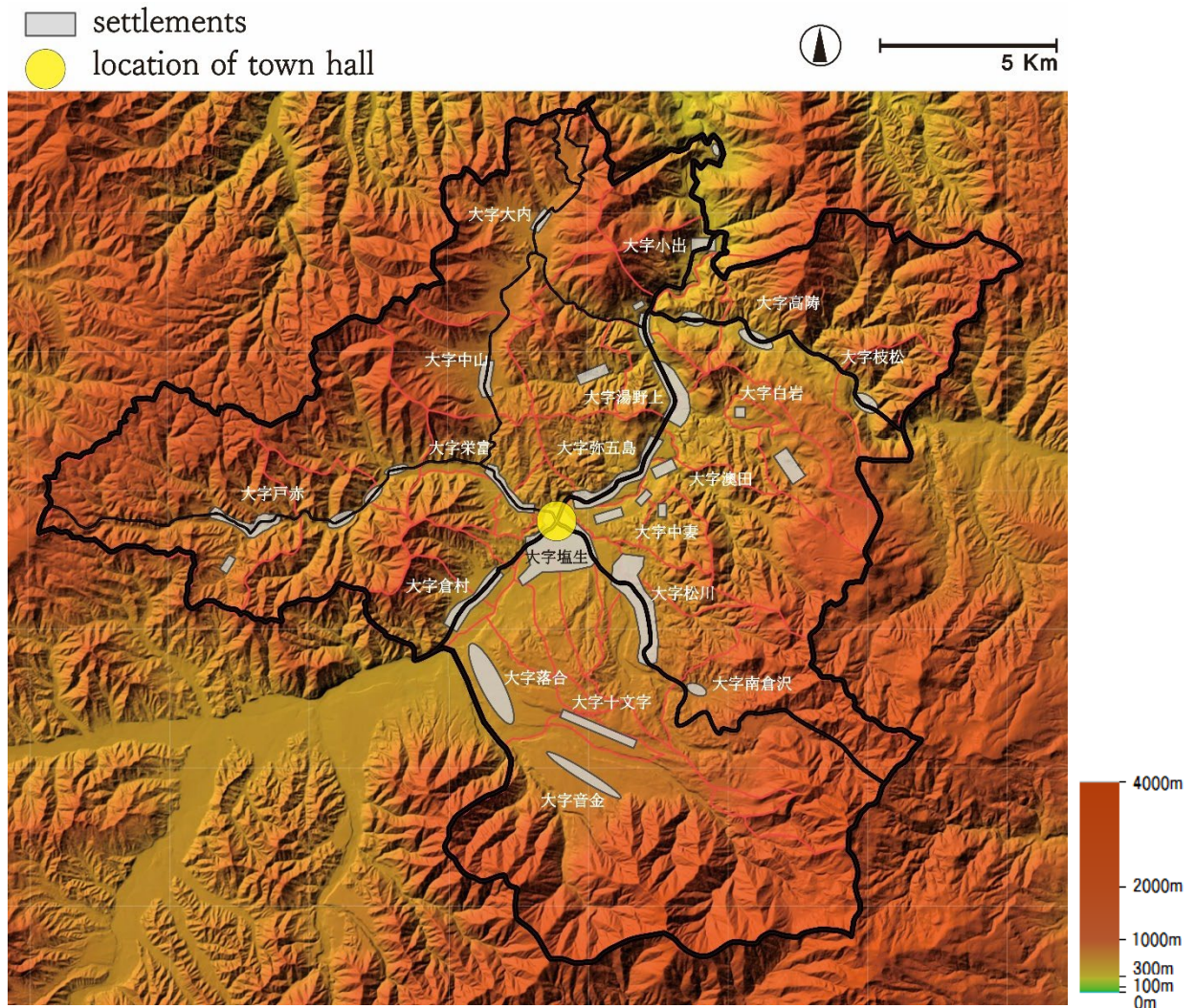
Shimogo and Aizubange town, both located in the Aizu region of Fukushima Prefecture, share many similarities in terms of cultural background, industrial structure, and aging population, making them comparable for analysis. Both towns also experience similar numbers of vacant houses and face the challenge of depopulation, with many residents commuting to larger cities like Tokyo. However, a key difference lies in their geography: Shimogo Town is in a more mountainous area, whereas Aizubange Town is in an intermediate area, closer to surrounding urban centers, with better transportation access.

This geographic distinction provides an opportunity to analyze how transportation and accessibility impact the behavior of vacant house owners. By comparing these two areas, the study aims to explore how differences in geography and transportation affect the frequency of return visits, the extent of property management, and the level of participation in local community activities. This comparative analysis will help clarify the role that transportation and access play in rural revitalization efforts, particularly in terms of how they influence the engagement of out-migrants or second-home owners with their local communities. These differences set the stage for a more detailed comparative analysis regarding their approaches to handling vacant houses, population decline, and rural development strategies.

(equivalent to three Japanese ri)—from major urban centers such as Aizuwakamatsu City, Kitakata City, Aizumisato Town (formerly Aizu-Takada Town), and Yanaizu Town. This central positioning has historically established Aizubange as a key crossroads in the region.

Interestingly, the town is colloquially referred to as “Bange’s bakasanri” (坂下の馬鹿三里). This phrase reflects a long-standing local saying that highlights the town's unique role as a pivotal, yet sometimes underestimated, connector of major towns. The phrase likely captures both a sense of humor and the deep-rooted cultural significance of Aizubange’s geography in facilitating movement and interaction across the Aizu region.

In this context, Aizubange continues to play a crucial role in regional transportation and communication, fostering accessibility and maintaining its historical importance in the area's socio-economic landscape.



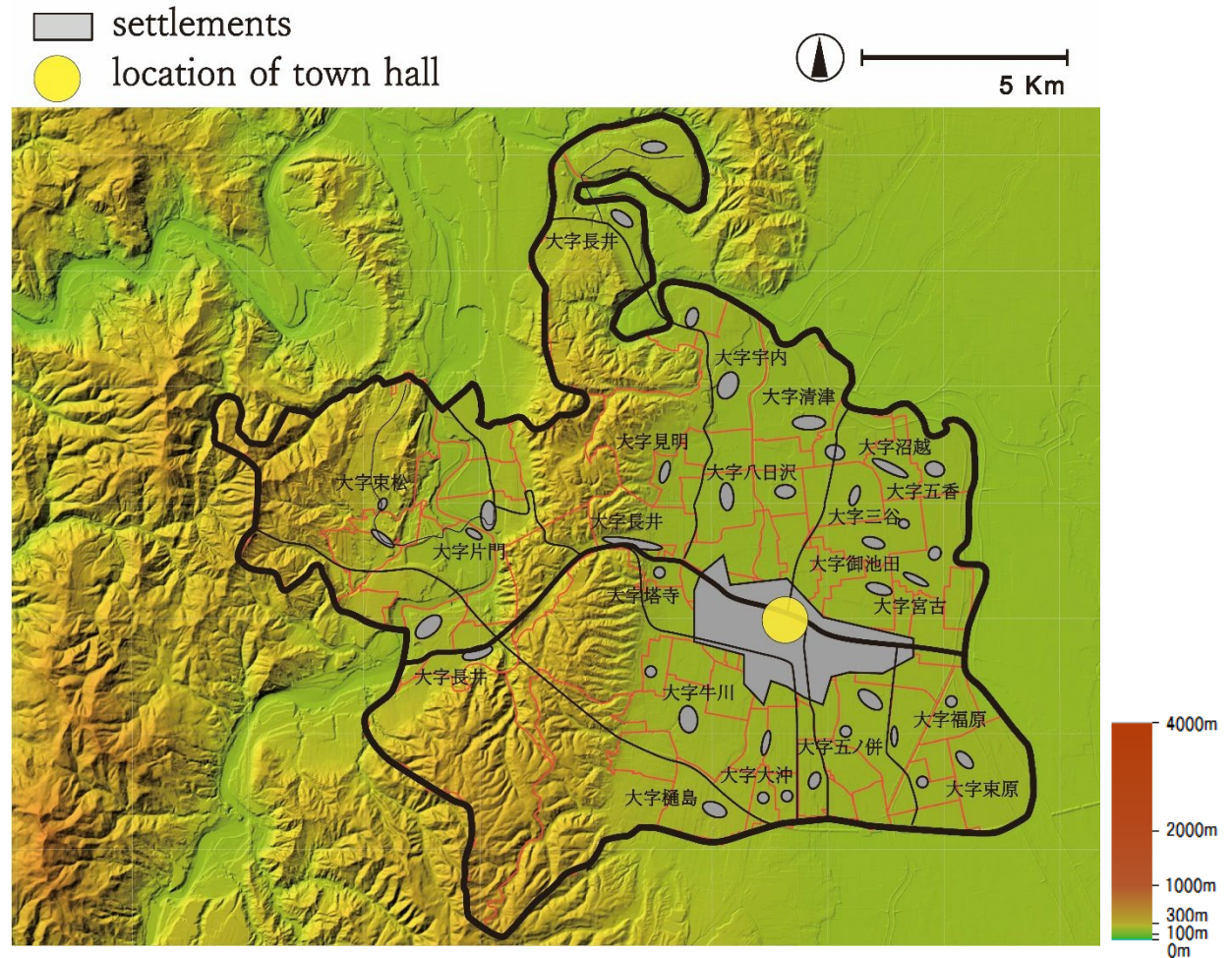
(Map Source: Geospatial Information Authority of Japan) <https://geoshape.ex.nii.ac.jp/ka/resource/07362.html>

Figure 5-2. The geographical condition of Shimogo Town

According to the topographic map of Shimogo Town, the town is located in mountainous areas, with an elevation ranging from 500 to 1,500 meters. Due to being surrounded by mountains, flatland areas are extremely limited. The largest settlement area is formed in Ōaza Shionosu, where the town government is located, as it is relatively flat and at a slightly lower elevation. However, due to the scarcity of flatland, agricultural activities and development are restricted, leading to the formation of small, dispersed settlements rather than large, concentrated ones.

Apart from the town government area, the remaining settlements in the areas are mainly distributed along major roads and river valleys, following the natural contours

of the terrain. The mountainous landscape makes transportation relatively difficult, especially during heavy snowfall in winter, posing challenges to daily commuting, logistics, and service accessibility. This geographical isolation further impacts economic activities and communication with the outside world, limiting regional development opportunities.



(Map Source: Geospatial Information Authority of Japan) <https://geoshape.ex.nii.ac.jp/ka/resource/07421.html>

Figure 5-3. The geographical condition of Aizubange Town

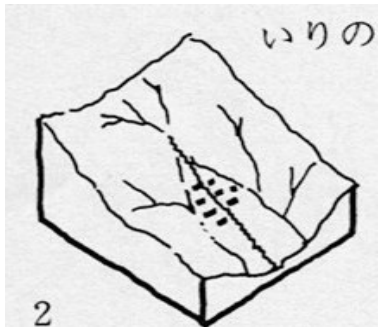
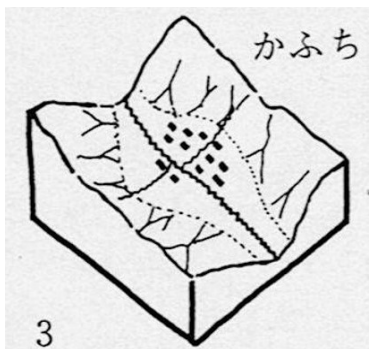
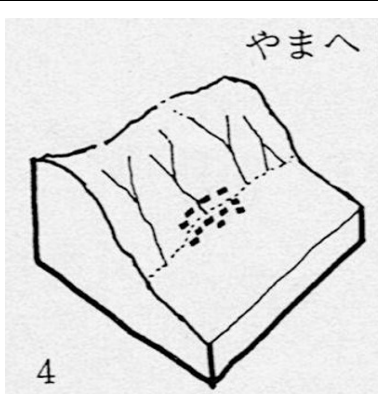
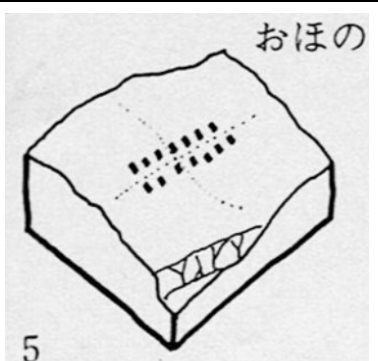
Aizubange Town is strategically located in the central part, distinguished by its relatively flat terrain. Unlike the more mountainous Shimogo Town, Aizubange benefits from extensive plains, where over 40% of the land area is dedicated to agricultural fields. This expansive farmland underscores the town's agricultural productivity and its role as a key contributor to the local economy.

The flat topography of Aizubange provides a significant advantage for both agriculture and infrastructure development. The extensive farmland allows for large-scale farming operations, enhancing the town's agricultural output.

Aizubange is well-connected to nearby urban centers, making it a convenient hub for commuting and trade. The town's location along key transportation routes facilitate easy access to cities such as Aizuwakamatsu, Kitakata, and other surrounding areas. Within the town, the road network is relatively well-developed due to the flat terrain. This ensures smoother and more efficient movement of people and goods across different parts of the town. Residents can easily travel for daily activities such as work, education, and shopping. Aizubange's geographic and infrastructural advantages position it as a vital area within the region. Its flat terrain not only supports a robust agricultural sector but also facilitates effective transportation networks, both within the town and to neighboring urban centers. This dual advantage enhances the town's appeal for residents and businesses alike, contributing to its sustainable development.

5.3 Comparison of Settlement Spatial Structures

Table5-3. characteristics of settlements in Shimogo and Aizubange

Feature type	Shimogo	Aizubange	characteristic
	8	2a	The settlements are relatively scattered and depend mainly on forestry and traditional agriculture. The settlement is located deep in the mountains, relatively inaccessible, and at a high altitude
	5	0	Distributed along the river, using the flat land of the valley area to build housing and develop agriculture. These settlements are usually small in scale but concentrated, especially along the banks of rivers
	5	6	Around the base of the mountain, the surrounding foothills, the lower slopes, or the outskirts. Settlements are usually distributed in blocks.
	0	9	The terrain is relatively flat, a relatively wide field, suitable for agricultural farmland around the colony

This table compares the spatial characteristics of settlements in Shimogo and

Aizubange, categorized by feature types, with a description of each settlement's traits:

1) Feature Type Irino (いりの):

Shimogo town (8 settlements): Settlements are sparsely distributed and rely heavily on forestry and traditional agriculture. They are located deep in the mountains, often in inaccessible and elevated areas.

Aizubange town (2 settlements): Fewer settlements of this type exist, as Aizubange's geography is less mountainous.

2) Feature Type Kawara (かわら):

Shimogo town (5 settlements): These settlements are concentrated along rivers, making use of the valley's flat land for housing and agricultural purposes. The scale is small but densely distributed along riverbanks.

Aizubange town (0 settlements): This type of settlement is absent, likely due to a lack of similar valley geography in Aizubange.

3) Feature Type Yamahe (やまへ)

Shimogo town (6 settlements): Settlements are situated around the base of mountains, foothills, or the outskirts. They are organized in block-like patterns.

Aizubange town (0 settlements): This settlement type is not present, indicating differences in topography and settlement patterns between the two areas.

4) Feature Type Ohono (おほの):

Shimogo town (0 settlements): No settlements of this type exist.

Aizubange town (9 settlements): These settlements are located on relatively flat terrain, often wide fields suitable for agricultural use. They are prominent around farmlands, highlighting Aizubange's focus on agriculture.

Shimogo town has a higher percentage of settlements in mountainous areas (Irino

and Yamahe) and along rivers (Kawara), reflecting its rugged topography and reliance on forestry and localized agriculture.

Aizubange town, in contrast, is characterized by flat, agriculturally focused settlements (Ohono), demonstrating its emphasis on large-scale farming and flatter terrain. This table illustrates the geographical and functional differences in settlement spatial structures between the two towns.

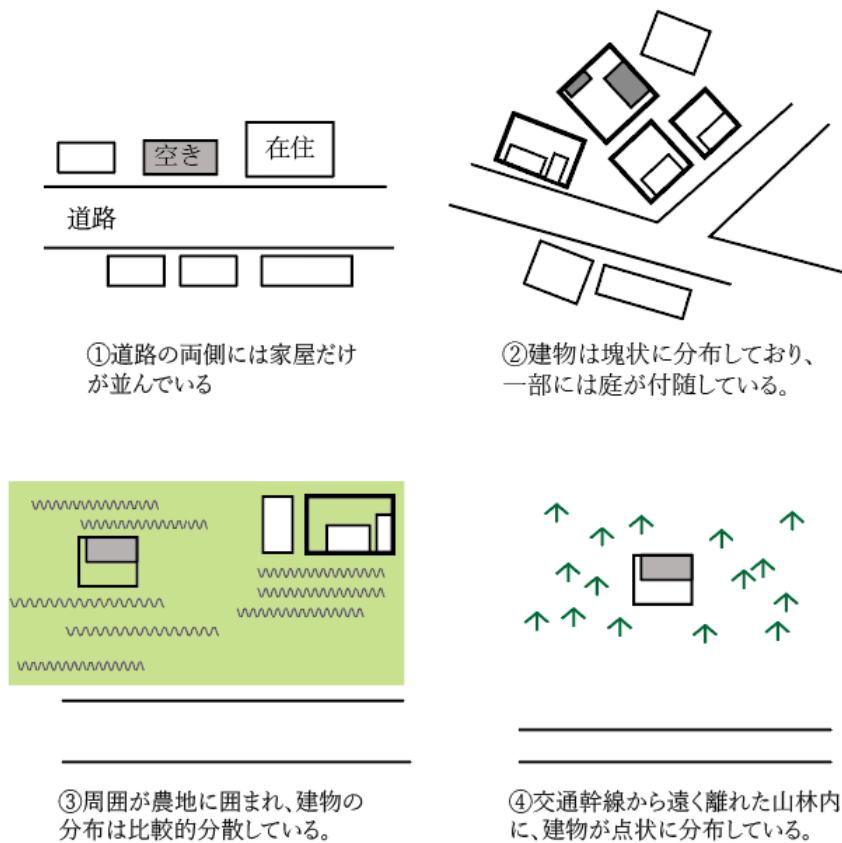


Figure 5-4. Settlement Spatial Patterns within the Town

The settlement spatial structures of the two towns, as shown in the diagram, can be broadly classified into four types.

First, there are linear roadside settlements, where houses are aligned along the road. These houses are typically single-unit structures without gardens, and they are closely connected to each other.

Second, there are clustered settlements, where buildings are grouped together, with

some houses featuring attached gardens.

The third type consists of scattered agricultural courtyard settlements, where buildings are dispersed among surrounding farmland, integrating residential spaces with agricultural land. This pattern reflects a lifestyle centered around farming activities.

The final type is isolated mountainous settlements, where buildings are sparsely distributed in forests or mountainous areas, often far from major transportation routes. Due to their remote locations and poor accessibility, these houses are more likely to become vacant.

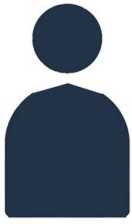
5.4 Comparison of Interviews with Vacant House Owners

Interview with Shimogo Town Hall employee (2024.01.10)



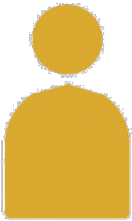
- Many people believe that the owners of vacant houses in Shimogo Town are more likely to be "2-area residents" and may stay in town 30 ~ 100 days per year. Many people consider Shimogo Town to have a beautiful environment and is proud of its old houses and natural scenery.
- Our experience with surveys and interactions has shown that owners of vacant houses expect the implementation of policies regarding vacant house management. Many people ask for advice. Although festivals in some towns have been cancelled in recent years due to depopulation, some people go out of their way to participate in community activities in other towns.
- Many vacant house owners who are farmers cultivate their land on farmland near their houses. Some of them rent land from others, and in some cases, they rent out their own land to others.
- For local residents, there is some concern about the presence of vacant houses in the surrounding area. Therefore, they would like to see these vacant houses managed on a regular basis.

Interview with vacant house owner of Aizubange Town (2023.12.23)



- 77 yrs old male, living in Yokosuka City, Kanagawa Prefecture. The vacant house is in the Kawanishi district of Aizubange Town. He received a mailed questionnaire but did not respond to it.

- It has been 9 years since he inherited a vacant house from his father, but he has returned only once in the last 3 years because of the long way to return home and has not lived in his own house since he returned.
- The reason he returned home was to discuss the disposition of the vacant house, but the discussion did not come to an agreement. There is no need to return home to visit the graves, and there are no activities or contacts within the community, as there are few relatives to visit. There is also no management of the vacant house.
- The house is already registered in the vacant house bank, and not only do we consider it possible to rent or sell the house to dispose of it, but we will not resign to present it to the town hall donation at no cost, but we do not intend to demolish it.



- 72 yrs old female, living in Nishiaizu Town. The vacant house is in Bange district, Aizubange Town. She received a questionnaire that was mailed from me and answered it.

- The house has been vacant since 2011 as the mother came to live with us, but she stays 40-50 days a year and the rooms are well maintained. Vegetables are planted on the property and neighbor's help.
- When I return to my hometown, I talk with my neighbors and ask them about their neighborhood. When my son's family comes to visit during festivals, I participate. I also organize festivals.
- I take a break before and after going to the hospital or beauty salon. It takes 40 minutes by car, and I really like to go back to my old house to rest.
- I do not do any outdoor activities and mainly enjoy spending time inside the house when I return home.

1) Engagement Levels:

The level of engagement with vacant properties varies significantly between owners. In Shimogo town, some owners are highly engaged and spend a substantial

amount of time managing their properties. In contrast, some owners in Aizubange feel more disconnected, with infrequent visits and less direct involvement in vacant house upkeep.

2) Challenges

Both towns face challenges related to the distance between owners and their properties, which affects management. Many owners struggle to maintain their vacant houses due to distance, aging, and economic constraints. These economic constraints can include the cost of property upkeep, taxes, and the potential loss of income from the property being vacant, making the involvement of local governments and neighbors essential.

3) Emotional Ties vs. Practical Challenges:

Some vacant house owners, particularly in Aizubange, maintain strong emotional ties to their properties, viewing them as family heirlooms or vacation spots. These emotional ties often stem from childhood memories, family traditions, or the unique beauty of the rural landscape. However, even with these emotional connections, the practical challenges of property management remain a barrier.

These interviews reveal the complex relationship between owners and their vacant properties. While emotional ties exist, the physical distance and aging population complicate property management, creating challenges for both owners and local governments. Shimogo Town shows higher owner engagement compared to Aizubange Town, where absenteeism is more pronounced. The findings suggest that better support systems for absentee owners and local government initiatives are essential for effective vacant house management and long-term rural revitalization efforts.

5.5 Comparison of Vacant House and Vacant House Owners

5.5.1 Comparison of Vacant House

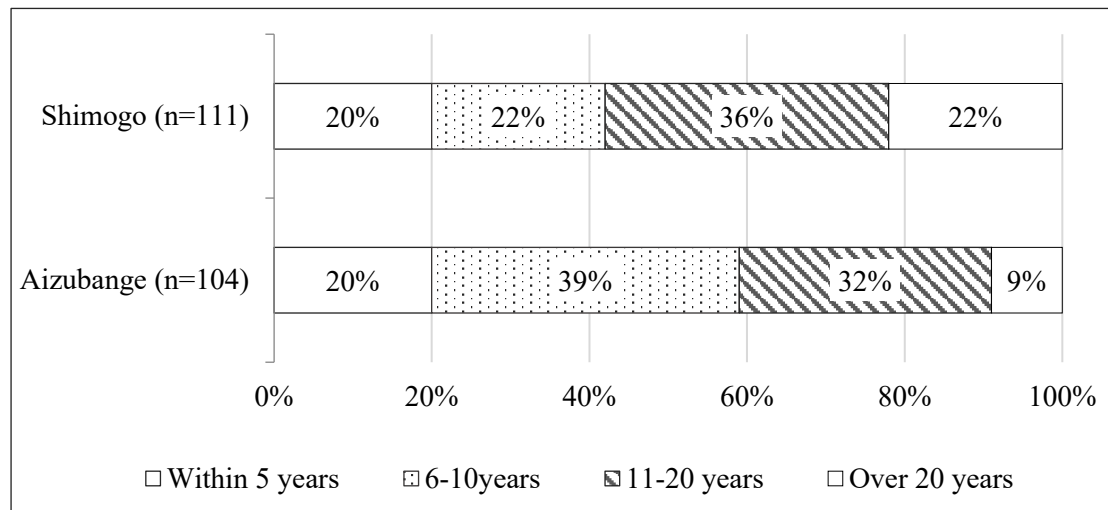


Figure 5-5. Comparison of Vacant House

The figure compares the duration of house vacancies in Shimogo town and Aizubange town. In Shimogo town, 36% of houses have been vacant for 10-20 years, with 22% being vacant for over 20 years, indicating a significant long-term vacancy problem. In contrast, Aizubange town shows a higher proportion of recent vacancies, with 39% of houses vacant for 5-10 years and only 9% vacant for more than 20 years. This suggests that Aizubange town may have more recent vacancies with potential for reuse, while Shimogo Town struggles with more deeply entrenched vacancy issues. The geographical differences, with Shimogo being more mountainous and Aizubange town having better transportation access, could explain the disparity in vacancies between the two areas.

Fig. 5-5 illustrates the ways in which vacant houses were acquired in Shimogo Town and Aizubange Town. In Shimogo Town, 89% of vacant houses were inherited from family members, while 6% were purchased from non-relatives, and 5% were acquired through other means. In Aizubange Town, a higher proportion, 92%, of vacant houses were inherited, while 4% were purchased from non-relatives, and another 4%

were acquired through other methods. Both towns show that most vacant houses were inherited, highlighting the strong familial ties to properties in these rural areas. The slightly higher percentage of inherited houses in Aizubange suggests that ownership in the town might be more strongly linked to family lineage.

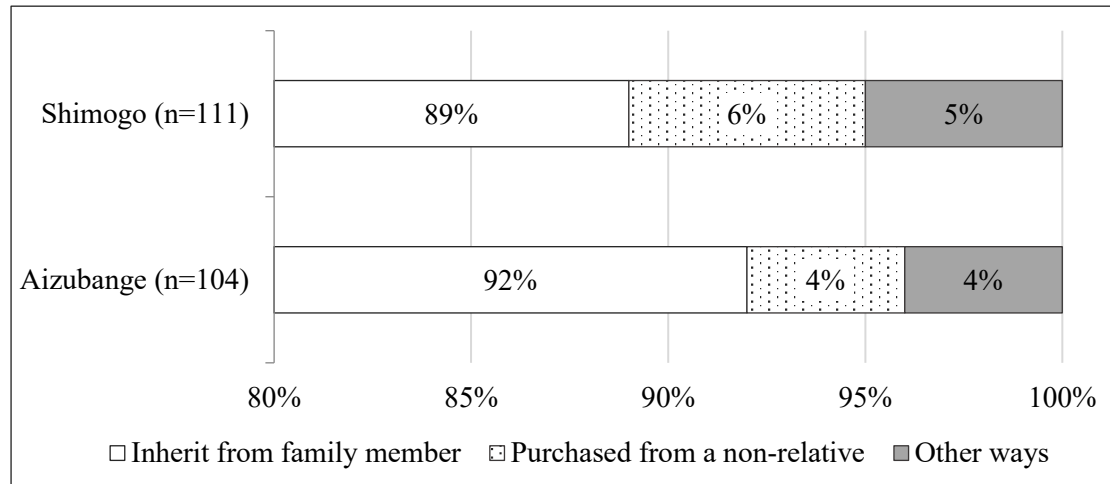


Figure 5-6. Comparison of the Origin of Vacant House

In the previous sections, it has been analyzed that vacant houses that can be brought into the market or attract others for reuse are typically those in relatively good condition. These houses can be directly sold or put into use after minor repairs. However, the owners of such houses are often not in a rush to dispose of them, which constitutes a paradoxical phenomenon. Aizubange Town may have more recent vacancies with potential for reuse, as the relatively higher proportion of recently inherited properties indicates that ownership has transitioned within families more recently. This could mean that many of these properties are still in a stage where they could be maintained or repurposed, offering opportunities for revitalization efforts such as attracting newcomers or encouraging tourism development. Families may still have a connection to these properties, and with proper support or incentives from local authorities, there could be an increased likelihood of reuse or renovation.

On the other hand, Shimogo Town appears to struggle with more deeply entrenched vacancy issues, as a more significant portion of the vacant houses have been unoccupied for extended periods. This prolonged vacancy suggests that many of the

properties may be in worse condition, requiring significant investment for renovation. The long-term vacancies in Shimogo suggest that addressing the vacant house issue may require more extensive efforts, such as targeted incentives for renovation, government intervention to stabilize the housing stock, or attracting external investors interested in rural property redevelopment.

In sum, while Aizubange town’s more recent property transitions may allow for more optimistic reuse scenarios, Shimogo town's longer-standing vacant house challenges may require a more comprehensive, sustained approach to address the decline in property maintenance and reintegrate these houses into the community.

5.5.2 Comparison of the Attributes of Vacant House Owner

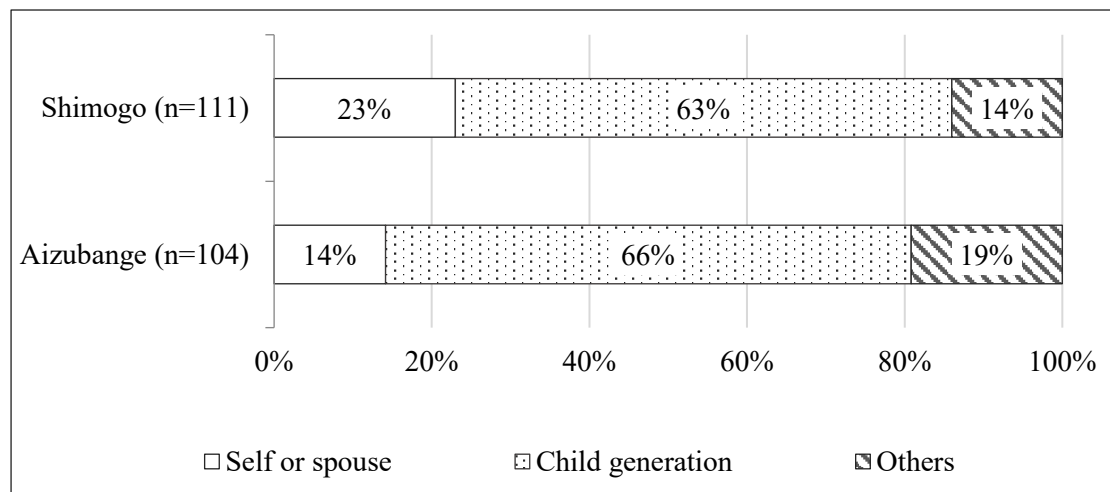


Figure 5-7. Relationship between Vacant house owners and Last Resident

The graph compares the generational ownership of vacant houses in Shimogo Town and Aizubange Town. In Shimogo Town, 23% of vacant houses are owned by the original owners (self or spouse), while the child generation owns 63%, and 14% are owned by others (non-family members). In contrast, in Aizubange Town, a smaller proportion (14%) of vacant houses are owned by the original owners, with a slightly higher percentage (66%) being owned by the child generation and a higher proportion (19%) owned by others.

This data suggests that in Shimogo Town, a larger percentage of vacant properties are still in the hands of the original owners or their spouses, indicating that these properties may have been vacated more recently. On the other hand, Aizubange Town shows a higher percentage of vacant houses being owned by others, reflecting either a more active property market where vacant houses are being sold to non-relatives or a broader generational shift in ownership. This could imply that Aizubange has more potential for vacant house reuse through third-party investment or new ownership. Shimogo Town may still be dealing with properties that remain tied to their original owners, who might lack the resources or incentive to maintain or sell them.

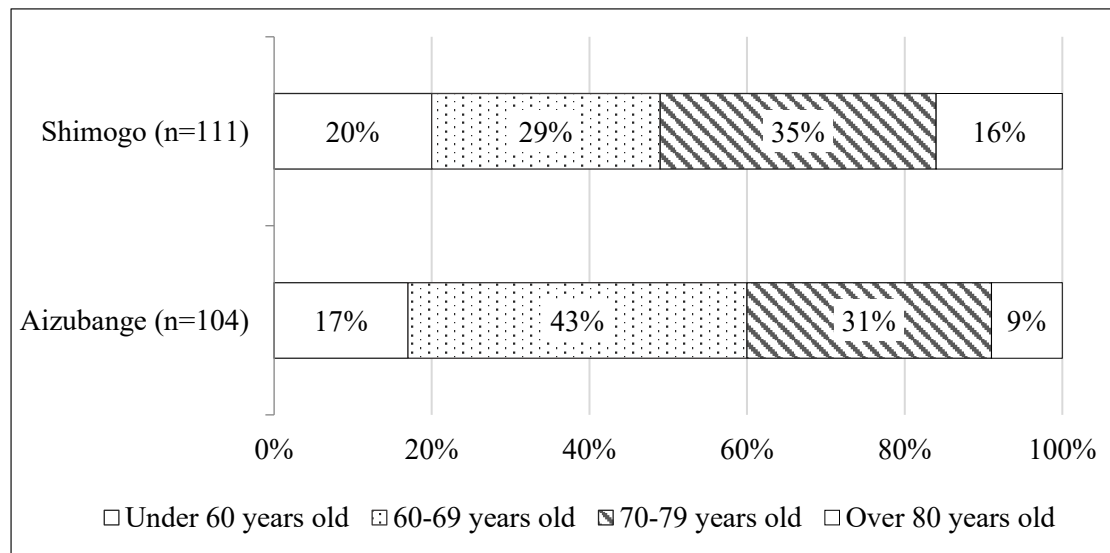


Figure 5-8. Comparison of the Age of Vacant House Owners

This graph compares the age distribution of vacant house owners in Shimogo Town and Aizubange Town. In Shimogo Town, 20% of the vacant house owners are under 60 years old, 29% are between 60 and 69 years old, 35% are between 70 and 79 years old, and 16% are over 80 years old. In Aizubange Town, the age distribution is somewhat different, with 17% of vacant house owners under 60 years old, a significantly higher proportion (43%) between 60 and 69 years old, 31% between 70 and 79 years old, and a smaller proportion (9%) over 80 years old.

This data suggests that Aizubange Town has a relatively younger population of

vacant house owners, with a larger proportion of owners in their 60s compared to Shimogo Town, which has a more evenly distributed age range and a higher percentage of elderly owners. The higher number of elderly owners in Shimogo Town, particularly those over 80 years old, may indicate more challenges in managing vacant properties, as older owners might lack the physical ability or financial means to maintain their properties. In contrast, the younger ownership in Aizubange suggests that there might be more opportunities for these properties to be maintained, reused, or sold in the future.

5.5.3 Comparison of the Distance and Time for Commuting of Vacant House Owner

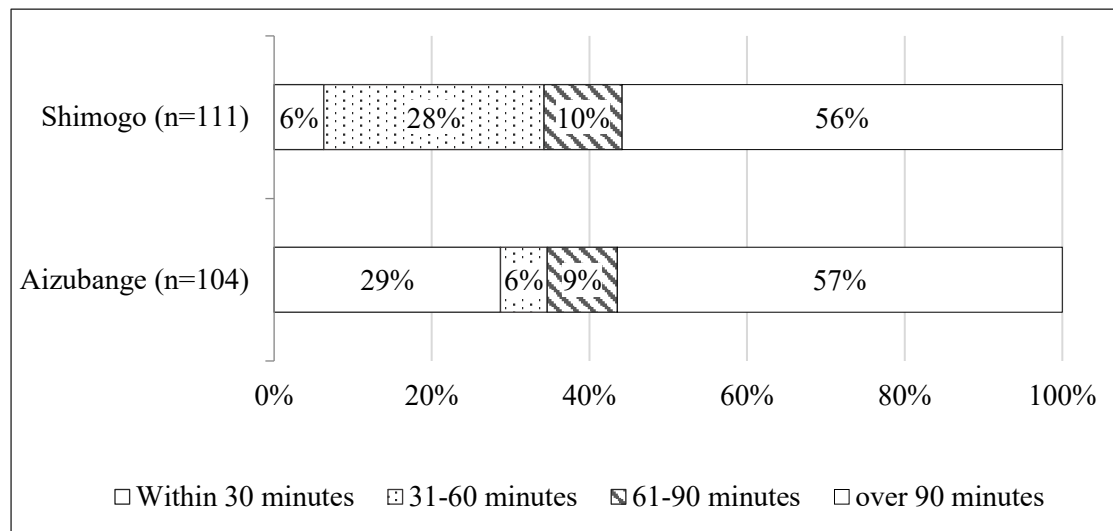


Figure 5-9. Comparison of the Costing time for commuting

This graph compares the time spent traveling back to commuting destinations in Shimogo Town and Aizubange Town. The percentage of vacant house owners returning home within 90 minutes is 44% in Shimogo and 43% in Aizubange, while those returning home within 30 minutes is 6% in Shimogo and 29% in Aizubange, which differs from the 90-minute trend due to the distance from neighboring cities. It is estimated that the age at which vacant house owners moved out was earlier than that of local families whose parents are still alive, suggesting that in recent years, employment and transportation conditions in neighboring cities have improved, leading to the increase in the number of people living near their parents. *

This data suggests that Aizubange Town has a higher proportion of residents living relatively close to their hometowns, making shorter commuting trips. In comparison, Shimogo Town has fewer residents living nearby, with the majority needing over 90 minutes to return home. This could indicate that owners of vacant houses in Shimogo are more disconnected geographically from their properties, possibly impacting their engagement in managing the vacant properties and participating in local activities. On the other hand, the closer proximity of commuting owners in Aizubange could facilitate more frequent visits and stronger ties to the local community.

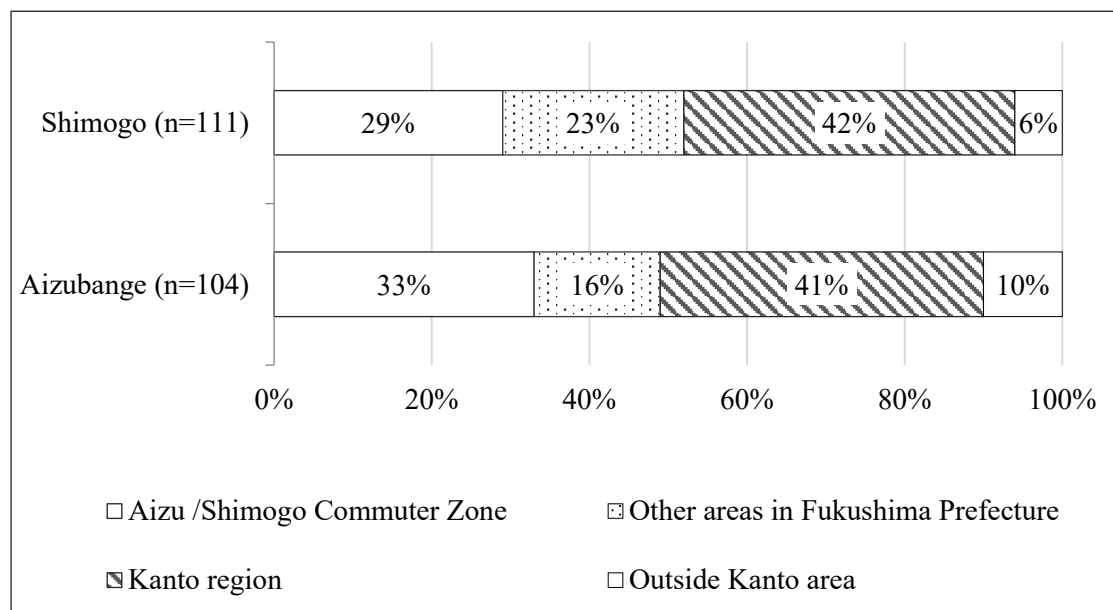


Figure 5-10. Comparison of the Residence of vacant house owners

This graph, Figure 5-10, illustrates the comparison of the residence locations of vacant house owners in Shimogo Town and Aizubange Town. In Shimogo Town, 29% of vacant house owners reside within the Aizu/Shimogo Commuter Zone, 23% live in other areas in Fukushima Prefecture, 42% reside in the Kanto region, and 6% live outside the Kanto area. In Aizubange Town, 33% of vacant house owners are in the Aizu/Shimogo Commuter Zone, 16% live in other areas in Fukushima Prefecture, 41% are based in the Kanto region, and 10% are located outside the Kanto region.

The trends in the distribution of owners' residences in the towns of Shimogo and Aizubange are quite similar, with roughly 50% of residents living within Fukushima

Prefecture and 50% living outside the prefecture. The only difference is in the proximity of residences. Shimogo town can generally be reached within an hour of neighboring regional cities, while Aizubange town can be reached in about 30 minutes. On the other hand, 30% of the owners of vacant houses in Aizubange live in neighboring cities within 30 minutes.

5.6 Comparison of Intentions of Vacant House Owner

5.6.1 Intention to Rent or Sell a Vacant House

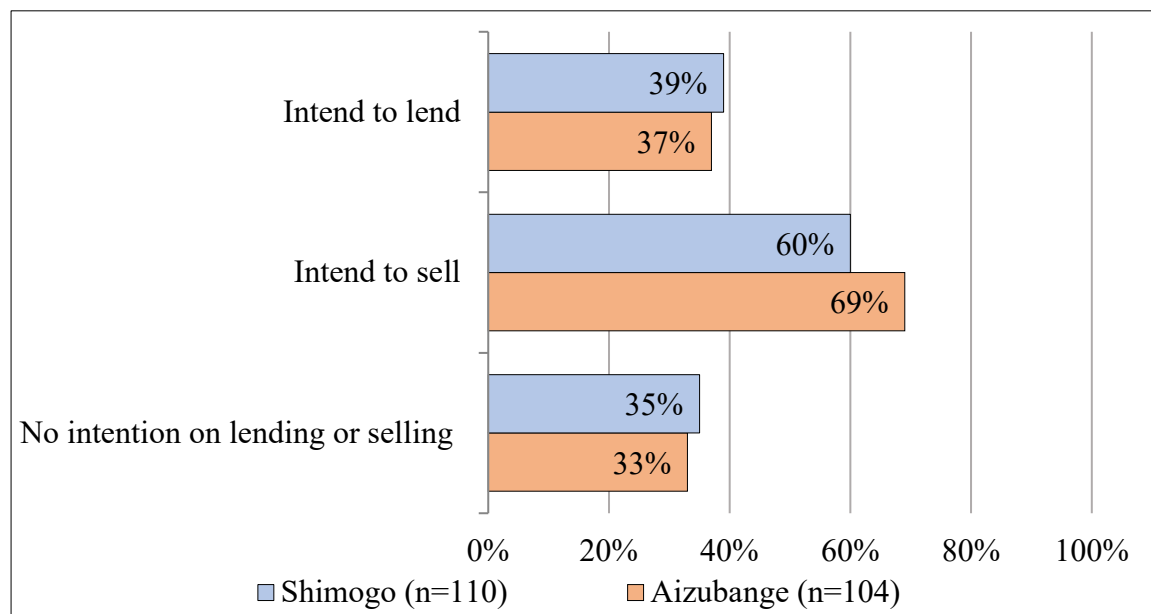


Figure 5-11. Intention to rent or sell a vacant house (multiple responses)

Figure 5-11 illustrates the intentions of vacant house owners in Shimogo Town and Aizubange Town regarding renting or selling their properties. In Shimogo Town, 39% of the owners express an intention to lend their vacant house, 60% intend to sell it, and 35% have no intention of lending or selling. In Aizubange Town, 37% of the owners are willing to lend, while a higher proportion, 69%, intend to sell. 33% have no intention of lending or selling.

The comparison suggests that owners in both towns are more inclined to sell their vacant houses rather than lend them, with a slightly higher intention to sell in Aizubange.

This trend could be indicative of the economic and demographic challenges faced in these rural areas, where owners may find it more practical to sell rather than maintain or manage the property. Similar percentages of those unwilling to rent or sell indicate that a portion of owners in both towns remain undecided or unmotivated to act regarding their vacant properties. The same trend is observed in Aizubange and Shimogo, where the intention to sell vacant houses directly is strong. Especially in Aizubange, almost all vacant house owners who answered either "willing to rent" or "willing to sell" also answered "willing to sell".

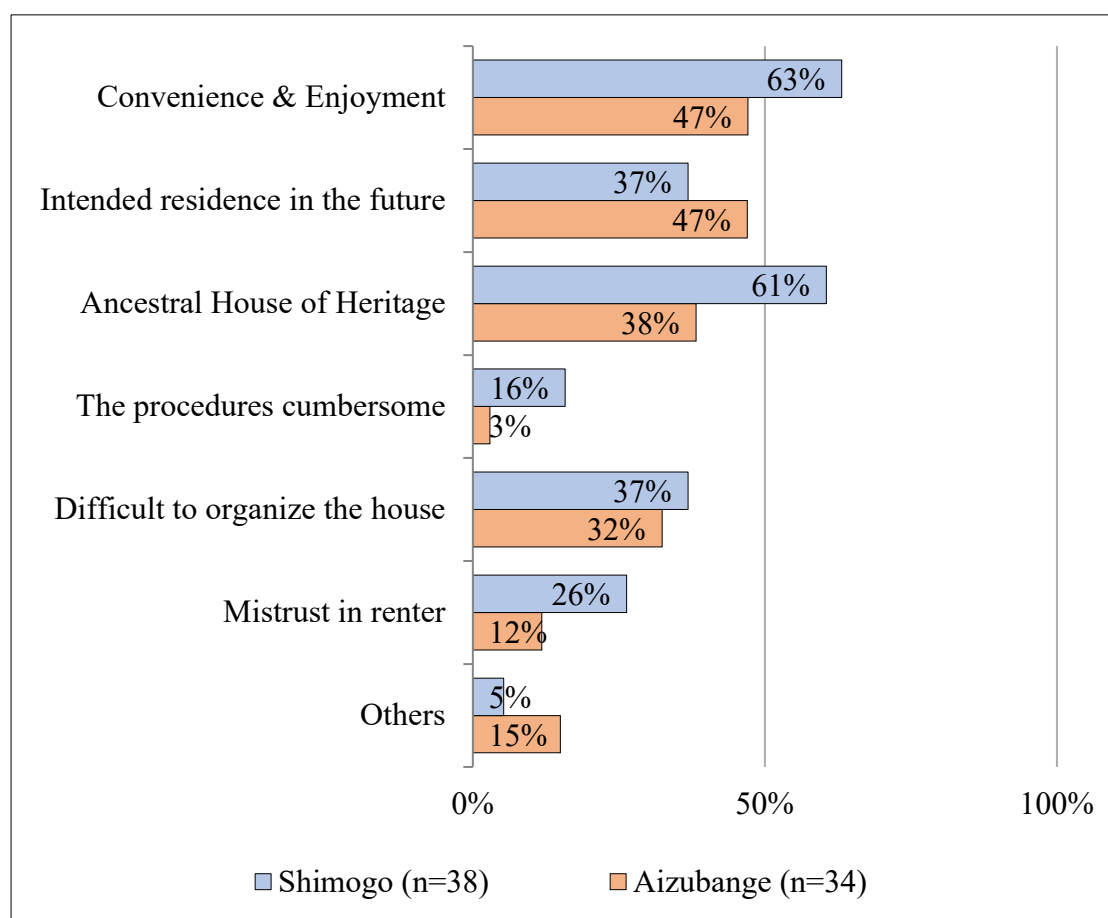


Figure 5-12. Reasons for not intending to rent or sell (multiple responses)

This figure 5-12 compares the reasons for not intending to rent or sell a vacant house between Shimogo (n=38) and Aizubange (n=34). The most common reason in Shimogo, with 63%, is "Convenience & Enjoyment," while 47% of vacant house owners in Aizubange cite the same reason. "Ancestral House of Heritage" is another

significant factor, with 61% of Shimogo vacant house owners holding on to their properties for this reason, compared to 38% in Aizubange. The difficulty of organizing the house and mistrust in renters are more prominent concerns in Aizubange than in Shimogo. In terms of future use, 37% of Shimogo vacant house owners intend to use the house for future residence, while 47% of Aizubange vacant house owners share this intention. Cumbersome procedures are a more significant issue in Shimogo (16%) compared to Aizubange (3%), while 12% of Shimogo vacant house owners mistrust renters, compared to 26% in Aizubange.

The number of vacant house owners who do not intend to sell or rent their vacant houses is also about the same at around 30%. Still, the reason for Aizubange is slightly different, with "possibility of living there" in addition to "convenience/enjoyment," indicating that owners of vacant houses in Aizubange have a slightly stronger intention to continue using their vacant houses.

5.6.2 Participation in Events and Community Activities in the Local Area

This figure compares the responses from vacant house owners in Shimogo Town (n=107) and Aizubange Town (n=104) regarding the types of support or activities they desire during their commuting visits.

Social events during Commuting: In Shimogo Town, 17% of vacant house owners expressed interest in social events during their return visits, while only 10% of vacant house owners in Aizubange Town shared this interest. **Consultation on vacant house management:** A significant portion of vacant house owners in both towns expressed a need for consultations related to managing their vacant houses, with 41% in Shimogo and 46% in Aizubange. This suggests that both communities place a similar priority on receiving support for property management.

Cafes and rest spots for commuting people: The need for cafes or rest spots for returning residents was equally expressed in both areas, with 16% of vacant house

owners in both Shimogo and Aizubange showing interest.

No particular need: Nearly half of the vacant house owners indicated no particular need for additional services, with 44% in Shimogo and 50% in Aizubange.

This figure illustrates that while practical concerns, such as managing vacant houses, are important to residents in both towns, the demand for social events or other communal activities is somewhat lower, especially in Aizubange.

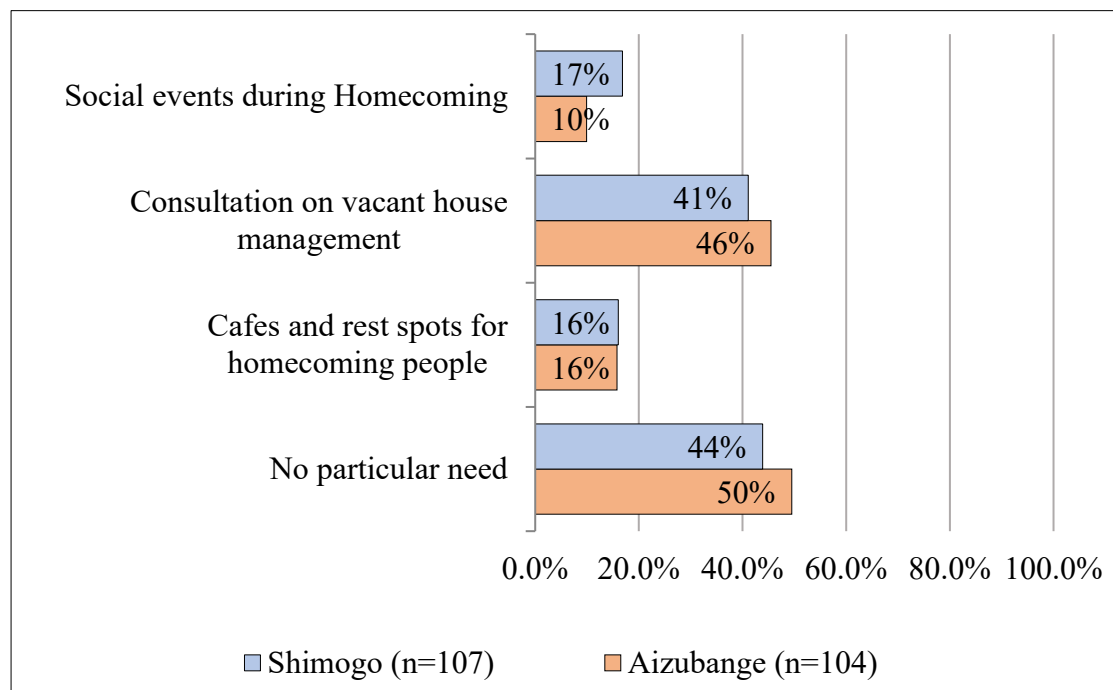


Figure 5-13. participation in events and community activities in the local area (multiple responses)

A little more than half of the vacant house owners also believe that there should be a place for communication among the community, local government, and returning households within a new framework. On the other hand, a little less than half of the vacant house owners considered a new framework that adds to the current situation and communication to be troublesome, indicating the same tendency.

5.6.3 Consideration About the Future of Vacant House

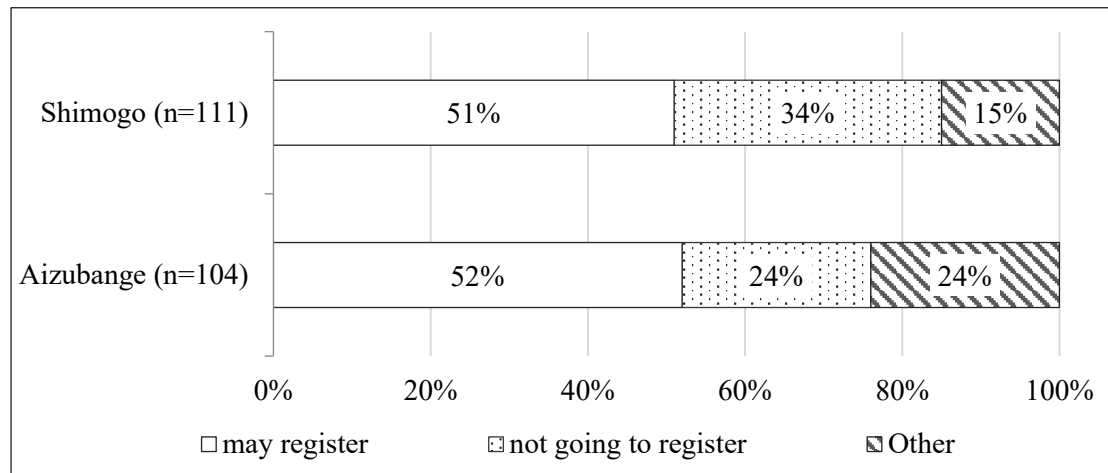


Figure 5-14. Intention to register as a vacant house bank.

Figure 5-14 presents a comparison of the intentions of vacant house owners in Shimogo Town (n=111) and Aizubange Town (n=104) regarding their willingness to register their vacant houses in a vacant house bank.

May register: In both towns, over half of the vacant house owners indicated they might register their vacant houses in the vacant house bank, with 51% in Shimogo and 52% in Aizubange. Not going to register: A smaller portion of vacant house owners expressed that they were not going to register their properties, with 34% in Shimogo and 24% in Aizubange. This suggests that Aizubange has a slightly more favorable attitude toward registration compared to Shimogo. Other: 15% of vacant house owners in Shimogo and 24% in Aizubange selected "other" as their response, indicating various reasons or undecided positions regarding the registration process. This figure indicates a relatively balanced inclination towards registering in vacant house banks between the two towns, with a slight variation in those opting for alternative reasons or indecision in Aizubange.

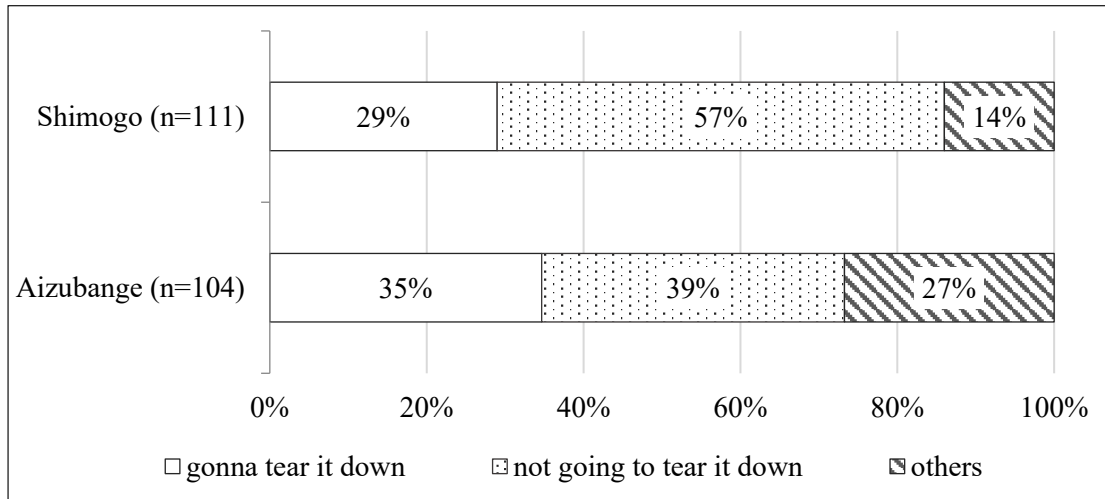


Figure 5-15. Intent to Demolish Vacant Houses.

This figure, titled "Intent to Demolish Vacant Houses," compares the responses from two groups: Shimogo (n=111) and Aizubange (n=104). The chart presents three categories: those who intend to demolish their vacant house, those who do not plan to demolish it, and others.

In Shimogo, 29% of vacant house owners expressed their intent to demolish their vacant house. In comparison, 57% had no plans to do so—the remaining 14% fell into the "others" category, indicating indecision or alternative considerations.

In Aizubange, 35% of vacant house owners intend to demolish their vacant house, a higher percentage compared to Shimogo. However, 39% of vacant house owners are not planning to tear down their vacant house, which is lower than Shimogo. Notably, 27% of Aizubange vacant house owners fall into the "others" category, suggesting that a larger proportion of this group has alternative plans or has not made a final decision compared to Shimogo.

Overall, Aizubange shows a higher inclination to demolish vacant houses, while Shimogo exhibits a stronger tendency toward maintaining or refraining from demolition.

5.7 Comparison of Commuting and Space Management

5.7.1 Frequency of Commuting, Management of Vacant Houses, and Weeding

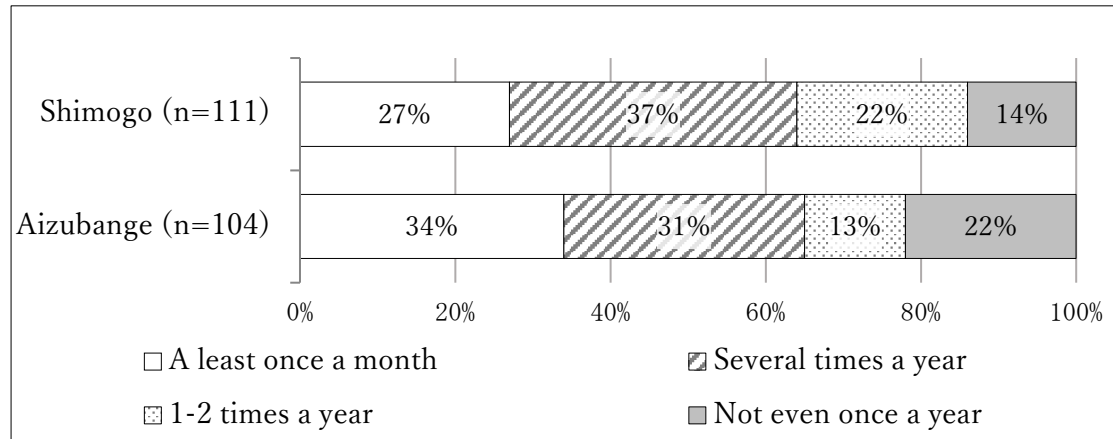


Figure 5-16. Frequency of commuting (whole questionnaire survey subject)

Figure 5-16 compares the frequency with which owners of vacant houses return to their properties in Shimogo (n=111) and Aizubange (n=104). The responses are categorized into four groups: "At least once a month," "Several times a year," "1-2 times a year," and "Not even once a year."

In Shimogo, 27% of the vacant house owners return to their vacant house at least once a month, while 37% visit several times a year. Another 22% return 1-2 times a year, and 14% do not return even once a year.

In Aizubange, 34% of vacant house owners visit their vacant house at least once a month, which is a higher frequency compared to Shimogo. 31% visit several times a year, 13% return 1-2 times a year, and 22% do not visit even once a year, a significantly higher percentage than in Shimogo.

The figure illustrates that more vacant house owners in Aizubange visit their vacant houses frequently (at least once a month). At the same time, a larger portion of Aizubange owners do not return at all, compared to Shimogo. This suggests a more polarized frequency of commuting behaviors in Aizubange, with more frequent

visitors and more absentee owners compared to Shimogo.

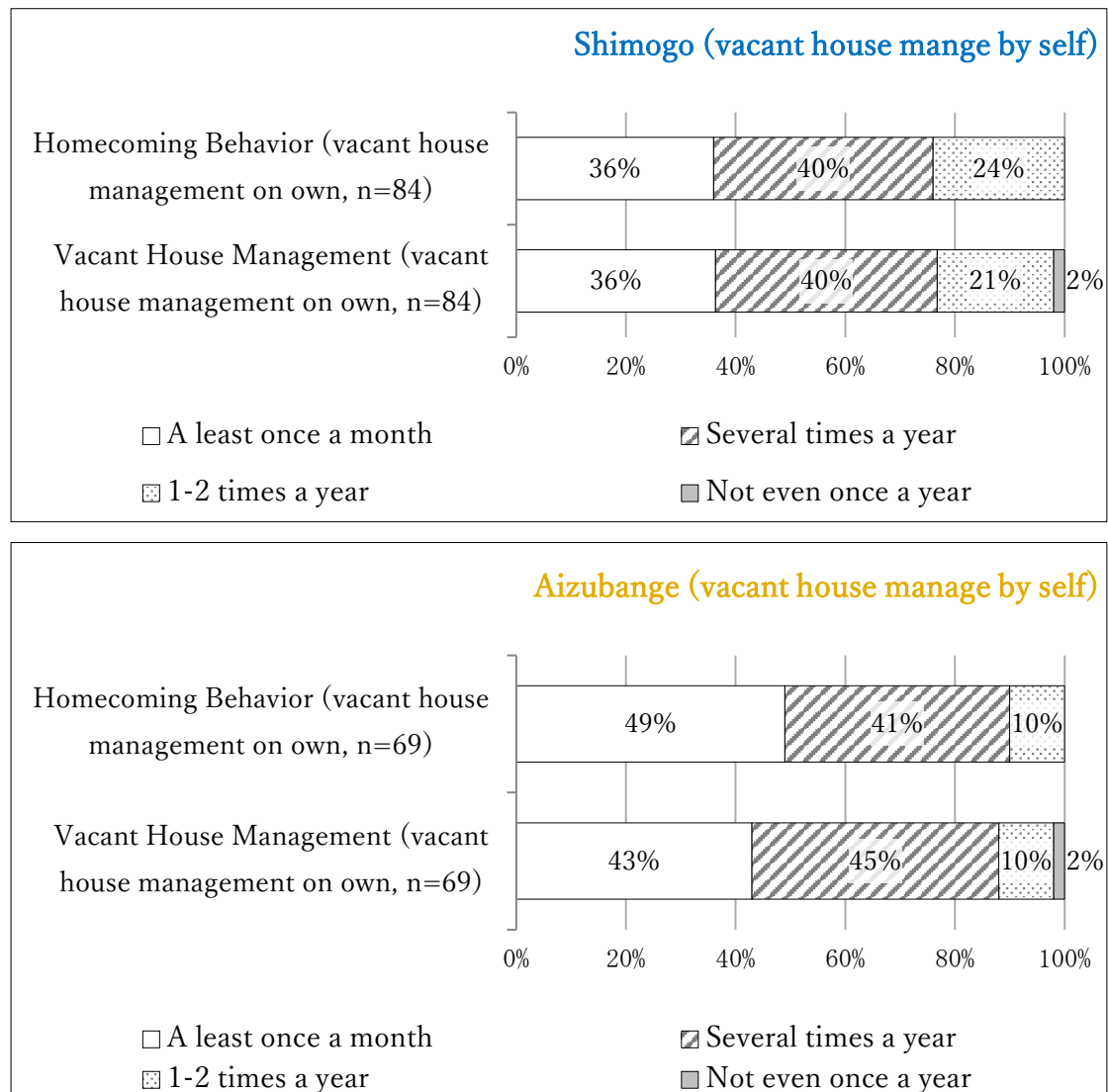


Figure 5-17. compares the commuting Behavior and the frequency of vacant house management by the owners themselves in Shimogo and Aizubange towns.

In Shimogo (n=84 for both commuting and vacant house management), 36% of the vacant house owners visit their vacant houses at least once a month, 39% return several times a year, and 24% return only 1-2 times a year. In terms of managing the vacant houses themselves, 36% of owners perform management tasks at least once a month, 40% do so several times a year, and 21% manage the property 1-2 times a year. The consistency between commuting and vacant house management suggests a close relationship between visiting frequency and property maintenance in Shimogo.

In Aizubange (n=69 for both commuting and vacant house management), 49% of the vacant house owners return at least once a month, a significantly higher percentage than in Shimogo. Another 41% visit several times a year, and 10% return 1-2 times a year. Regarding vacant house management, 43% of owners manage their properties at least once a month, 45% manage several times a year, and 10% manage 1-2 times a year. Only 2% of Aizubange vacant house owners do not manage their vacant houses, indicating a higher degree of self-management compared to Shimogo.

The figure highlights that in Aizubange, there is a stronger tendency for frequent commuting and more regular vacant house management by the owners themselves, compared to Shimogo. This suggests that owners in Aizubange may be more proactive in both returning and maintaining their properties.

As for owners who manage vacant houses by themselves, half of them return home at least once a month in Aizubange. About 10% more in Aizubange commuting and managing vacant houses at least once a year than in the case of high-frequency return home and vacant house management. Due to the convenience of transportation and topography, Aizu-Sakashita may be suitable for frequent management.

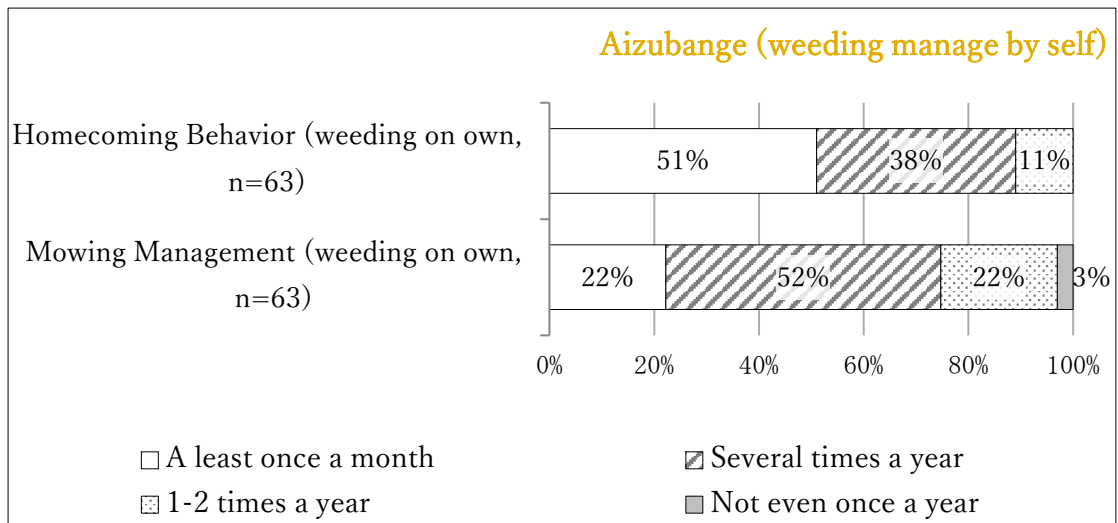
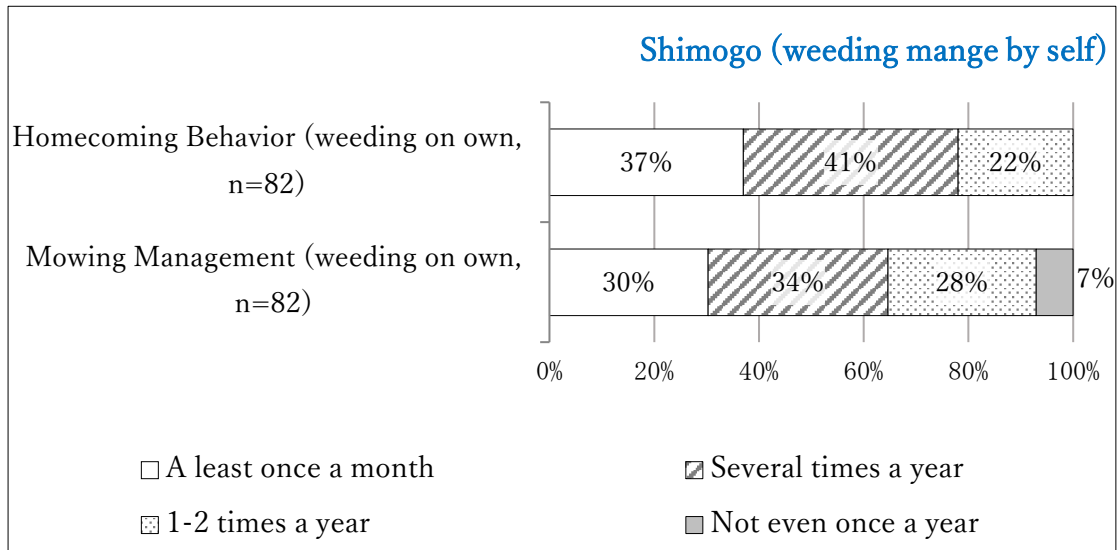


Figure 5-18. illustrates the commuting Behavior and frequency of weeding management performed by the owners themselves in Shimogo and Aizubange towns.

In Shimogo (n=82 for both commuting and weeding management), 37% of vacant house owners return to their vacant property at least once a month, 41% return several times a year, and 22% return only 1-2 times a year. For wedding management, 30% of owners manage the property at least once a month, 34% manage it several times a year, and 28% do so 1-2 times a year. About 7% of vacant house owners do not perform any weeding management.

In Aizubange (n=63 for both commuting and weeding management), 51% of vacant house owners with the commuting frequency at least once a month, 38% visit

several times a year, and 11% return only 1-2 times a year. For weeding management, 22% of owners manage the property at least once a month, 59% manage several times a year, and 16% do so 1-2 times a year. Only 3% of vacant house owners in Aizubange do not engage in any weeding management.

The figure indicates that in Aizubange, a higher percentage of owners return to their properties more frequently for commuting and weeding management compared to Shimogo. While Shimogo owners engage in more consistent management monthly, Aizubange owners tend to manage their properties several times a year. This suggests that Aizubange owners might be more proactive overall, but Shimogo owners may focus more on regular, ongoing care.

As for owners who manage to mow the grass by themselves, half of them return home more than once a month to Aizubange town. Both the case of high-frequency return trips and mowing management and the case of return trips and management more than once a year is about 10% more common in Aizubange (64% in Shimogo and 74% in Aizubange). However, the frequency of mowing in Aizubange decreases by 30% "once a month or more" compared to this frequency of returning home. While it is common practice to open the doors and windows of vacant houses and ventilate them each time they return home, it can be inferred that a certain number of households choose a season to cut the grass and do so on a limited basis.

5.7.2 Comparison of Managers of Vacant House and Weeding

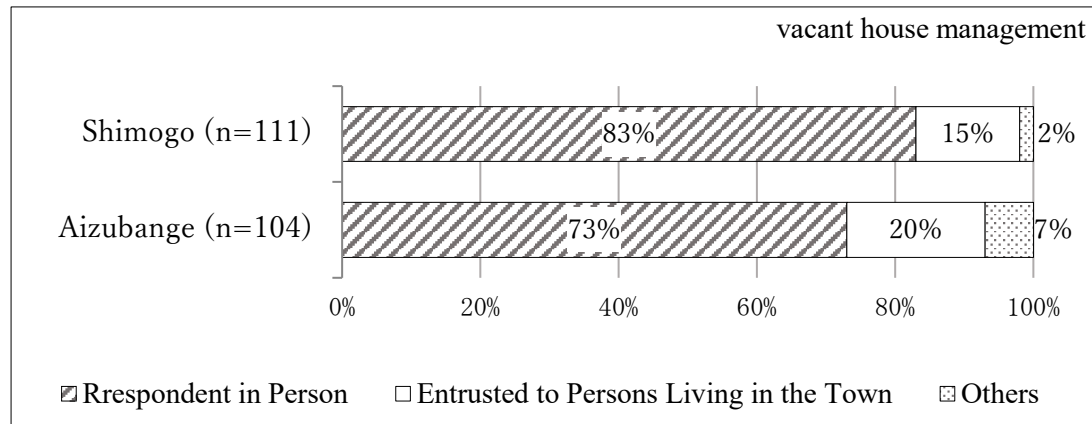


Figure 5-19. Comparison of Vacant house Manager in Two Cases

The figure compares how vacant houses are managed in Shimogo and Aizubange towns. In Shimogo (n=111), 83% of vacant house owners manage their properties personally, while 15% entrust the management to people living in the town, and 2% of vacant house owners have others manage the property. In Aizubange (n=104), 73% of vacant house owners manage their properties themselves, 20% entrust the management to local residents, and 7% rely on others to manage their properties.

The figure suggests that in both Shimogo and Aizubange, most vacant house owners prefer to manage their properties personally. Still, Shimogo shows a slightly higher rate of personal involvement in property management. In contrast, Aizubange has a higher percentage of owners entrusting management to residents or others, which might indicate a broader network or reliance on local assistance for property upkeep.

In Shimogo (n=111), 79% of vacant house owners manage the weeding of their property personally, while 21% entrust this task to people living in the town. In Aizubange (n=104), 65% of vacant house owners handle the weeding themselves, whereas 35% rely on local residents for this task. The figure indicates that more people in Shimogo prefer to manage the weeding of their properties than Aizubange personally. In Aizubange, there is a higher reliance on local residents for assistance with weeding management, showing a greater delegation of this responsibility to others in the

community.

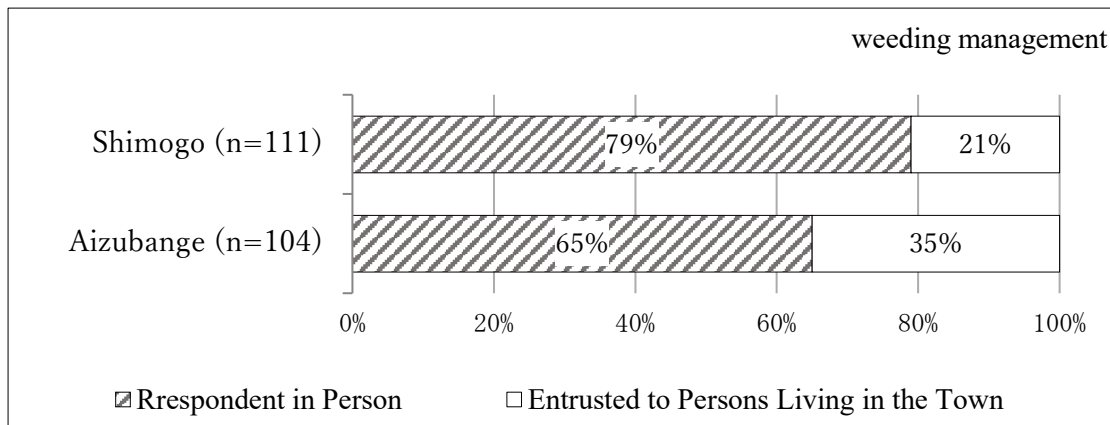


Figure 5-20. Comparison of Weeding Manager in Two Cases

Whether it is house management or weeding, the proportion of owners who prefer to do it themselves is higher than that of Aizubange. This indicates that owners in Shimogo are more inclined to manage their own house space, are less reliant on their neighbors, and are less willing to entrust the matter to a specialized management company. In the future, when facing a more severe aging trend, the danger of vacant houses in Shimogo falling into disrepair will be higher.

5.7.3 Comparison of Agricultural Status of Commuting Population

Figure 5-21 compares the engagement of vacant house owners in agricultural activities in Shimogo and Aizubange towns.

In Shimogo (n=111), 28% of the vacant house owners manage agricultural land themselves ("Do Farming"), while 68% do not engage in farming ("Not Do Farming"), and 3% did not respond. In Aizubange (n=104), a smaller portion, 14%, of the vacant house owners are involved in farming, with 81% not engaging in agricultural activities and 5% not responding.

This figure shows that vacant house owners in Shimogo are more likely to manage agricultural land than those in Aizubange. However, in both areas, most vacant house owners do not manage agricultural land, with a higher percentage of non-farming

individuals in Aizubange.

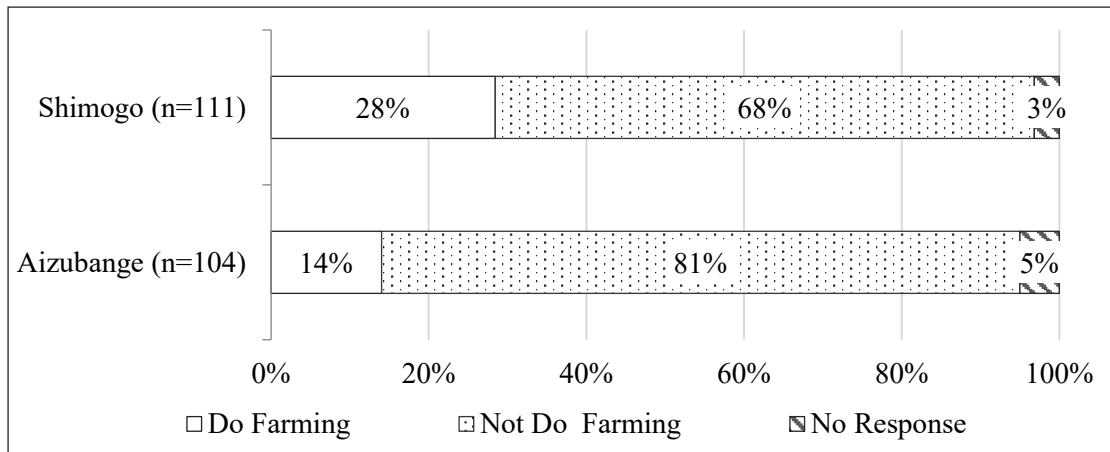


Figure 5-21. Comparison The management status of agricultural land for vacant house owners

The percentage of people engaged in agriculture in Aizubange is about half that of Shimogo, and about 70% of those who return home at least once a month are not engaged in agriculture. $34\% / (34\% + 12\%) = 74\%$.

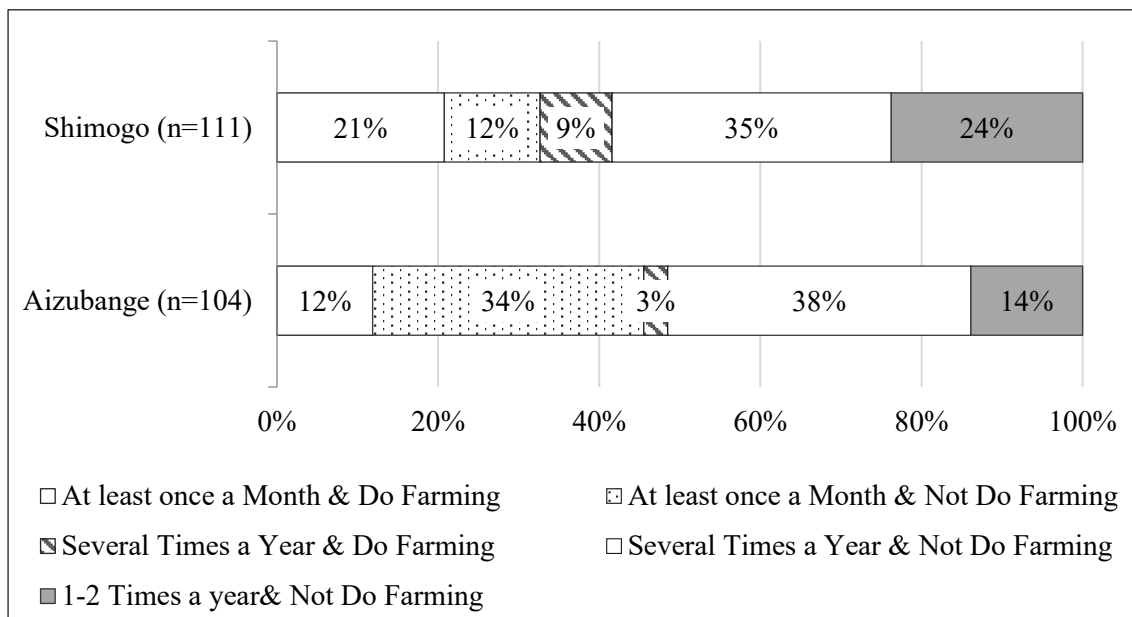


Figure 5-22. compares the engagement in farming activities of vacant house owners who return to their rural properties regularly in Shimogo and Aizubange towns.

In Shimogo (n=111), 21% of vacant house owners come back at least once a month and do farming, while 9% return several times a year and manage their agricultural land.

A larger percentage, 35%, return several times a year but do not engage in farming. Meanwhile, 24% return only 1-2 times a year and do not manage farmland. In Aizubange (n=104), only 12% return at least once a month and farm, but 34% return several times a year and do farming. A significant portion, 38%, returns several times a year without doing farming, while 14% only return 1-2 times a year and do not farm.

In Shimogo, on the other hand, more than 60% of those who return home at least once a month are engaged in agriculture, indicating differences between the areas. This comparison highlights that Shimogo has a higher proportion of people not involved in farming compared to Aizubange, where a relatively higher percentage of owners return several times a year and engage in farming activities.

5.8 Comparative Analysis of Community Relations.

5.8.1 Comparison of Community Relations

View a comparative analysis of vacant homeowners' general relationship with the community in terms of visiting graves, greeting people, and attending funerals.

In Shimogo, nearly 90% of the residents are involved with the community (86% visit graves, 89% make rounds for greetings, and 88% hold funerals), while in Aizubange, nearly 90% visit graves, but only 80% make rounds for greetings and only 60% hold funerals. In Aizubange, fewer people than in Shimogo engage in community activities other than visiting graves, which is a personal activity. This indicates strong social ties and active participation in communal rituals, showing that even absentee house owners maintain a connection to the local community.

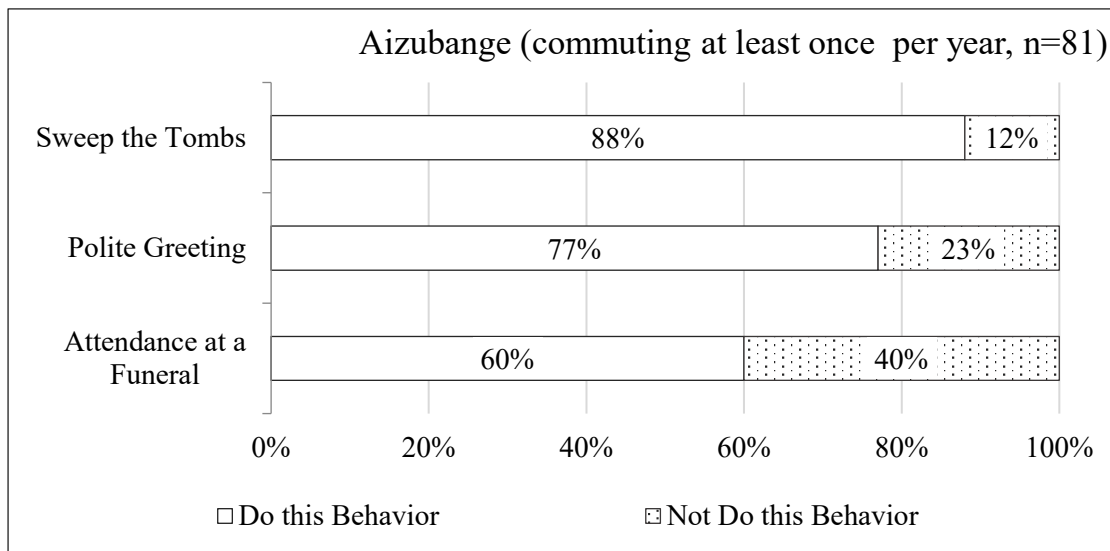
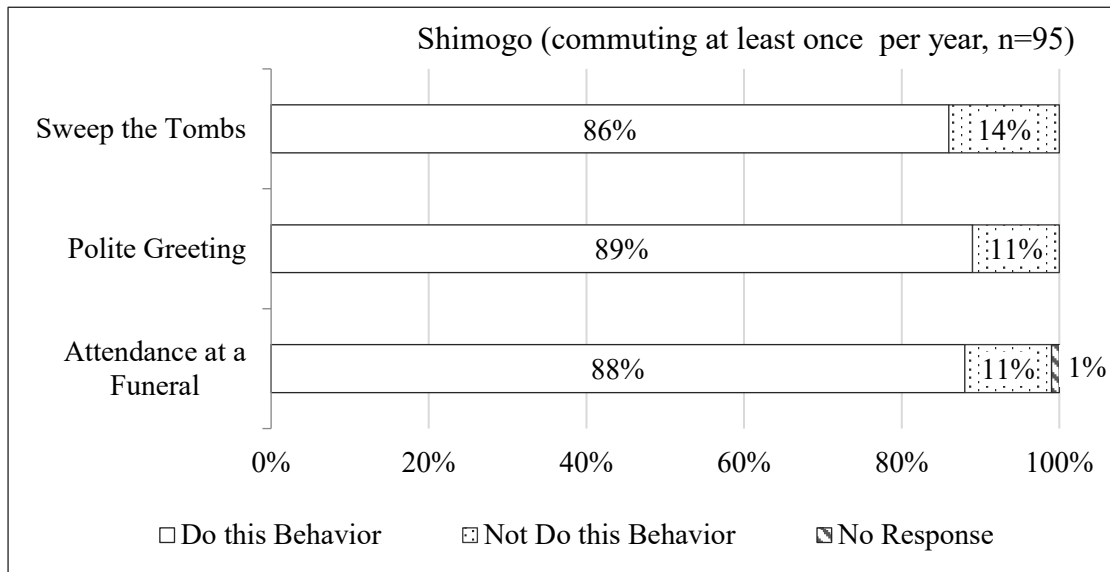


Figure 5-23. Comparison of the Fundamental Social Activities of Vacant House Owners

This suggests that Aizubange vacant houseowners are less involved in broader communal interactions, focusing more on personal or family-based activities like grave visits. This indicates that the community involvement of vacant houseowners in Aizubange is more limited compared to Shimogo, particularly in socially inclusive activities like greetings and funerals.

Among those who attend local funerals, there is an almost 50/50 split between those who return home within an hour and those who return home more than an hour. On the other hand, those who do not attend local funerals all have a longer return time.

This suggests that whether to participate in a funeral depends on the owner's intention and whether he or she has a kinship with the rural area.

5.8.2 Comparison of Personal Association in the Community

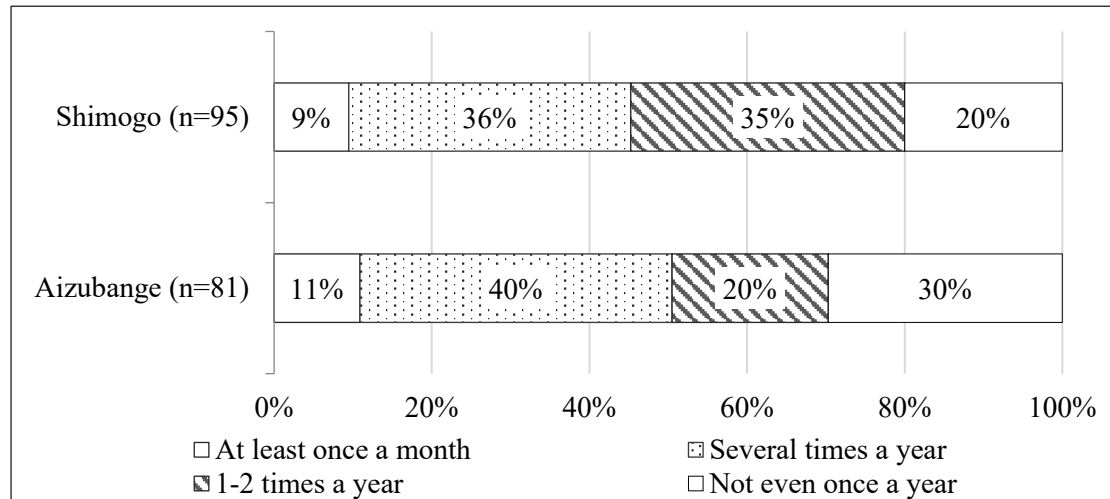


Figure 5-24. Comparison of Personal association in the community of vacant house owners

The figure compares the frequency of personal association within the community by vacant house owners in Shimogo and Aizubange. In Shimogo, 9% of vacant house owners engage with the community at least once a month, 36% do so 1-2 times a year, 35% several times a year, and 20% do not engage at all. In Aizubange, 11% engage at least once a month, 40% 1-2 times a year, 20% several times a year, and 30% do not engage at all. The data suggests that while more house owners in Aizubange engage 1-2 times a year, a higher percentage do not engage at all compared to Shimogo, indicating potentially weaker social ties in Aizubange.

Figure 5-24 compares the frequency of participation in community activities by vacant house owners in Shimogo and Aizubange.

In Shimogo, 12% of vacant house owners participate in community activities almost every time, 25% participate sometimes, and a significant 63% have little participation. In Aizubange, only 6% of vacant house owners participate almost every

time, 12% participate sometimes, and a large majority, 82%, have little participation.

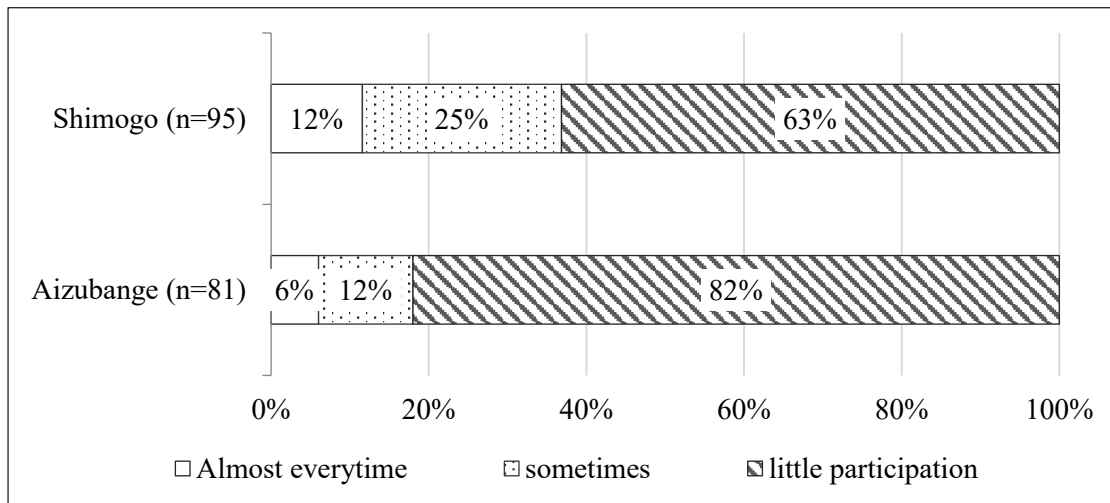


Figure 5-25. Comparison of Participation in Community Activities of vacant house owners

This indicates that vacant house owners in Shimogo are more likely to participate in community activities compared to those in Aizubange, where participation is markedly lower, especially in terms of frequent involvement. The discrepancy between the two areas suggests that community engagement might be stronger in Shimogo, or that the cultural and social dynamics of Aizubange may not encourage as much involvement from vacant house owners.

5.8.3 Leisure activities and enjoyment of returning hometown.

While visiting graves and property management (maintaining ancestral residences, agricultural and forestry lands, and graves) are usually the main purposes of return visits by vacant house-owning households, some owners and their spouses enjoy staying in their hometowns and enjoy recreation in nature as an additional motivation. Activities to be enjoyed indoors (in vacant houses): relaxing, family gatherings, etc. Activities to be enjoyed outdoors: walking, hiking in the mountains, gathering wild vegetables, BBQ, fishing, mountain work.

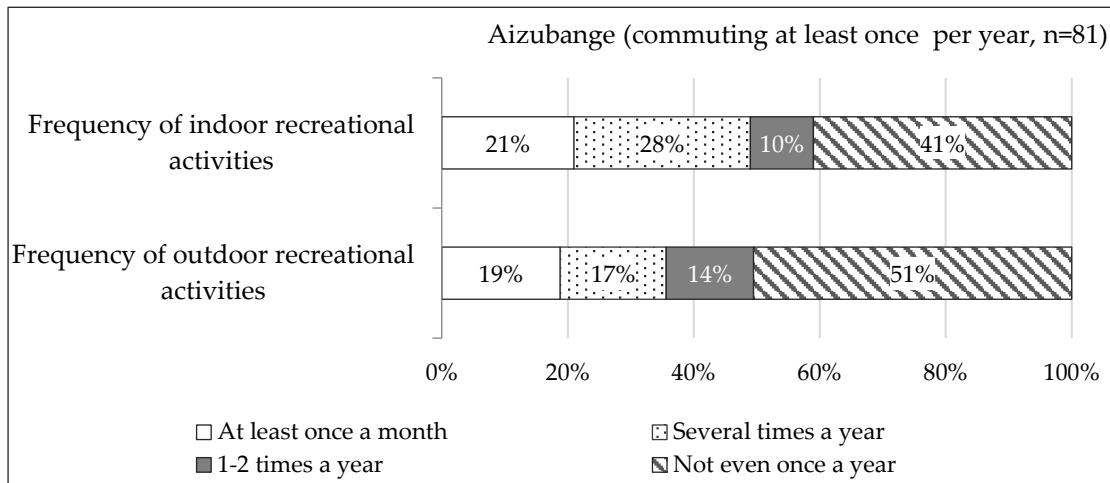
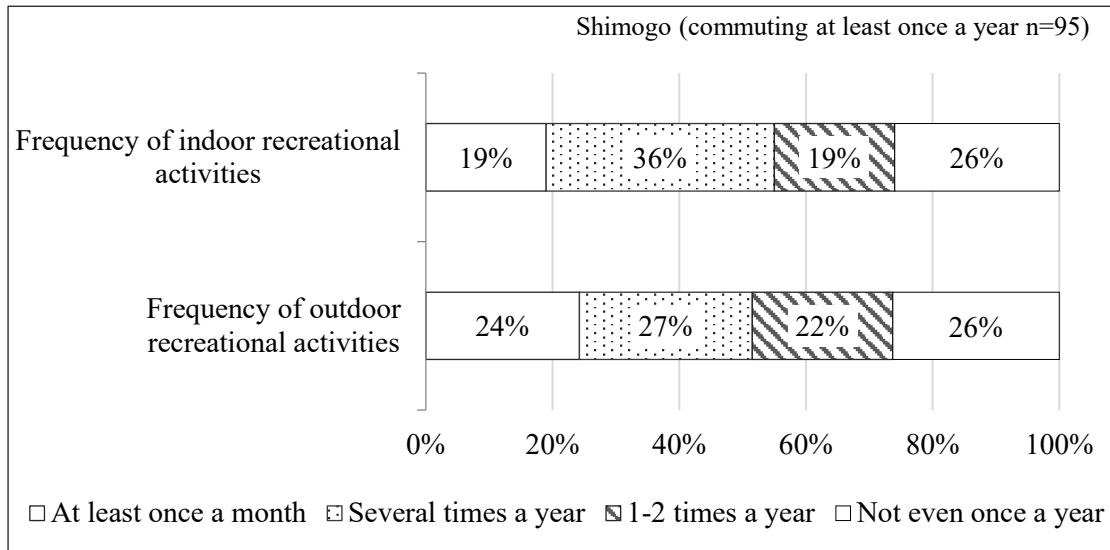


Figure 5-26. Comparison of the Frequency of activities to enjoy indoors and outdoors of vacant house owners

This figure 5-26 compares the frequency of indoor and outdoor recreational activities undertaken by vacant house owners during their commuting visits in Shimogo and Aizubange. In Shimogo, 19% of vacant house owners engage in indoor recreational activities at least once a month, 36% participate several times a year, 19% participate 1-2 times a year, and 26% do not engage in indoor activities. For outdoor recreational activities, 24% participate at least once a month, 27% several times a year, 22% 1-2 times a year, and 26% do not participate at all. In Aizubange, 21% of vacant house owners engage in indoor activities at least once a month, 28% several times a year, 10% 1-2 times a year, and 41% do not engage in indoor activities. For outdoor activities, 19%

engage at least once a month, 17% several times a year, 14% 1-2 times a year, and a significant 51% do not engage in outdoor recreational activities at all. This comparison indicates that while vacant house owners in Shimogo town have a more balanced participation in both indoor and outdoor activities, Aizubange shows lower levels of outdoor participation, with over half of the vacant house owners not engaging in outdoor activities. Indoor activity levels are relatively similar between the two towns, though slightly higher in Aizubange for frequent engagement.

Compared to Shimogo, Aizubange was about 10-20 points lower, suggesting that Aizubange is a slightly more urban area and has less willingness to maintain local ties (social factor) and spend leisure time enjoying local nature (environmental factor).

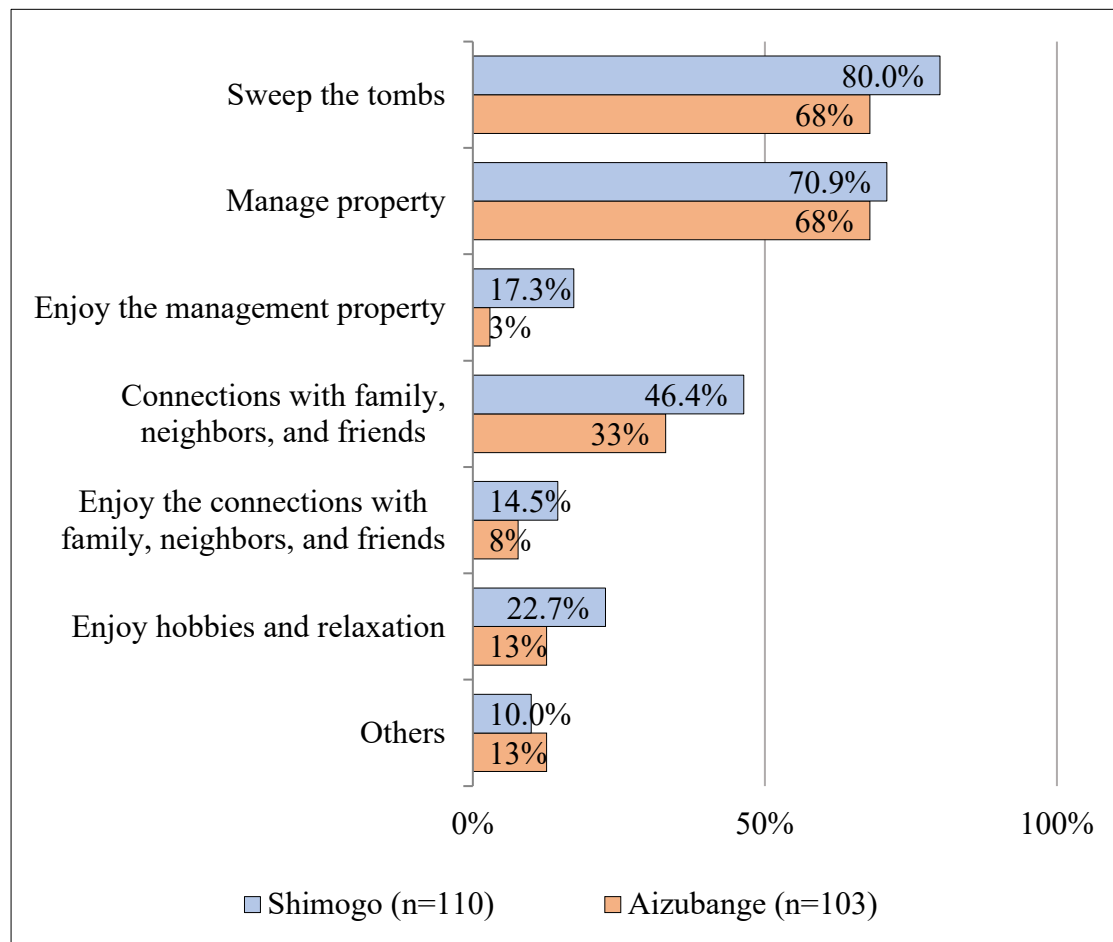


Figure 5-27. Comparison of Purpose for commuting of vacant house owners

This figure 5-27 illustrates the various reasons why vacant house owners in

Shimogo and Aizubange return to their properties. Sweeping the tombs: 80% of vacant house owners in Shimogo stated this as a reason for commuting, compared to 68% in Aizubange. Managing property: 70.9% of Shimogo vacant house owners and 68% of Aizubange vacant house owners return to managing their properties, showing similar levels of commitment to property maintenance.

Enjoying the management of property: 17.3% of Shimogo vacant house owners indicated they enjoy managing their property, compared to just 3% in Aizubange, suggesting that Shimogo residents may find more personal satisfaction in property upkeep.

Connections with family, neighbors, and friends: In Shimogo, 46.4% of vacant house owners return for this reason, while only 33% of Aizubange vacant house owners reported the same.

Enjoying the connections with family, neighbors, and friends: 14.5% of Shimogo residents and 8% of Aizubange residents enjoy the social aspects of their commuting, showing a stronger community connection in Shimogo.

Enjoying hobbies and relaxation: 22.7% of Shimogo residents listed this as a reason, compared to 13% in Aizubange, indicating that Shimogo vacant house owners may engage more in recreational activities.

Others: 10.9% of Shimogo residents and 13% of Aizubange vacant house owners cited other unspecified reasons for their commuting.

In summary, Shimogo residents tend to have higher involvement in both property management and social activities, while Aizubange residents show slightly lower engagement across these categories.

5.8.4 Community activities, personal socializing, and outdoor activities

Table5-4. Activities for socializing and enjoying the outdoors, as well as community activities.

	Shimogo		Aizubange	
	number	percent	number	percent
①Personal association or outdoor recreation and ②Participation in community activities	35	37%	15	19%
①Personal association or outdoor recreation and ②No participation in community activities	52	55%	47	58%
①No personal association or outdoor recreation and ②Participation in community activities	0	0%	0	0%
①No personal association or outdoor recreation and ②No participation in community activities	8	8%	19	23%
total	95	100%	81	100%

The percentage of vacant house owners who engage in all three types of activities is higher in Shimogo (37% in Shimogo and 19% in Aizubange). Those who do not engage in any of the three types of activities are higher in Aizubange (8% in Shimogo and 23% in Aizubange). In contrast, the percentage of those who engage in personal social or outdoor recreational activities but not community activities are not much different (55% in Shimogo and 58% in Aizubange). The same is true of both towns, where no "group that does not engage in personal social or outdoor recreational activities but does engage in community activities" is found. It can be inferred that outdoor enjoyment and personal interaction are stages that indicate a relationship with the community. In contrast, participation in community activities is a stage that indicates a deeper involvement.

Table5-5. Comparison of Socializing and Outdoor Fun Activities

	Shimogo		Aizubange	
	number	percent	number	percent
Personal association and outdoor recreation	59	62%	35	43%
Personal association and no outdoor recreation	17	18%	22	27%
No personal association and outdoor recreation	11	12%	5	6%
No personal association and no outdoor recreation	8	8%	19	24%
total	95	100%	81	100%

Although the number of vacant house owners who engage in both types of activities is higher in Shimogo (62% in Shimogo and 43% in Aizubange), the number of vacant house owners who do not engage in both types of activities is higher in Aizubange (8% in Shimogo and 24% in Aizubange), basically due to the tendency for fewer vacant house owners to engage in outdoor activities in Aizubange.

5.9 Conclusion

5.9.1 Vacant Houses, Vacant House Owner, and Space Management

The study revealed minimal regional differences but identified consistent trends in the mountainous areas of the Aizu region. Notably, 40-60% of vacant houses had been unoccupied for less than 10 years, signaling an increase in recent vacancies. It was also observed that approximately 30% of vacant house owners returned to their homes at least once a month, and over 80% made the trip home at least once a year. Additionally, there was a strong inclination among these owners to sell their vacant houses, indicating a potential shift towards managing the vacant house issue through property transactions. These commonalities provide insight into the behaviors and attitudes of vacant house owners in the Aizu region.

In previous chapters, it was analyzed that vacant houses that can be put on the

market or attracted by others for reuse are usually houses in good condition. These houses can be sold directly or repaired slightly before being put into use, but the owners of these houses are often not in a hurry to sell them, which is a contradictory phenomenon. Formulating well-established policies for the sale or utilization of vacant houses, with an emphasis on those with a shorter period of vacancy, enabling them to be reused before being abandoned, can significantly alleviate the management pressure and potential hazards of vacant houses.

5.9.2 Participation in Agricultural Activities

In terms of the relationship between vacant house owners and the local community, approximately 70-80% of vacant house owners were familiar with their local community, with no significant regional differences noted. However, some regional distinctions emerged upon further analysis. Aizubange exhibited relatively lower percentages of farmers and participants in community activities, suggesting a slightly more urban character compared to Shimogo. This points to a reduced willingness in Aizubange to maintain strong local ties or spend leisure time engaging in the natural surroundings. Additionally, it indicates that residents of Aizubange are more likely to live closer to one another, further reinforcing its more urbanized nature relative to Shimogo.

5.9.3 Personal Leisure during Commuting

Personal leisure time. In the two towns, approximately 60-70% of the vacant house owners have indoor enjoyment as they spend their leisure time. The percentage of people simultaneously enjoying outdoor leisure activities is 70% in Shimogo and 50% in Aizubange. While participation in community activities is one means of fostering connections with the local area, it is not the only approach. Many individuals, despite engaging in some communal activities, primarily spend their time independently or within their households. Therefore, rather than emphasizing obligatory participation in

social events, a more effective strategy may be to respect individual preferences and encourage property owners to return to rural areas for personal leisure. Facilitating opportunities for private engagement with rural environments can also contribute to strengthening their ties with the local community.

Reference

- [11] Distribution of depopulation-related municipalities by prefecture, Office of Depopulation Control, Local Administration Bureau, Ministry of Internal Affairs and Communications, Apr. 2022
- [12] Tsubasa Suzuki, Research on sparsely populated settlements in Oe Town Current situation of sparsely populated settlements and future measures, Journal of The Society of Art Engineers of Japan No. 53 Sept. 2010
- [13] Shimogo Town HP Various statistical data:
<https://www.town.shimogo.fukushima.jp/shimogo/gaiyou/299.html>
- [14] Shimogo Town Population Vision and Comprehensive Strategy for the Creation of Shimogo Town, Shimogo Town General Policy Division, Apr. 2020
- [15] Shimogo Town's plan for dealing with vacant houses, etc. Shimogo Town General Policy Division, 2018
- [16] Distribution of depopulation-related municipalities by prefecture, Office of Depopulation Control, Local Administration Bureau, Ministry of Internal Affairs and Communications, Apr. 2022
- [17] Tsubasa Suzuki, Research on sparsely populated settlements in Oe Town Current situation of sparsely populated settlements and future measures, Journal of The Society of Art Engineers of Japan No. 53 Sept. 2010
- [18] Aizubange Town HP Various statistical data: <https://www.town.aizubange.fukushima.jp/>
- [19] Aizubange Town Population Vision and Comprehensive Strategy for the Creation of Aizubange Town, Aizubange Town General Policy Division, Apr. 2020
- [20] Aizubange Town's plan for dealing with vacant houses, etc. Aizubange Town General Policy Division, 2018
- [21] Aizu Metropolitan Area Public Transportation Network Formation Plan, Fukushima Prefecture, six cities, towns, and towns in the Aizu region, 2020
- [22] Yukihiro Saito, Tomohiko Yoshida, Hong Nan, The Moving-Out Residents' Role in the Sustainability of Local Society--A case study in Seimou region, Gunma Prefecture, in Aizu region, Fukushima Prefecture and Kyoutanba region, Kyoto Prefecture, Research Collection, and Practical Research Report No. 50, pp.269-279, Research Institute of Housing and Urban Development, 2023
- [23] Yukihiro Saito, Commuting Behaviors of Vacant House Owners and Their Relationship with Rural Society in Mountainous Areas, Journal of Environmental Information Science 2020(1), 1-11, 2020
- [24] e-Stat (e-Stat), <Census Boundary Data by Town, Street, Character, etc.,> 2020
- [25] Geoshape Municipal ID Data Set (prepared by CODH), Census Boundary Data Set > Standard Area Code List > Shimogo, Fukushima Prefecture (07362)
<https://geoshape.ex.nii.ac.jp/ka/resource/07421.html>

Chapter 6. Conclusion and Discussion

6.1 Review of Findings

6.1.1 Overview of Vacant House Trends and Management Challenges

Analysis of vacant house data from Shimogo Town (下郷町) and Aizubange Town (会津坂下町) reveals a continuous increase in vacant properties, particularly in the past decade. In Shimogo Town, approximately 40% of vacant houses have been unoccupied for less than ten years, whereas in Aizubange Town, this figure is 60%, indicating that vacant houses are a growing concern in both towns. However, management activities significantly decline as the duration of vacancy increases, particularly for houses that have been unoccupied for over ten and twenty years. This suggests that early intervention is critical for preventing long-term neglect and deterioration.

Households with vacant properties demonstrate varying levels of engagement in space management based on their commuting frequency. In both towns, there are 30% of households return at least once a month. These high-frequency returnees actively manage their vacant properties, including Regular vacant house inspections and maintenance, grass cutting and do farming, with approximately 80% performing these tasks at the same frequency as their return visits. Besides, about the Agricultural behaviors, with 60% in Shimogo Town and 25% in Aizubange Town participating in farming. In fact, in addition to farming practices, there is also the management of communal woodlands within the mountain settlements. We conducted a survey with the local government on the communal management of the town and found that although the vacant house owners did not participate in the actual management actions, they also assisted in the management of the common space of the settlements by paying management fees. This paper gives a reference for the transferees to participate in the

management of local rural space.

In terms of controlling where the vacant house owners live, we found that different places of residence have an effect on how often owners commute in reverse. About 30% of owners live within a 60-minute commute. About Aizubange Town, more than 90% of people with a commute time of less than 60 minutes live in Aizubange Town. Especially for those who commuted to their hometown with high frequency, there was a positive correlation between the frequency of returning to their hometown and their place of residence. The closer the distance, the higher the frequency, and the higher the management frequency of the house. However, at the same time, it is worth noting that commuting time and the frequency of housing management are two levels. For some people who live far away, they still show stable behavior of returning to their hometown and managing and controlling their houses, which can be presumed to be “Second-Home Resident”.

Table 6- 1 Shimogo town and Aizubange town on the current implementation of vacant houses

Category	Shimogo Town (下郷町)	Aizubange Town (会津坂下町)
Main Strategy	Focused on managing and demolishing hazardous vacant houses	Focused on preventing an increase in vacant houses and providing financial assistance
Utilization of Vacant Houses	Mainly for tourism development and local economic growth	Mainly for market circulation, with financial subsidies provided
Legal Intervention	Strong enforcement of safety management for hazardous vacant houses through administrative orders	More emphasis on early intervention and owner cooperation
Emergency Measures	Establishment of a special mechanism to address public safety risks	Less emphasis on emergency measures and more focus on prevention
Economic Support	Limited, primarily aimed at promoting transactions	Direct subsidies provided to support house repairs and utilization
Vacant Land Management	Less focus	Includes vacant land management to prevent land from remaining unused after house demolition

It can be seen from the current vacant house countermeasures in the two places

that the management and demolition of vacant houses should be the core of the Shimogo town, and there are few government subsidy projects for vacant houses. Due to the rich tourism resources in the town, vacant houses are used in the tourism industry and local economic development. In Aizubange, the population and number of households are higher than that of Shimogo, and the core of the strategy is to prevent the increase of vacant houses and provide subsidies. More emphasis is placed on cooperation with owners and early intervention of the government and institutions, and more attention is paid to early response measures, and corresponding subsidies are provided for the renovation and sale of vacant houses. According to the government's official website, as of 2022, the Vacant House Bank in Shimogo has successfully implemented 11 cases of vacant house transactions, and Aizubange has 9 cases. It is not clear whether the vacant houses sold will be used to relocate people.

6.1.2 Relationship Between Vacant House Owners and the Community

In this study, the survey found that the number of vacant house owners who maintain basic etiquette levels with local residents after returning hometown can account for 70% to 80%. In addition, the connection between the owner and the local society is also reflected in the deep social interaction and enjoyment of private leisure life at the private level and participation in regional activities at the public level. In the basic social and etiquette level, the performance trend of the two towns is basically the same. On the deeper level of social and public participation, the two towns show great differences.

The survey results from Shimogo Town and Aizubange Town indicate that vacant house owners who frequently return to their hometown often engage in leisure activities and personal socializing, rather than participating in structured community activities. Specifically, in Shimogo Town, 83% of those who return to their hometown at least once a month engage in outdoor activities, while 96% participate in indoor leisure activities, suggesting that a portion of these returnees view returning hometown as a

leisure-driven activity rather than as a means of actively engaging with the local community. Similarly, in Aizubange Town, approximately 60% of the frequent returnees enjoy recreational activities, reinforcing the idea that personal enjoyment plays a critical role in motivating return visits.

These findings suggest that traditional community activities are not a primary incentive for returnees, but rather, a subset of those engaging in leisure activities may also participate in community events. Also, people's interest in community social activities has decreased in places like Aizubange Town that have experienced some urbanization. This could be because of changes in lifestyle and the deterioration of traditional social networks. Since most owners of vacant houses return to their hometown primarily to enjoy personal leisure activities, simply requiring them to participate in formal community activities may not be feasible. Instead, local governments should adopt more flexible and supportive strategies that recognize the importance of leisure and personal socializing in returnee behavior and consider how these dimensions can stimulate the possibility of contributing to local communities.

6.1.3 High-Frequency Commuting and Their Role in Regional Sustainability

In Shimogo Town, 27% of the population consists of high-frequency returnees, while in Aizubange Town, this percentage is 34%. Owners of vacant houses with high frequency returns not only actively engage in property management but also participate in shared farmland management and other forms of rural space management, contributing to the sustainable development of spatial governance in the local community.

In Shimogo Town, among high-frequency commuting, 70% participate in local community activities and maintain strong social ties with local residents, indicating a close connection with the regional society. Additionally, in terms of enjoying personal leisure time after returning to hometown, more than 70% of those who return more than once a month engage in leisure activities over once per month. This trend may be

attributed to Shimogo Town's rich natural environment and strong historical and cultural atmosphere, which fosters a positive interaction between high-frequency returnees and the rural environment.

Among high-frequency returnees in Aizubange Town, participation in local community activities is significantly lower compared to Shimogo Town, with only 28% engaging in such activities. However, the proportion of deep personal social interactions remains relatively high at 60%, indicating that while high-frequency returnees in Aizubange Town have weaker connections with public community activities, they still maintain strong private social ties with local residents. Additionally, in terms of engaging in personal outdoor activities after returning to their hometown, more than 40% of high-frequency returnees participate at least once a month. Although this represents a 30% decrease compared to Shimogo Town, it still highlights that for high-frequency returnees, personal interests and private leisure activities remain a key characteristic of their return behavior.

A follow-up interview survey was conducted with residents living in the study areas by the author to understand their perceptions of vacant houses. The findings revealed that when vacant house owners return frequently to manage their properties, their neighbors and other settlement residents tend to be less sensitive to the presence of vacant houses and generally do not perceive them as having a negative impact on their daily lives. For elderly residents, who have lived in the settlements for an extended period, the increase in vacant houses has become an expected and familiar phenomenon in the context of an aging and shrinking population. However, younger residents within the settlements tend to express concerns about the increasing number of vacant houses, indicating that perceptions of vacant properties vary across generations.

These findings suggest that high-frequency returnees who actively manage their properties play a crucial role in the sustainable development of rural communities by mitigating the negative perceptions and potential issues associated with vacant houses.

6.1.4 Impact of Vacant House Owners on the Community

The role of vacant house owners in local communities can be examined by considering them as a unique category of residents who maintain a certain level of engagement with their hometowns. In both Shimogo Town and Aizubange Town, a segment of vacant households contributes to population and spatial management through vacant house upkeep and occasional community involvement. For example, focus on the social impact data, 20% of the total population consists of regular commuting population who return at least once or twice a year to Shimogo Town. The percentage of engaging in behaviors such as weeding or vacant house management also shows over 17%. In Aizubange Town, this proportion is 10%. While these individuals may not return as frequently, their periodic engagement in vacant house upkeep and rural landscape maintenance still provides meaningful support for the sustainable development of local communities.

However, society has long focused solely on the responsibility of vacant house owners for vacant house management, while overlooking their potential contributions to rural communities. At the local government level, this group has yet to receive formal recognition, and policies addressing their role in community sustainability and rural revitalization remain largely absent. Although some municipalities have established self-organized groups, such as hometown associations or local heritage networks, to help former residents maintain connections with their communities, most local governments have yet to implement concrete measures to integrate vacant house owners into long-term community development strategies. Currently, vacant house owners are not formally recognized as part of the community in most local policies, nor are there targeted initiatives to encourage their active participation in rural revitalization or sustainable development efforts. This lack of institutional recognition not only limits their official role in local revitalization but also diminishes their potential contributions to long-term community sustainability.

6.2 Research Innovation

(1) Viewing Vacant House Owners as a Related Population

This study pioneers the concept of treating vacant house owners as a “distinct category of residents”. Although vacant house owners have already migrated out of rural areas and are no longer permanent residents, they remain closely connected to rural spatial management and community networks despite living in urban areas. By acknowledging them as a distinct category of residents, this study investigates their potential contributions to the sustainable development of rural communities. This viewpoint diverges from earlier studies that predominantly regarded the management of vacant houses as a challenge. Instead, it presents an innovative framework for examining rural vacancy concerns and the principles of sustainable spatial management.

(2) Comparative Analysis of Different Town Within the Same Regional Context

This study conducts a comparative analysis of two distinct rural settlements within the same regional context. By examining Shimogo Town (a mountainous rural area) and Aizubange Town (an intermediate rural area), the research explores how differences in geographic and socioeconomic conditions influence vacant house owners' management behaviors, commuting patterns, and levels of connection with the local community. This analysis deepens the understanding of spatial management variations in the context of rural depopulation and provides insights into the underlying factors driving these differences.

(3) Quantitative Evaluation of Vacant House Owners' Contributions to the Community

This study quantifies the contributions of vacant house owners to spatial management (e.g., vacant house maintenance, weeding, farmland management) and community activities. By treating vacant house owners as a distinct category of residents and integrating them into a statistical comparison with the overall local population, this approach allows for a measurable assessment of their impact on local

sustainability. This fills a gap in existing rural studies, which have traditionally overlooked the role of non-resident homeowners in community development and spatial governance.

(4) Focus on the Characteristics of High-Frequency Commuting Population

Building on the analysis of vacant house owners' overall management and commuting behaviors, this study places particular emphasis on the characteristics of high-frequency returnees. This group plays a crucial role in rural land management and community sustainability. By conducting an in-depth exploration of high-frequency returnees for the first time, the study proposes that encouraging and supporting their stable and frequent return could enhance the long-term sustainability of spatial management in rural communities.

(5) Innovative Policy Recommendations According to Research Findings

The research indicates that numerous owners of vacant houses return mainly for personal enjoyment and private social engagements rather than for involvement in community activities. The study proposes innovative policy recommendations, advocating that governments acknowledge returnees' personal leisure requirements while developing informal social opportunities, such as rest stops and communal interaction spaces, to cultivate enduring connections between returnees and the local community.

The study recommends transportation subsidies and vacant house management assistance for vacant house management to motivate frequent returnees to engage more actively in rural rehabilitation. This policy approach challenges the traditional “permanent resident” perspective, introducing a more inclusive concept of “commuting residents”, offering a novel strategy for the sustainable utilization of vacant houses.

6.3 Strategic Recommendations

(1) Common strategic strategy

a) Concern and promotion of the “related population”

This study has demonstrated the crucial role of “related populations” in regional revitalization and the sustainable development of rural communities. Therefore, in addition to strongly supporting permanent migration and settlement, local governments should also focus on the creation and development of related populations.

Particular attention should be given to geo-linked related populations, such as vacant house owners, by providing recognition and support to encourage their active participation in local development. Building on this foundation, other types of related populations can also be cultivated, such as “super homecoming populations” (超帰省人口) through dedicated initiatives.

By establishing and strengthening trusted related populations, fostering long-term relationships, and enhancing a sense of belonging, these individuals can transition from passive stakeholders to active contributors in regional revitalization. Ultimately, this approach will drive the sustainable development and resilience of rural communities.

b) Support for Commuting Activities of Vacant House Owners

Analysis has shown that vacant house owners make tangible contributions to rural communities upon returning to their hometowns. Therefore, local governments and relevant organizations should develop targeted policies to support this group and consider providing appropriate commuting assistance. For instance, commuting subsidies such as highway toll discounts and fuel cost reimbursements could help reduce the financial burden on returnees, encouraging them to maintain frequent and long-term connections with the local community, thereby promoting sustainable regional development.

At the same time, it is essential to support other facilities and activities for vacant

house owners when they return. Their personal social interactions and leisure experiences should be fully respected. Initiatives such as sharing tourism information, establishing small rest spots, organizing regular discussions on vacant house management, and hosting networking events for returnees can provide opportunities and spaces for interaction and knowledge exchange. These efforts will further strengthen the long-term relationship between commuting vacant house owners and the local community, contributing to sustainable rural revitalization.

(2) Strategies for Shimogo town

Due to its unique geographical conditions, Shimogo Town is relatively more isolated compared to Aizubange Town, with less convenient transportation and commuting infrastructure. However, despite these limitations, the commuting frequency, vacant house management, and engagement in agricultural activities in Shimogo Town were not worse than Aizubange Town.

One possible reason for this is Shimogo Town's rich natural landscapes and historical-cultural tourism resources, which not only attract tourists but also encourage commuters to return home for outdoor leisure activities. Given this, the natural and cultural assets of the area should be preserved and effectively utilized to further promote activities that attract more frequent returnees.

At the same time, Shimogo Town faces more severe challenges related to population decline and aging compared to Aizubange Town. Having long struggled with these demographic issues, continued attention and proactive measures will be crucial for the town's future sustainability.

Notably, commuters in Shimogo Town exhibit a higher level of social interaction with local residents and greater participation in regional activities compared to those in Aizubange Town, despite its more enclosed environment. Surveys conducted with permanent residents in Shimogo Town also reveal that some locals express interest in assisting vacant house owners with vacant house management. Some even believe that

collaboratively maintaining deteriorating vacant houses could not only enhance safety and environmental conditions within the settlement but also foster stronger social ties and cooperation among residents. Given these findings, I believe that implementing a community-based collaborative vacant house management system in Shimogo Town is both feasible and promising. For vacant house owners unable to manage their properties regularly, delegating maintenance responsibilities to local resident organizations could be an effective solution. By paying management fees, vacant house owners could support the local economy while ensuring the proper upkeep of their properties, contributing to the sustainable development of the town.

(3) Strategies for Aizubange town

Aizubange Town's vacant house owners participate in local community events at a lesser rate than Shimogo Town's residents. This implies a tendency to weaken the connection between the owners of vacant houses and the local community, which may be due to the urbanization that Aizubange town has undergone in recent years.

Aizubange Town has efficient transportation, enabling over 90% of residents living in the Aizu commuting area to get to their destinations within 30 minutes. Notwithstanding this accessibility, the lack of active participation in regional activities by vacant house owners may be a sign of waning interest in local issues and the environment, which could cause regional ties to gradually deteriorate.

To counter this trend, it is necessary to re-evaluate the value of regional resources and promote activities that encourage new forms of community participation, reinforcing the connection between vacant house owners and the local society. While respecting the personal commuting preferences of these owners, policies should be designed to support their private leisure activities and deeper social engagement, thereby encouraging more frequent and sustained returns to the area. Due to its convenient transportation infrastructure, the Aizubange Town government focuses its vacant house countermeasures on the early stages before properties become designated

as “Designated Vacant House”. Their approach prioritizes prevention and financial support, emphasizing early intervention and economic subsidies to ensure that vacant houses are properly managed and reutilized as much as possible. This is worth recommending.

6.4 Policy recommendations

4) Organizing Activities for Related Populations

The Super Homecoming Project has been one of the most successful initiatives in recent years for establishing trusted related populations. This project encourages participants to return to their hometowns through the guidance of trusted individuals (such as family and friends), allowing them to experience and share the local culture and landscape during their journey back hometown. For vacant house owners who already have a geographical connection to rural communities, relevant activities should be established to encourage them to return to their hometown with their family and friends during their commuting trips. By combining leisure experiences with cultural exchange, they can share the local scenery and attractions of their hometowns, ultimately extending their stay in rural communities and strengthening their sense of attachment to the area. An example of this can be seen in Kanna Town, Gunma Prefecture, where the annual “Koinobori Festival” attracts many former residents who have moved away to return home with their children. This event allows them to celebrate their children’s growth in the very place where they themselves grew up, reinforcing emotional ties with their hometowns and fostering intergenerational connections.

5) Supporting Commuters Returning to Rural Areas

Currently, there are numerous policies and proposals supporting near-resident households in rural areas. However, for vacant house owners living in distant urban areas, it is equally important to encourage their stable return and transition into “dual-

location residents”. Specific support measures could include:

- Commuting subsidies, such as transportation and fuel cost assistance.
- Tax incentives, such as reductions in vacant house taxes for vacant house owners who maintain and use their properties for regular return visits.

Some areas in Hokkaido and Nagano Prefecture have already implemented transportation subsidies for long-distance commuters. Meanwhile, Okayama Prefecture has introduced financial support for dual-location residents, encouraging urban dwellers to establish second homes in rural areas.

Additionally, in the post-COVID-19 era, the “Remote Work × Rural Living” model has gained traction in several areas. The establishment of shared housing and co-working spaces allows former rural residents to flexibly move between urban and rural environments. These policies collectively foster stronger connections between commuting populations and rural communities, ultimately supporting sustainable regional revitalization.

6) Support for Vacant House Owners After Returning Home

The motivations and behaviors of vacant house owners when commuting back to their hometowns are closely tied to personal leisure experiences and private social interactions. Therefore, it is essential to respect the characteristics of their private social activities and leisure pursuits. Based on this, support should be provided for their leisure activities, such as regularly sharing tourism information and organizing vacant house management exchange meetings, to enhance their return experience and engagement with the local community.

7) Community-Based Collaborative Management of Vacant Houses

The author's research aims to encourage vacant house owners to return regularly, manage their properties, and establish connections with the local rural community. However, research findings indicate that more than 10% of owners rarely return and do

not actively manage their properties, making vacant house management a critical issue that requires targeted solutions. In Omachi City, Nagano Prefecture, a community-led management group called “Vacant House Monitoring Team” was established, composed of local resident volunteers who regularly inspect vacant houses, report their conditions to the government, and help prevent deterioration due to neglect. Additionally, some areas have introduced vacant house management delegation models, organized by local self-governing associations or NPOs, aiming to mitigate the negative impact of unmanaged vacant houses on rural spatial environments. These initiatives serve as practical countermeasures to ensure proper maintenance of vacant properties, even when owners are absent.

8) Establishing a Vacant House Owner Database and Information Sharing System

In the digital era, accurately grasping the number and status of vacant houses in mountainous rural settlements remains a challenge. The ownership and condition of these properties change over time, making it essential for the government to establish a continuous monitoring system to ensure timeliness and accuracy of information. At the same time, providing an information-sharing platform for vacant house owners would enable them to publish and exchange information more conveniently, creating a strong foundation for encouraging their return and engagement with the local community.

Anne

Standards for Investigating Vacant Houses in Shimogo Town

4. 空き家実態調査の結果

(1) 現地調査の結果

町では、空き家の状況を把握するため、平成 29 年度に空き家実態調査を行いました。調査は、水道閉栓情報及び行政区調査情報により抽出した、空き家の可能性がある 501 件の建物について現地調査を実施しました。

現地調査の結果、「空き家候補」307 件と「判断できない」23 件を合わせた 330 件を空き家候補建物としました。

計画の期間と対象地区

○計画期間：平成 30 年 3 月より平成 40 年 3 月までの 10 年間

○対象地区：町内全域

計画の対象とする建築物

・本計画の対象とする空き家の種類については、法第 2 条第 1 項に規定された「空家等」及び第 2 項に規定された「特定空家等」とします。

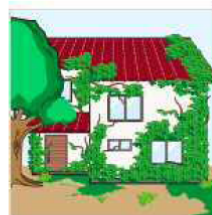
空家等	居住その他の使用がなされていないことが常態である住宅その他の建築物又はこれに附属する工作物及びその敷地（立木その他の土地に定着する物を含む。）
特定空家等	次の①～④のいずれかの状態にあると認められるもの。 ①そのまま放置すれば、倒壊等著しく保安上危険となるおそれのある状態 ②そのまま放置すれば、著しく衛生上有害となるおそれのある状態 ③適切な管理が行われていないことにより著しく景観を損なっている状態 ④その他周辺の生活環境の保全を図るために放置することが不適切である状態



・屋根、外壁等が、汚物や落書き等で外見上大きく痛んだり汚れたまま放置されている
・多数の窓ガラスが割れたまま放置されている



・敷地内にゴミ等が散乱、山積したまま放置されている



・立木等が建築物の全面を覆う程度まで繁茂している



・看板が原型を留めず本来の用をなさない程度まで、破損、汚損したまま放置されている

図 特定空家等の例（NPO 法人空家・空地管理センター）

ご回答者自身について **(コロナの影響がなかった2年前の1月時点)**

E. ご回答者の年齢について、あてはまる数字をご記入ください。

(この質問は、現時点【2022年1月】での年齢をお答えください)

歳

(例. もしくは などをご記入ください)

F. ご回答者の住んでいる場所についてご記入ください。

空き家・別荘からご自宅まで車で()分ぐらいかかる(例.90分)

- ① 下郷町 ② 南会津町 ③ 会津若松市 ④ 白河市
⑤ その他()都・府・県 ()市・町・村

G. 空き家になる前に住んでいた人とご回答者の関係について、あてはまる番号に○をつけてください(別荘として利用の場合は「④その他」を選択ください)。

- ① 本人・配偶者 ② 子世代(子、嫁、婿) ③ 孫世代 ④ その他

財産管理やつきあいなど **(コロナの影響がなかった2年前の1月時点)**

H. ご回答者が対象となる空き家、別荘への帰省、来訪する回数について、あてはまる番号に○を付けてください。

- ① 月1回以上 ② 年数回程度 ③ 年1~2回程度 ④ 年1回未満、帰省、来訪なし

I. 空き家・別荘の管理(窓を開ける、家の中に入るなど)について、あてはまる番号について、それぞれ○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1~2回程度 ④ 年1回未満、管理しない

(1. ご回答者世帯が管理 2. 他の人が管理)

財産管理やつきあいなど （コロナの影響がなかった2年前の1月時点）

J. 空き家・別荘の草刈りについて、あてはまる番号に、それぞれ○をつけてください。

- ① 夏場など月1回以上 ② 年数回程度 ③ 年1～2回程度 ④ ほとんどしない

(1. ご回答者世帯が管理 2. 他の人が管理)

K. 地区にある農地や屋敷内菜園について、あてはまる番号に○をつけてください。

- ① 農作業をしている(プランターや家庭菜園を含む) ② 農作業は現在していない

L. 地区でのお墓参りについて教えてください

- ① お墓参りはする ② お墓参りはしない(お墓がない、移設したを含む)

M. (地区に住む親戚やご近所への)あいさつ回りについて、あてはまる番号に○をつけてください。

- ① あいさつ回りをすることがある ② あいさつ回りはしない

N. 地区の方の葬儀について、あてはまる番号に○をつけてください。

- ① 葬儀に行くことがある ② 葬儀のおつきあいはない

O. 親戚やご近所との個人的なつきあい(家に上がり、お茶を飲む、会食など)の頻度について、あてはまる番号に○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1-2回程度 ④ つきあいはほとんどない

P. 草刈り、祭りなど地区活動への参加について、あてはまる番号に○をつけてください。

- ① だいたい参加する ② 参加する場合がある ③ ほとんど参加しない

Q. 空き家・別荘の中で楽しむ頻度(くつろぐ、家族団らんなど)について、あてはまる番号に○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1-2回程度 ④ 楽しむことはない

R. 帰省時、屋外で楽しむ頻度(散歩、山歩き、山菜取り、BBQ、釣り、川遊び、山仕事、大工仕事、農作業など)について、あてはまる番号に○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1-2回程度 ④ 楽しむことはない

Standards for Investigating Vacant Houses in Aizubange

資料：3

空家状況調査表の評定区分、評定項目別判定の着目点等
外観目視による住宅不良度判定の手引き（平成23年12月）を参照

国土交通省住宅局 住環境整備室

(1) 構造一般の程度

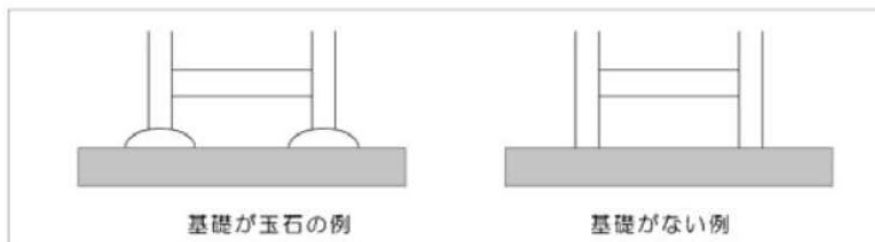
この評定区分は、建築物本来の質の程度を評定するのが目的であり、古材を使用した場合は別として、一般に腐朽、破損は考慮しない。

① 基礎

- | |
|----------------------------------|
| イ. 構造耐力上主要な部分である基礎が玉石であるもの：(10点) |
| ロ. 構造耐力上主要な部分である基礎がないもの：(20点) |

【着眼点等】

- ・一般的に住宅の基礎はコンクリート、レンガ、石等の連続した基礎（布基礎）とするが、建築年代が古い住宅の一部には、柱下その他の要所のみ、石、コンクリートブロック等を置いて基礎とする「玉石基礎」となっているものもある。
- ・また、柱を直接地面に掘って立てたもの、木杭を打ってその上に土台を廻したものの、土台を直に地面に置いたものなど、基礎がない場合は、玉石基礎より更に倒壊等の危険性が高い。



② 外壁

- | |
|-------------------|
| 外壁の構造が粗悪なもの：(25点) |
|-------------------|

【着眼点等】

- ・外壁については、パネル壁材（サイディングボード）張、モルタル塗り、下見板張、羽目板張など、通常使用されている外壁材料及び構造と比較して、外壁として当然備えていなければならない耐力、耐久力、各種（熱、光、音等）の遮断効果等が著しく劣る材料又は構造のものを「仮設的なもの」と考え、評定する。

(2) 構造の腐朽又は破損の程度

この評定区分は、建物が年数を経過し、その間に適切な維持管理を怠ったり、あるいは災害等に遭って腐朽し、又は破損している状態について評定するのが目的である。

この場合、調査は建物の主要部分について行い、下屋、附属建屋など付帯部分については行わない。また、腐朽、破損の箇所が一応補修されていても、例えば素人の手で間に合わせに補修されているような場合には、補修がされていないものとみなす。

① 基礎・土台・柱・はり

- イ 柱が傾斜しているもの、土台又は柱が腐朽し、又は破損しているもの等小修理を要するもの：(25点)
- ロ 基礎に不同沈下のあるもの、柱の傾斜が著しいもの、はりが腐朽し、又は破損しているもの、土台又は柱の数ヶ所に腐朽又は破損があるもの等大修理を要するもの：(50点)
- ハ 基礎、土台、柱又ははりの腐朽、破損又は変形が著しく崩壊の危険のあるもの：(100点)

【着眼点等】

- ・イ～ハの評定内容のうち、外観目視により確認が可能な判定内容は、柱の傾斜と基礎の不同沈下の有無や程度(表3の太字部分)であり、土台、柱又ははりは、露出部等の状況が確認された場合に評定を行う。

表3 外観目視により判定できる項目

※：太字部分が外観目視により判定できる項目

評点 評定内容	25点	50点	100点
柱	傾斜している*	著しく傾斜している*	腐朽、破損又は変形が著しい*
土台、柱又ははり	腐朽又は破損	数箇所に腐朽又は破損がある	腐朽、破損又は変形が著しい
基礎	—	不同沈下がある*	腐朽、破損又は変形が著しい*

- ・柱や基礎の変形の評定は、柱の傾斜角度や基礎の沈下などの「変形の有無・程度」と、傾斜した柱の本数や沈下部分の長さなどの「変形の範囲」を目安とし、修理等による再利用の可能性なども考慮する。

- ・また、腐朽、破損の程度の差については、イ（25点）及びロ（50点）については、腐朽、破損の箇所が「局部的なものか」あるいは「建物全体に及ぶもので局部的な小修理の段階を超えたものであるか」により判断し、ハ（100点）は修理不能と認められるものとする。
- ・一見して住宅全体又は一部が著しく傾斜している場合、はり等の腐朽、又は破損を伴う形で屋根の全部又は一部が崩落している場合などは、ハ（100点）と評定する。
- ・一見しただけでは住宅が著しく傾斜しているか判然としない場合は、屋根の傾斜も柱やはりの腐朽、又は破損の評定の目安とする。これは、基礎や柱の変形が著しい場合は、屋根に不陸が見られたり、屋根ふき材料の剥離、又はすれが著しいことが少なくないためである。
- ・なお、柱の傾斜角度や基礎の不同沈下の程度の定量基準としては、例えば、「災害に係る住家の被害認定基準運用指針」（平成21年6月内閣府（防災担当））の木造・プレハブの住宅の場合の判定基準なども参考にすることが考えられる。この際、住宅の規模や階数、工法（在来工法〔軸組工法〕、枠組壁工法等）や地域特性などを加味し、評定を行うことが望ましい。



一部の柱が傾斜している例



柱の変形が著しく崩壊の危険がある例



柱の数箇所に破損がある例



柱、はりの破損や変形が著しく崩壊の危険がある例

【参考 1】 柱の傾斜及び基礎の不同沈下の長さによる判定基準等

「災害に係る住家の被害認定基準運用指針」（平成 21 年 6 月内閣府（防災担当））より要点部分を抜粋

- ・ 柱の傾斜の測定方法は、外壁又は柱の傾斜を下げ振り等により測定し、判定を行う。
- ・ 傾斜は、原則として住宅の 1 階部分の四隅の柱の傾斜度（計測値）の単純平均したものとす。
- ・ 基礎の損傷率は、不同沈下により基礎の沈下又は傾斜が生じた部分の全基礎長さを外周基礎長で除した割合とする（基礎が布石、玉石の場合は、長さでなく、個数で損傷率を算定する）。

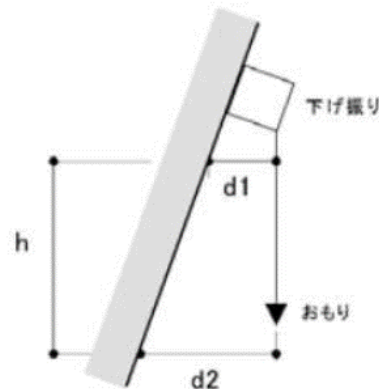
傾 斜		判 定
傾斜 (d/h)	H=1,200mmの場合	
(d/h) ≥ 1/20	d ≥ 60mm	住家の損害割合を 50% とし、全壊（補修による再利用が困難）と判定
1/60 ≤ (d/h) ≤ 1/20	20mm ≤ (d/h) ≤ 60mm	傾斜による損害割合 15% とし、屋根や基礎などの他の部位の損害割合等をもとに総合的に判断
(d/h) < 1/60	d < 20mm	傾斜による判定は行わず、部位による判定を行う

損 傷 率		判 定
基礎	損傷率 $\frac{\text{損傷基礎長}}{\text{外周基礎長}} \times 100 (\%)$	
		基礎の損傷率が 75% 以上の場合は全壊と判定

■ 下げ振りによる柱の傾斜の測定

※実際に柱の傾斜を測定するためには評定対象とする住宅の敷地内に立ち入らないとならないが、例えば、除却費補助制度等の申請後に判定調査する場合などは、敷地内に立ち入ることが可能ため、参考として示す。

$$\text{傾斜} = (d2 - d1) / h$$



② 外壁

- イ 外壁の仕上材料の剥落、腐朽又は破損により、下地の露出しているもの：(15点)
- ロ 外壁の仕上材料の剥落、腐朽又は破損により、著しく下地の露出しているもの又は壁体を貫通する穴を生じているもの：(25点)

【着眼点等】

- ・ 評定に際しては、「下地の露出の有無・程度」を目安とし、イ及びロの剥離、腐朽又は破損の程度に差については、①基礎・土台・柱・はりと同様に、剥離、腐朽又は破損の箇所が「局部的な小修理を要する程度か」、あるいは「大修理を要する程度にまで至っているどうか」によって判断する。
- ・ 例えば、壁体を貫通する穴がある場合などは、剥離箇所や穴からの雨、風等の侵入による居住面への影響が大きく、かつ大修理をしないと当該住宅の再利用が困難なことから、ロ(25点)と評定することが考えられる。
- ・ なお、下地の露出の程度については、例えば年間を通して風や降雨、降雪量が多い地域、台風の通過頻度が高い地域などにあつては、わずかな剥離等でも居住面への影響が大きいなど地域差があることから、地域特性に応じて判断することが望ましい。



外壁の仕上材の一部がはがれ、
下地が露出している例



外壁が剥落し、著しく下地が露出するとともに、壁体を貫通する穴を生じている例

③ 屋根

- イ 屋根ぶき材料の一部に剥落又はずれがあり、雨もりのあるもの
：(15点)
- ロ 屋根ぶき材料に著しい剥落があるもの、軒の裏板、たる木等が腐朽した
もの又は軒のたれ下ったもの：(25点)
- ハ 屋根が著しく変形したもの：(50点)

【着眼点等】

- ・イ、ロ及びハの剥落、腐朽の程度の差については、①基礎・土台・柱・はりと同様に、それぞれ、小修理、大修理及び修理不能かどうかによって判断する。
- ・棟瓦やその他の瓦の大部分に剥離があったり、軒の一部が崩落している場合などは、居住面への影響が大きく、大修理をしないと当該空き家の再利用が困難なため、ロ(25点)と評定することが考えられる。
- ・屋根の不陸が著しいなど、屋根が著しく変形している場合は、修理不能なため、ハ(50点)と評定することが考えられる。



瓦の一部に剥離とズレがあり、雨漏りのある例



アスファルト屋根等の一部にズレがあり、雨漏りのある例



軒の裏板、たる木等が腐朽し、軒が垂れ下がっている例



屋根に不陸がある例

(3) 防火上又は避難上の構造の程度

不良住宅地区は、建物の密度が高く、地区内の道路や避難施設等が未整備なこと等により、災害発生の危険及び避難時の混乱が予想されることから、防火上、避難上の危険、障害の程度を評定するために本評定区分が設けられている。しかし、住宅地区改良法においては不良住宅の不良度は建築物そのものについてのみ測定することになっていることから、外壁、屋根等についてのみ防火上又は避難上の危険、障害の程度を評定することとしている。

① 外壁

- イ 延焼のおそれのある外壁があるもの：(10点)
- ロ 延焼のおそれのある外壁の壁面数が3以上あるもの：(20点)

【着眼点等】

- ・「延焼のおそれのある外壁」については、当該外壁が隣地境界線等からどの程度離れているかなどの「延焼のおそれのある部分」と、これに該当する外壁で、その部分の仕上げ材料が燃えにくいものになっているかなど、「仕上げ材料」の2つの要素が判断対象となる。
- ・「延焼のおそれのある部分」は、建築基準法第2条第6号に規定されており、隣地境界線、道路中心線又は同一敷地内の2以上の建築物相互間の中心線から、1階については3メートル以内、2階以上については5メートル以内をいう（図1参照）。
- ・なお、例えば農山村地域の住宅などの場合は、外壁が延焼のおそれのある部分に該当せず、本評定項目の評定対象外となることが少なくないと考えられる。

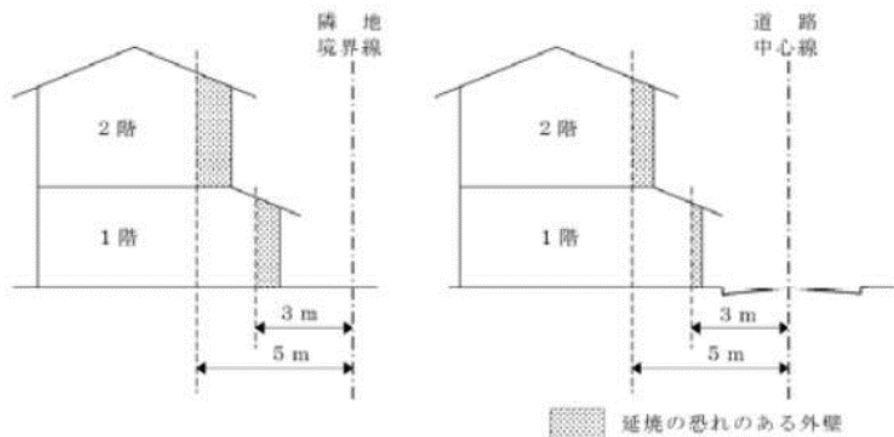


図1 延焼のおそれのある部分

- ・延焼のおそれのある外壁としては、例えば、「裸木造」「硬質塩化ビニール波板」の外壁などが該当する。
- ・なお、外壁に飛び火や類焼の原因となる隙間などが生じている場合等については、「延焼のおそれのある外壁」に該当するものと考えられる。



外壁が裸木造の例

② 屋根

屋根が可燃性材料でふかれているもの：(10点)

【着眼点等】

- ・屋根材料は、火災の延焼防止の点で極めて重要な役割をもっていることから、建築基準法において防火地域や準防火地域以外に、特に特定行政庁が指定する区域（いわゆる法第22条区域）を設けて「屋根の構造の不燃性能」を規定している。
- ・しかし、住宅の不良度の測定が密集地区に対して行われることを前提としていることもあり、本評定項目においては、こうした地域、地区の指定の有無にかかわらず、一律に評定を行うこととしている。
- ・可燃性材料とは、例えば、茅やワラなどが該当する。



屋根材がワラの例

(4) 排水設備

① 雨水

雨樋がないもの：(10点)

【着眼点等】

- ・本評定内容では、雨樋の有無のみに限定して、雨水処理の程度を評定することとしている。
- ・雨樋の有無は外観目視によって判断するが、破損の甚だしいもの又は欠如しているもの等については、「雨樋がない」に該当するものと考えられる。



雨樋が壊れており、機能的には雨樋はないと同様の例

(5) その他

- ・不良度の評定は、評点の合計が100点以上であれば足りることから、まず、「(2)③基礎、土台、柱又ははり」や「(2)⑤屋根」について評定し、その時点で評点の合計が100点以上であれば、他の項目については評定しなくても差し支えない。

【参考】評点シート例と記入例

所在地(住居表示)	調査日	調査員
〇〇町大字△△△-□□	平成23年5月10日	判定 太郎

評定区分	評定項目	評定内容	評点	最高評点		
1	構造一般の程度	①基礎	イ 構造耐力上主要な部分である基礎が玉石であるもの	10	50	
			ロ 構造耐力上主要な部分である基礎がないもの	20		
		②外壁	外壁の構造が粗悪なもの	25		
2	構造の腐朽又は破損の程度	③基礎、土台、柱又ははり	イ 柱が傾斜しているもの、土台又は柱が腐朽し、又は破損しているもの等小修理を要するもの	25	50	
			ロ 基礎に不同沈下のあるもの、柱の傾斜が著しいもの、はりが腐朽し、又は破損しているもの、土台又は柱の数ヶ所に腐朽又は破損があるもの等大修理を要するもの	50		50
			ハ 基礎、土台、柱又ははりの腐朽、破損又は変形が著しく崩壊の危険のあるもの	100		
		④外壁	イ 外壁の仕上材料の剥落、腐朽又は破損により、下地の露出しているもの	15	100	
			ロ 外壁の仕上材料の剥落、腐朽又は破損により、著しく下地の露出しているもの又は壁体を貫通する穴を生じているもの	25		25
			ハ 基礎、土台、柱又ははりの腐朽、破損又は変形が著しく崩壊の危険のあるもの	100		
		⑤屋根	イ 屋根ぶき材料の一部に剥落又はずれがあり、雨もりのあるもの	15	25	
			ロ 屋根ぶき材料に著しい剥落があるもの、軒の裏板、たる木等が腐朽したもの又は軒のたれ下ったもの	25		25
			ハ 屋根が著しく変形したもの	50		
3	防火上又は避難上の構造の程度	⑥外壁	イ 延焼のおそれのある外壁があるもの	10	50	
			ロ 延焼のおそれのある外壁の壁面数が3以上あるもの	20		
		⑦屋根	屋根が可燃性材料でふかれているもの	10		
4	排水設備	⑧雨水	雨樋がないもの	10	30	

備考)一の評定項目につき該当評定内容が2又は3ある場合においては、当該評定項目についての評点は、該当評定内容に応ずる各評点のうち最も高い評点とする。

合計 120 点

ご回答者自身について **(コロナの影響がなかった2年前の1月時点)**

E. ご回答者の年齢について、あてはまる数字をご記入ください。

(この質問は、現時点【2022年1月】での年齢をお答えください)

歳

(例. もしくは などをご記入ください)

F. ご回答者の住んでいる場所についてご記入ください。

空き家・別荘からご自宅まで車で()分ぐらいかかる(例.90分)

- ① 会津坂下町 ② 河沼郡 ③ 会津若松市 ④ 喜多方市
⑤ その他()都・府・県 ()市・町・村

G. 空き家になる前に住んでいた人とご回答者の関係について、あてはまる番号に○をつけてください(別荘として利用の場合は「④その他」を選択ください)。

- ① 本人・配偶者 ② 子世代(子、嫁、婿) ③ 孫世代 ④ その他

財産管理やつきあいなど **(コロナの影響がなかった2年前の1月時点)**

H. ご回答者が対象となる空き家、別荘への帰省、来訪する回数について、あてはまる番号に○を付けてください。

- ① 月1回以上 ② 年数回程度 ③ 年1~2回程度 ④ 年1回未満、帰省、来訪なし

I. 空き家・別荘の管理(窓を開ける、家の中に入るなど)について、あてはまる番号について、それぞれ○を付けてください。

- ① 月1回以上 ② 年数回程度 ③ 年1~2回程度 ④ 年1回未満、管理しない

(1. ご回答者世帯が管理 2. 他の人が管理)

財産管理やつきあいなど **(コロナの影響がなかった2年前の1月時点)**

J. 空き家・別荘の草刈りについて、あてはまる番号に、それぞれ○をつけてください。

- ① 夏場など月1回以上 ② 年数回程度 ③ 年1~2回程度 ④ ほとんどしない

(1. ご回答者世帯が管理 2. 他の人が管理)

K. 地区にある農地や屋敷内菜園について、あてはまる番号に○をつけてください。

- ① 農作業をしている(プランターや家庭菜園を含む) ② 農作業は現在していない

L. 地区でのお墓参りについて教えてください

- ① お墓参りはする ② お墓参りはしない(お墓がない、移設したを含む)

M. (地区に住む親戚やご近所への)あいさつ回りについて、あてはまる番号に○をつけてください。

- ① あいさつ回りをすることがある ② あいさつ回りはしない

N. 地区の方の葬儀について、あてはまる番号に○をつけてください。

- ① 葬儀に行くことがある ② 葬儀のおつきあいはない

O. 親戚やご近所との個人的なつきあい(家に上がり、お茶を飲む、会食など)の頻度について、あてはまる番号に○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1-2回程度 ④ つきあいはほとんどない

P. 草刈り、祭りなど地区活動への参加について、あてはまる番号に○をつけてください。

- ① だいたい参加する ② 参加する場合がある ③ ほとんど参加しない

Q. 空き家・別荘の中で楽しむ頻度(くつろぐ、家族団らんなど)について、あてはまる番号に○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1-2回程度 ④ 楽しむことはない

R. 帰省時、屋外で楽しむ頻度(散歩、山歩き、山菜取り、BBQ、釣り、川遊び、山仕事、大工仕事、農作業など)について、あてはまる番号に○をつけてください。

- ① 月1回以上 ② 年数回程度 ③ 年1-2回程度 ④ 楽しむことはない

S. 帰省、来訪する目的のうち、あてはまる番号にすべてに○をつけてください。

※複数回答可

- ① 墓参りのための帰省
- ② 住宅など財産管理のための帰省
- ③ 住宅など財産管理を楽しむ帰省
- ④ 親戚、ご近所・友人とのつきあいのための帰省
- ⑤ 親戚、ご近所・友人とのつきあいを楽しむ帰省
- ⑥ 趣味を楽しんだり、ゆっくりする帰省
- ⑦ その他()

T-1. 空き家、別荘の将来について、あてはまる番号にすべてに○をつけてください。

※複数回答可

- ① 貸しても良い
- ② 売っても良い
- ③ 貸すつもりも売るつもりもない

T-2. 上で③と答えた方に聞きます。「貸すつもり、売るつもりがない」理由を教えてください。

※複数回答可

- ① 帰省時に便利、楽しみ
- ② 将来住むかもしれない
- ③ 先祖代々の家なので
- ④ 手続きが面倒
- ⑤ 荷物の整理が大変
- ⑥ 誰が借りるか不安
- ⑦ その他()

U. 今後、下郷町の空き家バンクに登録してもよいと考えますか、あてはまる番号に○をつけてください。

- ① 空き家バンクに登録してもよい
- ② 空き家バンクに登録するつもりはない
- ③ その他()

V. 今後、空き家を取り壊すつもりですか、あてはまる番号に○をつけてください。

- ① 取り壊すつもり
- ② 取り壊すつもりはない
- ③ その他()

W. 地元で「あれば、参加したいもの、利用したいもの」について、あてはまる番号にすべて○をつけてください。※複数回答可

- ① 地元の人や帰省者との交流イベント
- ② 空き家、別荘管理の相談
- ③ 帰省者向けに、気軽に立ち寄れるカフェや休憩所
- ④ 特に必要ない

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