

PATTERNS OF FARM AND NON-FARM HOUSEHOLD INCOME IN RURAL DEVELOPMENT OF BUTARITARI ISLAND, REPUBLIC OF KIRIBATI

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ARTICLE HISTORY

Received: 25 August 2023 **Revised:** 15 September 2023 **Published:** 25 September 2023

ABSTRACT

Farm and non-farm sectors are prominent activities and universal development tools for alleviating poverty and hardship in rural areas by fostering food security, sources of income, and employment for rural dwellers. Rural development is the approach to empower a specific group of people, poor rural women, and men, to generate their income for themselves and their children more of what they want and need. It typically involves the agricultural subsector and the non-agricultural subsector to streamline activities undertaken to achieve the aforesaid strategies and role of rural development. The study hypothesis affirms that household that engages more in nonfarm activities has a higher income than those who are involved in farming only. The research purposively samples 30 which includes farm and non-farm households using the Taro Yame formula and undertaking descriptive and frequency table to rigorously analyze the two sectors' household income and expenditure. The analysis clearly indicates that nonfarm households receive massive income in comparison with farm households and the reason for this phenomenon is that non-farm households are engaged more in fishing, handicraft, and livestock monetized activities. The issue that hinders the capacity of farming households is the lack of added value, land scarcity, unreliability transportation, and market accessibility which are beyond the farmer's capacity but require government intervention. Notwithstanding these issues, the study will then aim to find a solution to strengthen the farm household by stimulating non-farm activities as a complement to rural development. The findings have enabled the researcher to encourage the non-farm sector to supplement farm income and should be given more priority by the government in the situation of land scarcity and poor agricultural returns in rural development.

Keywords: Rural Development, Farm Household Income, Butaritari Island

CITATION INFORMATION: Namakin, K., & Poungchompu, S. (2023). Patterns of Farm and Non-Farm Household Income in Rural Development of Butaritari Island, Republic of Kiribati. *Procedia of Multidisciplinary Research*, 1(9), 42.

INTRODUCTION

Rural development is composed of farm and nonfarm subsectors that are involved in the role of improving rural quality of life. As stated, the definition of rural development is a strategy to inspire a specific group of people, poor rural women, and men, to earn more income for their family needs and wants. It involves helping the poorest and peasants who are still seeking for better living than those who are controlling more of the benefits in rural development. The group consisted of peasants, tenants, and those who had less land-owning. Typically, rural development targets farm and nonfarm farmers as the main tool to alleviate poverty and the main source of income in rural areas. The two sectors help diversify household income and fulfill household consumption needs for sustainable livelihood. Income growth and the ability to reduce rural poverty come from Farm or non-farm activities (Amanze, J. O., 2015). Individuals and households depend on various sources to create a living through production and services such as farming, local art, small median enterprises, trading, and transfers (grants and remittances) which are often the backbone of rural people's livelihood. (Muhammad Israr, 2017). However, to alleviate poverty and improve rural well-being, efforts should be directed towards the promotion of rural welfare and require an integrated plan in agriculture activities. (Ana Damena).

Additionally, in the Pacific Islands like Kiribati, Agriculture is an imperative sector for Pacific Island countries, particularly for its contributions to the livelihoods of the population, GDP, and food security. With a focus on the significance of agriculture in rural development and elevated effort to alleviate poverty, the Kiribati Government launched the Kiribati agriculture strategy which aims to encourage agricultural production in order to increase national income along with household income which in return helps alleviate poverty, enhance food security, nutrition and health standard and biosecurity for Kiribati people (Ministry of Environment Land Agriculture Development, 2020). The government is also strengthening the domestic supply chain to enhance the ability of non-agricultural production and participation of women, men, the disabled, and youth for the welfare of the population and rural sectors. (Ministry of Commerce, Industry and Cooperatives, 2017). Moreover, Kiribati's outer islands people rely highly on copra as a source of income and fishing for main meat, however, agricultural activities are arduous in Kiribati because of infertile soil conditions and scarce water on the islands. The impact of climate change is destroying and preventing the expansion of agricultural production. Non-farm activities on the other hand are mainly on fishing and handicraft which are the highest source of income in Kiribati but limited capacity for added value and product diversification.

In reference to the Butaritari-Social-and-Economic-Report (Ministry of Internal and Social Affairs, 2008) the subsistence economy on this island is where people perform local activities to meet their needs for security and future survival and have no sense to accumulate wealth but as long as to ensure future survival. People depend on subsistence activities such as fishing, toddy cutting, food crops planting and harvesting mainly coconut, pandanus, breadfruit, and bwabwai (giant taro), handicraft, making thatch, rolling string, collecting firewood, making fish nets, cleaning, washing, cooking and building local houses. (National Statistics Office Staff and contract workers, 2020) confirmed that Butaritari received 588 households active in agriculture, 473 households growing crops, 561 raising livestock, 408 engaged in fishing activities, and 318 involved in handicraft activity. Nevertheless, agriculture activities are sometimes unsuccessful due to the remoteness of islands, high freight cost, lack of equipment, and transportation issues that limit the potential for exporting the product.

Notwithstanding the difficulties of agriculture, there is a possibility that non-farm activities can help address the issue by boosting the capacity of farm households by providing various monetized activities to increase productivity and add more income to enable them to cover their expenses on basic needs independently without relying on government social support. In

addition, part of rural development is to stimulate self-reliance at an individual level to complement the execution of these two sectors. Regarding poor infrastructure, this is beyond the dweller's capacity, therefore the government should intervene to reform transportation and market accessibility. The research question includes; what are the main farm and non-farm activities executed in this area? What are the differences between the two sectors in terms of income and expenditure? The purpose of the study is to scrutinize the farm and non-farm activities and analyze their income and expenditure to determine the distinction and provide the result that supports the assumption that household who engages more in nonfarm activities has a higher income return than those who are involved in farming activity only. In addition to that, the study aims to stimulate non-farm activities as a complement to farm activity in rural development in the case of land scarcity and poor agriculture returns.

LITERATURE REVIEWS

Farm and Non-farm Activities for Rural Development

Rural Development comes from the specific term "development" which generally refers to a change that is desirable. This development concept is pertinent at all levels ranging from individuals to communities, and the nation as a whole. The term can be conceptualized by the set of societal ambitions such as an increase in real income per capita, improvement of income distribution, political and economic freedom, equal access to resources, education, health care and employment opportunities, and justice. Therefore, rural development is defined specifically as the term rural development connotes the overall development of rural areas with a view to improving the quality of life of rural people. In this sense, it is a comprehensive and multidimensional concept that encompasses with development of agriculture and non-agriculture activities (Singh, 2009). Rural development is one of the key methods to help the nation toward prosperity. It encourages people and the government to work together and improve the nation economically and socially in order to induce rural people toward wealth and better well-being. And it is believed if people are frail, the nation will not be strong too (Phuripanyo, 2016). Furthermore, farm and nonfarm sectors have a significant role in rural development by generating income and increasing consumption in terms of food and nonfood expenditure. Specifically, Farm household activity is the allocation of labor and tasks to generate subsistence and market income. The farm household activity in this research incorporates the farm and nonfarm activities because they have a linkage between them. The production can link these two sectors directly either upstream or downstream. Upstream is the linkage between the farm and nonfarm sectors when the farm induces to non-farm sector to increase its activities through investing in the product and adding capacity for supplying more inputs and services to the former. Nonfarm household uses farm product and applies value-added activity in order to invest and increase the capacity of agro-processing and distribution services in the case of downstream linkage (Reardon). Generally, the Law Insider defines farming activity as the production of crops, fruits, vegetables, ornamental activity, dairy, livestock, poultry, and other forms of domestic and foreign agricultural production. Apparently, non-farming activities are not directly related to agricultural activities but are focused on economic activities such as Trading/hawking, Artisan work, transportation, tailoring, hunting, gathering, fetching small-scale manufacturing, etc. (Narang, n.d.). In addition, the non-farm sector has a significant contribution to poverty alleviation and increasing employment for people who cannot access jobs in the formal sector to fulfill their basic needs such as food, shelter, and clothing (Carl Liedholm, 1989). Generally, rural dwellers are highly dependent on agriculture for living, but when agriculture is incompetent to give satisfactory returns due to natural disasters like unfavorable agro-climatic conditions for instance, people then shift to non-farm activities for survival. (Rantšo, 2016) However, the result of low agricultural production has pushed many people to participate in non-farm agricultural activities to make a

living. (ANTŠO, 2016). One way to tackle credit market limitations and diversify livelihood is through shifting into nonfarm activity (Gbemisola Oseni, 2008). Farming is the main subsistence activity in Kiribati, especially in the northern islands of Makin and Butaritari. The Government has initiated a program of support for farmers on Butaritari to supply their food crops like Banana, pumpkin, taro, cassava, and Kumara in the capital Island. This promotes food security and eases reliance on imported food. Microcredit schemes are available on the islands. Handicrafts and local produce are the famous nonfarm activities that provide income to households and communities but quality has not yet reached the standard, so much be improved to meet domestic and overseas quality standards. However, the inaccessibility of marketing is the issue that be addressed (Government of Kiribati, 2014)

Farm Household Income and Expenditure

Agriculture can provide both income and food for home consumption either from farm employment wages or the sale of farm products. Households that rely on agriculture and non-agriculture for self-provision are related to the purpose of maintaining food security and consumption. (Department for International Development, 2002). Farm household income includes wages, salaries, and money earned through self-employment as well as other sources such as property, pensions, and social transfer and it refers to the flow of economic resources that an individual or household receives over time. On the other hand, food and non-food expenditures are the main farm household expenses for maintaining household daily subsistence living and to meet consumption needs. The household expenditure consists of unpurchased foods such as gardening food like crops and some vegetables produced from the farms, and purchased foods that are not cultivated from the farms, particularly processed and imported food commodities. (B Hartoyo K.). Household income is correlated with household expenditure which infers that higher household income leads to increased household expenditure and the capacity to buy more food and non-food items. The notion of well-being and livelihood are closely connected with household consumption expenditures. The growth of household per capita consumption expenditure has a significant potential to alleviate poverty, improve well-being, and promote human development. In this study, Banana and bumpkin appear to be an important income source for a lower-wealth household in Butaritari, as they earn cash income through selling it to urban areas. Copra cutting is the famous source of cash income for the outer island people throughout Kiribati but not for the people of Butaritari because the climate is mostly rainy and copra needs to dry under the sun while most coconuts are damaged by rats. (Ministry of Internal Affairs, 2012). Furthermore, handicrafts and fishing are famous for nonfarming activities and alternative income sources besides agriculture (National Statistics Office Staff and contract workers, 2020). Remittances from Sea farers and those working overseas have also contributed to the rural household income Additionally, the Government plays an important role in rural development by supplementing households' income in the form of social security and copra subsidy (World Bank, 2005), (National Economic Planning Office, 2021).

From the literature review, the conceptual framework can be drawn as shown in Figure 1.

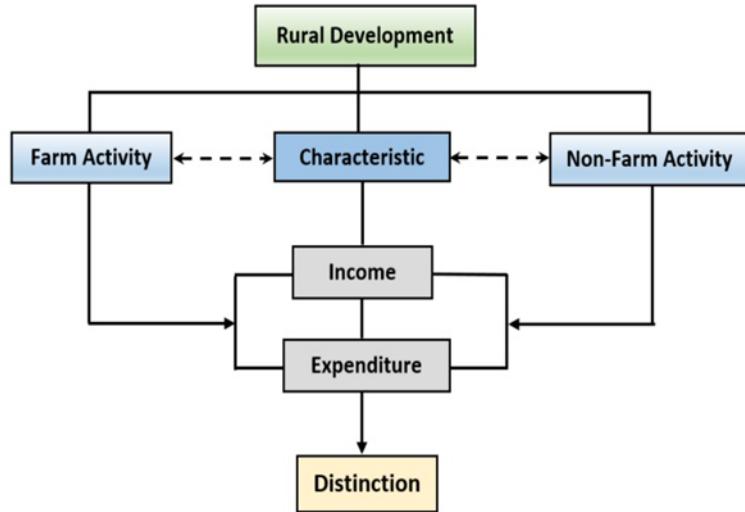


Figure 1 Conceptual Framework

Source: Author Analysis

RESEARCH METHODOLOGY

To determine the distinction between farm and non-farm households, the study analyzes the two households' main farm/non-farm activities, income, and expenditure. The quantitative approach is chosen to analyze the data collected from household surveys using both in-depth interviews and well-defined structural questionnaires with close-ended questions. The study purposively selects 30 farm households using Taro Yama and divides the sample size between the two households. The questionnaires have 5 parts, 1) Farm household characteristics, 2) List of Income sources (Choice form) 3) List of expenditure categories (choice form), 4) Constraints, 5) Recommendation. The data is acquired from 30 heads of household responses through questionnaires and in-depth interviews given to the Village leader, Agriculture assistant, and Social Welfare Officer. It uses descriptive statistics to describe the farm household characteristics and compare means. The table presents the main types of farm and nonfarm activities and sources of household income and expenditure analyzed in percentages using tables and graphs. Hypothesis testing is applicable in this study to determine the differences between the two households in terms of income, expenditure, and other factors.

RESEARCH RESULTS

Respondents' Profiles and Studied Variables

Age In terms of age of the head of household distribution, the majority of clients are over 51 years of age indicating that most farmers or nonfarmers are old. However, 31-40 years are the second dominant age that is also active in farm and nonfarm activities and this can reflect that most young adults and elderly people perceive the value of farming as their means of income and sustenance.

Gender The two households have different gender proportions for both males and females and it has shown in the analysis that the female gender is dominant in farming activities with a proportion of 60% while the non-farm households are more in favor of males with a proportion 66% because it may require more physical strength. In small-scale farms, men find ease in obtaining labor and are able to access and control more resources than women because they have better position in society that give them better access to technical and market information. **Household Size**-The perspective of household size has provided a clear understanding that both sectors have lived in extended families with a majority size of over 6 members. This has evidently been stated in the Butaritari report (Ministry of Internal and social affairs, 2008).

Education level It is apparently found that the population of the household heads in farming activities has completed secondary school and tertiary, however, most non-farm heads completed primary schools

Job Status Farm household has dual jobs as farmer and merchant, and one of the causes of farmers with double work is that the needs of the households are not satisfied by the sales of their agricultural products when they are sold through intermediary merchants, because the average agricultural area they have is relatively narrow (Ajidan Tajidan, 2022). Nonfarm households identified as merchants as the majority have ticked merchants.

Income It has appeared in the result that the majority of both households earned a monthly income of less than and equal to 1000 AUD. The second dominant income is between 1,000 to 2,000 AUD indicating that both households have shared the same level of income every month.

Expenditure In referring to farm households' expenditure, the mass of spending dominantly falls within the range of less than \$500 AUD monthly, nevertheless nonfarm household is slightly different from the expenditure categories where the spending is a bit higher than farming household apparently and mostly fall with the category of \$501 to \$1000 AUD.

Saving As part of the expenditure, each household has an allocation for saving, and thus the data indicate dominant number of households that have savings goes to farm households. The consequence of a tight budget and having high consumption needs lead to no savings. (Bogale Yadeta Lidi, 2017).

Market accessibility Overall, the majority number of households are not accessible to the market and this is confirmed by the agriculture assistance that there is no market on the island except for those who can able to sell their products in the capital island.

Farm and Non-Farm Main Activities

The data summarized the two households' dominant activities that are currently executed in this area. It indicates six types of activities which are classified as Fruit, vegetable crops, livestock, handicrafts, fishing, and small-scale industry. In terms of fruit crops, the island has limited types of fruit crops so it consists particularly of Banana, coconut, pumpkin, and lime. Spinach and Cabbage are the main vegetable crops cultivated mostly on the island. In referring to the main livestock, the pig is the famous farm animal and important meat on this island, especially for special events. It is not used for income earnings but most households preserve it for special events. Weaving mats and other hand-made products are well-known traditional handicrafts throughout the Pacific islands, especially for women. Additionally, fishing is a prominent activity in most developing countries like Kiribati which significantly contributes to the nation's economy and the well-being of rural people simultaneously. Small-scale industries are typically involved in most households in order to supplement more income and this refers to small stores, bakery shops, and garments. The data also depicts that each category has a distinct number of households from both farm and non-farm households respectively. It has shown here that all households from both sectors are involved in fruit crop cultivation as their main source of income. Non-farm households are typically involved in small-scale businesses indicating the second rank and proportion of 47% in total nonfarm households. Vegetable crops ranks in the third position showing 40% of the household currently use this subsistence activity as another income source. The Fishing and Handicrafts shared the same positions and proportion of 13% indicating few farm households engage in such activities. The last rank derived from livestock shows 1 household involved in this category. On the contrary, Non-Farm Households are dominant in both handicraft and fishing activities sharing the same proportion of 60%. Livestock farming in non-farming households is more active than farming households showing 7 households with 47% proportion generate income out from this category. Vegetable crop activity is the least rank undertaken by non-farm households and this makes sense as this should be actively executed by farm households.

Table 1 Farm and Non-Farm Activities

Farm and Non-Farm Activities	Farm Household		Non-Farm Household	
	Number of households	Percent	Number of Households	Percent
1 Fruit crops	15	100%	15	100%
2 Vegetable crops	6	40%	2	13%
3 Livestock	1	6%	7	47%
4 Handicraft	2	13%	9	60%
5 Fishing	2	13%	9	60%
6 Small scale industry	7	47%	4	40%

Source: Author Analysis

Farm and Non-Farm Income

The data generally depicts farm and non-farm household income sources and average income earned in a monthly and annual basis. The analysis clearly expresses the distinction between the two households in respect to their total income and allocation of different income categories. Farm Households have higher income from both fruit and small-scale industry implying that most households actively engage in these dual categories. Non-farm Household on the other hand indicates good progress in fruit crops, handicraft, fishing, and Livestock, hence receiving a higher income than farm household. Table 2 highlights all income sources with respective percentages.

Table 2 Farm and Non-Farm Income

Income sources	Farm Household			Nonfarm Household		
	Mean	Mean	Percent	Mean	Mean	Percent
	Monthly Income	Annual Income		Monthly Income	Annual Income	
Fruit crops	329.33	3951.96	62%	1323.33	15880	51%
Vegetable crops	46.67	560.04	9%	13.33	160	0%
Livestock	4	48	0%	206.67	2480	8%
Handicraft	12	144	2%	366.67	4400	14%
Fishing	5.33	63.96	1%	513.33	6160	20%
Small scale industry	137.33	1647.96	26%	176.67	2120	7%
			100%			100%

Source: Author Analysis

Analyzing the two household's expenditures has evidently shown the main priority expenditures undertaken in this village and these comprise food consumption, education, religious commitment, transportation, and Health. Both households have slightly similar expenditures incurred for religious commitment and education. Non-farm Household has far higher expenditure on transportation than farm household. Overall, the data confirms that Non-farm Household has tremendous expenses in comparison with farm household for these categories and this is explicitly indicated in table 3.

Table 3 Farm and Nonfarm Household Expenditure

Main Expenditure categories	Farm Household			Non-farm Household		
	Mean	Mean	Percent	Mean	Mean	
	Monthly	Annual		Monthly	Annual	
Food consumption	53.33	639.96	17%	126.67	1520	18%
Education	106.67	1280.04	34%	133.33	1600	20%
Religious Commitment	153.33	1839.96	48%	140	1680	20%
Transportation	1.33	15.96	0%	275.33	3304	40%
Health	3.33	39.96	1%	13.33	160	2%
			100%			100%

Source: Author Analysis

DISCUSSION & CONCLUSION

Through scrutinizing the outcome of analyzing the farm households' income and expenditure, the research found through descriptive data that most respondents are old adults with dominant men and ages of over 61 years. Men are dominant because they find it easy to obtain labor and access and control resources (Cheryl R. Doss, 2000), and old farmers are dominant in farming activity because they want to maintain their farming identity and ability to continue to draw on the symbolic capital of their farms and their farming history. (Riley, 2016). The majority of household heads finished secondary and primary schools and undertook dual jobs; farmer and merchant. Most households live with 6 family members with a majority monthly income of less than equal to 1000AUD. The mass of household expenditure falls within the range of 500 to 1000AUD every month which outweighs the amount of income, and in consequence, few households have savings. Moreover, most farm households are inaccessible to the market and credit which is why households receive less income. Analyzing the two sectors enables the research to extract the core activities that help accelerate these two households' income sectors. Apparently, the result indicates six types of prominent activities which classify as Fruit, vegetable crops, livestock, handicrafts, fishing, and small-scale industry. Overall, 100% of the total households undertake fruit crops as part of subsistence activity while the two sectors have different levels of commitment to other activities. Crop production is the prominent commercial activity of any country and has the highest contribution to the domestic product as compared to other sectors (Debashish Hota, 2017). Farm household has a significant role in small-scale industry and vegetable farming, however non-farm household shows dedication to handicraft, fishing, and livestock production. In terms of income, the two sectors have distinct total average incomes indicating non-farm activity is able to generate more income than farming activity. In the case of landless and poor agriculture performance, the swift to non-farming significantly plays an important role in increasing rural household income, and this is consistent with the idea of (Steven Haggblade, 2007). Expenditure on the contrary provides a distinction between the two sectors indicating farm household has less consumption than nonfarm household noting household income is correlated with household expenditure which infers that higher household income leads to increased household expenditure and the capacity to buy more food and non-food items (B Hartoyo K. D., 2021). With the aforementioned result, the researcher recommends the government intervene and stimulate more nonfarm activities with complement farming in rural areas and address current issues that hinder rural household diversification in order to improve the well-being of rural people.

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Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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