A Study of Tourism Revenue Multipliers and Leakage Affecting Sustainable Community Incomes: A Case Study of Sai Noi Homestay Ecotourism Village, Phra Nakhon Si Ayutthaya Province, Thailand

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ABSTRACT

This mixed-method research was conducted in two phases with four main objectives. Phase 1 employed quantitative methods to analyze tourism income data from 2020 to 2022, aiming to: 1) analyze tourism multipliers affecting residents' income, 2) study income leakage in the tourism community through input-output models, and 3) examine community members' savings behavior. Survey data were collected from 25 key community stakeholders, including local leaders and tourism-related operators. Phase 2 utilized qualitative methods, including interviews and group discussions with 6 community stakeholders, to 4) develop sustainable recommendations for increasing tourism income. Data analysis included input-output modeling, multiplier and leakage calculations, descriptive statistics, and content analysis. Results showed the village's income multiplier of 1.7194 generated an economic impact of 7,970,490 baht from tourism. This indicates significant economic benefits received by the village from tourism in terms of high monetary benefits. Tourist spending produced more direct than indirect income, with food and beverage services generating the highest revenue. The production activities' leakage multiplier of 1.0541 resulted in a total income leakage of 259,360 baht, with 53.88% from food and beverage services. The average propensity to save (APS) of 0.1204 indicated villagers' income exceeded consumption spending, enabling savings primarily through savings bonds and Government Savings Bank bonds for emergencies. Recommendations for increasing

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sustainable tourism revenue focused on four areas: 1) community-based tourism management, 2) community engagement, 3) tourism resources, and 4) economics and supply chain management within the community.

Keywords: tourism multiplier, income leakage, input-output analysis, community-based homestay, economic sustainability

Background and Significance of the Research Problem

The National Tourism Development Plan No. 3 (2023-2027) focuses on developing tourism that highlighting the positive impacts that Thai citizens and tourists can mutually benefit from, especially in terms of economic impacts or income generation. Attracting high-quality tourists (Ministry of Tourism and Sports, 2022). This policy has led to practical strategies that resulted in an increased number of tourists traveling to Thailand. A comparison between 2022 and 2023 shows an increase in tourist numbers by 152.40%, while tourism revenue increased by 100.44%. Although the number of tourists entering the country has increased significantly, this does not reflect that tourism revenue is being equitably distributed among various communities, which has led to the implementation of practical strategies and a genuine distribution of income into the local economy.

When the government implements concrete policies to drive economic growth through tourism, with the aim of generating income for the local economy, community-based tourism including homestay accommodations emerges as a viable strategy for income distribution and one of the most sustainable approaches. The primary revenue generated from tourist spending circulates within the community, directly benefiting local residents and contributing to the overall well-being of the area.

The tourism multiplier effect is employed to assess the microeconomic impacts on local communities. Specifically, it measures both direct and indirect income distribution resulting from the development of tourism villages (Karyatun et al., 2020). These benefits arise from the inflow of tourist expenditures into local businesses, as visitors require various goods and services, such as accommodations, knowledge-based activities, and souvenirs. When residents can meet these demands, economic activities are stimulated within the community, leading to local economic benefits. However, not all villages can fulfill tourists' needs, and some transactions occur outside the community. This economic phenomenon is known as the leakage effect, where a portion of consumer spending does not stay in the local economy (Karyatun et al., 2020),

reducing the circulation of money within the village. This economic impact offers a valuable opportunity for researchers to explore the relationship between tourism and economic growth in local communities.

In the context of driving the local economy, community-based tourism in the form of "homestays" represents a potential approach to sustainably distribute income to the communities. Sai Noi Homestay Ecotourism Village, Phra Nakhon Si Ayutthaya Province, is an example of a community-run cultural tourism destination, reflecting the richness of diverse cultural capital. It also has been certified with the Thailand Homestay Standard since 2009, which elevated the community accommodations to meet the expectations of the tourists. Furthermore. This initiative raises the standards of sustainable community-based tourism.

This research aims to study the income generated from tourism in Sai Noi Homestay Ecotourism Village. It specifically examines the tourism multiplier that impacts the income of the residents in Sai Noi Homestay Ecotourism Village, focusing on both direct and indirect effects through the community's consumption spending and induced effects. Additionally, the study investigates revenue leakage from tourism. The results of this study will provide critical information to help the tourism village manage resources and reduce revenue leakage, ensuring that the community's economy grows sustainably and becomes genuinely strong from within.

Research Objectives

This study was conducted in two phases with the following objectives. Phase 1 aimed to: 1) analyze tourism multipliers affecting residents' income, 2) study income leakage in the tourism community through input-output models, and 3) examine community members' savings behavior. Phase 2 aimed to 4) develop sustainable recommendations for increasing tourism income.

Literature Review

Tourism Multiplier

The multiplier theory is derived from Keynesian economic concepts, which state that changes in autonomous expenditure led to exponential changes in income levels (Kulprasit, 2017). The multiplier theory in economics explains how an initial increase in spending generates a chain reaction of income and consumption throughout the economy. When one individual spends, that expenditure becomes income for another, who then spends a portion of it, creating further income in subsequent rounds. However, as part of each income is saved, the magnitude of spending decreases with each round. This process continues until the successive income

effects diminish and approach zero. The multiplier effect concludes when the total savings equal the initial expenditure. Each round of spending leads to increased output in the business sector, and the sum of this output reflects the total increase in national income. Therefore, the multiplier illustrates how initial expenditures can amplify economic activity beyond their original value. (Mingmaninakin, 2016). In this study, tourist spending generates income for village residents, which is subsequently re-spent in successive rounds, stimulating local economic activity. As part of the income is saved in each round, the spending impact diminishes over time. This reflects the multiplier effect, where initial tourist expenditures lead to broader economic growth through repeated cycles of income circulation and partial savings.

The tourism multiplier is a concept used to measure the economic impact of tourist spending. This spending generates primary income for tourism-related businesses. These businesses then use their income to purchase factors of production, creating a secondary income that is distributed to local people. When these individuals spend their income within the economy, it generates a continuous impact, known as the "induced effect" (Khaosa-at et al., 2013).

Analysis of the Input-Output Model

Leontief (1966) described the input-output model as an important tool that illustrates the relationships between production and the distribution of outputs of goods and services across various sectors of the economy, such as agriculture, industry, transportation, and services. The key assumptions are: (1) The use of inputs in each production sector is directly proportional to the value of the output; (2) Each sector produces only one type of goods, and all units of that goods have the same characteristics; (3) Inputs cannot be substituted for one another; and (4) The use of intermediate inputs has a constant proportion according to the technical coefficients of production.

The input-output model is a method for organizing a country's economic activities by categorizing those activities according to the type of production sector or industry and systematically arranging the economic activities of the country, distinguishing them into two main groups: intermediate inputs and primary inputs, such as labor and capital. This helps illustrate the production relationships between different sectors of the economy, including the distribution of goods to final consumers (final demand) and the use of inputs for continuous production (Office of the National Economic and Social Development Council, 1995). This study utilizes tourism sector data from the 26×26 production and input-output table of the Central Chao Phraya River Basin Tourism Development Zone for the year 2016 (Ministry of Tourism and Sports, 2017) to analyze the overall economic impact of tourism. The use of input-output tables

is an appropriate technique for estimating the total effects of tourism through the calculation of multiplier values (Mazumder et al., 2011, as cited in Nuryadin & Purwiyanta, 2023).

Savings

Keynes' theory of consumption and saving (Keynes 1939, cited in Mingmaninakin, 2016) asserts that disposable income is the primary determinant of both consumption and saving behavior. In the household sector, income earned from selling factors of production to the business sector is allocated to consumption of goods and services, while the remaining portion constitutes savings. This fundamental relationship can be expressed as $Yd = C + S$ or equivalently $S = Yd - C$, where Yd is disposable income, C is consumption expenditure, and S is saving (Kulprasit, 2017). Saving behavior can be further analyzed using the Average Propensity to Save (APS), defined as the ratio of savings to disposable income $APS = S / Yd$. This ratio indicates the portion of disposable income that households allocate to savings (Kulprasit, 2017). Saving behavior can be analyzed through the relationship between the average propensity to consume (APC) and the average propensity to save (APS), both of which are components of household disposable income. If the sum of consumption and saving equals total disposable income, then APC and APS together must equal one. Economic theory posits that as an individual's income increases, consumption also rises, but at a slower rate than income growth. Consequently, APC decreases while APS increases, indicating a higher tendency to save at higher income levels. This dynamic underscore the critical role of income adequacy in promoting savings and achieving household financial stability (Tatirangsansuk, 2016).

Related Research

From the review of related research, it is evident that various dimensions of tourism and the economic impacts associated with tourism, particularly regarding the tourism multiplier and income leakage, have been studied. Many points regarding income distribution and income leakage are found to be consistent. For instance, research by Thammasat University Research and Consultation Institute (2016) found that the tourism income multiplier in special areas is equal to 2.09, and the income distribution through links with local businesses is higher than that of general tourism operators. This conclusion is consistent with the study by Karyatun et al. (2020), which examined tourism villages in Indonesia, finding that the average spending of tourists leads to an increase in community income with a tourism income multiplier of 2.57, indicating that tourism significantly boosts local income. However, there is an income leakage of approximately 6.27% due to reliance on external resources such as fuel and raw materials from outside the area. Lukoseviciute et al. (2022) studied coastal tourism in Portugal and found

that the income multiplier is only 0.72, which is lower than other research findings, indicating a lesser economic impact on the local area. Nonetheless, visiting tourists generate income for local employment at 52%, particularly through local guiding and the use of local raw materials, which helps reduce income leakage. This reflects that fully utilizing local resources plays a crucial role in adding value to the locality.

The research by Arintoko et al. (2020) studied tourist villages in Indonesia, focusing on developing integrated strategies that promote cooperation among various sectors, including local governments and the private sectors. This strategy aligns with other research indicating that community development based on tourism can lead to increased income and reduced income leakage if developed systematically and local resources are being used appropriately (Phonyothi et al., 2022; Amatayakul, 2022).

Related research on saving behavior has found that the relationship between household income and consumption expenditure in Phitsanulok Province is statistically significant at the 0.0037 level. This results in an average propensity to save (APS) of 0.5275, while the average propensity to consume (APC) is 0.4725. These findings indicate a high level of saving behavior among individuals, reflecting a trend toward saving or wealth accumulation, particularly during periods when income exceeds expenditure (Johnjun, 2020).

Sustainable tourism income generation has been found to depend on the development of human resource capacity for effective community-based tourism management. This includes training programs designed to enhance the knowledge and skills of community members in tourism operations and management (Khamkerd et al., 2021). Youth engagement is also vital to preserve local knowledge, such as through community interpreter training programs (Phonyothi et al., 2022). Promoting local arts and culture via regular festivals helps attract tourists and maintain traditional heritage (Arintoko et al., 2020). In addition, community members should participate in collaborative management, product development, and marketing based on their skills. As these are community-made products, collective efforts can enhance tourism and generate income. Increasing linkages within the tourism supply chain is essential for equitable income distribution at the village level (Amatayakul, 2022).

A review of the relevant research highlights the importance of analyzing the tourism income multiplier and local consumption. Tourism that utilizes local resources and reduces income leakage will have a positive impact on the local economy and contribute to sustainable community development.
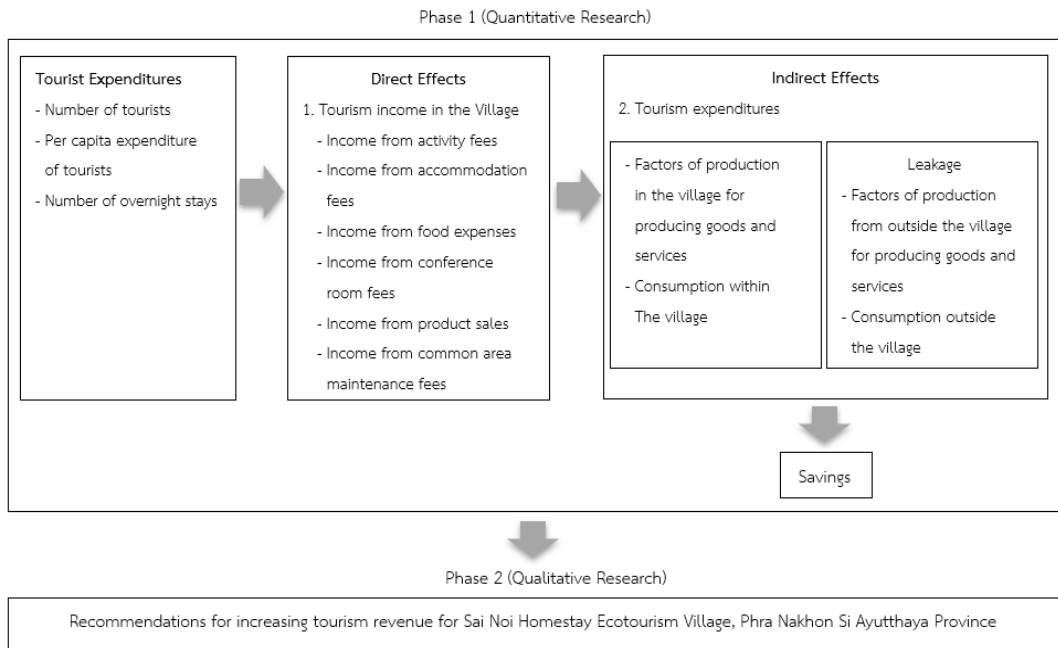
Figure 1 Research Framework

Research Methodology

 Research Design

  This study was conducted in two phases, employing both quantitative and qualitative approaches as follows:

  1. Phase 1: Quantitative Research

   This phase focuses on collecting quantitative data regarding the expenses and savings behaviors of the residents in Sai Noi Homestay Ecotourism Village. Data is gathered through surveys to analyze the tourism multipliers and income leakage from tourism. Additionally, it examines the community's savings behavior during the period from 2020 to 2022. Survey data were collected from 25 purposively selected respondents, including key community stakeholders such as the president, vice president, community committee members, homestay operators, local shop owners, and representatives from various learning activity bases. Although the sample size is modest, it is considered appropriate for a context-specific study focusing on a clearly bounded tourism community. In-depth community-based research benefits from a focus on understanding the dynamics of a specific setting, rather than requiring large samples (Yin, 2018). The purposive sampling approach ensured that respondents had direct engagement with the community's tourism economy. The collected data is then analyzed for direct, indirect, and

induced effects to study the impact of tourism on the community's economy. This analysis also includes calculations of the tourism multiplier and identification of income leakage factors affecting the village's economic sustainability.

2. Phase 2: Qualitative Research

After analyzing the quantitative data in Phase 1, the research findings are used to develop discussion questions for focus group discussions. 6 participants, who play significant roles in the tourism community, are purposively selected to ensure that the information aligns with the study's objectives (Vallakitkasemsakul, 2010). This phase aims to draw conclusions and develop feasible recommendations for sustainably increasing the income of Sai Noi Homestay Ecotourism Village.

Research Instruments

The data collection instruments for this study were designed to align with the research objectives and were developed in two phases. In Phase 1, a structured survey was employed to gather quantitative data on household expenses and savings behavior among community members. The instrument comprised 14 numerical items capturing spending values on goods and services both within and outside the community, as well as items collecting data on savings value and patterns. Additionally, a 5-point rating scale survey was used to assess the purposes of savings. The instrument's content validity was evaluated by three experts in economics and business administration. The experts assessed the relevance of each item using the Index of Item-Objective Congruence (IOC), with resulting scores ranging from 0.67 to 1.00, which considered acceptable (Rovinelli & Hambleton, 1977, cited in Tuntavanitch & Jindasri, 2018).

In Phase 2, a semi-structured interview protocol was developed to guide focus group discussions with key stakeholders. The protocol included nine core questions, such as increasing the number of tourists, encouraging overnight stays, and boosting income from community activities and product sales. To ensure trustworthiness, the interview questions were constructed based on both the research objectives and relevant literature. Content validity was established through expert review by three experts in economics and business administration. A pilot interview with a stakeholder from a similar community was conducted to examine the clarity, flow, and contextual relevance of the questions. Feedback from the pilot session was used to make minor revisions to improve the comprehensibility and alignment of the instrument with the study objectives.

Data Analysis

In Phase 1, quantitative data analysis was conducted to address the first three research objectives. To respond to Objective 1, analyzing tourism multipliers affecting residents' income, four methods were applied. First, tourist spending analysis involved calculating the average daily

spending per tourist and their length of stay to determine expenditure distribution across categories and identify spending trends in the community. Second, economic impact analysis employed the input-output model of the Chao Phraya River tourism area was applied to evaluate the direct and indirect impacts on community income (Hewings, 1985). Third, the Leontief Inverse Matrix was used to assess how tourism revenue circulates across sectors within the community, offering insights into the tourism multiplier effect (Pao, 2005). The formulation is $X = (I-A)^{-1} F$, where X is multiplier tourism; I is identity matrix; A is coefficients of the Input-Output value; $(I-A)^{-1}$ is inverse matrix; F is final demand. Fourth, multiplier coefficient analysis was carried out using value-added coefficients based on Hewings' (1985) formula, The analysis employs the input-output coefficient table of the tourism sector for the Central Chao Phraya River Basin Tourism Development Zone in 2016, comprising 26×26 production sectors, derived from the Tourism Satellite Account (TSA) Development and National Tourism Accounting System Project (Ministry of Tourism and Sports, 2017). The input coefficients are calculated by inverting the matrix of intermediate input coefficients within the village economy. This computation requires the use of the Octave software for matrix inversion and related calculations.

To address Objective 2, studying income leakage in the tourism community, the analysis focused on calculating the leakage multiplier using import coefficients and values from the inverse matrix to quantify the community's dependence on external inputs. To address Objective 3, examining the community's savings behavior, the Average Propensity to Save (APS) was calculated to explore the relationship between income, savings, and investment within the community (Kulprasit, 2017).

In Phase 2, qualitative data from interviews and group discussions were analyzed through content analysis to address Objective 4, developing sustainable recommendations for increasing tourism income. This approach enabled the identification of key themes and practical suggestions from stakeholders, contributing to contextually grounded strategies for sustainable community development.

Results

Phase 1 Findings: Quantitative Research

1. Analysis of Results of Tourism Multipliers Affecting the Village Income

In analyzing the expenses of tourists and their effects on village income, the average expenditure per person and the average length of stay were calculated. This helped determine

the total tourism-related expenses in the village, categorized into 6 main areas including accommodation, food and beverage/snacks, goods and souvenirs, learning activities/instructors, venue/meeting room service fees, and other services, including venue/meeting room fees and transportation. The detailed breakdown of these expenditures can be seen in Table 1.

Table 1 Tourist Data, Average Expenditure per Person, and Average Length of Stay in the Homestay Sai Noi Community, Phra Nakhon Si Ayutthaya, 2020-2022

Details		2020	2021	2022
Number of Tourists	Total (people)	1,970	509	1,824
	Change Rate (%)	-16.50	-74.26	259.76
Average Expenditure per Person	Baht per person per day	921.37	246.37	283.72
	Change Rate (%)	230.25	-73.26	15.16
Average Length of Stay	Days per person	0.4	1.48	1.29

The result found that tourist data and average expenditure per person between 2020 and 2022. The comparison of the change rate in the number of tourists between 2021 and 2022 showed an increase of 259.76%, while the average expenditure per person also rose by 15.16%. This increase occurred as the COVID-19 pandemic began to ease, along with the government measures promoting tourism. The results showed that the village has resources and is always prepared to accommodate tourists, allowing for an immediate response to the influx of visitors.

The input-output models analyze the impacts of the tourism multiplier by tracking the initial spending movements related to tourism through various activities in the village. The results indicate that the income multiplier for the village is 1.7194. Therefore, when assessing the economic impacts of tourism in the village over the 3 years, the total value amounts to 7,970.49 thousand baht. It can be concluded that the high value of tourism multipliers leads to positive economic impacts from tourism in the village. The financial benefits in the form of monetary benefits that the village received from tourism are clearly substantial.

The analysis of tourist spending in the village resulted in a total impact on income over the 3 years of 2,127.91 thousand baht. This is comprised of direct income of 1,867.01 thousand baht, which is equal to 87.74%, and indirect income of 260.89 thousand baht or 12.26%. The spending by tourists in the village generated more direct income than indirect income, as shown in Table 2.

Table 2 Revenue Generated from Tourist Spending in Sai Noi Homestay Ecotourism Village,
Phra Nakhon Si Ayutthaya Province (2020-2022)

The Results of Tourist Spending	Income Generated from Tourist Spending							
	2020		2021		2022		Total	
	thousand baht	%	thousand baht	%	thousand baht	%	thousand baht	%
Direct Income Impact	926.55	88.26	195.07	85.70	745.39	87.64	1,867.01	87.74
Indirect Income Impact	123.22	11.74	32.56	14.30	105.12	12.36	260.89	12.26
Total	1,049.76	100.00	227.63	100.00	850.51	100.00	2,127.91	100.00

Additionally, it was found that the spending of the tourists in the village can generate income in production activities over the 3 years, with the highest revenue coming from food and beverage services, amounting to 622.36 thousand baht or 29.25%. The second highest revenue is from other product production activities, totaling 595.70 thousand baht or 27.99%. This is followed by food product production, totaling 505.87 thousand baht, or 23.77%.

2. Study Results on Total Income Leakage from the Tourism Village

The income leakage multiplier in the tourism village, derived from the income spent on purchasing factors of production outside the village (import leakage multiplier) for each production activity from 2020 to 2022, showed that the overall leakage multiplier for all production activities is 1.0541. The production activity with the highest leakage is the food and beverage services, which has a multiplier of 0.3481. The production activity with the lowest leakage is other services, such as venue or meeting room services, with a multiplier of 0.0109, followed by food product production with a multiplier of 0.0316.

The total income that leaked out of the village across all production activities over the 3 years amounted to 259.36 thousand baht. The production activity with the highest leakage is food and beverage services, amounting to 182.57 thousand baht, or 53.88%. The production activity with the least income leakage out of the village is other services, amounting to 0.29 thousand baht, or 0.11%. The lower the income leakage from the village, the greater the circulation of income within the village.

3. Study Results on Savings of the Residents in the Tourism Village

The analysis of savings behavior among the village residents was conducted by determining the average propensity to save (APS). The findings indicate that when the residents receive an additional income of 100 baht from tourism, they save 12.04 baht. This savings behavior suggests that the villagers have an income higher than their expenditure needs, allowing

them to save money. This means that the average propensity to consume (APC), they consume 87.96 baht. The analysis shows that the value of APS is greater than zero, indicating that villagers have a significantly higher income than their expenditure needs, enabling them to save money. At the same time, the high value of APC reflects positively on the economic system, as it indicates strong spending by the villagers, driving the economy both within and outside the community.

Regarding the savings patterns of the village residents, it was found that most of their savings are directed towards purchasing the savings lottery tickets, specifically from the Government Savings Bank and Bank for Agriculture and Agricultural Cooperatives, accounting for 46.85%. This is followed by life insurance purchases at 39.44%, and bank deposits at 6.36%. Overall, the savings levels of the villagers are moderate ($\overline{\mathbf{X}}$= 3.42). When examining the specific purposes of savings, it was found that the villagers prioritize savings for emergency expenses, which has the high ($\overline{\mathbf{X}}$= 4.04).

Phase 2 Findings: Qualitative Research

The results from Phase 1, combined with the findings from focus group discussions in Phase 2, were analyzed by the researchers to develop recommendations for sustainably increasing tourism revenue in Sai Noi Homestay Ecotourism Village. Based on this analysis, 4 key recommendations were identified as follows:

1. Community-Based Tourism Management

The key recommendations include: 1) Establishing programs to transfer knowledge about maintaining standards and community awards to the younger generations. 2) Designing systematic and regular methods for collecting feedback and suggestions from tourists in order to improve management practices and holding focus group meetings committee to address issues and develop management strategies with community members. 3) Developing the knowledge and skills of the community members by encouraging participation in seminars, study visits, and personal development opportunities. 4) Establishing a Memorandum of Understanding (MOU) with educational institutions to collaboratively research and develop community products, enable the community to grow independently and sustainably.

2. Community Engagement

The key recommendations include: 1) Encouraging the villagers to join the tourism committee and holding regular meetings for sharing opinions, such as every month, to collaboratively develop the community's potential. 2) Providing opportunities for younger generations in the community to become more involved in community tourism to prevent the

loss of local knowledge. This could involve knowledge sharing from the participants in the community interpreter training (community tour guides), appointing youth as young community interpreters (young community tour guides).

3. Tourism Resources in the Community

The key recommendations include: 1) Promoting the preservation of arts and culture within the community by emphasizing activities during significant religious days, allowing tourists to participate. 2) Expanding the variety of learning activities by identifying additional activities through brainstorming sessions with the community members. 3) Creating significant check-in points that reflect the community's identity or culture, allowing tourists to take photos and post them on social media, thus promoting the community.

4. Economics and Supply Chain Management in the Community

The key recommendations include: 1) Encouraging homestay hosts to utilize community products and offer them to tourists, such as lemongrass mosquito repellent sprays and soy wax candles. This practice will distribute income within the community and provide tourists with hands-on experiences of local products, which can lead to increased purchasing desire. 2) Promoting community the skilled members to develop and sell products 3) Increasing job opportunities for the community members to boost income by involving them in tourism activities. 4) Increasing more links in the tourism supply chain by increasing the production and service offerings for tourists and developing products that the community is already engaged in, such as herbal drinks. The supply chain starts with farmers cultivating herbs, followed by herbal drink production by the community enterprises, and lastly, the products are offered to the tourists.

Discussion

Phase 1 Discussion of Results: Quantitative Research

1. Tourism Multipliers Affecting the Village Income

The study examined tourist expenditures that affect the village income. Sai Noi Homestay Ecotourism Village is well-prepared and has resources to host tourists year-round, which has enabled it to attract a continuous flow of visitors. The village offers diverse learning-based activities to engage tourists, resulting in higher average spending per visitor and extended overnight stays. This has led to significant economic benefits, with a revenue multiplier value of 1.7194. The economic impact of tourism reached 7,970.49 thousand baht, clearly demonstrating monetary benefits to the village. These findings align with a 2016 study by Thammasat University Research and Consultancy Institute, which reported a tourism income multiplier of 2.09 in

special tourism areas, leading to income distribution and benefits across 1,569 million baht. Similarly, Karyatun et al. (2020) found that the income multiplier of tourism in Indonesian tourist villages was 2.57. This outcome highlights the variety of tourism activities available in the villages. Revenue from tourism depends on the economic capacity of the destination; thus, the more goods and services that meet tourist demands, the higher the income generated.

During the COVID-19 pandemic, the number of tourists in 2021 decreased by 74.26%. However, as the situation began to ease in 2022, the number of tourists surged by 259.76%. The average per capita expenditure also increased by 15.16%, resulting in a tourism multiplier of 1.7194. This growth can be attributed to governmental support for community-based tourism, along with the village's resources, products, services, and overall readiness to accommodate visitors, which enabled a prompt response to the resurgence of tourism. These findings align with the study by Yusroni et al. (2021), which reported that the COVID-19 pandemic negatively impacted tourist spending in Central Java, with a relatively low tourism multiplier of 1.76. These insights highlight the importance of targeted government stimulus policies to increase tourist spending and promote the production of goods and services linked to the tourism sector.

Additionally, the study found that tourist expenditures in the village contributed a total income of 2,127.91 thousand baht, divided into direct income of 1,867.01 thousand baht (87.74%) and indirect income of 260.89 thousand baht (12.26%). This indicates that tourist spending in the village resulted in greater direct income than indirect income. This finding is in line with Karyatun et al. (2020), who found that the income in Indonesian tourism villages was divided into direct and indirect income, totaling 20,550,000 IDR per month, accounting for 38.32% of total income. Indirect income was valued at 13,320,500 IDR per month. The highlighting tourists' significantly contributes to the local economy and genuinely community development.

2. Total Income Leakage from the Tourism Village

The revenue leakage multiplier of Sai Noi Homestay Ecotourism Village is 1.0541, which resulted in a total revenue leakage of 259.36 thousand baht out of the village. The production activity with the highest leakage is food and beverage services, with a multiplier of 0.3481, leading to a revenue leakage of 182.57 thousand baht, or 53.88%. This leakage is due to the need to import intermediate goods such as meat, cooking ingredients, and cooking gas. This finding is consistent with a study by Chaivichayachat (2019), which found that the tourism revenue leakage in the central Chao Phraya River community tourism area for food and beverage services accounted for 29.05%, with meat as a significant intermediate product contributing to the leakage. The production activity with the lowest revenue leakage is other services, such as

venue and meeting room rentals, with a multiplier of 0.0109, resulting in a leakage of only 0.29 thousand baht, or 0.11%. This low leakage is due to the village's own facilities that can accommodate tourists without the need for external resources. This aligns with the study by Karyatun et al. (2020), which reported a tourism revenue leakage of 6.27% in village tourism, primarily related to travel expenses such as fuel and transport services from outside the village while the remaining 93.73% of tourist expenditure occurred within the village. Tourist spending varied based on available activities, indicating that increased in-village activities could lead to higher in-village expenditures and reduced leakage. To reduce income leakage, it is essential to incorporate additional production sectors, such as local products, souvenirs, and experiential learning-based activities for example, Thai herbal learning centers. By utilizing the full range of resources available within the village, these activities can be effectively integrated and aligned with tourist interests. This integration is expected to enhance income circulation within the community and contribute to more sustainable local economic development.

3. Savings Behavior of the Residents in the Tourism Village

In Sai Noi Homestay Ecotourism Village, the study on savings behavior shows the average propensity to save (APS) analysis reveals that when the villagers earn an additional 100 baht from tourism, they save 12.04 baht and spend 87.96 baht. Since the APS value is greater than zero, this indicates that villagers have a higher income than their expenditure needs, allowing them to save money. This is consistent with a study by Johnjun (2020), which found a statistically significant relationship (p=0.0037) between income and household consumption expenditure in Phitsanulok Province. In that study, the APS was 0.5275, while the APC was 0.4725, which will be during the period when income is higher than expenses.

In terms of savings formats in Sai Noi Homestay Ecotourism Village, the villagers primarily save through purchasing savings lottery tickets (46.85%), followed by life insurance (39.44%), and bank deposits (6.36%). This aligns with Lerdsongkram's (2012) study, which observed that employees in real estate development companies predominantly saved through bank deposits (88.89%), with a smaller portion in life insurance and savings lottery tickets (21.43%).

Moreover, a study on savings objectives that the villagers' savings were moderate overall ($\bar{x}$= 3.42). The primary purpose of savings was for emergencies with the high average score ($\bar{x}$= 4.04), which is consistent with Phiansang's (2017), who found that 67.75% of the Marine

Corps Savings and Credit Cooperative members saved for emergencies, and Lerdsongkram's (2012) study, which found that 44.44% saved for emergencies

Phase 2 Discussion of Results: Qualitative Research

Development of Recommendations for Sustainable Tourism Revenue Enhancement in Tourism Village**.** The study focused on generating recommendations to sustainably increase tourism revenue for Sai Noi Homestay Ecotourism Village. The 4 key areas are as follows:

1. Community-Based Tourism Management

For sustainable revenue growth, communities should transfer knowledge on maintaining standards and awards to younger generations to ensure ongoing tourist confidence. Establishing systematic and regular methods for collecting feedback and suggestions from tourists in order to improve management practices. This could include creating satisfaction assessment forms for tourists to complete after each visit and holding focus group meetings for the Sai Noi Homestay Ecotourism Village committee every 1-3 months to address issues and develop management strategies with community members. Skill enhancement through seminars and study visits is essential, aligning with Khamkerd et al. (2021), who emphasized training for tourism management. Additionally, forming MOUs with educational institutions for research and product development can enhance product diversity and service quality. This corresponds with Amatayakul (2022), who highlighted the importance of knowledge-sharing on product design and packaging to attract tourists and increase community income.

2. Community Engagement

Community members should be encouraged to participate as tourism committee members and share their opinions regularly and allow the public to get involved in tourism management planning. This collaborative planning approach mirrors findings by Phonyothi et al. (2022), which revealed that young community members should be involved in community tourism to preserve local knowledge, sharing from the participants in the community interpreter training (community tour guides). This approach is also found in the study of Khamkerd et al. (2021) who found that the new generation in the community or youth should be given opportunities to participate in tourism activities. This could be done by encouraging young people to join the community potential development project to give them the opportunity to join the community interpreter and tourism leadership skills training.

3. Tourism Resources in the Community

Promoting arts, culture, and religious events that encourage tourist participation, such as water pouring on Buddha statues during Songkran or temple fairs, enhances visitor engagement.

This aligns with Arintoko et al. (2020), who emphasized that cultural activities preserve local wisdom and attract tourists. Integrating local customs into tourism provides enriching learning experiences, consistent with Wuttipipattanapong et al. (2023), who found that the integration of various local cultures in tourism activities allows tourists to learn about traditions, customs, and cultures that have been passed down for many generations. Additionally, Sotwitee et al. (2022) highlighted that community-led brainstorming sessions enhance product quality and income generation, while establishing culturally significant check-in points boosts online visibility. Similarly, Phenwansuk (2022) found that attractions reflecting local identity, lifestyle, and traditions strengthen tourism appeal.

4. Economy and Community Supply Chain Management

Encouraging homestay hosts to utilize and showcase local products. Providing tourists with hands-on experiences with these products can further enhance demand for local goods and services. This aligns with Amatayakul (2022) emphasized that community participation in product production, sales, and design development enhances tourism-related income generation. Strengthening links within the tourism supply chain by expanding production services and improving existing products. The process begins with farmers, followed by community enterprises, and extends to tourist services. Enhancing product packaging for longer shelf life can further expand market opportunities. Similarly, Pakpitjarean et al. (2023), who highlighted the potential of tourism across the supply chain, integrating local culture, tourism activities, and high-quality raw materials directly from farmers. Strengthening tourism supply, including food, attractions, accommodations, and transportation, will improve quality standards and promote equitable income distribution within the community.

Suggestions

Suggestions for Applying Research Findings

1. Community Economic Development through Tourism Spending Analysis

Analysis of economic impacts on Sai Noi Homestay Ecotourism Village reveals potential pathways for enhancing community economic development. Specifically, the findings indicate which types of tourist expenditure most significantly affect the overall income. This information can guide the community members in attracting tourists to spend more in these areas, such as purchasing souvenirs or engaging in learning activities. Therefore, continuous collaboration among community members is essential to strengthen local business capacities.

2. Direct and Indirect Income Generation from Tourist Expenditure

Analysis of tourist expenditure reveals a clear impact on both direct and indirect income, as well as spillover benefits to other sectors, such as industry and agriculture. These findings can inform government policies that encourage communities to leverage cultural assets for tourism. Support mechanisms could include funding for homestays, local product innovation, and cultural workshops, along with integrated strategies linking tourism with agriculture and creative industries. Promoting local sourcing of food, crafts, and services would further strengthen grassroots tourism and broaden economic benefits.

Suggestions for Future Research

1. Future research should consider examining the non-monetary benefits. Examples include the sustainable conservation of resources and the knowledge exchange between tourists and community members, which could contribute to new knowledge development for educational purposes and potentially lead to future income.

2. Future research should adopt a longitudinal approach to assess long-term economic impacts and compare multiple ecotourism communities, enhancing understanding of sustainable community-based tourism economics.

3. Future research should consider employing participatory action research (PAR) to deepen community engagement and co-create locally relevant knowledge, while applying Computable General Equilibrium (CGE) models to better analyze tourism's economic impacts and complex interactions within community systems.

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