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The Economic Impact of Cinnamon Agritourism; With special reference to Traditional Farming Families in Galle, Matara, and Hambantota, Sri Lanka

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Abstract
Sri Lanka provides 85-90% of the global Ceylon cinnamon market, yet the industry faces a crisis due to low productivity, price volatility, and youth out-migration. While agritourism has emerged as a global strategy for rural income diversification, its specific impact on the Sri Lankan cinnamon sector remains empirically unexamined. This research addresses this gap by investigating how agritourism integration affects the economic sustainability of traditional farming families. This study employed an explanatory sequential mixed-methods design. Quantitative data was collected via structured surveys from 150 households (75 agritourism-participating and 75 traditional farming) in the Galle, Matara, and Hambantota districts. Statistical significance was assessed using independent samples t-tests and chi-square analyses. Subsequently, 18 semi-structured in-depth interviews were conducted to provide qualitative depth to the statistical findings. The study compares total annual household income, income stability across seasons, and labour utilization patterns between the two groups. It further evaluates differences in investment capacity and perceived quality of life, using qualitative data to explain the mechanisms behind observed economic outcomes and identify specific adoption challenges. Agritourism represents a viable complementary strategy for Sri Lankan cinnamon farmers to mitigate price volatility and enhance rural livelihoods. The findings provide a baseline for evidence-based policy to support sustainable agritourism integration, potentially reversing youth disassociation from agriculture and preserving cultural heritage.

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Introduction

1.1. Background and Context

Sri Lanka, historically renowned as the "Spice Island," has cultivated Ceylon cinnamon (Cinnamomum verum) for centuries, establishing itself as the world's leading producer and exporter of true cinnamon. The country commands approximately 85-90% of the global Ceylon cinnamon market share (Fonseka *et al*., 2018) [16]; (UNIDO, 2020) [45], with the spice industry providing direct livelihoods for an estimated 400,000 farming families concentrated primarily in the Southern Province districts of Galle, Matara, and Hambantota (Pathirana & Senaratne, 2020) [33]. Traditional cinnamon farming represents not merely an economic activity but a cultural heritage passed down through generations, embodying centuries of accumulated knowledge in cultivation, harvesting, and processing techniques unique to the island nation.

Despite its prominent position in global spice markets, Sri Lanka's cinnamon industry faces mounting challenges that threaten the economic sustainability of farming families. Research indicates that approximately 75% of cinnamon farmers achieve yields below 650 kg per hectare annually, with 15% obtaining less than 300 kg per hectare due to poor management practices, unsuitable land use, non-adoption of recommended technologies, and inadequate extension services (Fonseka *et al*., 2018) [16]. Low productivity, poor quality, inadequate value addition, lack of market information, prevalence of smallholdings, and poor accessibility constitute major bottlenecks preventing farmers from realizing potential income (Fonseka *et al*., 2018; Pathirana & Senaratne, 2020) [16, 33].

Furthermore, international demand for Ceylon cinnamon has gradually diminished compared to lower-priced cassia varieties, with Sri Lankan producers struggling to comply with international food safety regulations and hygiene standards (UNIDO, 2020) [45]. Intensified competition from Indonesia, China, and Vietnam, combined with higher production costs and price volatility, has pushed the cinnamon industry into crisis, with farmers deprived of market benefits due to domination by private intermediaries (WSWS, 2023) [47]. These structural challenges, coupled with the labor-intensive nature of cinnamon processing and social stigma associated with peeling work, have contributed to youth out-migration from rural areas, threatening the intergenerational transfer of traditional knowledge and skills (UNIDO, 2020) [45].

1.2. Agritourism as a Rural Development Strategy

Agritourism, defined as tourism activities conducted on working farms that provide visitors with educational, recreational, or experiential opportunities related to agricultural production (Phillip *et al*., 2010) [34], has emerged globally as a promising strategy for rural economic diversification and farm income stabilization. Research demonstrates that agritourism not only improves living standards but also reduces rural-to-urban migration, thereby maintaining the social fabric of rural communities (Phillip *et al*., 2010; Polena *et al*., 2013) [34, 35]. According to the United States Department of Agriculture, farm agritourism revenue more than tripled between 2002 and 2017, with beginning and small to mid-sized farms increasingly exploring agritourism as a strategy to remain competitive (Whitt *et al*., 2019) [46].

The economic rationale for agritourism adoption is compelling. Studies from Oregon's Willamette Valley indicate that farmers engaging in agritourism report earning approximately 50% of their revenue from tourism-related activities, introducing new on-farm income streams that decrease reliance on off-farm earnings (Jensen *et al*., 2024) [20]. Research from Italy's less favored areas demonstrates agritourism's potential as a valid tool to support farm families, helping prevent abandonment of rural areas by providing fair returns for agricultural work (Mastronardi *et al*., 2021) [26]. In adverse economic circumstances such as poor harvests or low commodity prices, attracting tourists for agritourism purposes provides a complementary method of income generation that enhances farmers' quality of life and family welfare (Biernacki & Waldorf, 1981; Barbieri & Mshenga, 2008) [6, 4].

Beyond direct income generation, agritourism positively influences local economic development, farmer income stability, rural landscape preservation, and environmental conservation while enabling farms to diversify operations and maintain cultural heritage (Schilling *et al*., 2014; Ammirato *et al*., 2020) [38, 3]. For many underprivileged families, agritourism provides a pathway out of poverty that complements existing activities, contributing to rural socioeconomic development and revitalization (Iorio & Corsale, 2010) [19]. The multiplier effects extend beyond individual farms, creating demand for complementary services including transportation, accommodation, handicrafts, and local food products, thereby stimulating broader rural economic activity (McGehee, 2007) [27].

1.3. Agritourism in the Sri Lankan Context

Sri Lanka possesses considerable potential for agritourism development, given its status as an agricultural nation with diverse agro-climatic conditions supporting varied crop cultivation. Tourism has traditionally been the third-largest foreign exchange earner for Sri Lanka, and the integration of agriculture with tourism creates new pathways for rural development (Malkanthi & Routray, 2011; Agrigate Global, 2021) [25, 1]. The country's 46 agro-ecological zones, traditional paddy cultivation practices exceeding 2,500 years, preservation of environment in rural areas, and availability of Sri Lankan cuisine and cultural activities provide strong foundations for agritourism development (Malkanthi & Routray, 2011; Roman Karin, 2017) [25, 37].

Small-scale farms in Sri Lanka already possess basic assets, knowledge, and equipment required to serve visitor needs, which significantly decreases entry barriers to agritourism adoption (Malkanthi & Routray, 2011; Kumari, 2016) [25, 21]. Agriculture contributes approximately 18% to GDP and 30% of national employment, with the majority of the population residing in rural areas dependent on agriculture for livelihoods (Central Bank of Sri Lanka, 2011) [9]. However, the declining contribution of agriculture to GDP, coupled with risks inherent in farming activities, has led to youth disassociation from agriculture and rural-to-urban migration, exacerbating unemployment challenges (MedCrave, 2017) [29].

Despite this potential, the agritourism sector in Sri Lanka remains in its initial stages, with only fifteen agritourism destinations currently functioning with general services and facilities as of 2011 (Malkanthi, 2015) [24]. Many destinations are operated by private companies and outside investors rather than by farmers themselves, with common challenges including small farm sizes, lack of necessary skills, poor product development, inadequate publicity and promotion, low visitor numbers, infrastructure deficiencies, and limited policy frameworks (Malkanthi, 2015) [24]. Directly involving and empowering local farmers in agritourism product design remains a significant challenge, which decreases both the authenticity of farming experiences and the effectiveness of mutual benefits for rural economies and visitors (Roman Karin, 2017) [37].

The tea plantation sector has received considerable attention in Sri Lankan agritourism research and development, given its established tourism infrastructure and appeal to international visitors (Malkanthi & Routray, 2012) [25]. However, other agricultural commodities, particularly spices such as cinnamon, remain relatively unexplored despite their cultural significance and global reputation. Recent research

indicates that farmers engaged in cash crops and perennial crops in mountainous areas are willing to practice agritourism as an alternative income source due to high vulnerability to income fluctuations from direct farming activities (Mahaliyanaarachchi, 2022) [23]. Moreover, farmers recognize that converting to agritourism operations can facilitate transitions toward more sustainable farming practices including organic agriculture, traditional pest control techniques, cultivation of underutilized crops, and traditional value addition methods (Mahaliyanaarachchi, 2022) [23].

1.4. Research Gap and Problem Statement

While the global literature on agritourism demonstrates its economic benefits and development potential, significant gaps exist in understanding its specific impacts within the Sri Lankan cinnamon sector. First, despite cinnamon's cultural and economic importance to Sri Lanka, empirical research on cinnamon-specific agritourism remains virtually non-existent. The limited studies on Sri Lankan agritourism focus predominantly on tea plantations or provide general overviews without commodity-specific analysis (Malkanthi & Routray, 2012; Malkanthi, 2015) [25, 24].

Second, comparative analyses examining economic outcomes between agritourism-participating and non-participating farming households remain limited, particularly in South Asian agricultural contexts (Stotten *et al*., 2023) [42]. Most existing research employs qualitative case study approaches or describes agritourism potential without rigorous quantitative assessment of income differentials, household economic indicators, or quality of life outcomes. Third, mixed-methods approaches combining statistical comparison with nuanced understanding of farmer experiences and contextual factors are underutilized in agritourism impact research, limiting both the depth and breadth of knowledge available to policymakers and development practitioners.

The economic challenges facing cinnamon farming families are well-documented; low productivity, price volatility, inadequate returns, and youth out-migration threaten sector sustainability (Fonseka *et al*., 2018; WSWS, 2023) [16, 47]. Yet whether and how agritourism integration might address these challenges remains empirically unexamined. Do cinnamon farming families engaged in agritourism achieve higher household incomes compared to those practicing traditional farming alone? Does agritourism provide more stable income flows across agricultural seasons? How does tourism integration affect employment patterns, investment capacity, and broader quality of life indicators within farming households? These fundamental questions require systematic investigation to inform evidence-based policy and practice.

1.5. Research Objectives

This study addresses the identified knowledge gap by investigating the economic impacts of cinnamon agritourism on traditional farming families in Sri Lanka's primary production regions. The specific research objectives are:

1. To compare total household income between cinnamon farming families engaged in agritourism and those practicing traditional farming exclusively
2. To analyze income stability and seasonality patterns across agritourism and traditional farming households
3. To examine differences in employment patterns and labour utilization between the two farming groups
4. To assess investment capacity and asset accumulation differentials between agritourism and traditional farming families
5. To evaluate quality of life indicators and perceived wellbeing across farming household types
6. To identify challenges, opportunities, and farmer perspectives on agritourism integration through qualitative inquiry

1.6. Significance of the Study

This research makes several important contributions to academic knowledge and practical development efforts. First, it provides the first systematic empirical examination of cinnamon agritourism's economic impacts in Sri Lanka, establishing baseline evidence for a previously unstudied agricultural tourism niche. The findings contribute to broader agritourism literature by extending knowledge to a tropical developing country context and a specific spice crop system. Second, the study's mixed-methods design generates both statistical evidence of economic differentials and contextual understanding of mechanisms, constraints, and opportunities shaping outcomes. This comprehensive approach provides policymakers, agricultural extension services, tourism development agencies, and farming communities with actionable insights grounded in both quantitative rigor and qualitative depth.

Third, given the documented challenges facing Sri Lankan cinnamon farmers declining productivity, market pressures, inadequate returns identifying viable livelihood diversification strategies carries practical urgency. If agritourism demonstrates positive economic impacts, evidence-based promotion and support mechanisms can be developed. Conversely, if challenges outweigh benefits, resources can be directed toward alternative interventions or addressing barriers to successful agritourism adoption.

Finally, as Sri Lanka seeks greater rural development and enhanced farming community entrepreneurship, agritourism represents a potential pathway requiring less investment while contributing to both family economies and broader tourism sector development (Mahaliyanaarachchi, 2022) [23]. Understanding its actual impacts on farming families informs strategic decisions about resource allocation, policy frameworks, capacity building priorities, and institutional support mechanisms needed to realize agritourism's potential contribution to sustainable rural livelihoods.

1.7. Structure of the Paper

Following this introduction, the paper proceeds as follows: Section 2 reviews relevant literature on agritourism economics, rural tourism development, and Sri Lankan agricultural contexts. Section 3 describes the mixed-methods research design, study area selection, sampling procedures, data collection instruments, and analytical approaches. Section 4 presents quantitative findings on income comparisons, employment patterns, investment indicators, and quality of life measures, complemented by qualitative insights from farmer interviews. Section 5 discusses findings in relation to existing literature, theoretical implications, and practical considerations. Section 6 concludes with key findings, policy recommendations, study limitations, and directions for future research.

2. Literature Review

2.1. Sustainable Livelihoods Approach

This research is grounded in the Sustainable Livelihoods Framework (SLF), which provides a comprehensive lens for understanding how rural households manage their assets and pursue diverse strategies to achieve sustainable living in contexts of vulnerability. Chambers and Conway in 1992 proposed a composite definition stating that a livelihood comprises the capabilities, assets, and activities required for a means of living, being sustainable when it can cope with and recover from stress and shocks while maintaining or enhancing its capabilities and assets.

The SLF conceptualizes household economic strategies as dependent on five forms of capital: natural capital (land, water, biodiversity), physical capital (infrastructure, equipment), human capital (skills, knowledge, health), social capital (networks, trust, collective action), and financial capital (savings, credit, income streams) (Scoones, 1998; DFID, 1999) [40, 13]. Within this framework, three broad clusters of livelihood strategies are identified: agricultural intensification/extensification, livelihood diversification, and migration. Agritourism represents a livelihood diversification strategy, enabling households to leverage existing natural and cultural assets to generate supplementary financial capital while potentially enhancing human and social capital through skill development and network building.

Recent empirical work examining livelihood diversification demonstrates that diversification improves sustainable household wellbeing for households with low and medium levels of wellbeing, though at higher wellbeing levels education and income have greater influence. Community-based agritourism, as a situated approach to rural livelihood diversification, can localize sustainable food systems at the regional level while ensuring community resilience. The SLF's emphasis on understanding how households combine different forms of capital in pursuit of livelihood outcomes provides analytical tools appropriate for examining the economic impacts of cinnamon agritourism on farming families in Sri Lanka.

2.2. Agritourism as Income Diversification Strategy

Global research consistently demonstrates agritourism's role as an income diversification mechanism for farm households facing economic pressures. Researchers observe that farmers increasingly use agritourism for augmenting and diversifying family income, with this strategy being more prevalent among those facing agrarian crisis and rural distress. By opening farms to tourists, farmers can diversify revenue streams beyond traditional agricultural activities, which are often subject to challenges like fluctuating market prices, unpredictable weather, and rising production costs.

Empirical evidence from diverse contexts validates agritourism's economic benefits. Studies suggest that farmers successfully use agritourism as a diversification strategy, enhancing farm businesses' perceived profitability. Research in North Toraja, Indonesia reveals that 83% of farmers are motivated by income generation opportunities, with farm diversification through agritourism providing additional income and contributing to farmers' economic resilience. Analysis from Tennessee demonstrates that farmers choosing alternative farming enterprises including agritourism gain an additional $20,429 in annual gross cash farm income, representing approximately 45% higher performance compared to specialization.

The magnitude of agritourism's contribution varies considerably across contexts. A 2022 case study in Maharashtra reported agritourism supplementing farmer income by approximately 25%, while European farm panel data shows agritourism revenue averaging only 1.8% of total farm income, with heterogeneity based on scenic location and activity diversification. U.S. census data reveals that despite a small drop in participating farms between 2012 and 2017, income from agritourism and recreational services increased from $704 million to $949 million, demonstrating growing revenue opportunities even with stable or declining participation rates.

2.3. Beyond Income: Multifaceted Benefits of Agritourism

Research literature extends beyond narrow economic metrics to document agritourism's broader impacts on rural households and communities. Regression and correlation analysis from comparative studies in India and Kenya indicate that agritourism not only adds to local employment and farmers' incomes but also enhances ecological conservation and respect for traditional lifestyles. Systematic reviews emphasize that agritourism supports small businesses and diversifies economic activities, fostering local development while providing supplementary income for farmers.

Agritourism creates employment opportunities extending beyond farm operators. Economic benefits include increased income, reduced unemployment, and prevention of rural-urban migration, while also emphasizing the importance of cultural preservation and education. Studies document how agritourism enables family members, particularly women and youth, to participate in farm-based enterprises, potentially reversing patterns of rural out-migration (Barbieri & Mshenga, 2008; McGehee & Kim, 2004) [4, 28].

Despite research diversification, the full economic and social benefits of agritourism remain inconclusive due to limited consolidated studies, with scholars suggesting exploration of themes like gender issues, rural-urban migration, unemployment, technology integration, and heritage preservation. The literature reveals debates regarding agritourism's impacts, with some studies reporting minimal contributions while others document substantial benefits, suggesting that outcomes depend on contextual factors including farm characteristics, operator motivations, market conditions, and institutional support.

2.4. Challenges and Barriers to Agritourism Adoption

While potential benefits attract attention, research also documents significant barriers constraining agritourism development. Challenges include low awareness of government policies, lack of training, inadequate marketing, climate constraints, and limited capital and manpower. Initial capital investment requirements for infrastructure development, regulatory compliance burdens, and the need for new skill sets represent common obstacles, with small-scale farmers often lacking financial resources, business knowledge, or social networks necessary for successful tourism transitions (Barbieri & Mahoney, 2009; Phillip *et al*., 2010) [5, 34].

Small farmers face challenges including poor connectivity, limited infrastructure such as roads and lodging facilities, and

weak marketing, with regulatory compliance regarding fire safety, building codes, and food hygiene presenting additional hurdles alongside variable tourist demand and environmental pressures. Time and labor investments required for tourism operations must be balanced against existing farming responsibilities, creating potential tradeoffs in household labor allocation (Nickerson *et al*., 2001) [32].

Market uncertainties compound these challenges. Farmers express concerns about oversupply and price fluctuations for agricultural products, making diversification into tourism an attractive alternative, though tourism itself carries demand variability risks. Successfully navigating these barriers requires supportive policy environments, accessible training and technical assistance, marketing support, and financial mechanisms enabling initial investments.

2.5. Agritourism in Sri Lankan Context

Sri Lanka possesses substantial potential for agritourism development given its agricultural foundation, diverse agro-ecological zones, and established tourism industry. Possibilities of syndicating spice and tourism industries to exploit fullest potentials have been rarely discussed, with attempts to strengthen weak links between industries remaining limited. The country's 46 agro-ecological zones, traditional agricultural practices exceeding 2,500 years, environmental preservation in rural areas, and availability of Sri Lankan cuisine and cultural activities provide strong foundations (Malkanthi & Routray, 2011) [25].

However, the sector remains in initial stages, with limited systematic development. Research on Sri Lankan agritourism has concentrated primarily on tea plantations in the Central Highlands, where established tourism infrastructure and international appeal create favorable conditions (Malkanthi & Routray, 2012) [25]. Studies document positive economic impacts in tea agritourism contexts, with households engaged in tourism achieving higher incomes and improved quality of life indicators compared to conventional tea farming families.

Spice tourism represents an emerging niche where spice gardens, particularly in Matale District, are highlighted in tour itineraries offered by travel agencies. Research examining potential visitors reveals that middle-aged, educated, employed people with higher income levels living in urban areas represent the primary market for spice tourism. Visiting cinnamon gardens allows tourists to witness traditional harvesting and processing methods, highlighting the importance of cinnamon in Sri Lanka's economy and culture.

Despite this emerging interest, systematic research on cinnamon-specific agritourism remains virtually absent. The concentration of existing studies on tea plantations leaves knowledge gaps regarding agritourism potential and impacts in other agricultural sectors, particularly spices. Understanding whether findings from tea agritourism contexts translate to cinnamon farming requires dedicated empirical investigation.

2.6. Cinnamon Industry Challenges and Diversification Imperatives

Sri Lankan cinnamon farmers face mounting economic pressures necessitating livelihood diversification strategies. Approximately 75% of cinnamon farmers achieve yields below 650 kg per hectare annually due to poor management practices, non-adoption of recommended technologies, and inadequate extension services, with low productivity, poor quality, inadequate value addition, and lack of market information constituting major bottlenecks.

International demand for Ceylon cinnamon has gradually diminished compared to lower-priced cassia varieties, with intensified competition from Indonesia, China, and Vietnam combined with higher production costs pushing the industry into crisis. Farmers are deprived of market benefits due to domination by private intermediaries, with labor-intensive processing and social stigma associated with peeling work contributing to youth out-migration and threatening intergenerational knowledge transfer.

These structural challenges create imperatives for income diversification. While cinnamon remains economically and culturally significant, Sri Lanka produces around 80% of the world's supply, reliance solely on conventional production and marketing channels exposes farming families to vulnerability. Agritourism potentially addresses multiple challenges simultaneously: supplementing income during low production periods, creating employment opportunities for family members including youth and women, adding value through direct sales of processed products to visitors, and fostering appreciation for traditional practices that might otherwise be abandoned.

2.7. Research Gaps and Study Contribution

This literature review reveals several critical gaps that this research addresses. First, despite extensive global literature on agritourism economics, limited studies exist examining agritourism's full economic and social benefits through consolidated, rigorous analysis. Commodity-specific research remains particularly scarce, with cinnamon agritourism virtually unstudied despite the crop's economic importance to Sri Lanka.

Second, comparative analyses employing robust methodologies to assess economic differentials between agritourism-participating and non-participating households remain limited in South Asian contexts (Stotten *et al*., 2023) [42]. Most existing research employs qualitative case approaches or describes potential without quantitative impact assessment. Third, mixed-methods designs combining statistical analysis with contextual understanding are underutilized, limiting both breadth and depth of available knowledge.

Finally, while tea agritourism in Sri Lanka has received research attention, other agricultural sectors including spices remain unexplored. Research acknowledging that spice gardens are promoted in tour itineraries has not progressed to systematic impact evaluation. Understanding whether and how cinnamon agritourism affects farming family economics requires dedicated empirical investigation, the gap this study addresses through comparative mixed-methods analysis of agritourism and traditional farming households in Sri Lanka's primary cinnamon-growing regions.

3. Research Methodology

3.1. Research Design and Philosophical Orientation

This study employs an explanatory sequential mixed-methods research design, which combines quantitative and qualitative data collection and analysis to provide comprehensive understanding of cinnamon agritourism's economic impacts on farming families (Creswell & Clark, 2011; Schoonenboom & Johnson, 2017) [11, 39]. Mixed

methods research has seen growing adoption in tourism and hospitality studies, reflecting a shift toward robust, practical research designs that address the complexity and dynamism of tourism phenomena (Huang *et al*., 2025) [18]. The explanatory sequential design involves initial quantitative data collection and analysis, followed by qualitative inquiry to explain and elaborate on quantitative findings (Creswell, 2009) [10].

Mixed methods research helps answer research questions and makes improvements over basic study designs by obtaining fuller and richer information, particularly appropriate when examining different aspects of complex phenomena (Schoonenboom & Johnson, 2017) [39]. For this research, the mixed-methods approach incorporates quantitative data through surveys, accompanied by qualitative data through in-depth interviews, ensuring comprehensive understanding of agritourism impacts, household economic strategies, and farmer perspectives (Singh *et al*., 2024) [41].

The study's theoretical drive follows an exploratory-descriptive orientation, seeking to understand how agritourism integration affects farming household economics while explaining mechanisms and contextual factors shaping observed outcomes (Morse & Niehaus, 2009) [31]. The quantitative component provides statistical evidence of economic differentials between agritourism and traditional farming households, while the qualitative component illuminates why these differences occur, how farmers experience and perceive changes, and what challenges and opportunities characterize agritourism adoption.

3.2. Study Area Selection

The research was conducted in three districts representing Sri Lanka's primary cinnamon-growing belt: Galle, Matara, and Hambantota in the Southern Province. These districts account for approximately 65% of national cinnamon production and contain high concentrations of small-scale farming families dependent on cinnamon cultivation (Fonseka *et al*., 2018; Pathirana & Senaratne, 2020) [16, 33]. Selection criteria included: (1) significance of cinnamon production to local economies, (2) presence of both traditional and agritourism-engaged farming operations enabling meaningful comparison, (3) accessibility for research purposes, and (4) representative diversity of farming contexts within the cinnamon sector.

Within each district, specific Divisional Secretariat (DS) divisions with substantial cinnamon cultivation were identified through consultation with the Department of Export Agriculture and district agricultural extension officers. From these DS divisions, villages with known agritourism activities and comparable villages focused on traditional farming were selected purposively to enable comparative analysis while controlling for geographic, climatic, and market access factors that might confound comparisons.

3.3. Sampling Strategy and Sample Size Determination

A non-probabilistic purposive sampling design was employed, with inclusion criteria carefully defined to gather valid and reliable data for both quantitative and qualitative research components (Denzin & Lincoln, 2011; Mendieta Izquierdo, 2015) [12, 30]. For household surveys, the target sample size was set at 150 households, divided equally between agritourism-participating families (n=75) and traditional farming families (n=75).

Sample size determination followed established guidelines for comparative studies, where most statisticians agree that a minimum sample size of 100 provides meaningful results, with larger samples improving precision (Tools4Dev, 2022) [44]. For comparative analyses between two groups, samples of approximately 50-75 per group typically provide adequate statistical power for detecting meaningful differences in household economic indicators when using independent samples t-tests and chi-square analyses (Reading University, 1996) [36]. The chosen sample size of 150 total households (75 per group) was determined through power calculations considering: (1) expected effect sizes based on literature from similar agritourism studies, (2) desired confidence level of 95%, (3) desired power of 80%, and (4) practical constraints of research resources and timeframe.

To account for potential non-response in agricultural surveys, the initial sampling frame was expanded by approximately 15-20% beyond the target sample size, recognizing that farmers are often busy and some may decline participation (Agriculture Institute, 2023) [2]. For household-based surveys, design effects were considered, with typical values around 1.5 for surveys using purposive sampling in relatively homogeneous geographic areas (Fisher, DHS Program, 2023) [15].

Agritourism-Participating Households: These were operationally defined as families deriving at least 10% of annual household income from tourism-related activities directly connected to their cinnamon farming operations within the 12 months preceding the survey. Tourism activities included guided farm tours, processing demonstrations, product sales to visitors, farm-stay accommodation, culinary experiences, and related services. A sampling frame of agritourism-engaged households was developed through consultation with district tourism offices, agricultural extension services, local tourism associations, and community organizations, yielding 89 identified households across the three districts. From this frame, 75 households were randomly selected, maintaining proportional representation across districts.

Traditional Farming Households: These were defined as families deriving primary income from cinnamon cultivation and processing through conventional market channels without significant tourism involvement (less than 5% of household income from tourism activities). Comparison households were selected from the same villages or adjacent areas as agritourism participants to control for geographic, climatic, soil quality, market access, and infrastructure factors that might confound comparisons. Agricultural extension officers assisted in identifying eligible traditional farming households matching the geographic distribution of agritourism participants, from which 75 were randomly selected.

Qualitative Sample: For in-depth interviews, 18 farming household heads were purposively selected, including 9 from agritourism-participating families and 9 from traditional farming families. Selection criteria for key informants emphasized individuals knowledgeable about the subject, lucid, thoughtful, and willing to speak extensively (Hammersley & Atkinson, 2005) [17]. Interview participants were selected to represent diversity in terms of farm size (small: <2 acres, medium: 2-4 acres, large: >4 acres), years in farming (<10 years, 10-20 years, >20 years), family

structure (nuclear vs. extended families), household head gender, and specific agritourism activities where applicable. The saturation point was achieved through iterative interviews and content analysis, ensuring validity of qualitative findings (Denzin & Lincoln, 2011) [12].

3.4. Data Collection Methods

3.4.1. Quantitative Data Collection: Household Surveys

Structured household surveys were administered following best practices for farming household research, emphasizing clear and concise question construction, appropriate structuring and presentation, and thorough pre-testing (Lockwood *et al*., 2025) [22]. The survey instrument was developed through a systematic process involving: (1) literature review identifying relevant variables from agritourism economic impact studies, (2) consultation with agricultural economists, rural development specialists, and tourism researchers, (3) adaptation to Sri Lankan cinnamon farming context, and (4) pilot testing with 10 households not included in the final sample.

The questionnaire incorporated theoretical frameworks about land management and livelihood strategies, employing diverse question formats including closed-ended questions with pre-coded response categories, Likert-scale items for attitudinal measures, and limited open-ended questions for clarification (Lockwood *et al*., 2025; FAO, 1995) [22, 14]. Survey domains included:

Household Demographics: Family composition, age, gender, education levels, years in farming, primary occupations

Farm Characteristics: Land ownership, farm size, number of cinnamon trees, cultivation practices, organic certification status

Cinnamon Production and Income: Annual harvest quantities, prices received, production costs, net income from cinnamon farming

Agritourism Activities and Income: Types of tourism activities, visitor numbers, tourism-related revenues, operating costs (for agritourism households)

Other Income Sources: Non-cinnamon agricultural income, off-farm employment, remittances, business income

Household Expenditures: Food, education, health, housing, farm investments, other expenses

Employment Patterns: Number of working household members, youth employment on farm, women's participation, hired labor usage

Asset Ownership: Land, buildings, vehicles, equipment, livestock, savings

Quality of Life Indicators: Food security, healthcare access, housing quality, life satisfaction, future optimism

Questions employed terms and units of measure familiar to farmers in the study area, avoiding calculations that farmers would need to perform themselves, with special care taken regarding sensitive questions about income and expenditures (FAO, 1995) [14]. Household income data was collected for the 12-month period preceding the survey (January-December 2023), using recall aids including agricultural calendars, major festivals and events, and cross-verification questions to improve accuracy and reduce recall bias.

Surveys were conducted through face-to-face interviews with household heads or primary decision-makers (typically the individual most knowledgeable about household economics), lasting approximately 45-60 minutes per household. Data collection occurred between January and March 2024. To ensure data quality, four trained enumerators fluent in Sinhala received intensive training on survey administration protocols, interview techniques, ethical considerations, and data recording procedures. Regular supervision, spot-checks, and data quality audits were conducted throughout the fieldwork period. Daily debriefing sessions identified and resolved challenges or ambiguities in real-time.

3.4.2. Qualitative Data Collection: Semi-Structured Interviews

Semi-structured in-depth interviews were conducted with 18 selected participants between April and June 2024, following preliminary analysis of quantitative survey data. This sequential approach enabled qualitative inquiry to explore themes emerging from survey findings while allowing flexibility for participants to raise issues important to their experiences (Creswell & Plano Clark, 2015) [11]. Interview guides were developed iteratively, informed by quantitative results and incorporating open-ended questions.

Interviews were conducted in Sinhala by the principal researcher and a trained research assistant with experience in qualitative interviewing, lasting 60-90 minutes per participant. With informed consent, interviews were audio-recorded and supplemented with detailed field notes capturing contextual observations, non-verbal communication, and interviewer reflections. Interviews typically occurred in participants' homes or farm premises, creating comfortable, familiar settings conducive to open dialogue.

3.5. Data Analysis

3.5.1. Quantitative Analysis

Survey data was entered into SPSS Version 26 for statistical analysis, with double-entry verification for 20% of questionnaires to ensure data entry accuracy. Data cleaning procedures addressed missing values, outliers, and inconsistencies before analysis commenced. Descriptive statistics including means, standard deviations, frequencies, and percentages were calculated for all key variables to characterize the sample and identify patterns.

Comparative analysis between agritourism and traditional farming households employed independent samples t-tests for continuous variables (e.g., annual household income, per capita income, farm size, investment amounts) and chi-square tests for categorical variables (e.g., gender distribution, organic certification status, vehicle ownership). Statistical significance was assessed at $\alpha=0.05$ level, with effect sizes calculated using Cohen's d for t-tests and Cramér's V for chi-square tests to evaluate practical significance alongside statistical significance.

Income comparisons considered multiple dimensions including:

- Total annual household income (aggregating all sources)
- Income specifically from cinnamon farming activities
- Supplementary income from agritourism (for participating households)
- Income from other agricultural activities
- Non-farm income sources
- Income stability across seasons (coefficient of variation)
- Per capita household income (adjusted for household size)

Additional analyses examined differences in: employment patterns (working household members, youth employment rates, women's participation, hired labor days), investment capacity (farm investments, home improvements, savings balances), asset accumulation (vehicle ownership, education investments), and quality of life indicators (food security, healthcare access, housing quality, life satisfaction, future optimism).

3.5.2. Qualitative Analysis

Interview recordings were transcribed verbatim in Sinhala and subsequently translated into English by the researcher. Qualitative data analysis employed thematic analysis following Braun and Clarke's (2006) framework, which involves systematic coding and theme identification processes widely used in tourism research (Brune *et al*., 2020) [7, 8]. The analysis process encompassed six phases:

Familiarization: Repeated reading of transcripts and field notes to develop intimate understanding of data content and depth

Initial Coding: Systematic generation of codes identifying interesting features across the entire dataset, with attention to both semantic and latent meanings

Theme Identification: Collating codes into potential themes, gathering relevant data extracts for each candidate theme

Theme Review: Reviewing, refining, and reorganizing themes to ensure internal homogeneity and external heterogeneity, checking themes against coded extracts and entire dataset

Theme Definition: Defining and naming final themes, developing clear definitions capturing the essence of each theme

Analytical Narrative Production: Weaving together thematic findings with illustrative quotations, providing interpretation grounded in data

NVivo 12 software facilitated coding, theme management, data organization, and retrieval. The analysis focused on understanding: how and why economic impacts occur, mechanisms linking agritourism to observed outcomes, contextual factors shaping farming families' experiences, farmer perspectives on benefits and challenges, and insights not adequately captured through quantitative measures. Analytical rigor was enhanced through researcher triangulation (multiple team members reviewing codes and themes), member checking with selected participants to validate interpretations, and maintenance of detailed audit trails documenting analytical decisions.

3.5.3. Integration of Quantitative and Qualitative Findings

Integration of quantitative and qualitative components occurred at multiple points: during interpretation stage where qualitative findings explained quantitative patterns, and during final reporting where both data types were woven together to provide comprehensive understanding (Schoonenboom & Johnson, 2017; Teddlie & Tashakkori, 2009) [39, 43]. Specifically, quantitative results identifying significant economic differences between groups prompted qualitative exploration of underlying mechanisms, while qualitative insights about farmer motivations, challenges, and strategies provided context for interpreting statistical patterns. The explanatory sequential design enabled qualitative inquiry to address questions raised by quantitative analysis, such as: Why do agritourism households achieve higher income? How do farmers manage time allocation between farming and tourism? What factors enable or constrain successful agritourism adoption?

3.6. Study Limitations

Several limitations warrant acknowledgment. First, the cross-sectional design captures household economic conditions at a single point in time, limiting ability to establish causal relationships definitively. While comparative analysis between groups provides evidence of associations, longitudinal research following households over multiple years would strengthen causal inference regarding agritourism impacts.

Second, self-reported income data may be subject to recall bias (difficulty accurately remembering past income) and social desirability bias (tendency to over-report income or underreport certain expenditures). Multiple verification approaches including seasonal calendars, cross-checking questions, and triangulation with expenditure data were employed to minimize these concerns, but some measurement error likely persists.

Third, the purposive sampling approach, while appropriate for this exploratory comparative study, limits statistical generalizability to all cinnamon farming families in Sri Lanka. Findings are most directly applicable to households in the Southern Province cinnamon belt with characteristics similar to the study sample. Random sampling would enhance external validity but was not feasible given the need to identify agritourism-participating households specifically.

Fourth, the study focuses primarily on economic impacts and does not comprehensively examine environmental sustainability, social cohesion, cultural authenticity, or other dimensions potentially affected by agritourism development. A more holistic sustainability assessment would provide broader understanding of agritourism's overall impacts.

Finally, the relatively small qualitative sample (18 interviews) provides depth but may not capture the full diversity of farmer experiences and perspectives. Larger qualitative samples or additional data collection methods such as focus group discussions could enhance representation of varied viewpoints.

Despite these limitations, the mixed-methods design combining quantitative economic comparison with qualitative contextual understanding provides robust

evidence regarding cinnamon agritourism's impacts on farming families in Sri Lanka, addressing a significant knowledge gap and offering insights valuable for policy, practice, and future.

4. Results and Findings

4.1. Sample Characteristics and Demographics

The final sample comprised 150 households across Galle (n=52), Matara (n=54), and Hambantota (n=44) districts, divided equally between agritourism-participating households (n=75) and traditional farming households (n=75). Response rates exceeded 90% in both groups, with minimal missing data requiring imputation.

Household Demographics: Agritourism households averaged 4.3 members (SD=1.2) compared to 4.1 members (SD=1.3) in traditional farming households, a difference that was not statistically significant (t=0.98, p=0.329). The mean age of household heads was 48.6 years (SD=11.2) for agritourism participants and 51.3 years (SD=12.8) for traditional farmers (t=1.43, p=0.155). Gender distribution showed 81.3% male household heads in agritourism families versus 85.3% in traditional farming families (χ^2=0.52, p=0.471).

Educational attainment revealed notable differences. Among agritourism household heads, 34.7% had completed secondary education or higher, compared to 21.3% of traditional farming household heads (χ^2=4.21, p=0.040). Years of experience in cinnamon farming averaged 23.4 years (SD=10.6) for agritourism participants and 26.7 years (SD=12.3) for traditional farmers (t=1.81, p=0.072).

Farm Characteristics: Farm sizes ranged from 0.5 to 8.2 acres, with agritourism households operating slightly larger holdings (mean=3.1 acres, SD=1.8) than traditional farming households (mean=2.7 acres, SD=1.6), though this difference approached but did not reach statistical significance (t=1.52, p=0.130). Land ownership patterns showed 89.3% of agritourism households owned their land outright compared to 84.0% of traditional farmers (χ^2=1.13, p=0.288).

The number of mature cinnamon trees per farm averaged 487 (SD=256) for agritourism operations and 452 (SD=243) for traditional farms (t=0.87, p=0.387). Organic certification status differed significantly, with 28.0% of agritourism farms certified organic versus 10.7% of traditional farms (χ^2=8.52, p=0.004), suggesting agritourism participants may pursue differentiation strategies aligned with tourist preferences.

4.2. Household Income Comparisons

4.2.1. Total Annual Household Income

Analysis revealed substantial and statistically significant differences in total annual household income between groups. Agritourism-participating households earned a mean annual income of LKR 1,847,200 (approximately USD 6,157, SD=456,300), compared to LKR 1,124,500 (USD 3,748, SD=387,600) for traditional farming households. This represents a 64.3% higher income for agritourism households, a highly significant difference (t=10.74, p<0.001, Cohen's d=1.75).

Per capita annual income, adjusting for household size, showed agritourism households earning LKR 429,300 per person (SD=118,400) versus LKR 274,300 (SD=96,700) for traditional farming households (t=8.62, p<0.001, Cohen's d=1.41). This 56.5% difference demonstrates that income advantages persist even after accounting for family size variations.

4.2.2. Income Source Decomposition

Cinnamon Farming Income: Traditional farming households derived 78.2% of total income from cinnamon cultivation and processing (mean=LKR 879,400, SD=298,700), while agritourism households obtained 52.3% from cinnamon farming (mean=LKR 966,100, SD=326,200). While agritourism participants earned slightly more from cinnamon itself (t=1.73, p=0.086), the difference was not statistically significant, suggesting comparable baseline agricultural productivity between groups.

Agritourism-Specific Income: For agritourism households, tourism-related activities generated a mean annual income of LKR 512,600 (SD=187,300), representing 27.8% of total household income. Tourism income sources included guided farm tours (38.2% of tourism income), processing demonstrations (22.4%), direct product sales to visitors (24.1%), farm-stay accommodation (11.3%), and culinary experiences (4.0%).

Other Income Sources: Income from non-cinnamon agricultural activities averaged LKR 142,800 for agritourism households versus LKR 98,300 for traditional farmers. Off-farm employment and business income totalled LKR 225,700 for agritourism families compared to LKR 146,800 for traditional farming families (t=3.21, p=0.002), suggesting agritourism may facilitate additional entrepreneurial activities.

4.2.3. Income Stability and Seasonality

Income stability, measured using coefficient of variation (CV) across quarterly income periods, showed significant differences. Agritourism households demonstrated more stable income flows (mean CV=0.34, SD=0.11) compared to traditional farming households (mean CV=0.52, SD=0.15), with lower CV values indicating greater stability (t=8.45, p<0.001).

Qualitative interviews illuminated these patterns. One agritourism participant explained: "Before tourism, we struggled during months between harvests. Now visitors come year-round, providing steady income when cinnamon prices are low or during off-season periods. This consistency helps us plan household expenses better."

Conversely, a traditional farmer noted: "Our income depends entirely on harvest cycles and market prices. Some months we earn well, other months very little. It creates stress for family expenses, especially children's education fees."

4.3. Employment Patterns and Labor Utilization

4.3.1. Household Labor Participation

Agritourism households showed significantly higher rates of economically active family members. On average, 2.8 household members (SD=0.9) participated in income-generating activities in agritourism families versus 2.1 members (SD=0.7) in traditional farming families (t=5.34, p<0.001). This 33% increase suggests agritourism creates employment opportunities for multiple family members.

Youth Employment: Youth participation (ages 18-35) in farm-based activities differed markedly. Among agritourism households with youth members, 68.4% reported at least one youth family member actively involved in farm/tourism operations, compared to 31.8% in traditional farming households (χ^2=16.72, p<0.001). Interviews revealed that young people found tourism activities more appealing and socially acceptable than traditional cinnamon processing.

A 28-year-old agritourism operator's son stated: "Tourism work is more interesting than peeling cinnamon. I interact with people from different countries, practice English, and learn about business management. Friends respect this work, unlike the stigma attached to peeling."

Women's Economic Participation: Women's involvement in income-generating activities showed significant differences. In agritourism households, 76.0% of women participated in economic activities (primarily tourism services, product preparation, hospitality), compared to 48.0% in traditional farming households (χ^2=12.35, p<0.001). Women particularly engaged in food preparation for culinary tourism, handicraft sales, and hosting responsibilities.

4.3.2. Hired Labor Usage

Traditional farming households employed more hired labour for agricultural tasks, averaging 47.2 person-days annually (SD=23.4) compared to 34.6 person-days (SD=19.8) for agritourism households (t=3.56, p<0.001). This suggests agritourism families rely more heavily on family labor across both farming and tourism activities, potentially reducing cash outflows for hired labor while increasing household member workloads.

4.4. Investment Capacity and Asset Accumulation

4.4.1. Farm and Home Investments

Agritourism households demonstrated significantly greater investment capacity. Over the three years preceding the survey (2021-2023), agritourism families invested a mean of LKR 387,400 (SD=156,200) in farm improvements (irrigation systems, processing equipment, organic certification, infrastructure) compared to LKR 156,800 (SD=98,600) for traditional farmers (t=10.89, p<0.001).

Home improvements and renovations showed similar patterns, with agritourism households investing LKR 428,600 (SD=189,300) versus LKR 178,200 (SD=112,400) for traditional families (t=9.72, p<0.001). These investments included structural improvements, sanitation facilities, and aesthetic enhancements often motivated by tourism hosting requirements.

4.4.2. Savings and Financial Security

Savings account balances averaged LKR 248,700 (SD=134,200) for agritourism households compared to LKR 98,400 (SD=67,800) for traditional farming households (t=8.21, p<0.001), representing 153% higher savings. Additionally, 54.7% of agritourism households reported maintaining emergency funds covering at least three months of expenses, versus 24.0% of traditional farming families (χ^2=15.02, p<0.001).

4.4.3. Asset Ownership

Vehicle ownership, an important indicator of wealth and mobility in rural contexts, differed significantly. Among agritourism households, 62.7% owned motorized vehicles (motorcycles, three-wheelers, or automobiles) compared to 34.7% of traditional farming households (χ^2=11.84, p=0.001). Educational investments also varied, with 81.3% of agritourism families supporting children's higher education or vocational training versus 56.0% of traditional families (χ^2=11.23, p=0.001).

4.5. Quality of Life Indicators

4.5.1. Food Security and Basic Needs

Using the Household Food Insecurity Access Scale (HFIAS), 89.3% of agritourism households reported food security (rarely or never worried about food) compared to 68.0% of traditional farming households (χ^2=10.52, p=0.001). Healthcare access showed 82.7% of agritourism families reporting adequate access to healthcare services when needed, versus 61.3% of traditional families (χ^2=8.97, p=0.003).

4.5.2. Housing Quality and Living Conditions

Housing quality assessments (based on construction materials, sanitation, water access, electricity reliability) classified 74.7% of agritourism households as having "good" or "very good" housing conditions compared to 48.0% of traditional farming households (χ^2=11.28, p=0.001).

4.5.3. Life Satisfaction and Future Outlook

Using a 5-point Likert scale for overall life satisfaction (1=very dissatisfied, 5=very satisfied), agritourism households averaged 4.1 (SD=0.7) compared to 3.2 (SD=0.9) for traditional farmers (t=6.87, p<0.001). When asked about optimism regarding their family's economic future over the next five years, 70.7% of agritourism households expressed optimism versus 38.7% of traditional farming households (χ^2=15.42, p<0.001).

Qualitative data provided context for these differences. An agritourism household head explained: "Before starting tourism, we worried constantly about our children's futures. Now we see possibilities. We've renovated our home, saved money, and our children are proud of the farm. Tourism has given us dignity and hope."

Conversely, a traditional farmer reflected: "Cinnamon prices keep falling while costs increase. We work hard but barely manage. Young people leave for cities because there's no future here. I worry what will happen when I'm too old to work."

5. Discussion

5.1. Interpretation of Economic Impact Findings

The quantitative findings demonstrate substantial and statistically significant economic advantages for cinnamon farming families engaged in agritourism compared to those practicing traditional farming exclusively. The 64.3% income differential, coupled with improved income stability, employment patterns, investment capacity, and quality of life indicators, provides compelling evidence that agritourism

integration can meaningfully enhance household economic wellbeing in Sri Lanka's cinnamon sector. These findings align with global agritourism literature documenting income diversification benefits while extending knowledge to a previously unstudied commodity context in a South Asian developing country setting.

The magnitude of income difference observed in this study exceeds findings from some previous agritourism research. European studies often report modest contributions, with agritourism averaging only 1.8% of total farm income, while this research found tourism contributing 27.8% of household income for participating families. This substantial contribution may reflect several contextual factors specific to Sri Lankan cinnamon agritourism. First, Ceylon cinnamon's global reputation and unique cultural heritage create strong tourist interest, enabling farmers to attract visitors and command premium prices for authentic experiences. Second, the relatively early stage of cinnamon agritourism development in Sri Lanka may allow pioneering operators to capture first-mover advantages before market saturation occurs. Third, the severe economic challenges facing traditional cinnamon farmers; low productivity, price volatility, intermediary exploitation may make tourism revenue streams particularly valuable as stabilizing income sources.

The finding that agritourism households earn slightly more from cinnamon farming itself, though not statistically significant, challenges assumptions that tourism necessarily diverts labour and attention from agricultural production. Instead, qualitative data suggests complementary relationships exist. Several agritourism participants noted that tourism motivated improvements in farm aesthetics, organic certification, and processing quality, which enhanced both tourist appeal and commercial product value. One farmer explained: "Tourists expect clean, well-maintained farms and high-quality products. This pushed us to improve everything; our cultivation methods, processing facilities, product packaging. These improvements benefit both tourism and regular sales." This observation resonates with research suggesting agritourism can catalyze transitions toward more sustainable and higher-value agricultural practices.

5.2. Income Stability and Risk Management

The significantly lower income variation coefficients for agritourism households illuminate an important dimension of economic impact often overlooked in income-focused analyses. Income stability matters profoundly for household welfare, affecting consumption smoothing, investment decisions, stress levels, and long-term planning capacity. Traditional cinnamon farming exposes households to multiple sources of income volatility including seasonal production cycles, weather-related yield variations, pest and disease outbreaks, and market price fluctuations largely beyond farmer control.

Tourism income, while not entirely stable, follows different seasonal patterns than agricultural production and responds to different market drivers. This imperfect correlation between agricultural and tourism income streams provides natural hedging, reducing overall household income volatility. The qualitative data strongly supports this interpretation, with multiple agritourism participants emphasizing how tourism income during agricultural off-seasons or periods of low cinnamon prices provided crucial financial buffers. This finding extends Sustainable Livelihoods Framework concepts, demonstrating how livelihood diversification through agritourism enhances household resilience to shocks and stresses by creating multiple, partially independent income streams.

However, it is important to acknowledge that tourism itself carries vulnerabilities. The COVID-19 pandemic demonstrated tourism's susceptibility to external shocks, with global travel restrictions devastating tourism-dependent livelihoods. While this study's data collection occurred post-pandemic (2023-2024), several interview participants referenced pandemic-period challenges when tourism income disappeared entirely. The implication is that while diversification into tourism reduces certain agricultural risks, it introduces tourism-specific vulnerabilities, suggesting the most resilient strategy may involve maintaining both agricultural and tourism income streams rather than over-specializing in either direction.

5.3. Employment Patterns and Social Implications

The employment findings reveal agritourism's potential to address critical social challenges facing rural Sri Lanka, particularly youth out-migration and limited women's economic participation. The 68.4% youth involvement rate in agritourism households compared to 31.8% in traditional farming families represents more than statistical difference—it suggests fundamental shifts in how younger generations perceive agricultural livelihoods.

Qualitative data illuminated mechanisms underlying this pattern. Youth participants consistently emphasized tourism work's social acceptability, skill development opportunities, and alignment with contemporary aspirations in ways that traditional cinnamon processing does not provide. The social stigma associated with cinnamon peeling, particularly among educated youth, creates powerful disincentives for generational succession in conventional farming. Tourism activities—which involve customer service, language practice, cultural interpretation, business management—offer skills transferable to other sectors and social recognition lacking in traditional agricultural labor.

This finding carries important implications for knowledge transfer and sector sustainability. The documented threat of intergenerational knowledge loss in cinnamon cultivation and processing stems partly from youth disinterest in farming careers. If agritourism can make farming socially acceptable and economically viable for younger generations, it may preserve traditional knowledge while adapting to contemporary economic realities. However, there exists potential tension: if youth engage primarily with tourism aspects while avoiding agricultural labor, traditional cultivation and processing skills may still erode. Sustainable models likely require integration where youth develop competencies across both agricultural and tourism domains.

The 76.0% women's economic participation rate in agritourism households compared to 48.0% in traditional families highlights gender dimensions warranting further exploration. Rural women in Sri Lanka often face limited income-generating opportunities outside family agricultural labor. Agritourism creates roles in hospitality, food preparation, handicraft production, and cultural demonstration where women's existing skills translate into recognized economic contributions. Several women interviewed emphasized how tourism income they personally

generated enhanced decision-making power within households and self-esteem. One woman stated: "When I earn money from cooking for tourists, my husband and children value my work differently. I have more say in family decisions now."

However, feminist analyses of agritourism caution that women's participation may represent intensified labor burdens rather than empowerment if household responsibilities expand without corresponding redistribution of domestic labor or genuine economic control. The quantitative finding that agritourism households use less hired labor suggests families, including women, may work longer hours across combined agricultural and tourism activities. Whether increased economic participation translates into genuine empowerment or exploitation requires deeper investigation beyond this study's scope.

5.4. Investment Capacity and Asset Accumulation

The substantial differences in farm investments, home improvements, savings, and asset ownership demonstrate how enhanced income flows translate into wealth accumulation over time. From a Sustainable Livelihoods perspective, these patterns suggest agritourism enables conversion of financial capital (tourism income) into physical capital (infrastructure, equipment, vehicles) and human capital (education investments), strengthening overall household asset portfolios.

The 147% higher farm investment by agritourism households creates potential positive feedback loops. Investments in irrigation, processing equipment, and organic certification enhance agricultural productivity and product quality, which increases both conventional sales and tourism appeal. Similarly, home improvements motivated by tourism hosting requirements improve family living conditions even when not hosting visitors. One participant observed: "We renovated our house and built a proper toilet because tourists were coming. But we benefit from these improvements every day, not just when tourists visit."

The finding that 54.7% of agritourism households maintain emergency funds covering three months of expenses versus only 24.0% of traditional families illustrates financial resilience differences with profound implications for household vulnerability. Emergency funds enable families to manage health crises, weather agricultural setbacks, or pursue opportunities without resorting to exploitative informal credit. Literature on poverty traps emphasizes how lack of savings forces poor households into high-interest borrowing or asset depletion during crises, perpetuating poverty cycles. Agritourism's contribution to savings accumulation may therefore carry disproportionate importance for long-term poverty reduction beyond immediate income effects.

Vehicle ownership differences (62.7% versus 34.7%) merit particular attention in rural contexts where transportation access affects market participation, service access, and social connectivity. Vehicles enable farmers to transport products to higher-value markets, access healthcare and education facilities, and reduce dependence on intermediaries. The 81.3% higher education investment rate among agritourism families signals potential intergenerational mobility, as education represents primary pathways out of agricultural poverty in developing countries.

5.5. Quality of Life and Subjective Wellbeing

While economic indicators dominate development discourse, subjective wellbeing measures capture important dimensions of human flourishing not fully reflected in income statistics. The significantly higher life satisfaction scores and future optimism among agritourism households suggest economic improvements translate into psychological and emotional benefits.

Qualitative data revealed that dignity and social recognition accompanying tourism entrepreneurship contributed importantly to wellbeing beyond material gains. Several participants emphasized pride in showcasing traditional knowledge to appreciative international audiences, contrasting sharply with stigma associated with conventional cinnamon work. This finding resonates with capabilities approach frameworks emphasizing that development involves expanding people's freedoms and capabilities, not merely increasing income.

However, the cross-sectional design prevents determining whether higher wellbeing preceded or resulted from agritourism adoption. It is plausible that households with greater initial optimism, risk tolerance, or social confidence were more likely to adopt agritourism, representing selection effects rather than treatment effects. Longitudinal research tracking households before and after agritourism adoption would strengthen causal inference regarding wellbeing impacts.

5.6. Challenges and Limitations of Agritourism Development

Despite documented benefits, interview data revealed substantial challenges constraining agritourism adoption and success. Initial capital requirements for infrastructure development—guest facilities, sanitation improvements, signage, safety measures—present significant barriers for resource-poor farming families. One traditional farmer explained: "I would like to try tourism, but where will I get money for renovations? Banks don't lend to small farmers without collateral."

Marketing and visitor attraction emerged as persistent challenges even for established agritourism operators. Most participants lacked digital marketing skills, relied heavily on word-of-mouth referrals or tour operator partnerships that captured significant revenue shares. Geographic distance from main tourist circuits disadvantaged some locations despite quality offerings. Tourism's seasonal nature, concentrated in peak tourist months, limits annual income potential while creating capacity utilization challenges.

Skills deficiencies extended beyond marketing to include language barriers (particularly English proficiency), hospitality service standards, food safety and hygiene, business record-keeping, and customer relationship management. While some farmers accessed training programs through tourism development projects, many reported inadequate preparation for tourism entrepreneurship demands. The relatively high education levels among agritourism participants compared to traditional farmers (34.7% versus 21.3% completing secondary education) suggest education facilitates agritourism adoption, potentially excluding less-educated farmers from opportunities.

Regulatory ambiguities and bureaucratic challenges complicated operations. Several participants described difficulties obtaining necessary permits, navigating health and safety regulations, and understanding tax obligations for tourism income. Absence of clear policy frameworks specifically addressing farm-based tourism created uncertainty. One operator stated: "Sometimes officials say we need licenses, other times different officials say different things. There are no clear guidelines for small farms like ours doing tourism."

Time and labor demands intensified during tourist seasons, with families working extremely long hours managing both agricultural and tourism activities simultaneously. While household labor participation increased, this represented intensified work rather than additional leisure. Several participants, particularly women, acknowledged exhaustion during peak periods when agricultural and tourism demands coincided.

Environmental and cultural sustainability concerns warrant consideration though they emerged less prominently in interviews. Heavy tourist traffic can degrade farm ecosystems, while commercialization risks diluting cultural authenticity. However, most participants operated at modest scales with limited visitor numbers, minimizing environmental impacts. Whether sustainability concerns will intensify with sector expansion remains uncertain.

5.7. Policy and Practice Implications

These findings generate several important implications for policy development and practical interventions to support cinnamon agritourism development while benefiting farming families.

Financial Access and Investment Support: Initial capital barriers require targeted interventions. Recommendations include: developing specialized microcredit products for agritourism start-ups with favorable terms recognizing agriculture-tourism integration; establishing grant programs subsidizing infrastructure investments for small-scale farmers; creating guarantee schemes reducing collateral requirements for agritourism loans; and facilitating group-based financing mechanisms where farming communities collectively access resources.

Capacity Building and Training: Systematic training programs should address identified skill deficiencies including: hospitality service standards and customer care; basic English language for tourist interaction; digital marketing and social media promotion; food safety, hygiene, and quality standards; business planning, financial management, and record-keeping; sustainable farming practices aligned with tourist expectations; and cultural interpretation and storytelling techniques. Training delivery should employ participatory, practical approaches suitable for adult learners with limited formal education.

Marketing and Visitor Linkages: Individual farmers struggle with marketing; collective approaches may prove more effective. Recommendations include: developing regional cinnamon agritourism networks or clusters for joint marketing; creating online platforms aggregating multiple farms for tourist booking; establishing partnerships between farmers and tour operators ensuring fair revenue distribution; producing quality marketing materials showcasing authentic cinnamon farming experiences; and integrating cinnamon agritourism into broader destination marketing initiatives.

Regulatory Clarity and Institutional Support: Government agencies should develop clear, appropriate regulatory frameworks including: simplified licensing procedures for small-scale farm tourism; clarified health, safety, and hygiene standards proportionate to operation scales; transparent taxation guidelines for agritourism income; streamlined permit processes reducing bureaucratic burdens; and designated institutional focal points providing guidance and support.

Infrastructure Development: Public investment in rural infrastructure benefits both agriculture and tourism including: improved rural road connectivity facilitating tourist access; reliable electricity and water supply; internet connectivity enabling online marketing; waste management systems protecting environmental quality; and signage and wayfinding supporting tourist navigation.

Sustainability Safeguards: As the sector develops, proactive measures should ensure environmental and cultural sustainability including: establishing visitor number guidelines preventing ecological degradation; promoting organic and sustainable farming practices as tourism differentiators; supporting cultural authenticity rather than staged performances; ensuring community benefit distribution beyond individual households; and monitoring environmental and social impacts systematically.

Inclusive Participation: Given evidence that education facilitates agritourism adoption, targeted support should prevent exclusion of less-educated, resource-poor farmers including: mentorship programs pairing successful operators with aspiring farmers; graduated support recognizing different farmer capacities and starting points; group-based models enabling collective participation; and special attention to women's empowerment ensuring equitable benefit distribution within households.

5.8. Theoretical Contributions

This research makes several important theoretical contributions to agritourism scholarship and rural development literature. First, it extends the Sustainable Livelihoods Framework by demonstrating how agricultural heritage tourism functions as a livelihood diversification strategy in a tropical developing country context. The findings confirm that households can leverage existing natural capital (cinnamon farms), cultural capital (traditional knowledge), and physical capital (farm infrastructure) to generate financial capital through tourism while simultaneously enhancing human capital (skills development) and social capital (network building).

The research challenges simplified assumptions about tourism-agriculture tradeoffs. Rather than viewing tourism and farming as competing for household resources, the findings suggest complementary relationships where tourism motivates agricultural improvements, creates year-round income stability, and provides economic incentives for maintaining traditional practices. This nuanced understanding moves beyond zero-sum framings toward

recognizing synergistic potential in integrated farm-tourism systems.

Second, the study contributes commodity-specific knowledge to agritourism literature, which has focused disproportionately on wine, dairy, and tea tourism while neglecting spice tourism despite its cultural and economic significance in tropical regions. The findings demonstrate that cinnamon's unique cultural heritage, global reputation, and labor-intensive traditional processing create distinctive tourism value propositions different from mechanized agricultural systems dominating existing research.

Third, the mixed-methods design advances methodological approaches in agritourism impact research. By combining rigorous quantitative comparison of household economic indicators with qualitative exploration of mechanisms, constraints, and lived experiences, the study provides both statistical evidence of impacts and contextual understanding of how and why these impacts occur. This approach addresses limitations of purely quantitative studies that identify correlations without explaining causation and purely qualitative studies that provide rich description without systematic comparison.

5.9. Comparative Analysis with Existing Literature

The 64.3% income differential observed in this study substantially exceeds findings from many European and North American contexts where agritourism contributes modestly to farm income. Several factors may explain this discrepancy. First, the baseline economic vulnerability of Sri Lankan cinnamon farmers—facing low productivity, price volatility, and intermediary exploitation—means alternative income sources provide proportionally greater impact than in more economically stable farming systems. Second, Ceylon cinnamon's distinctive global reputation and the novelty of authentic farm experiences in South Asian tourism markets may enable premium pricing unavailable to more common agricultural commodities.

However, the findings align closely with research from other developing countries. Studies from Indonesia reporting 83% of farmers motivated by income generation and research from Maharashtra documenting 25% income supplementation show similar patterns where agritourism provides substantial proportional benefits in contexts of agricultural economic stress. This consistency across developing country contexts suggests that agritourism's relative impact may be greatest where agricultural livelihoods face most severe challenges.

The income stability findings contribute to underexplored dimensions in agritourism literature. While many studies document gross income increases, fewer examine income variation or seasonal patterns. This study's finding that agritourism reduces income volatility by 34.6% (measured through coefficient of variation) extends risk management perspectives on livelihood diversification, demonstrating that stability benefits may matter as much as absolute income levels for household welfare.

The employment pattern findings, particularly the 68.4% youth involvement rate in agritourism households, provide empirical support for arguments about agritourism's potential to address rural youth out-migration. However, the finding that youth engagement focuses on tourism rather than agricultural tasks raises questions about long-term sustainability of traditional farming knowledge. This tension between economic modernization and cultural preservation requires careful navigation in policy and practice.

6. Conclusion

6.1. Summary of Key Findings

This mixed-methods comparative study examined the economic impacts of cinnamon agritourism on traditional farming families in Sri Lanka's Southern Province. Analysis of 150 households (75 agritourism-participating, 75 traditional farming) combined with 18 in-depth interviews revealed substantial and statistically significant economic advantages for agritourism participants across multiple dimensions.

Principal findings include:

Income Differential: Agritourism households earned 64.3% higher total annual income (LKR 1,847,200 versus LKR 1,124,500), with tourism activities contributing 27.8% of household income for participating families.

Income Stability: Agritourism households demonstrated 34.6% lower income variation across seasons (CV=0.34 versus 0.52), providing greater financial predictability and resilience to agricultural shocks.

Employment Patterns: Agritourism created employment for 33% more household members (2.8 versus 2.1 economically active members), with particularly significant impacts on youth involvement (68.4% versus 31.8%) and women's economic participation (76.0% versus 48.0%).

Investment Capacity: Agritourism households invested 147% more in farm improvements (LKR 387,400 versus LKR 156,800) and maintained 153% higher savings balances (LKR 248,700 versus LKR 98,400), demonstrating enhanced capital accumulation capacity.

Asset Accumulation: Agritourism families showed higher rates of vehicle ownership (62.7% versus 34.7%), emergency fund maintenance (54.7% versus 24.0%), and educational investment (81.3% versus 56.0%).

Quality of Life: Agritourism households reported superior outcomes across food security (89.3% versus 68.0%), healthcare access (82.7% versus 61.3%), housing quality (74.7% versus 48.0%), life satisfaction (4.1 versus 3.2 on 5-point scale), and future optimism (70.7% versus 38.7%).

Qualitative findings illuminated mechanisms underlying these patterns, including tourism's role in stabilizing seasonal income fluctuations, creating socially acceptable employment for youth, enabling women's economic participation, motivating farm improvements, and enhancing household dignity and social recognition. However, participants also identified significant challenges including initial capital barriers, marketing difficulties, skills deficiencies, regulatory ambiguities, and intensified labor demands.

6.2. Policy Recommendations

Based on research findings, the following policy recommendations are proposed for government agencies, development organizations, financial institutions, and farming communities:

1. Establish Targeted Financial Support Mechanisms

Develop specialized microcredit products for agritourism start-ups with concessionary interest rates (8-10% annually) and flexible repayment schedules aligned with tourism seasonality

Create matching grant programs subsidizing up to 50% of initial infrastructure investments (maximum LKR 500,000 per household) for small-scale farmers

Establish loan guarantee schemes reducing collateral requirements to 25% of loan value for registered agritourism enterprises

Facilitate group-based financing through community savings and credit cooperatives specifically targeting agritourism development

2. Implement Comprehensive Capacity Building Programs

Design and deliver modular training curriculum covering hospitality service, English language, digital marketing, food safety, business management, and cultural interpretation

Employ participatory, practical training methodologies suitable for adult learners with limited formal education

Establish mentorship programs linking experienced agritourism operators with aspiring farmers

Create farmer exchange visits enabling learning from successful operations in other regions

Develop train-the-trainer programs building local capacity for ongoing skill development

3. Develop Marketing and Visitor Linkage Infrastructure

Establish regional cinnamon agritourism networks in Galle, Matara, and Hambantota for collective marketing and quality standards

Create online booking platforms aggregating multiple farms while ensuring fair commission structures (maximum 15% platform fee)

Develop quality marketing materials (brochures, videos, website content) showcasing authentic cinnamon farming experiences

Integrate cinnamon agritourism into national tourism promotion campaigns and destination marketing

Negotiate fair partnership agreements between farmers and tour operators ensuring minimum 50% of package price reaches farming families

4. Establish Clear Regulatory Frameworks

Develop simplified licensing procedures specifically for small-scale farm tourism with reduced bureaucratic requirements

Clarify proportionate health, safety, and hygiene standards appropriate for small farm operations

Create transparent taxation guidelines with simplified reporting requirements for agritourism income below threshold levels

Designate institutional focal points within District Secretariats providing guidance and regulatory support

Establish one-stop facilitation centers streamlining permit processes across multiple agencies

5. Invest in Rural Infrastructure Development

Prioritize rural road improvements in high-concentration cinnamon farming areas to facilitate tourist access

Extend reliable electricity, water supply, and internet connectivity to farming villages

Develop waste management systems protecting environmental quality in agritourism zones

Install directional signage and tourist information boards at strategic locations

Upgrade rural healthcare and sanitation facilities serving both residents and visitors

6. Implement Sustainability Safeguards

Establish visitor number guidelines for individual farms based on carrying capacity assessments (recommended maximum 20-30 visitors per day for typical holdings)

Promote organic certification and sustainable farming practices as tourism differentiators with premium pricing potential

Develop cultural authenticity guidelines ensuring respectful, non-exploitative representation of traditional knowledge

Create community benefit-sharing mechanisms ensuring tourism benefits extend beyond individual operators

Establish monitoring systems tracking environmental and social impacts of agritourism development

7. Ensure Inclusive Participation

Provide targeted support for resource-poor, less-educated farmers through graduated assistance programs

Facilitate women's empowerment through gender-sensitive training and ensuring equitable benefit distribution within households

Create group-based agritourism models enabling collective participation and risk-sharing

Establish scholarships and subsidized training for youth from farming families interested in tourism entrepreneurship

Develop simplified business models suitable for farmers with limited business experience

8. Strengthen Institutional Coordination

Establish inter-ministerial coordination mechanisms linking Tourism, Agriculture, Export Agriculture, and Rural Development ministries

Create provincial-level agritourism development committees with farmer representation

Designate agricultural extension officers with specialized agritourism advisory roles

Develop partnerships between government agencies, private sector, NGOs, and farming communities

Establish research-extension-farmer linkages ensuring ongoing knowledge generation and dissemination

6.3. Limitations and Future Research Directions

While this study provides valuable insights into cinnamon agritourism's economic impacts, several limitations warrant acknowledgment and suggest directions for future research.

Methodological Limitations:

Cross-Sectional Design: The single time-point data collection limits causal inference. Future research should employ longitudinal designs tracking households before and after agritourism adoption over multiple years, enabling stronger causal claims about tourism impacts.

Selection Bias: Households choosing agritourism adoption may differ systematically from non-adopters in ways affecting outcomes independent of tourism (entrepreneurial orientation, risk tolerance, social networks). Quasi-experimental designs using propensity score matching or instrumental variable approaches could strengthen causal identification.

Self-Reported Data: Income and expenditure data rely on participant recall, potentially introducing measurement error. Future research might incorporate objective verification methods such as financial record review, expenditure diaries, or third-party validation.

Geographic Scope: Focus on Southern Province limits generalizability to other cinnamon-growing regions with different market access, tourist flows, or socioeconomic conditions. Comparative research across provinces would enhance external validity.

Limited Temporal Coverage: Data represents one agricultural year (2023), which may not capture longer-term patterns or unusual conditions. Multi-year studies would reveal inter-annual variability and long-term trajectories.

Substantive Knowledge Gaps:

Environmental Sustainability: This study focused primarily on economic outcomes without comprehensive environmental impact assessment. Future research should examine ecological consequences including water usage, agrochemical application, waste generation, biodiversity effects, and carbon footprints of agritourism operations.

Cultural Authenticity: While participants mentioned cultural aspects, systematic analysis of how tourism affects traditional knowledge transmission, cultural commodification, and authenticity remains needed. Ethnographic research exploring cultural dynamics would complement economic analysis.

Tourist Perspectives: This study centered farming family experiences without examining tourist satisfaction, motivations, or willingness-to-pay. Research incorporating tourist perspectives would provide complete understanding of value creation and exchange.

Market Development: Questions about optimal market positioning, pricing strategies, product differentiation, and competitive dynamics require investigation. Marketing research examining tourist segments, preferences, and decision-making would inform business development.

Scaling and Saturation: As more farmers adopt agritourism, questions about market saturation, competition effects, and optimal development scales arise. Research modeling carrying capacity and sustainable development pathways would inform planning.

Gender Dynamics: While this study documented increased women's participation, deeper investigation of power relations, decision-making authority, labor distribution, and genuine empowerment versus exploitation requires feminist methodological approaches.

Youth Engagement: Long-term trajectories of youth involved in agritourism warrant investigation. Do they maintain agricultural connections or use tourism as transitional employment before urban migration? Longitudinal youth-focused research would illuminate generational continuity questions.

Policy Effectiveness: As support programs develop, rigorous impact evaluations assessing which interventions most effectively enable successful agritourism adoption and benefit realization would inform resource allocation.

Comparative Analysis: Systematic comparison across agricultural commodities (cinnamon versus tea, coconut, spices, rice) would reveal whether findings generalize or remain commodity-specific, informing broader rural development strategies.

Macroeconomic Effects: This household-level study cannot assess broader economic impacts including multiplier effects, employment creation in complementary sectors, or contribution to regional economic development. Input-output modelling or computable general equilibrium approaches could address macro-level questions.

6.4. Concluding Remarks

This research demonstrates that cinnamon agritourism can serve as an effective livelihood diversification strategy for traditional farming families in Sri Lanka's Southern Province, generating substantial economic benefits across income, employment, investment, and quality of life dimensions. The findings provide empirical foundation for evidence-based policy development and practical interventions supporting agritourism as a component of rural development and agricultural sector strengthening.

However, realizing agritourism's potential requires addressing significant barriers including capital access, marketing capabilities, skills development, and regulatory clarity. Success depends not merely on individual farmer initiative but on supportive ecosystems encompassing financial services, training programs, marketing infrastructure, institutional frameworks, and public investments. Policy attention should focus on creating enabling environments where resourceful farming families can leverage existing assets and cultural heritage to build sustainable tourism enterprises complementing agricultural

livelihoods.

The research also highlights important tensions requiring careful navigation. While agritourism provides economic alternatives to struggling conventional farming, it introduces new vulnerabilities including tourism demand variability, cultural commodification risks, and environmental pressures. Ensuring that development remains sustainable, inclusive, and culturally appropriate requires proactive safeguards, community participation in planning, and ongoing monitoring of impacts.

For Sri Lankan cinnamon farmers facing documented challenges of low productivity, price volatility, and inadequate returns, agritourism represents not a panacea but a viable complementary strategy meriting serious consideration. Combined with efforts to improve conventional agricultural productivity, value chains, and market access, agritourism can contribute to resilient, diversified rural livelihoods enabling farming families to thrive economically while preserving cultural heritage that has defined Ceylon cinnamon for centuries.

As Sri Lanka pursues sustainable rural development and seeks to leverage its agricultural heritage for economic opportunity, the integration of farming and tourism offers promising pathways forward. This research provides evidence that with appropriate support, small-scale farming families can successfully navigate this integration, achieving improved economic outcomes while maintaining agricultural identities and cultural traditions. The challenge for policymakers, development practitioners, and farming communities lies in translating this potential into widespread, equitable, and sustainable reality.

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