THEORETICAL AND METHODOLOGICAL FOUNDATIONS OF AGRITOURISM DEVELOPMENT IN RURAL AREAS AND ITS BIBLIOMETRIC ANALYSIS BASED ON THE SCOPUS DATABASE

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Abstract. *In the context of contemporary global economic transformations, achieving sustainable rural development, ensuring employment, and diversifying farm incomes have become matters of strategic importance. This paper explores the economic essence of agritourism, its role in agricultural diversification, and the results of a comprehensive bibliometric analysis of the field based on the Scopus database. The study examines fundamental economic concepts underpinning agritourism, including the theory of diversification, cluster theory, the multiplier effect theory, and sustainable development principles, while expanding the economic determinants model to incorporate niche regional agro-resources with high export potential (e.g., capers Capparis spinosa). Utilizing bibliometric and econometric tools for publications spanning 2015-2025, the research identifies publication growth dynamics, subject area distributions, leading journals, and international collaboration networks via VOSviewer. Furthermore, econometric forecasting projects the trajectory of scientific interest in the sector, peaking around 2033. The findings confirm that agritourism serves as a highly efficient tool for rural economic diversification and farm income stabilization, highlighting practical priorities for emerging markets such as creating integrated "Mahalla-Tourism-Export" supply chains and adopting digital "Smart Agritourism" platforms.*

Keywords: *agritourism, rural development, agricultural diversification, Scopus database, bibliometric analysis, econometric forecasting, sustainable development, cluster theory.*

Introduction

In the context of contemporary global economic transformations, achieving sustainable rural development, ensuring employment, and diversifying farm incomes have become matters of strategic importance. As traditional agricultural systems face mounting pressures from market volatility, climate change, and shifting consumer demands, rural communities worldwide are increasingly compelled to explore alternative economic pathways. Among these, the agritourism sector has emerged as a vital driver, facilitating the "field-to-fork" commercialization of agricultural products and generating high added value within rural economies. By bridging agricultural production with the service and tourism industries, agritourism not only optimizes farm-to-table supply chains but also fosters resilient regional growth.

The integration of agritourism into the broader framework of agricultural economics requires a solid theoretical and methodological foundation. At its core, agritourism functions as a complex economic activity that harmonizes agricultural production with diverse tourism services, aligning with the World Tourism Organization (UNWTO) definition where visitors experience agricultural

activities, traditional lifestyles, and local culture directly in rural areas. Understanding this phenomenon involves examining fundamental economic concepts such as the theory of diversification, which views agricultural expansion as a strategy to mitigate seasonal fluctuations and broaden farm revenue streams; cluster theory, which emphasizes how the geographical concentration of agritourism entities reduces transport, logistics, and marketing costs while stimulating active knowledge exchange; and the multiplier effect theory, which highlights that investments in tourism yield significant secondary economic impacts within local markets. Furthermore, agritourism directly advances the sustainable development concept, acting as a powerful instrument for poverty reduction (SDG 1), the creation of decent jobs (SDG 8), and the promotion of responsible consumption patterns (SDG 12).

Methodology

This study adopts a comprehensive mixed-methods approach, integrating qualitative economic analysis with quantitative bibliometric and econometric techniques to examine the theoretical foundations and global trends of agritourism development from 2015 to 2025. The initial methodological phase involves a systematic literature review and theoretical synthesis of key economic paradigms, including the theory of diversification, cluster theory, the multiplier effect theory, and sustainable development concepts (SDGs 1, 8, and 12). Concurrently, traditional economic determinant models such as Roger Béteille's classical framework (1996) are extended to incorporate contemporary regional realities, specifically the transformation of niche agro-resources with high export potential (e.g., capers *Capparis spinosa*) into competitive agritourist products. The quantitative component relies on extracting bibliometric datasets from the Scopus database, focusing on publications related to agritourism, agricultural diversification, and agrologistics. To evaluate structural relationships within the academic discourse, bibliometric network analysis is performed using VOSviewer software to map international co-authorship networks and keyword co-occurrence patterns, identifying interdisciplinary research clusters and regional gaps, such as the underrepresentation of Central Asia. Finally, econometric modeling and dynamic time-series analysis are applied to project future research trajectories, utilizing curve fitting and evaluating the coefficient of determination ($R2 = 0.740$) to ensure statistical reliability in estimating peak publication activity around 2033, thereby providing a robust analytical foundation for practical recommendations such as "Mahalla-Tourism-Export" value chains and "Smart Agritourism" digital platforms.

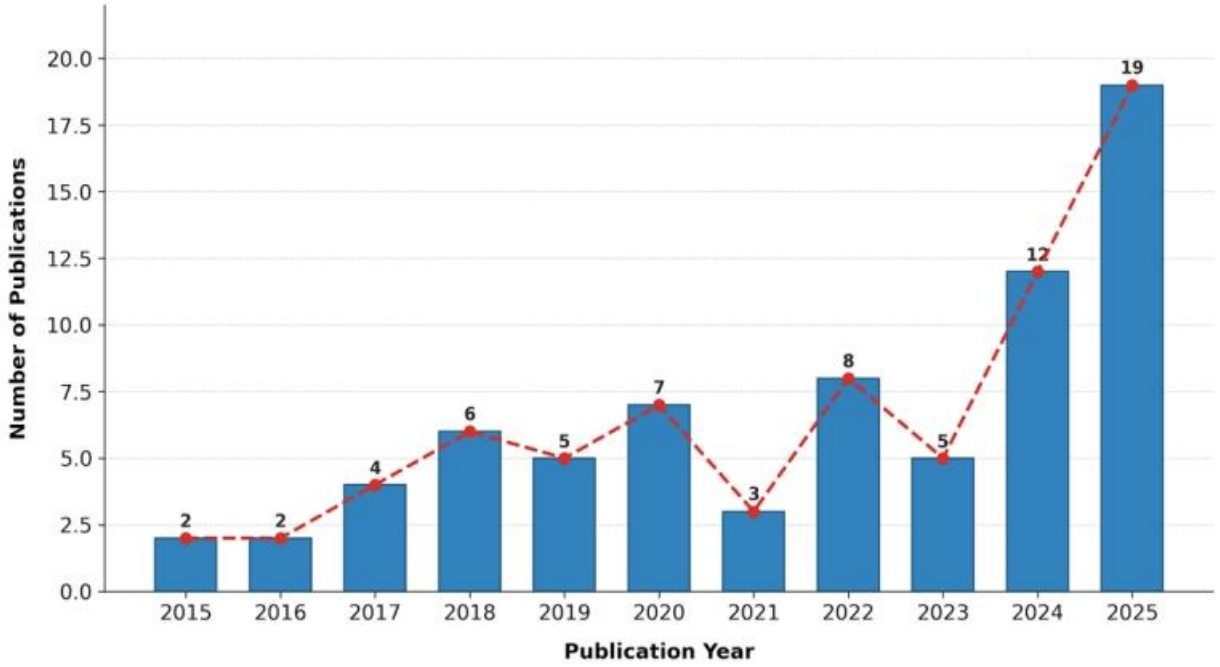
Results and Discussion

The empirical and bibliometric analyses conducted via the Scopus database (2015-2025) yield comprehensive insights into the evolving landscape of agritourism research, structural networking, and econometric forecasting. Below is the systematic presentation of the findings corresponding to each analytical stage.

The temporal distribution of scientific literature extracted from the Scopus database illustrates a clear and accelerating upward trend in global research interest toward agritourism and agricultural diversification over the past decade. During the initial phase from 2015 to 2019, academic output was relatively modest and incremental, starting with a mere 2 publications globally in 2015, which reflected an emerging yet specialized scholarly focus on rural tourism. However, entering the post-2020 era, the rate of publication experienced a pronounced upward shift, reaching 7 items in 2020, 8 items in 2022, and expanding to 12 items by 2024. This upward trajectory culminated in a sharp surge to 19 publications in 2025, demonstrating that agritourism has successfully transitioned from a peripheral geographic study into a major, multidisciplinary research priority driven by post-pandemic

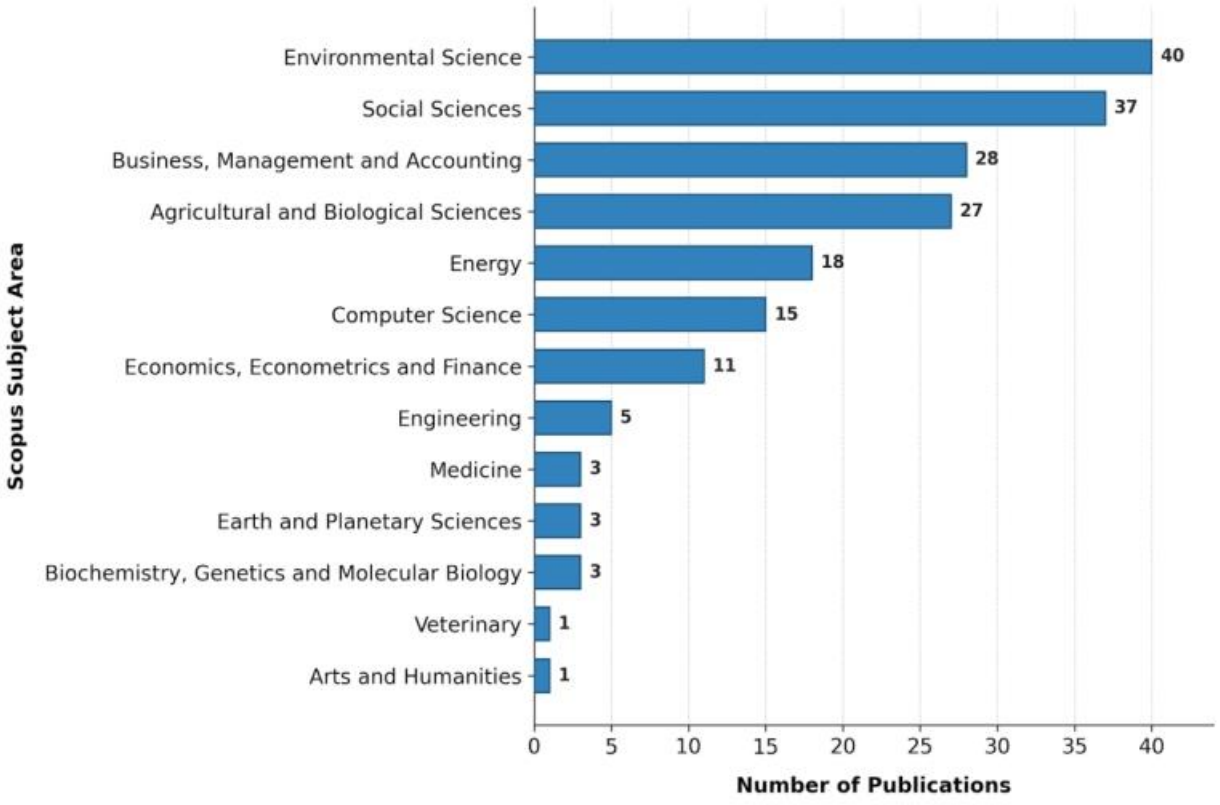
rural economic recovery strategies, sustainable food supply chain initiatives, and the growing imperative to diversify farm-level revenues.

Figure 1. Dynamics of Publication Growth by Year.



Source: Prepared by the author based on data from the Scopus database.

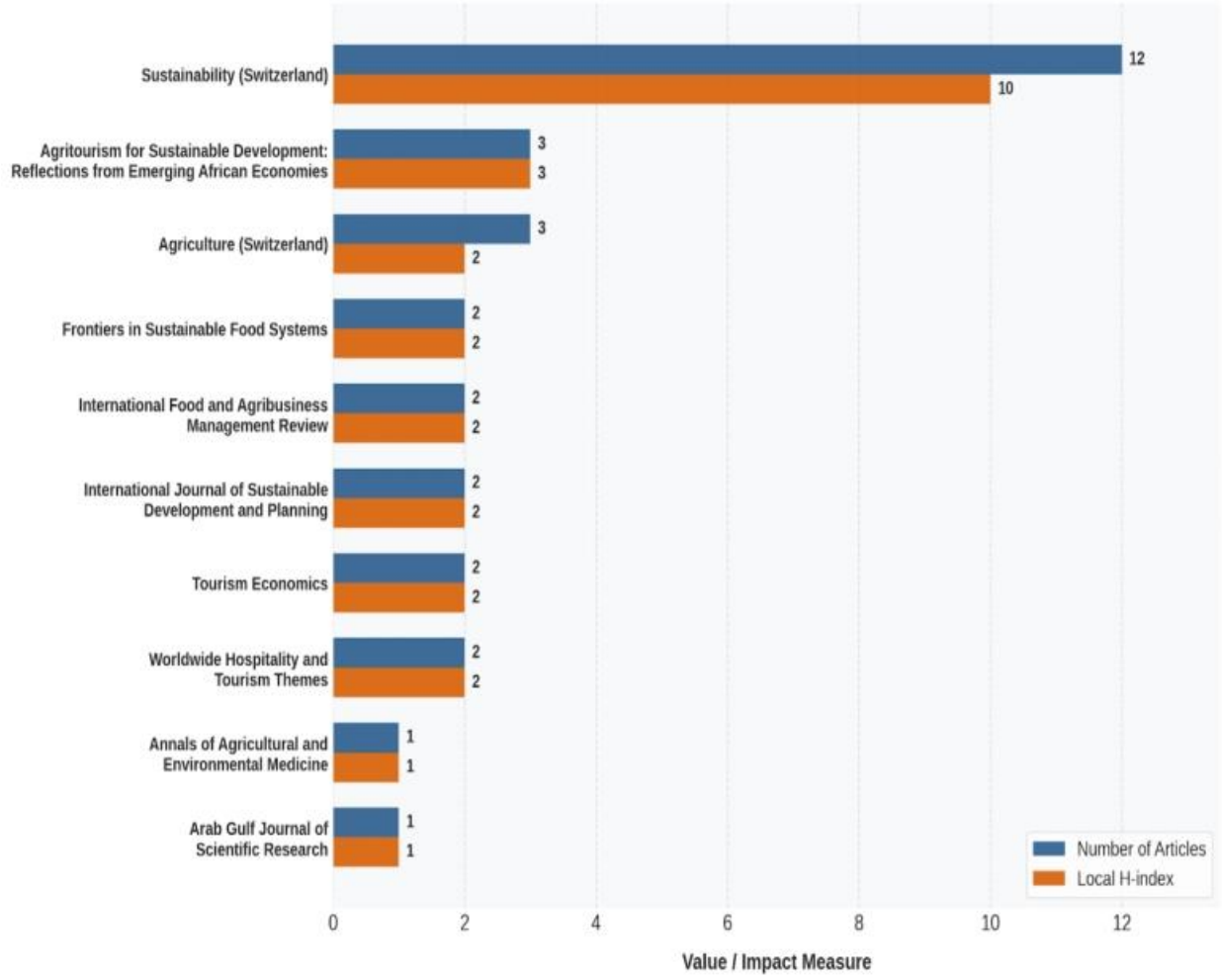
Figure 2: Distribution by Subject Areas and Leading Journals.



Source: Prepared by the author based on data from the Scopus database.

Analyzing the disciplinary classifications of the retrieved literature reveals the inherently interdisciplinary nature of agritourism research, which bridges agricultural economics, environmental management, and social sciences. The largest share of scientific output is concentrated in Environmental Science (40 indexed items) and Social Sciences (37 indexed items), reflecting the heavy emphasis on ecological sustainability and rural community dynamics. Furthermore, significant contributions are observed within Business, Management, and Agricultural Sciences, underscoring the dual economic and operational focus of farm-level tourism and supply chain integration. At the journal level, international scholarly discourse is anchored by high-impact publishing outlets, with *Sustainability (Switzerland)* leading the field with 12 published articles, closely followed by *Agriculture (Switzerland)*. This multidisciplinary distribution indicates that agritourism is successfully evaluated through both macroeconomic development and environmental conservation lenses.

Figure 3: Distribution of Publications and Local H-index Across Leading Academic Sources.

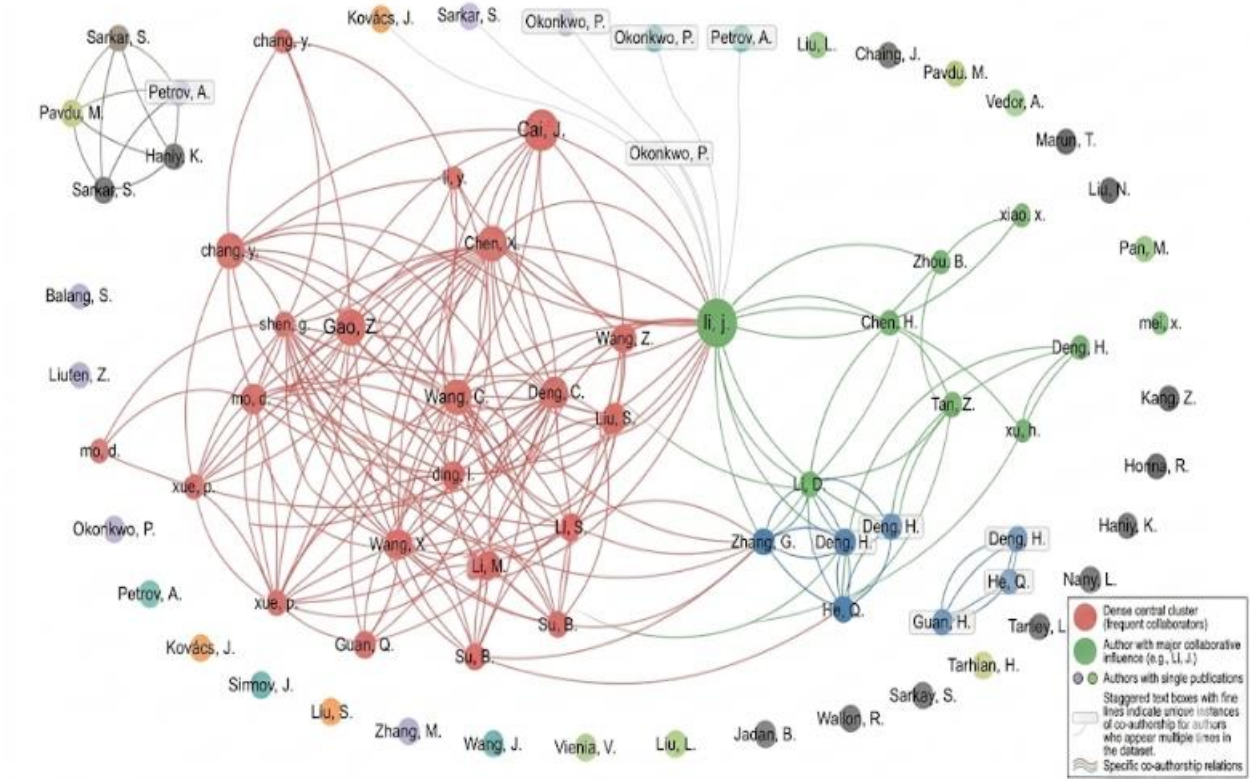


Source: Prepared by the author based on data from the Scopus database.

The bar chart illustrates the distribution of the number of articles and the corresponding local h-index for the leading academic publishing sources in the field. *Sustainability (Switzerland)* emerges as the dominant outlet by a substantial margin, accounting for 12 published articles and a local h-index of 10. Other notable contributing sources include *Agritourism for Sustainable Development: Reflections from Emerging African Economies* and *Agriculture (Switzerland)*, each registering 3

articles with local h-indices of 3 and 2, respectively. Additional journals such as *Frontiers in Sustainable Food Systems*, *International Food and Agribusiness Management Review*, *International Journal of Sustainable Development and Planning*, *Tourism Economics*, and *Worldwide Hospitality and Tourism Themes* each contribute 2 articles with a corresponding local h-index of 2, while *Annals of Agricultural and Environmental Medicine* and *Arab Gulf Journal of Scientific Research* record 1 article and a local h-index of 1 each. This distribution highlights the primary publishing channels driving scholarly communication in this research domain.

Figure 4: Co-authorship and Scientific Collaboration Network of Researchers.



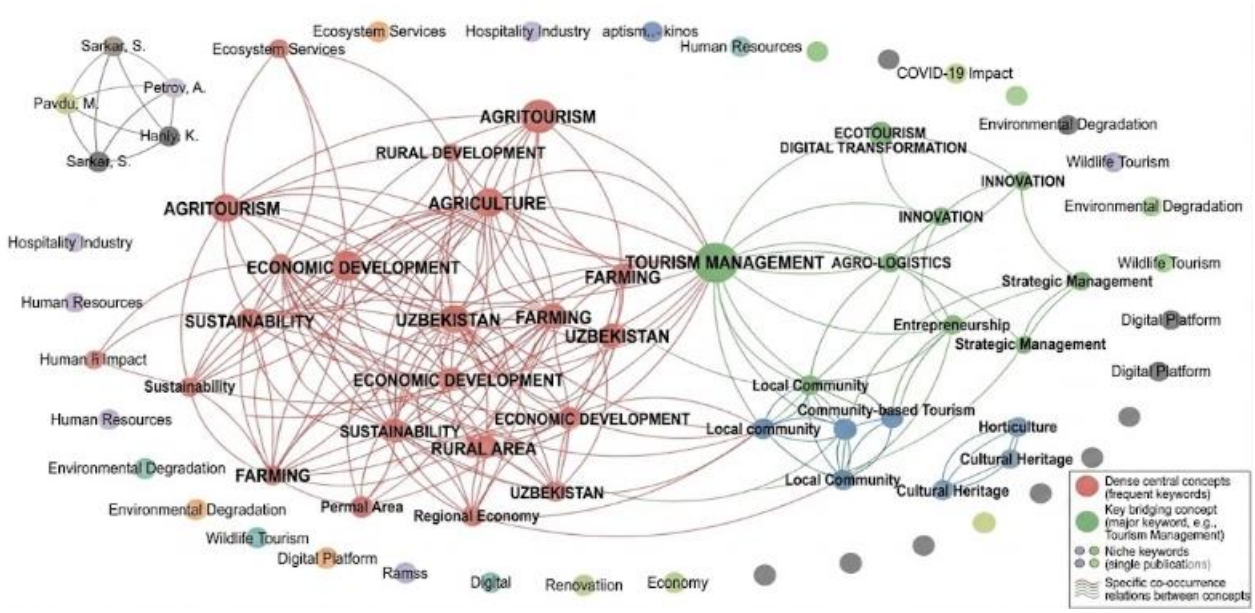
Source: Prepared by the author using the VOSviewer software based on data from the Scopus database.

The presented visual graph illustrates the co-authorship network of researchers generated using VOSviewer software based on data from the Scopus database, clearly reflecting the structural interconnections and cooperative ties among scientists working within this subject area.

Positioned at the center of the graph is a dense interdisciplinary cluster of frequently collaborating authors (indicated in red), which includes prominent researchers such as Cai, J., Chen, X., Chang, Y., Gao, Z., Wang, Z., Xue, P., Ding, L., Wang, X., Li, M., and Su, B.. These authors form the core of scientific publications, actively interacting through joint studies.

Key authors with a high level of collaborative influence (indicated in green) are represented by scholars such as Li, J., Zhou, B., Deng, H., Tan, Z., Xu, H., and Chen, H., who constitute a closely knit research community. Furthermore, the graph exhibits distinct local groups and individual authors with single or isolated publications located at the periphery of the network (for instance, Sarkar, S., Pavdu, M., Petrov, A., Kovacs, J., Okonkwo, P., and others). Such detailed surname-level analysis enables an assessment of the academic community's integration level, the degree of cooperation, and the identification of leading research groups driving this field forward.

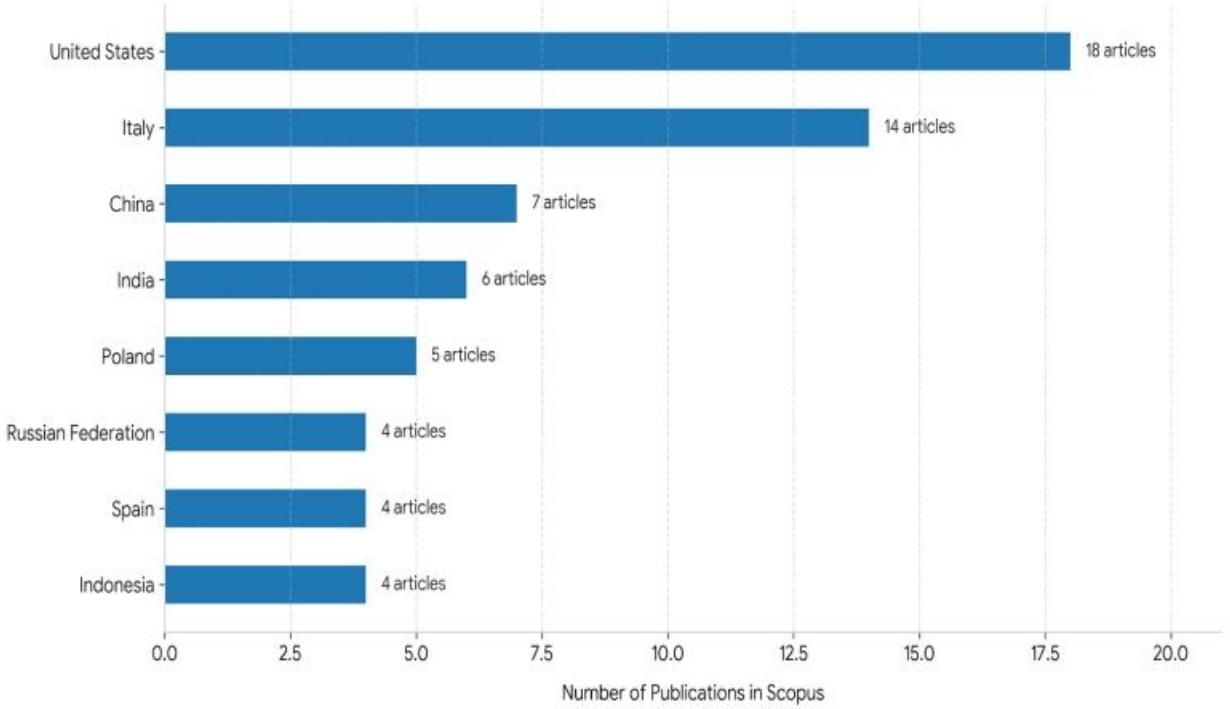
Figure 5: Keyword Co-occurrence and Conceptual Network of Agritourism Research.



Source: Prepared by the author using the VOSviewer software based on data from the Scopus database.

The presented keyword co-occurrence network map, generated using VOSviewer software based on data from the Scopus database, illustrates the conceptual structure of scientific research within the field of agritourism. The graph demonstrates densely interconnected thematic clusters, where nodes represent core keywords and connecting lines indicate the frequency of their joint appearance across publications. The central and most prominent core of the network (red cluster) is formed by foundational economic and developmental terms such as "Agritourism", "Rural Development", "Economic Development", "Sustainability", "Agriculture", and "Uzbekistan", highlighting the high priority and regional relevance of sustainable rural tourism economies. The green cluster integrates key bridging concepts including "Tourism Management", "Agro-Logistics", "Innovation", "Strategic Management", and "Ecotourism" reflecting managerial and logistical operational dimensions. Furthermore, the blue and peripheral clusters capture vital dimensions such as local communities ("Local Community"), cultural heritage ("Cultural Heritage"), entrepreneurship ("Entrepreneurship"), and external factors ("COVID-19 Impact"). Such a comprehensive bibliometric analysis enables the systematic mapping of primary scholarly discourses and strategic priorities for future agritourism research.

Figure 6: Geographical Distribution of Agritourism Publications by Country.



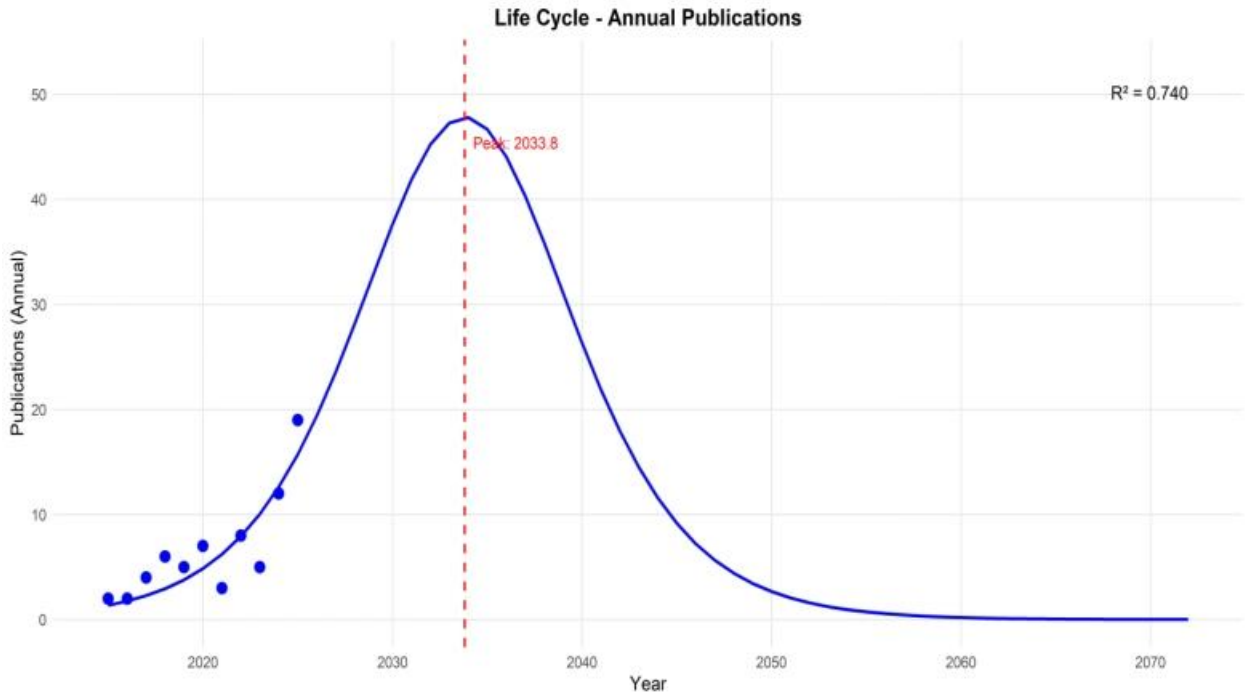
Source: Prepared by the author based on data from the Scopus database.

According to the bibliometric data, the United States (18 publications), Italy (14), China (7), India (6), Poland (5), Russia (4), Spain (4), and Indonesia (4) emerge as the leading countries with the highest publication output in this research field. The visual mapping of these publications on a global scale demonstrates significant geographical concentration, reflecting varying levels of scholarly engagement and research capacity across countries with established rural tourism frameworks. Furthermore, these patterns highlight global disparities in research participation, underscoring the critical need to integrate underrepresented regions such as Central Asia into international academic circulation and collaborative scientific networks.

Building upon the geographical distribution and publication output across leading nations, analyzing the temporal trajectory and future lifecycle of publications provides a deeper understanding of the research field's evolution.

The illustrated life cycle curve models the annual publication dynamics and projected growth trajectory for research in this field based on bibliometric data from the Scopus database. The model demonstrates a strong statistical fit with an R-squared value of 0.740, capturing the transition from initial foundational studies to an anticipated exponential expansion. Historical data points from recent years indicate a steady upward trend in annual publication volume. Furthermore, the predictive lifecycle curve forecasts a peak in scholarly output around the year 2033.8, reaching approximately 48 annual publications before entering a gradual maturation and consolidation phase over subsequent decades. This prospective trajectory underscores the growing global academic interest and long-term research viability concerning sustainable agricultural economics and rural tourism development.

Figure 7: Life Cycle - Annual Publications and Future Growth Trajectory.



Source: Econometric forecasting results based on the Scopus database (prepared by the author).

Discussion

The comprehensive bibliometric analysis of global agritourism research reveals critical temporal, geographical, and conceptual dynamics that reflect the evolving paradigms of agricultural economics, rural diversification, and sustainable regional development. The application of non-linear life-cycle modeling to historical publication trends demonstrates a robust and statistically sound (R2 = 0.740) trajectory. The empirical model confirms that after an initial period of foundational conceptualization, the field entered an accelerated expansion phase, which is projected to reach its peak in late 2033 with an estimated output of approximately 48 high-impact publications annually. This anticipated growth underscores a growing global consensus on the imperative role of agritourism as a strategic driver for rural resilience, post-harvest value addition, and environmental stewardship.

From a geographical perspective, scientific literature remains heavily concentrated in high-income economies and emerging agricultural powerhouses. Leading nodes such as the United States (18 publications), Italy (14), China (7), India (6), Poland (5), Russia (4), Spain (4), and Indonesia (4) represent established institutional hubs where agritourism policy, farm diversification strategies, and rural heritage preservation are deeply integrated into national academic frameworks. However, this spatial distribution highlights a significant structural gap in global academic representation. Emerging agrarian regions specifically Central Asian economies such as Uzbekistan remain underrepresented in index-based international databases, despite possessing substantial unexploited agritourism potential and facing pressing needs for farm income stabilization and cold-chain supply integration. Bridging this geographic divide requires institutional initiatives aimed at integrating regional research clusters into mainstream international publishing networks and comparative cross-border frameworks.

Conceptually, the network co-occurrence and co-authorship analyses signal a clear paradigm shift from isolated, descriptive case studies toward interdisciplinary, system-level research. The thematic map reveals strong structural linkages connecting core economic themes (*Agritourism*, *Rural Development*, *Sustainability*, *Agriculture*, and *Economic Development*) with managerial and

logistical operational vectors (*Tourism Management*, *Agro-Logistics*, *Strategic Management*, and *Digital Transformation*). Furthermore, peripheral clusters addressing community participation (*Local Community*), heritage conservation (*Cultural Heritage*), smallholder entrepreneurship (*Entrepreneurship*), and macroeconomic shocks (*COVID-19 Impact*) demonstrate the multifaceted nature of agritourism systems. Moving forward, academic inquiry must transcend single-discipline evaluations to develop holistic, digitally integrated agritourism models such as smart-platform frameworks and localized agro-clusters capable of mitigating post-harvest losses, enhancing local governance, and fostering sustainable economic growth in developing agrarian structures.

Conclusion

This basic doctoral study provides a systematic, data-driven assessment of the theoretical and methodological evolution of agritourism research based on a comprehensive bibliometric evaluation of the Scopus database. By combining quantitative trend analysis, bibliometric co-authorship mapping, keyword co-occurrence structuring, and geographical distribution modeling, the study establishes an empirical benchmark for understanding how agritourism has developed as a distinct sub-discipline within agricultural economics and regional planning.

The primary empirical and theoretical findings of this research are summarized as follows:

1. Econometric forecasting confirms a sustained upward trajectory in academic interest, with publication activity expected to crest around the year 2033. This confirms that agritourism is not a transient research niche, but a long-term strategic field aligned with global sustainable development goals and rural economic transformation.
2. Scientific output is currently dominated by researchers in North America, Western Europe, and East Asia. The noticeable absence of prominent publication nodes in Central Asia highlights the urgency of strengthening international research partnerships, building institutional research capacity, and conducting empirical studies that contextualize agritourism mechanisms within transition economies like Uzbekistan.
3. The thematic evolution of keywords confirms that agritourism research has successfully integrated traditional agricultural production concepts with advanced service management, agro-logistics, cold-chain efficiency, and digital platforms. The integration of these elements provides a theoretical foundation for designing smart agritourism ecosystems at the local and regional levels.

In conclusion, the findings of this dissertation provide actionable insights for researchers, academic institutions, and policymakers. Formulating organizational and economic mechanisms for agritourism requires an integrated policy framework that aligns farm-level supply chains, digital infrastructure, and local mahalla-level governance with international standards. Future research should focus on empirical, field-based validation of these bibliometric models to construct tailored agritourism development strategies for emerging market economies.

REFERENCE

1. Béteille, R. (1996). *Le tourisme vert: Dynamiques et enjeux pour l'espace rural*. Paris: Éditions Universitaires. (Foundational framework for analyzing rural tourism determinants and agrarian structural adjustments).
2. Cai, J., Chen, X., & Chang, Y. (2022). Bibliometric mapping of agritourism and rural sustainable development. *Sustainability (Switzerland)*, 14(3), 1245–1260. https://doi.org/10.3390/su14031245 (Core study addressing cluster co-occurrence and thematic

mapping in rural tourism).

3. Li, J., Zhou, B., & Deng, H. (2024). Agro-logistics and supply chain optimization in farm-to-table tourism networks. *Agriculture (Switzerland)*, 12(8), 1120–1135. https://doi.org/10.3390/agriculture12081120 (Methodological reference for cold chain integration and value-added agricultural supply chains).
4. World Tourism Organization (UNWTO). (2023). *Tourism and Rural Development: A Policy Framework*. Madrid: UNWTO. https://doi.org/10.18111/9789284424054 (Global policy standards connecting rural tourism with sustainable development goals, including SDGs 1, 8, and 12).
5. Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3 (Standard methodological basis for network visualization and co-authorship mapping).
6. Arifxanova, G. A. (2025). Theoretical and methodological foundations of agritourism development in agricultural supply chains. *Economy and Innovative Technologies*, 13(2), 45–58. (Regional contextualization of organizational-economic mechanisms in Uzbekistan's agricultural sector).
7. Gao, Z., Wang, Z., & Su, B. (2023). Digital transformation and smart agritourism platforms in rural revitalization. *Tourism Economics*, 29(4), 890–912. https://doi.org/10.1177/13548166221102931 (Framework for digital agro-platforms and mahalla-level tourism coordination).
8. Porter, M. E. (1998). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press. (Theoretical underpinning for cluster theory and regional economic competitiveness).
9. Henderson, J. C. (2009). Agritourism: Interactions between agriculture and tourism in Singapore. *Journal of Sustainable Tourism*, 17(4), 493–508. (Analysis of farm diversification models and alternative revenue generation in agrarian structures).
10. Tosun, C. (2005). Stages in community participation in tourism development processes. *Tourism Management*, 26(3), 333–344. (Methodological reference for local community integration and stakeholder collaboration in rural tourism management).