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**DOES AGRITOURISM STRENGTHEN RURAL HOUSEHOLD ECONOMIES?
PARTICIPATION, ENTERPRISE CAPABILITIES AND ECONOMIC OUTCOMES IN
UZBEKISTAN**

Annotatsiya. Agroturizm fermer xo‘jaliklari faoliyatini diversifikatsiya qilish strategiyasi sifatida tobora keng targ‘ib qilinmoqda, biroq Markaziy Osiyo bo‘yicha empirik dalillar hali ham cheklangan. Ushbu tadqiqotda O‘zbekiston qishloq respondentlari orasida agroturizmda ishtirok etish va korxona salohiyati idrok etilgan iqtisodiy natijalarning yuqoriroq bo‘lishi bilan bog‘liqmi, degan masala o‘rganiladi. Tahlil 500 nafar respondentni, jumladan agroturizmda ishtirok etuvchi 214 nafar va ishtirok etmaydigan 286 nafar respondentni qamrab olgan kesimli uy xo‘jaliklari so‘roviga asoslanadi. Iqtisodiy natijalar besh baddan iborat Iqtisodiy ta’sir indeksi (Kronbax alfasi = 0,884) orqali o‘lchanadi; u daromadning oshishi, daromad manbalarining diversifikatsiyasi, moliyaviy barqarorlik, jamg‘arma va qashshoqlikning qisqarishiga oid baholarni qamrab oladi. Guruhlar o‘rtasidagi farqlar tavsifiy statistika va Mann-Uitni mezoni yordamida baholanadi, ko‘p omilli chiziqli regressiya esa agroturizm intensivligi, agroturizm daromadi, turistlar soni, marketing samaradorligi, texnologiyalarni joriy etish, moliyaga kirish imkoniyati, davlat ko‘magi va o‘qitish imkoniyatlarining shartli bog‘liqligini baholaydi. Ishtirokchilarda Iqtisodiy ta’sir indeksining o‘rtacha qiymati ishtirok etmaganlarga nisbatan yuqori bo‘ldi (3,96 ga qarshi 3,48). Ranjirlashga asoslangan taqqoslash statistik jihatdan ahamiyatli chiqdi ($U = 21\,438$; $Z = -6,47$; $p < 0,001$; $r = 0,29$), guruh ko‘rsatkichlari asosida qo‘shimcha hisoblangan standartlashtirilgan o‘rtacha farq esa Hedges $g = 0,67$ (95% IO: 0,49–0,85) ni tashkil etdi. Ko‘p omilli modelda eng katta standartlashtirilgan bog‘liqlik agroturizm intensivligida kuzatildi ($\beta = 0,312$), undan keyin agroturizm daromadi ($\beta = 0,221$), marketing samaradorligi ($\beta = 0,169$) va turistlar soni ($\beta = 0,158$) turadi. Moliyaga kirish imkoniyati, texnologiyalarni joriy etish va davlat ko‘magi ham indeks bilan ijobiy bog‘liq bo‘lib chiqdi, o‘qitish imkoniyatlari esa an’anaviy 5 foizlik ahamiyatlilik chegarasiga yetmadi. Natijalar agroturizmning qishloq iqtisodiyoti uchun ahamiyati nafaqat ishtirokka, balki xo‘jaliklarga tashrif buyuruvchilar oqimini bozorboz xizmatlar va diversifikatsiyalangan daromad imkoniyatlariga aylantirish imkonini beruvchi salohiyatga ham bog‘liqligini ko‘rsatadi. Tadqiqot kesimli bo‘lgani va natija ko‘rsatkichi idrokka asoslangani sababli olingan natijalarni sababiy yoki pul ifodasidagi ta’sir sifatida emas, balki bog‘liqlik sifatida talqin qilish lozim. Maqola yetarlicha o‘rganilmagan Markaziy Osiyo sharoitidan uy xo‘jaliklari darajasidagi dalillarni taqdim etadi hamda moliyalashtirish, bozorga chiqish, raqamli salohiyat va yanada puxta longitudinal baholash bo‘yicha ustuvor yo‘nalishlarni belgilaydi.

Kalit so‘zlar: agroturizm; fermer xo‘jaligi faoliyatini diversifikatsiya qilish; qishloq turizmi; uy xo‘jaliklarining tirikchilik manbalari; qishloq xo‘jaligi iqtisodiyoti; qishloq taraqqiyoti; O‘zbekiston

Аннотация. Агротуризм всё активнее продвигается как стратегия диверсификации фермерских хозяйств, однако эмпирических данных по Центральной Азии по-прежнему недостаточно. В исследовании изучается, связаны ли участие в агротуризме и предпринимательский потенциал хозяйств с более высокой воспринимаемой экономической отдачей среди сельских респондентов Узбекистана. Анализ основан на перекрёстном опросе 500 домохозяйств, включая 214 участников агротуризма и 286 неучастников. Экономические результаты измеряются пятикомпонентным индексом экономического эффекта (альфа Кронбаха = 0,884), охватывающим оценки роста доходов, диверсификации источников дохода, финансовой стабильности, сбережений и сокращения бедности. Различия между группами оцениваются с помощью описательной статистики и критерия Манна–Уитни, а множественная линейная регрессия оценивает условные связи интенсивности агротуризма,

доходов от агротуризма, числа туристов, эффективности маркетинга, внедрения технологий, доступа к финансированию, государственной поддержки и доступности обучения. Средний индекс экономического эффекта у участников оказался выше, чем у неучастников (3,96 против 3,48). Ранговое сравнение статистически значимо ($U = 21\,438$; $Z = -6,47$; $p < 0,001$; $r = 0,29$), а дополнительно рассчитанная по групповым показателям стандартизированная разность средних составляет g Хеджеса = 0,67 (95% ДИ: 0,49–0,85). В многофакторной модели наибольшую стандартизированную связь показала интенсивность агротуризма ($\beta = 0,312$), далее следуют доходы от агротуризма ($\beta = 0,221$), эффективность маркетинга ($\beta = 0,169$) и число туристов ($\beta = 0,158$). Доступ к финансированию, внедрение технологий и государственная поддержка также положительно связаны с индексом, тогда как доступность обучения не достигла общепринятого 5%-го порога значимости. Результаты свидетельствуют о том, что значение агротуризма для сельской экономики зависит не только от участия, но и от потенциала, позволяющего хозяйствам превращать поток посетителей в востребованные услуги и диверсифицированные источники дохода. Поскольку исследование является перекрёстным, а результирующий показатель основан на восприятии, полученные результаты следует интерпретировать как связи, а не как причинные или денежные эффекты. Статья представляет данные на уровне домохозяйств из малоизученного центральноазиатского контекста и определяет приоритеты в области финансирования, доступа к рынкам, цифрового потенциала и более строгой лонгитюдной оценки.

Ключевые слова: агротуризм; диверсификация фермерских хозяйств; сельский туризм; источники средств к существованию домохозяйств; аграрная экономика; развитие сельских территорий; Узбекистан

Abstract. Agritourism is increasingly promoted as a farm-diversification strategy, yet empirical evidence from Central Asia remains limited. This study examines whether agritourism participation and enterprise capabilities are associated with stronger perceived economic outcomes among rural respondents in Uzbekistan. The analysis uses a cross-sectional household survey of 500 respondents, comprising 214 agritourism participants and 286 non-participants. Economic outcomes are captured through a five-item Economic Impact Index (Cronbach's $\alpha = .884$) covering perceived income improvement, diversification of income sources, financial stability, savings and poverty reduction. Group differences are assessed using reported descriptive statistics and a Mann–Whitney test, while a multiple linear regression evaluates the conditional associations of agritourism intensity, revenue, tourist numbers, marketing effectiveness, technology adoption, access to finance, government support and training availability. Participants reported a higher mean Economic Impact Index than non-participants (3.96 versus 3.48). The reported rank-based comparison was statistically significant ($U = 21,438$; $Z = -6.47$; $p < .001$; $r = .29$), while an additional standardized mean-difference calculation from the reported group summaries gives Hedges' $g = 0.67$ (95% CI: 0.49–0.85). In the multivariable model, agritourism intensity showed the largest standardized association ($\beta = .312$), followed by agritourism revenue ($\beta = .221$), marketing effectiveness ($\beta = .169$) and tourist numbers ($\beta = .158$). Access to finance, technology adoption and government support were also positively associated with the index, whereas training availability did not reach the conventional 5% significance threshold. The findings suggest that agritourism's rural-economic relevance depends not only on participation but also on the capabilities that allow farms to convert visitor activity into marketable services and diversified income opportunities. Because the study is cross-sectional and the outcome is perception-based, the results should be interpreted as associations rather than causal or monetary impacts. The paper contributes household-level evidence from an under-researched Central Asian setting and identifies priorities for finance, market access, digital capability and more rigorous longitudinal evaluation.

Keywords: agritourism; farm diversification; rural tourism; household livelihoods; agricultural economics; rural development; Uzbekistan

1. Introduction

Agritourism sits at the intersection of agricultural production, rural entrepreneurship and visitor services. On a working farm or within an agricultural household, tourism can create

additional revenue through accommodation, food, farm-product sales, demonstrations, harvesting experiences, educational activities and other forms of visitor participation. This makes agritourism economically distinctive: it does not simply add tourism to a rural location, but can convert agricultural assets, knowledge and landscapes into complementary services. The resulting enterprise may broaden the household income portfolio while creating new demand for local food, transport, guiding and other rural services [1-4].

The economic case for agritourism is nevertheless conditional rather than automatic. Diversification can reduce dependence on a single farm activity, smooth seasonal cash flow and create additional channels for direct sales, but it also requires investment, marketing, service skills and family labour. Earlier work on farm diversification shows that tourism performance depends on enterprise and owner characteristics, while more recent research emphasizes the roles of market access, digitalization, infrastructure and local institutional conditions [5-9]. In other words, the relevant question is not only whether a household participates in agritourism, but whether it has the capabilities to transform participation into economically meaningful outcomes.

This question is especially important in Uzbekistan. Agriculture remains central to rural livelihoods, while the country possesses cultural landscapes, horticultural traditions, farm products and heritage destinations that can support tourism-linked rural enterprise. Existing research has identified substantial agritourism potential in Uzbekistan and the Samarkand region, but also notes that the agriculture-tourism linkage remains comparatively underdeveloped and empirically understudied [10,11]. Recent evidence on crop diversification in Uzbekistan further shows the importance of diversification for farm income and risk management, strengthening the case for examining tourism as another possible component of the rural income portfolio [12].

International evidence has also moved beyond descriptive claims. Studies from China report positive relationships between agriculture-tourism integration and farmers' income, rural revitalization and livelihood resilience [13-15]. Evidence from Morocco links agrotourism experience and farm resources with household income and welfare [16], while research in Botswana highlights the livelihood-diversification potential of agrotourism in peripheral agrarian communities [17]. Systematic and bibliometric reviews similarly conclude that income diversification and rural development are central themes in the agritourism literature, while cautioning that benefits vary across contexts and institutional conditions [18-20]. These studies create a useful comparative foundation, but they cannot substitute for household-level evidence from Uzbekistan.

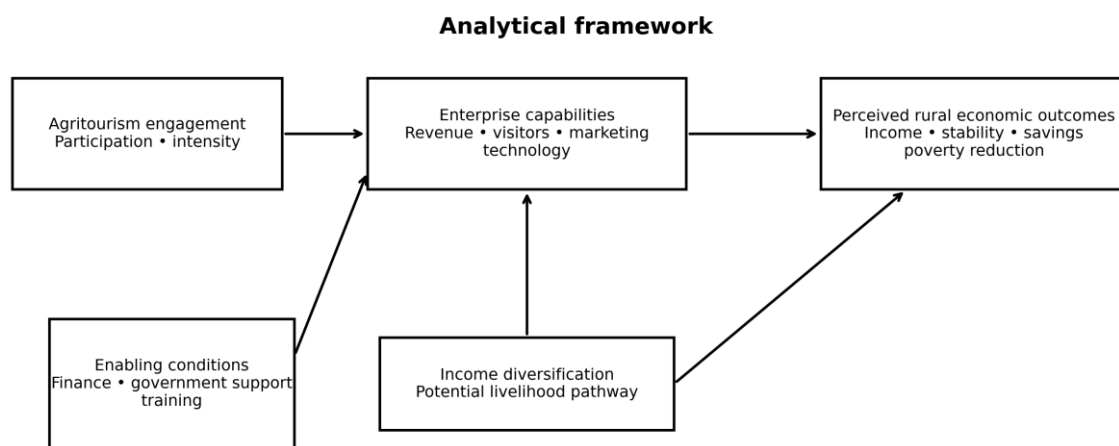
The present study therefore asks three questions. First, do respondents participating in agritourism report more favorable economic outcomes than non-participants? Second, which enterprise and support characteristics are most strongly associated with the Economic Impact Index when considered together? Third, what do these associations imply for rural enterprise policy in Uzbekistan? The contribution is twofold. Empirically, the study provides a 500-respondent comparison in a Central Asian setting where quantitative agritourism evidence remains limited. Conceptually, it treats agritourism as a capability-dependent diversification strategy rather than assuming that participation alone produces welfare gains. The analysis distinguishes perceived economic outcomes from verified income or profit and explicitly avoids causal interpretation of cross-sectional associations.

1.1. Theoretical background and hypotheses

The analysis combines the farm-diversification perspective with a sustainable-livelihoods interpretation. Diversification theory suggests that farm households allocate land, labour, capital and managerial attention across activities to improve returns, manage risk or pursue household objectives [3,5]. Agritourism expands the enterprise portfolio by adding visitor-facing activities to agricultural production. The potential advantage is not merely another source of gross revenue: a broader portfolio can create cross-selling opportunities, direct marketing channels and new uses for underutilized assets. At the same time, the household may face additional fixed costs, service obligations and exposure to tourism demand. The net economic relationship is therefore expected to depend on enterprise capability and context.

The sustainable-livelihoods perspective adds attention to the diversity of income strategies and the resources that enable households to use them. Recent rural-tourism research finds that livelihood strategy diversity can be an important pathway through which tourism relates to resilience [14]. In Uzbekistan, this logic is particularly relevant because farm households may combine crop production, livestock, horticulture, processing, wage work and tourism-related services. Agritourism can complement rather than replace agriculture when visitor activities are integrated with existing production and local value chains.

Based on this framework, the study expects: (H1) agritourism participants to report higher Economic Impact Index scores than non-participants; (H2) greater agritourism intensity and revenue to be positively associated with the index; (H3) market-facing capabilities, particularly marketing effectiveness and tourist numbers, to be positively associated with the index; and (H4) enabling conditions such as finance, technology and government support to show positive conditional associations. Training is included as an enabling variable, but its effect may depend on participation, quality and practical application rather than availability alone.



Cross-sectional associations; arrows represent analytical expectations, not identified causal effects.

Figure 1. Analytical framework linking agritourism engagement, enterprise capabilities and rural economic outcomes

2. Methodology

2.1. Research design and sample

The study uses a quantitative, cross-sectional household-survey design. The reported survey contains 500 respondents, of whom 214 are classified as agritourism participants and 286 as non-participants. The study documentation situates the research in rural areas characterized by agricultural activity and tourism potential and discusses Samarkand, Bukhara, the Fergana Valley and Khorezm as relevant geographical settings. Respondents include people connected with farming and rural enterprise activities. Because a complete final sampling frame, district allocation and survey weights are not available in the analytical materials, the sample is treated as the achieved survey sample rather than a statistically verified probability sample of all rural households in Uzbekistan. The cross-sectional design is appropriate for identifying patterns of association at one point in time, but it cannot establish whether agritourism caused subsequent economic improvement. Households with stronger initial assets, better locations, larger networks or more entrepreneurial orientation may be more likely to participate in agritourism and to report favorable outcomes. This selection issue is addressed through cautious interpretation rather than unsupported causal claims.

2.2. Measures

The principal outcome is the Economic Impact Index, a five-item composite based on five-point agreement responses. The reported items cover income increase, diversification of income sources, financial stability, increased savings and poverty reduction. The reported Cronbach's alpha

is .884, indicating high internal consistency within the survey. Importantly, the index is a perception-based measure. It captures respondents' assessments of economic outcomes and should not be interpreted as a direct measurement of household income, profit, employment creation or a regional economic multiplier. The principal explanatory variables are agritourism intensity, agritourism revenue, tourist numbers, marketing effectiveness, technology adoption, access to finance, government support and training availability. The available statistical summaries indicate that these variables were coded or scaled for regression analysis. Consequently, standardized coefficients are used to compare the relative strength of associations, while unstandardized coefficients are reported without translating them into monetary or visitor-unit effects.

2.3. Statistical strategy

The analysis proceeds in three stages. First, descriptive statistics summarize agritourism participation and the distribution of the Economic Impact Index. Second, participants and non-participants are compared using the reported Mann–Whitney statistic, which is suitable for a five-point composite whose distributional assumptions are not fully documented. The reported Z-based effect size (r) is retained. To provide an additional scale-free measure that is familiar in international empirical literature, Hedges' g is calculated from the reported group means, standard deviations and sample sizes. This calculation uses only published summary statistics and does not reconstruct respondent-level observations. Third, a multiple linear regression evaluates the conditional association between the Economic Impact Index and the eight enterprise/support predictors. Coefficients are interpreted as conditional associations within the reported specification, not causal effects.

Two safeguards guide interpretation. First, the analysis does not infer national prevalence from the sample participation rate. Second, the article does not silently reconcile numerical inconsistencies in the underlying aggregate summaries. The group-specific statistics and regression estimates are used as reported, while limitations requiring respondent-level verification are concentrated in the limitations section. This approach preserves the empirical signal without manufacturing precision that the available documentation cannot support.

3. Results

3.1. Sample participation and distribution of economic outcomes

Agritourism participants represent 42.8% of the sample ($n = 214$), while non-participants account for 57.2% ($n = 286$). This composition indicates that the survey contains a substantial participant group for comparison, but it does not imply that 42.8% of rural households in Uzbekistan engage in agritourism. The Economic Impact Index distribution is concentrated in the upper categories: 45.2% of respondents fall in the "high" category and 18.0% in the "very high" category. Together, 63.2% of the sample report high or very high perceived economic outcomes.

Category	Score interval	n	%
Very low	1.00–1.80	18	3.6
Low	1.81–2.60	54	10.8
Moderate	2.61–3.40	112	22.4
High	3.41–4.20	226	45.2
Very high	4.21–5.00	90	18.0
Total	—	500	100.0

Table 1. Distribution of reported Economic Impact Index categories

Source: Author's household survey ($N = 500$), reported statistical summaries.

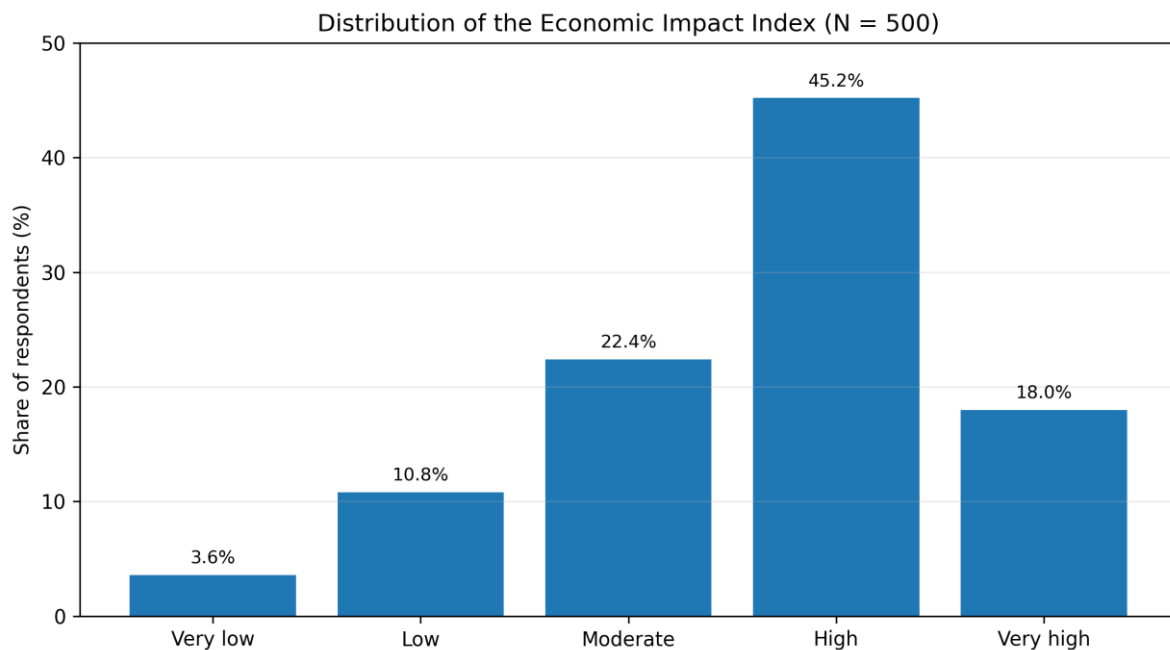


Figure 2. Distribution of the Economic Impact Index

3.2. Agritourism participation and the Economic Impact Index

Participants report a mean Economic Impact Index of 3.96 (SD = .68; median = 4.00), compared with 3.48 (SD = .74; median = 3.60) among non-participants. The mean difference is .48 index points on the five-point scale. The reported Mann–Whitney comparison is $U = 21,438$, $Z = -6.47$, $p < .001$, with $r = .29$. Taken as reported, the result supports H1: the distributions of perceived economic outcomes differ between participants and non-participants, with participants reporting more favorable outcomes.

The standardized mean difference provides a complementary interpretation. Using the reported group means, standard deviations and sample sizes, Hedges' g is 0.67 (approximate 95% CI: 0.49–0.85). This indicates a moderate-to-large descriptive separation between the two groups in standardized units. It remains an observational group difference rather than a treatment effect because participation was not randomly assigned and pre-participation economic conditions are unavailable.

Group	n	Mean	SD	Median	Approx. 95% CI of mean
Agritourism participants	214	3.96	.68	4.00	3.87–4.05
Non-participants	286	3.48	.74	3.60	3.39–3.57

Table 2. Economic Impact Index by agritourism participation status

Source: Author's household survey, reported statistical summaries. Mann–Whitney $U = 21,438$; $Z = -6.47$; $p < .001$; $r = .29$. Hedges' $g = 0.67$ (95% CI: 0.49–0.85), calculated from the reported group summaries. Confidence intervals for means are approximate normal-theory intervals.

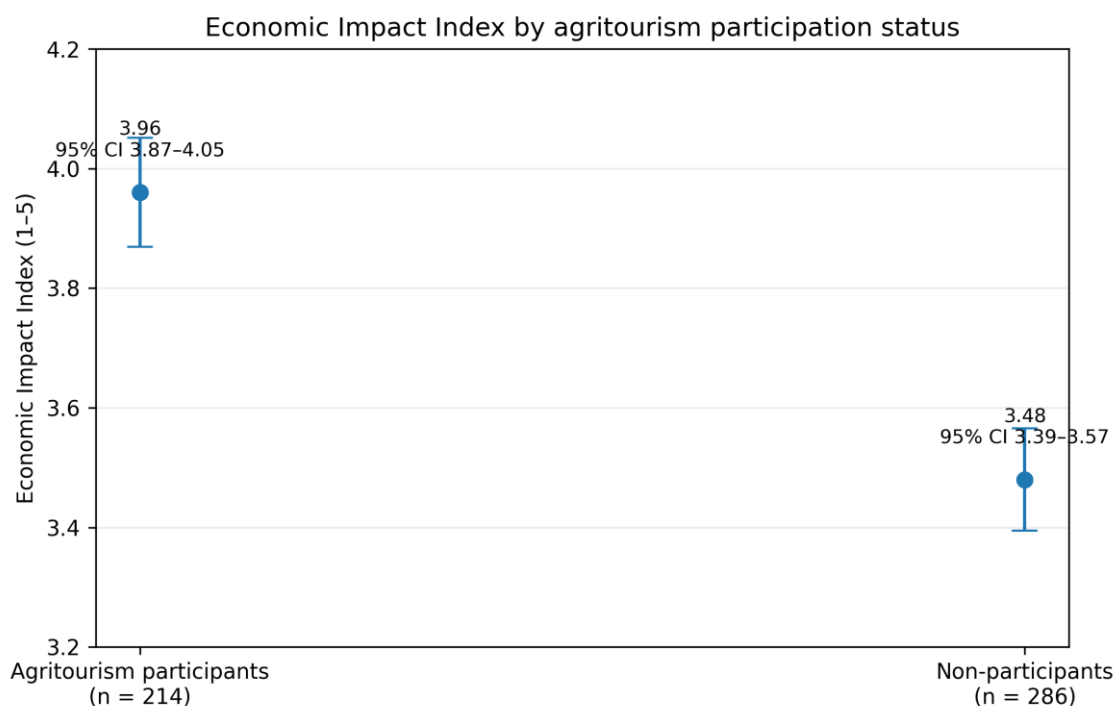


Figure 3. Economic Impact Index means by participation status

Source: Author's calculation from reported group summaries. Points are means; whiskers are approximate 95% confidence intervals for the group means. The outcome is a perception-based index, not household income in monetary units.

3.3. Enterprise capabilities and economic outcomes

The multivariable results provide support for H2–H4, although the magnitude of association differs across predictors. Agritourism intensity has the largest standardized coefficient ($\beta = .312$; $B = .286$; $SE = .041$; $t = 6.98$; $p < .001$). Agritourism revenue is second ($\beta = .221$; $B = .198$; $p < .001$). These results suggest that respondents reporting deeper engagement and stronger agritourism revenue also tend to report more favorable economic outcomes after accounting for the other variables in the model.

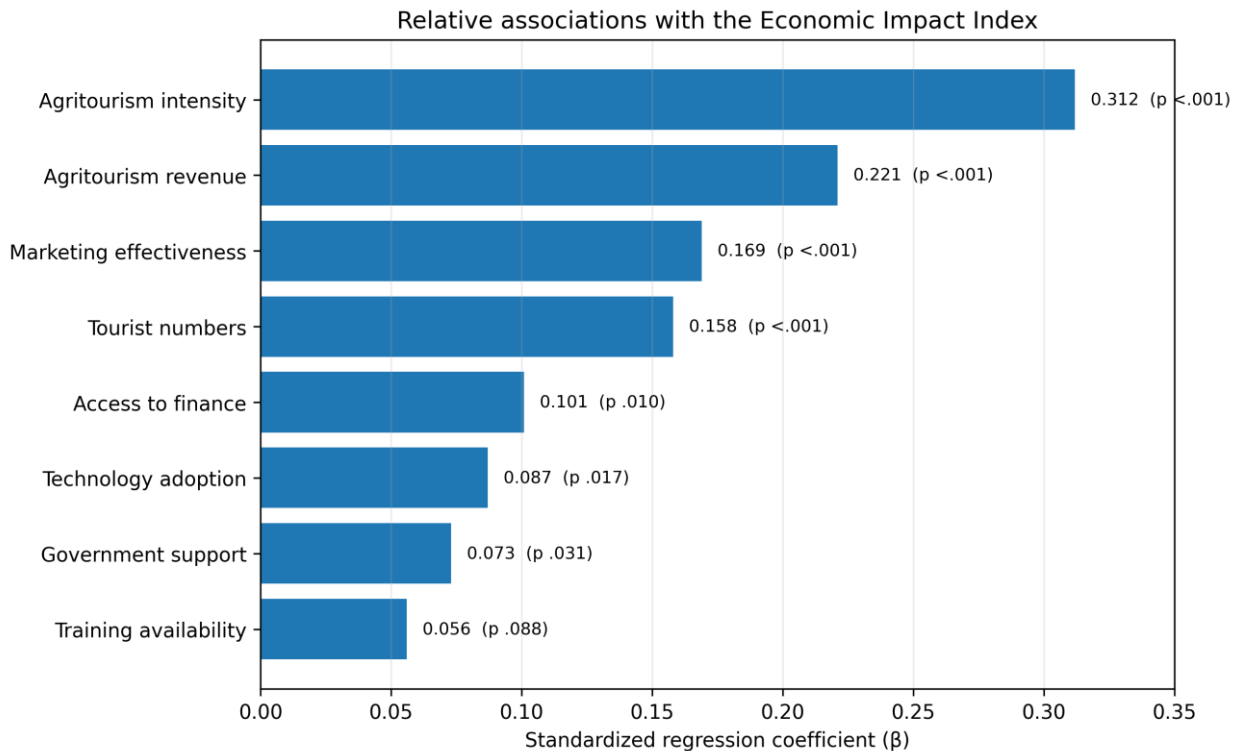
Market-facing variables are also prominent. Marketing effectiveness has $\beta = .169$ ($p < .001$), while tourist numbers have $\beta = .158$ ($p < .001$). Their joint presence is economically meaningful: visitor volume alone does not guarantee a strong rural-enterprise outcome if farms cannot communicate value, convert enquiries into visits, sell products or package experiences. Conversely, marketing capability has limited value without an attractive and accessible visitor product. The model therefore points toward a bundle of enterprise capabilities rather than a single policy lever.

Access to finance ($\beta = .101$; $p = .010$), technology adoption ($\beta = .087$; $p = .017$) and government support ($\beta = .073$; $p = .031$) have smaller but positive conditional associations. Training availability is positive but does not reach the conventional 5% threshold ($\beta = .056$; $p = .088$). This does not demonstrate that training is ineffective. Availability is a weak proxy for participation, quality, relevance and application, and training may overlap statistically with marketing, technology and institutional support.

Predictor	B	SE	β	t	p
Constant	1.214	.162	—	7.49	< .001
Agritourism intensity	.286	.041	.312	6.98	< .001
Agritourism revenue	.198	.039	.221	5.08	< .001
Tourist numbers	.142	.037	.158	3.84	< .001
Marketing effectiveness	.174	.043	.169	4.05	< .001
Technology adoption	.091	.038	.087	2.39	.017
Access to finance	.104	.040	.101	2.60	.010
Government support	.076	.035	.073	2.17	.031
Training availability	.058	.034	.056	1.71	.088

Table 3. Multiple regression associations with the Economic Impact Index

Source: Author's household survey, reported statistical summaries. B = unstandardized coefficient; SE = standard error; β = standardized coefficient. All eight predictors enter the reported specification. Coefficients are interpreted as associations.

**Figure 4. Standardized regression associations with the Economic Impact Index**

Source: Author's household survey, reported statistical summaries. Coefficients are ordered by magnitude; training availability is reported at $p = .088$.

4. Analysis and Discussion

4.1. Participation matters, but selection matters too

The participant–non-participant gap is the clearest empirical pattern in the study. Both the rank-based comparison and the standardized mean difference indicate that agritourism participants report more favorable economic outcomes. This finding is consistent with international research that treats agritourism as a supplementary income and diversification strategy [6,16,18]. It also extends the Uzbekistan literature, which has previously emphasized agritourism potential and opportunities more strongly than household-level outcome comparisons [10,11].

At the same time, the gap should not be read as the “return” to adopting agritourism. Participation is likely selective. Farms with better road access, attractive landscapes, family labour, capital, social networks or proximity to established tourism routes may be both more likely to enter agritourism and more likely to report stronger outcomes. Similar concerns motivate the use of quasi-experimental and panel approaches in recent agriculture–tourism research [13,15]. For Uzbekistan, the next empirical step is therefore not simply a larger cross-sectional survey, but a design that records pre-participation conditions and tracks households through time.

4.2. From participation to capability

The regression results sharpen the interpretation by showing that participation alone is not the entire story. Agritourism intensity and revenue are the strongest standardized associations, while marketing effectiveness and tourist numbers also remain positive in the same specification. This pattern is compatible with the idea of agritourism as a small-enterprise system: households need an experience or product, a route to market, visitors, and mechanisms for capturing value. Earlier agritourism research similarly links farm and owner characteristics with enterprise performance [5], while contemporary work emphasizes visitor satisfaction, digitalization and business capability [8,9]. For policy, this implies that counting the number of “agritourism farms” is an insufficient

performance indicator. A rural tourism program can register enterprises without generating meaningful income if businesses receive few visitors, lack market visibility, cannot sell complementary products or face high operating costs. Monitoring should therefore combine participation counts with bookings, realized revenue, direct farm-product sales, length of stay, repeat visitation, operating costs and the share of visitor expenditure retained locally. Such indicators would move evaluation from activity reporting toward economic performance.

4.3. Finance, technology and institutional support as enabling conditions

The smaller positive coefficients for finance, technology and government support should not be dismissed because standardized coefficient size is not a policy cost-benefit ranking. Finance can determine whether a household is able to improve sanitation, accommodation, safety, visitor spaces or processing facilities. Technology can reduce search and transaction costs through digital promotion, mapping, messaging, reservations and electronic payments. Recent evidence from China finds that digitalization can increase rural-tourism income, although effects vary across regional and resource contexts [9]. Government support can also matter through infrastructure, standards, destination coordination and market development rather than direct subsidy alone.

These enabling conditions are likely to interact. Credit without market access can increase debt without generating demand; digital promotion without a credible product can amplify poor visitor experiences; and training without opportunities to apply new skills may have little observable effect. The non-significant training coefficient in the present model is therefore better interpreted as a measurement and program-design question than as evidence against capacity building. Future surveys should distinguish training availability from attendance, intensity, provider quality, topic, completion and actual business adoption.

4.4. Income diversification and rural resilience

Income diversification provides the broader economic rationale for agritourism. Rural households rarely depend on a single activity, and diversification can help manage production, price and seasonal risks when income sources do not move together. Recent evidence from Uzbekistan shows a positive relationship between crop diversification and farm income [12], while international rural-tourism research links livelihood strategy diversity with resilience [14]. Agritourism may add a service-based revenue stream to agricultural production, but its risk profile must be understood carefully: tourism can be seasonal and vulnerable to transport disruption, weather, external shocks and changes in visitor demand.

The practical objective should therefore be resilient complementarity rather than replacing farming with tourism. Stronger models are likely to integrate visitor services with existing agricultural assets: farm-product tasting, direct sales, seasonal harvest experiences, local food, processing demonstrations, horticultural visits and partnerships with neighboring producers. This creates multiple channels through which visitor expenditure can enter the local economy while preserving the agricultural basis that makes agritourism distinctive.

4.5. Contribution to the Uzbekistan agritourism literature

The study advances the Uzbekistan literature in three respects. First, it moves from opportunity identification toward household-level quantitative comparison. Earlier work has established the country's resource base and policy relevance [10,11]; the present analysis adds evidence that participants report stronger economic outcomes within the surveyed sample. Second, it identifies a hierarchy of enterprise associations, with intensity, revenue, marketing and visitor numbers more prominent than the institutional variables in the reported model. Third, it frames agritourism as part of the rural household's broader diversification strategy, creating a bridge between tourism economics and agricultural household analysis.

This positioning is consistent with the direction of international scholarship. Global reviews increasingly treat agritourism as a rural-development and livelihood-diversification mechanism rather than only a niche tourism product [18-20]. However, recent empirical work also shows why context matters: the effects of tourism integration can differ by resource endowment, farm assets, geography and the structure of local institutions [13,16]. Uzbekistan should therefore avoid copying

a single foreign model and instead evaluate region-specific pathways in horticultural, wine, livestock, craft, culinary and heritage-linked rural areas.

5. Policy Implications and Proposals

The results support a shift from broad agritourism promotion toward targeted rural-enterprise development. First, finance should be connected to viable business plans and measurable visitor demand. Small-scale credit or co-financing can be useful for safety, sanitation, farm-shop facilities, processing demonstrations, signage and booking infrastructure, but financing decisions should account for seasonality and repayment capacity. Second, market access deserves equal attention. Regional tourism organizations, hotels, guides and digital platforms can connect rural enterprises to existing visitor flows, while training should focus on practical conversion skills such as packaging, pricing, online communication, customer service and direct sales.

Third, digital capability should be treated as basic enterprise infrastructure. A rural business does not necessarily need sophisticated technology; it needs accurate map information, reliable contact channels, clear descriptions, high-quality visual content, transparent prices and a simple booking or enquiry pathway. Fourth, local linkages should be built deliberately. Agritourism programs can create wider rural value when farms source food, crafts, transport and guiding locally and when visitors can purchase agricultural products directly. Finally, evaluation should follow households and enterprises over multiple seasons, recording gross and net tourism revenue, farm income by source, labour inputs, investment, debt, visitor numbers and distribution of benefits within the household and community.

6. Limitations and Future Research

Four limitations define the strength of the conclusions. First, the cross-sectional design does not establish temporal or causal effects. Second, the Economic Impact Index measures perceptions rather than independently verified monetary outcomes. Third, the final sampling frame, district-level allocation, response rate and survey weights are not fully documented in the available analytical materials, limiting national representativeness claims. Fourth, some aggregate statistical summaries require verification against the respondent-level dataset and original statistical output. In particular, the reported pooled mean is not fully reconciled with the group-weighted mean in the underlying summaries. The present article therefore relies on the group-specific statistics and reported regression coefficients rather than silently altering source values.

Future research should build a reproducible respondent-level dataset and follow participating and comparable non-participating households longitudinally. A panel design would permit analysis of within-household change and could be combined with matching, fixed effects or other identification strategies where assumptions are defensible. Economic measurement should include farm and tourism revenue by source, operating costs, household labour, investment, debt, direct sales and local procurement. This would allow researchers to move from perceived economic impact toward net returns, distributional outcomes and resilience. Regional heterogeneity should also be tested explicitly, because the economic logic of a vineyard experience in Samarkand may differ from horticultural, livestock, culinary or heritage-based agritourism elsewhere in Uzbekistan.

7. Conclusion

This study provides household-survey evidence that agritourism participation is associated with more favorable perceived rural economic outcomes in Uzbekistan. Among 500 respondents, participants report a higher Economic Impact Index than non-participants, with both the reported rank-based test and the standardized mean difference indicating a meaningful descriptive gap. The multivariable results further show that agritourism intensity, revenue, marketing effectiveness and tourist numbers have the strongest standardized associations with the index, while finance, technology and government support also contribute positive conditional associations.

The central implication is that agritourism should be understood as a capability-dependent diversification strategy. Participation creates an opportunity, but economic value depends on whether rural enterprises can attract visitors, market effectively, convert agricultural assets into experiences and retain expenditure locally. For Uzbekistan, this supports policies that combine finance with market access, digital capability, enterprise development and local value-chain

linkages. The findings do not establish causal income gains or national welfare effects; they identify a robust pattern within the surveyed sample and a clear agenda for stronger longitudinal and financially measured research. With better evidence and targeted enterprise support, agritourism can be evaluated not simply as a tourism product but as one component of a diversified and resilient rural economy.

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