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COMMUNITY PARTICIPATION IN URBAN AGRICULTURE (UA): DOES STAKEHOLDER COLLABORATION ENHANCE EMPOWERMENT?

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Abstract

Urban agriculture (UA) is recognised as a solution to urban food insecurity and a driver of economic development. Success of UA initiatives largely depends on careful design, planning, and the active involvement of urban communities. Understanding the motivational values of UA for community participation is crucial for achieving UA's broader social and economic goals. This study aims to investigate the values driving community participation in UA within the Klang Valley, Malaysia, and assess their contributions to social and economic empowerment. The study surveyed 180 participants involved in UA programmes using a multistage random sampling method. To examine the complex relationships among the variables affecting UA outcomes, Partial Least Squares Structural Equation Modelling (PLS-SEM) was applied. A mediating effect analysis was also performed to identify indirect relationships, particularly the role of linking social capital between planning, implementation, and empowerment outcomes. In conclusion, the study highlights the crucial role of implementation and evaluation in urban agriculture (UA) programmes for social and economic empowerment. Evaluation processes revealed successes and potential drawbacks, emphasizing the need for improved methodologies. Linking social capital emerged as a key mediator that connects effective planning to empowerment outcomes, offering insights to enhance UA frameworks for sustainable and resilient communities.

Keywords: urban agriculture, participation, empowerment, community, linking

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INTRODUCTION

Urbanisation embodies a global pattern characterised by an extensive shift of individuals from rural settings to urban areas. This trend largely stems from the pursuit of superior economic prospects, advanced education, enhanced healthcare facilities, and improved living standards (Nath, 2021). In 2021, the world's population living in urban areas surpassed 50%, and it is expected to reach 68% by 2050. In Malaysia, urbanisation has rapidly increased, with 78% of the population living in cities, making it one of the fastest urbanising nations in Southeast Asia (World Bank, 2021). As cities grow, they rely more on imported food, which raises concerns about food security and affordability. In Malaysia, 80% of food is imported, leading to higher costs and dependence on external sources (Bank Negara Malaysia, 2020). Urban dwellers often spend a significant portion of their income on food due to limited local production and high supply chain costs (Ruel et al., 2017).

In recent decades, the recognition of Urban Agriculture's (UA) impacts has prompted the creation of policies and initiatives aimed at encouraging Malaysians to participate in this activity. The government has launched various initiatives and policies to support the promotion of UA programmes. For instance, the National Agrofood Policy 2021-2030 (NAP 2.0) plays a significant role in serving as a guideline for development of the agricultural sector in Malaysia. These initiatives concentrate on the promotion of sustainable farming practices, improvement of fresh and wholesome food accessibility, and the cultivation of more resilient communities. The primary goals of Urban Agriculture (UA) encapsulate the augmentation of local food production, boosting of access to nutritious food, endorsement of sustainable agricultural techniques, and bolstering of both local food systems and economic growth (Payen et al., 2022).

In Malaysia, various initiatives geared towards fostering Urban Agriculture (UA) activities have been launched by local authorities and governmental bodies. As highlighted by Chong et al. (2024), effective collaboration between government agencies and farmers is crucial to ensure urban food security. These actions encompass land provision, extension of technical backing and training, supply of financial subsidies, establishment of policy-related countermeasures, along with commissioning educational initiatives and awareness campaigns (Murdad et al., 2022). The agencies involved include the Department of Agriculture (DOA), the Ministry of Housing and Local Government, the Department of Irrigation and Drainage, the Ministry of Agriculture and Food Industries, as well as city and municipal councils. These authorities provide land, technical assistance, and training to support sustainable agricultural practices. Additionally, they are responsible for creating policies and programmes designed to promote sustainable agriculture. UA can also facilitate the development of social networks and partnerships which offers several

benefits, such as access to resources, knowledge exchange, community engagement, advocacy, and promotion (Murdad et al., 2022). UA can alleviate poverty and become a source of food security for the urban poor (Ramaloo et al., 2018) Connections with organisations, institutions, and financial contributors can provide members of UA programmes with crucial resources including funding, technical support and expertise which are essential for sustaining and expanding the programmes (Parkes et al., 2023). UA programmes in Malaysia promote economic empowerment by creating jobs, reducing costs, and fostering entrepreneurship (Ali & Vaiappuri, 2022). They lower household expenses by providing fresh produce and encouraging self-reliance through small-scale ventures. Successful programmes require partnerships, funding, and effective management (Murdad et al., 2022).

LITERATURE REVIEW

Community Participation

A literature reviewed emphasized that community participation is critical throughout the development process, i.e., during planning, implementation, monitoring, and evaluation. This ensures that the development projects planned are aligned with the needs and aspirations of the local population, leading to more successful outcomes (Margareta & Salahudin, 2022). A study in Japan explored the role of public health nurses (PHNs) in healthcare planning and found that collaboration with community residents from the planning phase is crucial. This involvement helps address medium- to long-term community health issues, therefore enhancing the effectiveness and sustainability of the projects (Yoshioka-Maeda et al., 2021). Similarly, research in Rwanda on stakeholder participation in project planning and execution found that involving stakeholders, especially beneficiaries, significantly impacts project success. The study highlighted that projects with higher stakeholder involvement during the planning phase are more likely to achieve their objectives (Bazimya, 2023).

This paper addresses the critical gap in research on community participation in urban UA within Malaysia. While global studies from countries like Japan, Rwanda, and Germany have highlighted the importance of involving communities in the planning, implementation, monitoring, and evaluation phases of development projects, there is limited understanding of how these principles apply to UA in Malaysia. With the rapid acceleration of urbanisation in Malaysia, challenges such as food insecurity, restricted access to fresh produce, and rising living costs are becoming increasingly urgent. UA offers a sustainable solution to address these concerns. This study investigates how community engagement can boost the effectiveness of UA initiatives and help overcome obstacles related to resource limitations, land availability, and technical expertise.

The purpose of this paper is to examine how UA can serve as a tool for social and economic empowerment, particularly for marginalised communities, by fostering stakeholder collaboration and promoting community involvement. Additionally, aligned with SDG 2 (Zero Hunger) and SDG 11 (Sustainable Cities and Communities), the study investigates how UA can improve local food systems, enhance food security, and build resilience for the community. Involving local communities in the planning, execution, and evaluation phases of development projects is essential for ensuring their relevance, sustainability, and success. Engaging communities helps align the projects with local needs and fosters ownership, leading to better and more enduring social and economic outcomes. The study hypothesizes that planning, implementation, and evaluation each have a positive impact on both social and economic empowerment.

Linking social capital

Linking social capital, introduced by Woolcock in 2001, is the third dimension of social capital. It encapsulates the interplay between individuals or collectives with pertinent stakeholders such as institutions, governmental entities, and non-governmental organisations (NGOs). This symbiotic cooperation facilitates the attainment of programme objectives (Woolcock, 2001). Previous literature emphasized linking social capital as particularly crucial as it provides access to resources (Jiang & Wang, 2020; Ratnam et al., 2024; Po & Hickey, 2020). This can include access to funding, expertise, and other resources that are essential for community development. For example, a community organisation that has a strong linking relationship with a government agency may be able to secure funding or support for a project that they would not have been able to obtain on their own.

By forging alliances with entities and organisations beyond their immediate network, communities can tap into resources and possibilities that may otherwise remain elusive within their own circles. Such connecting relationships permit underrepresented factions to interact with more powerful counterparts, thereby fostering channels to express their needs and interests effectively. Compared to bonding or bridging social capital, linking social capital often has a broader impact on a community. Such relationships have the potential to inspire collaborative endeavours between diverse organisations or collectives, which, despite embodying divergent goals or prerogatives, can converge to strive towards a shared objective (Díaz-Gibson et al., 2017). In the context of UA, local governments can support farming communities by granting access to land, water, and other necessary resources. Additionally, they can provide technical assistance, give training on sustainable farming practices, and facilitate the exchange of knowledge and resources among community members (Halden, 2019). Given this context, the study seeks to evaluate the success of government

and stakeholder interventions in supporting urban farming communities in Malaysia. The study hypothesizes that linking social capital mediates the relationships between planning, implementation, and evaluation with both social and economic empowerment.

Empowerment theory

This study uses the empowerment theory to examine the link between participation in urban agriculture (UA) programmes and community empowerment. Empowerment involves gaining authority over life's decisions in economic and social domains, thus enhancing decision-making, resource mobilisation, and planning (Israel et al., 1994). Social capital, emphasizing trust, reciprocity, and shared norms support this framework by fostering cooperation and productive actions (Evans, 2000). By exploring how empowerment and social capital interact, the study aims to reveal mechanisms through which UA programmes improve community well-being, drive economic growth, and achieve sustainable development by focusing on collaboration and self-reliance within communities.

RESEARCH METHODOLOGY

The study was conducted in Klang Valley which is recognised as Malaysia's most evolved urban expanse, with particular attention on communities engaged in the Urban Agriculture (UA) initiative, which falls under the stewardship of the Department of Agriculture (DOA). From 2,970 participants across seven districts, 180 respondents were selected using multistage random sampling, guided by a G-Power analysis (Faul et al., 2007). After obtaining community leaders' approval, self-administered questionnaires requiring 20 minutes to complete were distributed. Data collection followed a pre-scheduled plan, and the responses were analysed using descriptive statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM) to assess model fit and test hypotheses, summarise demographic insights and validate research objectives.

In this research, the researchers employed a self-administered survey as their primary tool to assess three crucial facets of involvement in the UA programme: planning, implementation, and evaluation. The questionnaire comprised five (5) items related to planning, six (6) items focused on implementation, and four (4) items addressing evaluation. These items were adapted from a previous study conducted by Riwalnu (2014). Furthermore, the researchers included four (4) items from Ibrahim (2016) to measure the level of linking social capital, while social and economic empowerment were assessed using a six-item scale adopted from Ndaeji (2014) and Rezai et al. (2014). All items in the questionnaire were rated on a 5-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). To ensure the validity of

the questionnaire items used to evaluate UA programme participants, the researchers conducted a content validity assessment with expert researchers. Furthermore, a preliminary pilot test was executed, which consequently led to revisions in the phrasing and structural composition of the questionnaire as guided by the critiques received. The questionnaire which was initially conceived in English was translated into the Malay language once complete to adhere to the convenience and comprehension levels of the participating individuals. This study utilised Partial Least Squares Structural Equation Modelling (PLS-SEM) to examine relationships among six (6) key constructs: planning, implementation, evaluation, linking, economic empowerment, and social empowerment. PLS-SEM was chosen for its predictive capability, suitability for small samples, and ability to analyse direct and indirect effects by incorporating one mediator and one moderator (Hair et al., 2020).

ANALYSIS AND DISCUSSION

Table 1 presents the demographic profile of the respondents. The data revealed that a significant majority (66.1%) of participants were aged between 41 and 60 years, with only 10.6% falling within the 21 to 40-year-old category. The average age of the respondents was 53.63 years, indicating a predominance of older participants in the study. This trend suggests that programme participation is higher among the elderly, who, having retired, can devote more time to community engagement. Their extensive experience and knowledge are often utilised, positioning them as role models to encourage younger individuals to participate in the programme. As noted by Riwalnu (2015), older adults' experience and wisdom enable them to contribute more effectively, foster stronger community connections and provide valuable insights.

The research additionally unveiled that 63.9% of respondents possessed either secondary school certifications or vocational training qualifications, hinting at the programme's inclusivity towards individuals hailing from varied educational realms. Moreover, with 30% of the respondents holding either diplomas or degrees from high-ranking colleges and universities, it intimates the programme's appeal to well-educated individuals harbouring a keen interest in sustainable community advancement. Contrastingly, a mere 6.1% of respondents had only primary school education under their belts. Regarding employment sectors, the study revealed that 45.6% of participants were categorised as self-employed individuals. This indicates that the programme attracts participants with diverse work experiences, particularly those who can dedicate time to sustainable community development projects. Furthermore, 33.3% of respondents were employed in the private sector, demonstrating that the programme also appeals to individuals working in private industries. In contrast, only 21.1% of respondents were government employees. When considering the

duration of participation, majority of the respondents (53.9%) had participated in the programme for a period extending beyond a year, whereas 46.1% had been associated for less than a year. This trend stands testament to the sustained commitment most participants have demonstrated towards the UA programme, highlighting their unwavering dedication towards propelling sustainable community development. The demographic characteristics of the respondents offer valuable insights into the factors influencing their involvement in the UA programme, which can help shape targeted and effective strategies for promoting sustainable community development.

Table 1: Demographic profile of respondents

Variable	Frequency	Percentage (%)
Age Group		
21–40	19	10.6%
41–60	119	66.1%
61 and above	42	23.3%
Average: 53.63		
Gender		
Male	116	64.4%
Female	64	35.6%
Marital Status		
Single	11	6.1%
Married	169	63.9%
Level of Education		
Primary school	11	6.1%
Secondary school/Vocational	115	63.9%
College/University	54	30.0%
Working Sector		
Government	38	21.1%
Private	60	33.3%
Others (self-employed or retired)	82	45.6%
Years of Participation		
<1 year	83	46.1%
>1 year	97	53.9%

Source: Present study

Measurement model

For the measurement model, we evaluated the loadings, average variance extracted (AVE), and composite reliability (CR). The criteria required loadings to be ≥ 0.5, AVE to be ≥ 0.5, and CR to be ≥ 0.7. As presented in Table 2, all AVE values exceed 0.5, and all CR values are above 0.7. The loadings were also generally acceptable, with only one or two falling below 0.708 (Hair & Alamer, 2022). In step 2, we evaluated discriminant validity using the HTMT criterion as recommended by Henseler et al. (2015) and later refined by Franke and Sarstedt

(2019). According to the HTMT guidelines, values should be ≤ 0.85 for the stricter criterion, and ≤ 0.90 for the more lenient criterion. As indicated in Table 3, all HTMT values were below the lenient threshold of 0.90, suggesting that respondents perceived the six constructs as distinct. Overall, these validity assessments demonstrate that the measurement items are both valid and reliable.

Table 2: Measurement Model

Construct	Item Code	Loading	CA	CR	AVE
Planning (PLAN)	PLAN1	0.956	0.969	0.976	0.889
	PLAN2	0.955			
	PLAN3	0.946			
	PLAN4	0.942			
	PLAN5	0.915			
Implementation (IMP)	IMP1	0.857	0.954	0.963	0.812
	IMP2	0.897			
	IMP3	0.920			
	IMP4	0.925			
	IMP5	0.913			
	IMP6	0.892			
Evaluation (EV)	EV1	0.951	0.960	0.974	0.927
	EV3	0.976			
	EV4	0.961			
Linking (LINK)	LINK1	0.809	0.933	0.949	0.789
	LINK2	0.880			
	LINK3	0.903			
	LINK4	0.923			
	LINK5	0.923			
Social Empowerment (SE)	SE2	0.942	0.958	0.969	0.858
	SE3	0.848			
	SE5	0.940			
	SE6	0.943			
	SE8	0.926			
Economic Empowerment	EE1	0.825	0.939	0.951	0.764
	EE2	0.846			
	EE3	0.844			
	EE4	0.912			
	EE5	0.905			
	EE6	0.909			

Source: Present study

Table 3: Discriminant Validity

	EE	EV	IMP	LINK	SE	EE
EE						
EV	0.333					
IMP	0.506	0.855				
LINK	0.807	0.475	0.619			
PLAN	0.352	0.896	0.872	0.422		
SE	0.720	0.642	0.819	0.779	0.657	

Note: Evaluation (EV); implementation (IMP); linking (LINK); planning (PLAN); social empowerment (SE), economic empowerment (EE).

Source: Present study

Structural model

Following the recommendations of Hair et al. (2020) and Cain et al. (2017), we assessed the multivariate skewness and kurtosis of the data. The results indicated that the data were not multivariate normal, as evidenced by Mardia's multivariate skewness ($\beta = 8.380$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 65.463$, $p < 0.01$). Consequently, in line with Becker et al. (2023), we reported the path coefficients, standard errors, t-values, and p-values for the structural model using a 10,000-sample bootstrap re-sampling procedure (Ramayah et al., 2018). Additionally, considering Hahn and Ang's (2017) critique that p-values alone are insufficient for testing hypothesis significance, we employed a combination of criteria, including p-values, confidence intervals, and effect sizes. Table 4 summarises the criteria used to test the developed hypotheses. This study tested the effect of the 3 predictors on SE.

The R^2 for SE was 0.748 which shows that all the 3 predictors explained 74.80% of the variance in SE. The result proved that planning shows no significant impact on social empowerment ($\beta = 0.133$, $p > 0.05$), while implementation has a positive effect ($\beta = 0.480$, $p < 0.05$) and evaluation has a negative impact ($\beta = -0.174$, $p < 0.05$), with both being statistically significant. Next, we tested the effect on 3 predictors on EE, with an R^2 of 0.609 which indicates that EE explains 60.9% of the variance in EE, giving support for H6. The confidence intervals bias corrected at 95% also did not show any intervals straddling a 0 for H2, H3 and H6, thereby supporting all the mentioned hypotheses.

Table 4: Significance of path coefficients for all direct relationships

Hypothesis	Relationship	Standard Beta	Standard Error	t value	p value	f^2	BCI LL	BCI UL
H1	PLAN□SE	0.133	0.086	1.554	0.060	0.014	-0.159	0.019
H2	IMP□SE	0.480	0.106	4.513	0.000	0.244	0.165	0.165
H3	EV □SE	-0.174	0.084	2.071	0.019	0.017	0.048	0.156
H4	PLAN□EE	0.161	0.147	1.093	0.137	0.009	-0.328	0.099
H5	IMP□EE	0.149	0.129	1.161	0.123	0.012	-0.347	0.089
H6	EV □EE	-0.271	0.121	2.240	0.013	0.035	0.138	0.164

Note: Evaluation (EV); implementation (IMP); linking (LINK); planning (PLAN); social empowerment (SE), economic empowerment (EE).

Source: Present study

Mediating effect

In this research, linking (LINK) is hypothesized to mediate the relationships between planning (PLAN), implementation (IMP), and evaluation (EV) on social empowerment (SE) and economic empowerment (EE). The principal aim of this analysis was twofold. It aimed not only to pinpoint significant path coefficients, but also to uncover noteworthy and significant indirect effects nestled within these established relationships.

Table 5: Significance of path coefficients for all direct relationships

Hypothesis	Relationship	Standard Beta	Standard Error	t value	p value	BCI LL	BCI UL
H7	PLAN□LINK□SE	-0.145	0.061	2.376	0.009	-0.260	-0.059
H8	IMP□LINK□SE	0.343	0.067	5.108	0.000	0.245	0.469
H9	EV □LINK□SE	0.041	0.069	0.600	0.274	-0.064	0.159
H10	PLAN□LINK□EE	-0.246	0.101	2.435	0.007	-0.428	-0.100
H11	IMP□LINK□EE	0.583	0.114	5.102	0.000	0.399	0.774
H12	EV □LINK□EE	0.070	0.116	0.603	0.273	-0.119	0.259

Note: Evaluation (EV); implementation (IMP); linking (LINK); planning (PLAN); social empowerment (SE), economic empowerment (EE).

Source: Present study

The bootstrapping analysis revealed significant indirect effects, highlighting the mediating role of linking (LINK) in the relationships between planning (PLAN) and both social empowerment (SE) and economic empowerment (EE). Specifically, the indirect effect of linking (LINK) on the relationship between planning (PLAN) and social empowerment (SE) is negative, with a beta coefficient (β) of -0.145. Similarly, linking (LINK) negatively mediates the relationship between planning (PLAN) and economic empowerment (EE) with a beta coefficient (β) of -0.246. These results indicate that the presence of linking (LINK) diminishes the positive effects of planning (PLAN) on both social and economic empowerment. On the other hand, linking (LINK) had a positive and significant mediating effect on the relationships between implementation (IMP) and both social empowerment (SE) and economic

empowerment (EE). The beta coefficients were β= 0.343 for social empowerment and β= 0.583 for economic empowerment. This suggests that linking (LINK) enhances the positive impact of implementation (IMP) on both social and economic empowerment, amplifying the benefits of effective implementation within the programme. The bias-corrected confidence interval does not straddle a 0, thus, the result can conclude that the relationships mentioned in H7,8,10 and 11 are significant.

Social and economic empowerment in UA programmes is crucial in Malaysia. Effective implementation ensures programme sustainability, fosters self-reliance, and strengthens community capacity for long-term success and development strategies. Among the three components of participation—planning, implementation, and evaluation—both implementation and evaluation were found to have significant relationships with social empowerment. This suggests that the way activities are executed and subsequently assessed plays a vital role in empowering communities socially. A well-executed programme can significantly boost community empowerment by providing opportunities for members to actively participate in the process (Haldane *et al.*, 2019). When community members are involved in implementation, they can contribute their knowledge and skills, ensuring that the programme is aligned with their needs and priorities, which are crucial for the programme's relevance and effectiveness. Moreover, a well-implemented programme can empower community members by equipping them with the necessary skills, resources, and support to take control of their lives. This might involve providing training and educational programmes, access to financing, or opportunities to develop leadership and decision-making skills. This approach not only enhances the effectiveness of the programme, but also fosters long-term community empowerment.

Economic empowerment is significantly influenced by evaluation, highlighting the importance of reflective processes in refining strategies and driving economic growth. However, current evaluation methods negatively impact both economic and social empowerment, potentially exposing deficiencies that undermine empowerment efforts. This calls for a critical reassessment to ensure evaluations are constructive. Participatory evaluations involving community members can better reflect their experiences and goals, fostering trust and enabling real-time adjustments for improved outcomes. For instance, Mufti et al. (2020) found that evaluations in Indonesia's post-conflict community programmes failed due to low trust and inadequate support, emphasizing the need for tailored, robust mechanisms to enhance empowerment outcomes.

Linking social capital significantly mediates the relationship between planning, implementation, and empowerment, underscoring its critical role. By connecting communities to institutions or power structures, linking social capital

facilitates access to resources, information, and cooperation essential for project success. Studies in South Africa demonstrated its importance in agricultural projects, where it enables resource access and training, ensuring success (Taruvinga et al., 2017). Similarly, Rudito et al. (2022) highlighted how linking social capital enhances participation, reduces uncertainty, and fosters unity in community empowerment initiatives. This broader socio-economic influence emphasizes linking social capital as a vital mediator in achieving sustainable social and economic empowerment within development projects.

CONCLUSION

The findings highlight the importance of implementation and evaluation in fostering social and economic empowerment within community programmes, particularly in the context of UA in Malaysia. The execution phase holds substantial significance in fostering social empowerment as it actively integrates community members into the process, thus allowing room for their skills and expertise to make a real impact. This vibrant participation doesn't just safeguard the idea that the programme resonates with the community's needs and predominant focal points, but it also empowers community members with essential assets, such as skill sets, resources, and leadership capabilities needed to manage their livelihoods effectively. A well-executed implementation strategy thus becomes a catalyst for long-term community empowerment, enhancing both the effectiveness of the programme and the self-reliance of the community.

In contrast, evaluation is identified as a key driver of economic empowerment. The reflective and analytical nature of evaluation processes helps in refining strategies and informing future actions that can lead to economic growth. However, the current evaluation methods appear to have a negative impact on both social and economic empowerment. This may be due to evaluations exposing deficiencies or challenges that detract from empowerment efforts, suggesting a need for a critical reassessment of these methods. Effective evaluations should be constructive, providing insights that enhance the programme's ability to empower the community rather than undermine it. Moreover, the concept of linking social capital emerges as a significant mediator between planning and implementation, influencing both social and economic empowerment. Linking social capital, which connects individuals and communities to broader institutions and power structures, facilitates resource access and cooperation for empowerment initiatives. Overall, the findings underscore the need for a holistic approach that integrates effective implementation, constructive evaluation, and strong social capital to achieve sustainable social and economic empowerment in community development programmes.

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