THE ROLE OF URBAN AGRICULTURE IN ENHANCING HOUSEHOLD ECONOMY AND WELLBEING IN SUBURBAN AREAS: WITH SPATIAL REFERENCE TO MAHARAGAMA DIVISIONAL SECRETARIAT DIVISION

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With growing urbanization and food security concerns, urban agriculture is seen as a sustainable practice that supports household income, food security, and overall well-being. It can be defined as the practice of cultivating crops in an urban environment. Maharagama Divisional Secretariat Division is an area with high urban development and rapid population growth. This study investigates the role of urban agriculture in enhancing household economy and well-being within the Maharagama DS Division. The purpose of this study is to examine the extent to which urban agriculture contributes to the economic sustainability and overall well-being of households practicing it. This study was conducted as an exploratory study, therefore, a sample of 30 urban agriculture-practicing households was selected using a convenience sampling method, followed by simple random sampling to choose households within this group. Data were collected regarding different urban agriculture practices, economic outcomes, and well-being outcomes, and they were analyzed using chi-square tests, regression analysis, and qualitative methods to explore the relationships between urban agriculture practices, household economy, and well-being. Results revealed that there is a significant role of urban agriculture in enhancing household economy and well-being. Households practicing urban agriculture showed better improvements in household income, reducing expenditure and some limited potential of creating employment opportunities. Furthermore, the study shows a positive correlation between urban agriculture and improved physical health, mental health, and nutrition among participating households. The chi-square, regression analyses, and other qualitative methods indicated significant relationships of urban agriculture with household economy and wellbeing outcomes. The implications of this study suggest that promoting urban agriculture can play a vital role in enhancing household economy and well-being in urban areas, and policymakers and planners should focus on addressing challenges to maximize the benefits of urban agriculture for sustainable urban development.

Keywords: urban agriculture, sustainable urban development, food security

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INTRODUCTION

Due to rapid urban population growth, the urban areas are expanding, and high pressure is created especially on agriculture and wetlands in the immediate surroundings of urban centers (Weerakoon, 2014), and this has led to several negative impacts. Urban agriculture can play a significant role in this regard. According to the Unity Environmental University (2023), this practice is defined as the practice of cultivating crops, livestock, or types of food in an urban environment. It enhances the sustainability and the quality of an urban environment and achieves various benefits for the environment of urban areas and the urban community.

This study focused on households practicing urban agriculture in the Maharagama Divisional Secretariat Division (DS) because, despite its potential for urban agriculture, little attention has been given to identifying the role of urban agriculture in enhancing family economy and well-being. This study aims to address the following questions: What is the present status of urban agriculture in the study area? How does urban agriculture contribute to household economy and family well-being? What challenges do practitioners face? And what strategies can be recommended to address these challenges? The primary objective is to identify the role of urban agriculture in enhancing family economy and well-being, focusing on its benefits, the problems encountered by participants, and proposing solutions to address these issues. Accordingly, the study tested hypotheses that urban agriculture does not significantly impact household economy or household well-being, and alternative hypotheses that it positively influences these aspects.

METHODOLOGY

The study adopted a deductive approach. Household economy and well-being were defined as the dependent variables, and the form of urban agriculture, type of crop, resources for urban agriculture, skills, and knowledge of urban agriculture were included as independent variables. The population of the study comprised approximately 932 households engaged in urban agriculture in the Maharagama ds division.

This study was conducted as an exploratory study, and therefore, a total of 30 households were surveyed due to time and logistical constraints. The purposive sampling method was employed to identify households engaged in urban agriculture. Then, from this group, a simple random sampling technique was applied to select the final sample. This mixed method ensured that the sample was relevant and random. Data were collected from both primary and secondary sources, and qualitative and quantitative analysis techniques were employed. A structured questionnaire was used, and some of the questions, especially those assessing mental health, skills, and knowledge, were measured using a 5-point likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The study primarily utilized chi-squared tests and regression analysis, conducted using spss software. Results were presented through statistical visualizations, such as charts and tables, to enhance clarity and interpretation.

RESULTS AND DISCUSSION

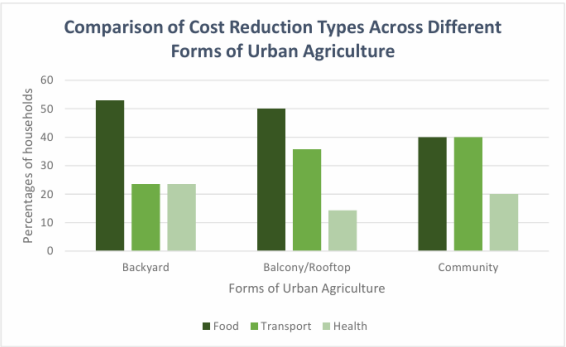
Urban Agriculture Practices Within the Study Area

Several forms of urban agriculture in the study area reflect the adaptability of urban agriculture to diverse spatial, economic, and social environments. The primary forms identified include backyard gardening, rooftop gardening, community gardens, and balcony gardening. Among them, backyard gardening (43%) is the most common form of urban agriculture in the study area, and vegetable crops (34%) are the major type of crops while 53.3% of households utilize plots ranging from 1 to 4 perches and 40% of households use less than 1 perch, while only 6.7% cultivate plots larger than 4 perch.

Role of Urban Agriculture in Enhancing Household Economy

This section assesses how different types of urban farming practices can contribute to income generation, expenditure, and employment. The results indicated a significant association between the form of urban agriculture and household income ($p = 0.007126$), with a strong association (Cramér's $V = 0.564$), suggesting that different forms of urban agriculture may provide better income opportunities. This may be due to agricultural practices like backyard gardening providing a larger space availability. A similarly significant positive relationship was observed between the form of urban agriculture and expenditure ($p = 0.02236$), with a moderate association (Cramér's $V = 0.506$). Based on the survey responses, most households practicing backyard gardening experience food cost reduction, with some also seeing reductions in transport and healthcare costs (Figure 1).

Figure 1: Cost reduction benefits by forms of urban agriculture



Source: Field survey data (2024)

As mentioned in Table 1, significant positive relationships were identified between crop type and household income (p = 0.000219) with a strong association (Cramér's V = 0.681) and between the type of crop and the expenditure (*p* = 0.003353) with a strong association Cramér's V = 0.628). households that grew high-demand crops may have had better economic outcomes. These findings are consistent with Nde et al. (2024) which stated crop selection is crucial in ensuring and enhancing the long-term yields and quality of plant products. The variations of the level of skills and knowledge of the households in planting and seeding, soil preparation, watering, pest and disease management, harvesting and post-harvesting, and composting were measured using a self-developed 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The findings indicate a significant link between the level of skills and knowledge and the Income generation within the households (*p* = 0.00336) with a strong association (Cramér's V = 0.586). This suggests that households with better agricultural skills tend to have higher income. This supports Bryant et al. (2016), who emphasized skills and adaptation capacity as a principal force affecting Urban Agriculture. However, the level of skills and knowledge is not associated with the expenditure and employment.

Table 1: Chi-Square Test Summary Table

No	Variables Tested	X^2 Values	df	P value
1	Form of Urban Agriculture Income Generation	14.05369	4	0.007126
2	Form of Urban Agriculture and Expenditure	11.40606	4	0.02236
3	Type of crops and Income Generation	26.03322	6	0.000219
4	Type of crops and Expenditure	19.53234	6	0.003353
5	Level of skills and knowledge, and Income Generation	15.75885	4	0.00336

Source: Field survey data (2024)

The study examined key resources and inputs like fertilizers, seeds, and infrastructure. The study identified a significant relationship between key inputs

and household economic outcomes. Seed type - purchased, self-prepared, and government-provided- was linked with income generation ($p = 0.018159$) with a positive beta ($\beta = 0.372$), showing government-provided seeds had better income. Also, fertilizer type was strongly associated with household expenditure ($p = 0.000163$) with a strong effect size ($\beta = 0.680$) (Table 2), with most households (54%) using organic fertilizers for their urban agricultural activities. This strong positive association indicates that the fertilizer choice has a significant impact on reducing agricultural input costs.

Table 2: Regression Analysis: Influence of Resources and Inputs on Income Generation and Expenditure

	Coefficients	Standard Error	T stat	P - value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.538	0.429	1.255	0.221	0.343	1.420	0.343	1.420
Type of water	-0.035	0.152	-0.228	0.821	0.346	0.277	0.346	0.277
Type of fertilizer	0.233	0.155	1.506	0.144	0.085	0.551	0.085	0.551
Type of seeds	0.372	0.148	2.521	0.018	0.069	0.676	0.069	0.675

	Coefficients	Standard Error	T stat	P - value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.775	0.428	1.809	0.082	0.106	1.656	-0.106	1.656
Type of water	-0.083	0.151	-0.547	0.589	0.394	0.229	-0.394	0.229
Type of fertilizer	0.681	0.155	4.401	0.000	0.363	0.999	0.363	0.999
Type of seeds	-0.037	0.147	-0.248	0.805	0.340	0.266	-0.340	0.266

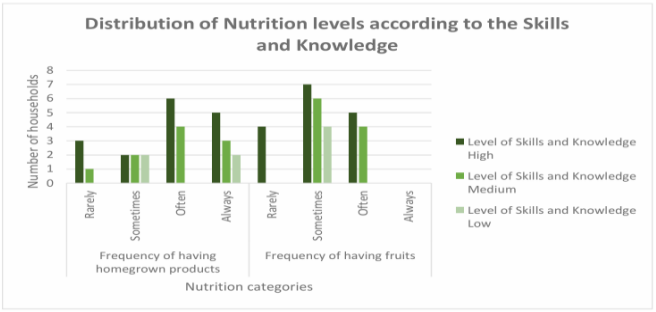
Source: Field survey data (2024)

The significant associations between variables such as the form of cultivation, crop type, seeds, and fertilizer with economic indicators like income and expenditure suggest that urban agriculture has a significant contribution to the economy of suburban households.

Role of Urban Agriculture in Enhancing the Wellbeing of the Household

To examine the impact of urban agriculture on household well-being - physical fitness, mental health, and nutrition - a combination of descriptive analysis and chi-square tests was employed. Households practicing backyard gardening reported higher physical fitness, reduced illness, and increased fruit and vegetable consumption. A significant moderate association was found between the form of urban agriculture and mental health ($p = 0.049548$; Cramér's $V = 0.408$), suggesting that larger or more organized setups contribute to improved mental well-being. This aligns with findings by Panţ iru et al. (2024), who observed positive effects of gardening on psychological and physiological health. Furthermore, households using well or rainwater, organic fertilizers, and self-prepared seeds reported higher satisfaction and physical fitness. Additionally, households with greater agricultural skills and knowledge showed better physical and mental health outcomes, including more frequent consumption of homegrown foods.

Figure 2: Distribution of Nutrition levels according to the Skills



Source: Field Survey (2024)

So, the study demonstrated that urban agriculture contributes to various dimensions of household wellbeing, including physical fitness, mental health, and nutrition of the households.

The challenges faced by the people engaged in urban agriculture

The study revealed some challenges affecting urban agriculture. Limited space emerged as a major constraint, with 53% of households reporting space-related difficulties, as 40% of households use less than 1 perch. Also, 40% of households from the total households are experiencing challenges due to time, and 60% of the total households experience inadequate knowledge and resources, highlighting a significant limitation. Apart from that, challenges related to environmental factors are also considerable when talking about the challenges faced by urban agriculture practitioners.

CONCLUSIONS/RECOMMENDATIONS

The study identified that urban agriculture plays a significant role in enhancing both the household economy and well-being, and to address the identified challenges, the use of urban agricultural techniques such as vertical gardening and container-based farming can be introduced, and local authorities can allocate vacant urban land spaces for community gardening. Furthermore, it is important to start capacity-building and training to maximize economic benefits.

In conclusion, this study demonstrates that urban agriculture plays a significant role in enhancing the economy and well-being of suburban households. Its strategic integration can contribute to sustainable urban development and provide a basis for future research and policy formulation.

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