

A Service of

ZBW

Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

Kissoly, Luitfred

Article

Households' participation in agri-food based livelihoods: Insights from urban and peri-urban contexts of Tanzania

Cogent Economics & Finance

Provided in Cooperation with: Taylor & Francis Group

Suggested Citation: Kissoly, Luitfred (2023) : Households' participation in agri-food based livelihoods: Insights from urban and peri-urban contexts of Tanzania, Cogent Economics & Finance, ISSN 2332-2039, Taylor & Francis, Abingdon, Vol. 11, Iss. 1, pp. 1-13, https://doi.org/10.1080/23322039.2023.2196859

This Version is available at: https://hdl.handle.net/10419/304039

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.



https://creativecommons.org/licenses/by/4.0/

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



WWW.ECONSTOR.EU





Cogent Economics & Finance

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/oaef20

Households' participation in agri-food based livelihoods: Insights from urban and peri-urban contexts of Tanzania

Luitfred Kissoly

To cite this article: Luitfred Kissoly (2023) Households' participation in agri-food based livelihoods: Insights from urban and peri-urban contexts of Tanzania, Cogent Economics & Finance, 11:1, 2196859, DOI: <u>10.1080/23322039.2023.2196859</u>

To link to this article: <u>https://doi.org/10.1080/23322039.2023.2196859</u>

© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 01 Apr 2023.

|--|

Submit your article to this journal 🕝

Article views: 730



View related articles 🗹

🌔 View Crossmark data 🗹



Received: 25 July 2022 Accepted: 25 March 2023

*Corresponding author: Luitfred Kissoly, Department of Economics and Social Studies, Ardhi University, University Road, Observation Hill Plot No. 3, 35176, Dar es Salaam, Tanzania E-mail: kissolyluit@gmail.com

Reviewing editor: Raoul Fani Djomo Choumbou, Agricultural Economics and Agribusiness, University of Buea, Cameroon

Additional information is available at the end of the article

GENERAL & APPLIED ECONOMICS | RESEARCH ARTICLE Households' participation in agri-food based livelihoods: Insights from urban and peri-urban contexts of Tanzania

Luitfred Kissoly¹*

Abstract: Agri-food systems are receiving increased attention globally and more so in the regions like sub-Saharan Africa, owing to a confluence of forces such as population growth, urbanization, migration, and climate change. These ongoing dynamics have considerable transformational implications on the present and future forms of agri-food systems and associated livelihoods. However, empirical evidence on the nature of agri-food-based livelihoods and associated patterns of engagement of households has not kept pace with these dynamics. Using household-level data from a sample of urban and peri-urban households, this study employs descriptive and econometric analyses to assess household participation in agri-food-based livelihood activities. Results illustrate that agri-food systems are a fundamental source of livelihood. A sizable proportion of households is engaged in



Luitfred Kissoly

ABOUT THE AUTHOR

Luitfred Kissoly (PhD) is a development economist currently working as a Researcher cum Lecturer at the Department of Economics and Social Studies, at Ardhi University in Dar es Salaam, Tanzania. He holds a PhD in Economics from the Leibniz University of Hannover, Germany (2017). His research focuses on diverse aspects of development economics including, agri-food systems, agricultural value chains, welfare analysis, food policy, urban foodscapes, rural development, and related aspects. Apart from research, he teaches Development Economics, Micro-economics, and Public Policy at both undergraduate and postgraduate level, and is also involved in undertaking societal outreach activities as organized by the Department. Luitfred Kissoly, Address:Ardhi University, P.O. Box 35176, Dar es Salaam. Mobile: +255713-493093; +255767-493093E-mail: kissolyluit@gmail. com;/Kissoly.donacian@aru.ac.tz, ORCID iD: https://orcid.org/0000-0003-2762-2339

PUBLIC INTEREST STATEMENT

💥 cogent

economics & finance

Globally, agri-food-based livelihoods are known to be a lifeline for the majority of households, particularly in the Global South. Essentially, the majority of the poor depend in one way or another on some part of the agri-food system for their livelihoods through activities such as crop cultivation, livestock keeping, fishing as well as processing, distribution, and trading of food. In recent decades, agri-food-based livelihoods are undergoing remarkable transformation. This transformation is particularly drastic in urban and peri-urban areas, which are continually facing forces such as rapid population growth and rural-urban migration, among others. As a result, creating an inclusive and beneficial engagement of urban and peri-urban households in agri-food-based livelihood activities has become an important area of policy. Results from this study illustrate that agri-food systems are a fundamental source of livelihood, particularly for low-income urban and peri-urban households. The study therefore underscores the need for policy and other interventions to prioritize efforts aimed at facilitating an "enabling environment" for inclusive and sustainable agrifood-based livelihoods.





© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent. agriculture (mainly cultivation of permanent and vegetable crops and livestock keeping) reflecting the continued importance of urban and peri-urban agriculture. Results also show that food vending is an important livelihood activity for most households residing in urban areas. Only a relatively small proportion of households participate in processing of agri-produce and transportation. Importantly, the results reveal that agri-food-based livelihood activities in urban and peri-urban settings are far more relied upon by households in lower-income brackets, underscoring the critical role that agri-food system plays enhancing livelihoods of the majority of the urban poor. These findings underline the need for policy and other interventions to prioritize efforts aiming at facilitating an "enabling environment" that fosters inclusive and sustainable agri-food-based livelihoods through, among others, enhancing governance of these activities.

Subjects: Urban Development; Economics and Development; Development Economics; Urban Economics

Keywords: Agri-food systems; agri-food-based livelihoods; urban and peri-urban households, Tanzania

1. Introduction

Agri-food systems are receiving increased attention globally owing to a confluence of forces including population growth, urbanization, migration, and climate change and associated dynamics associated with availability and productivity of land, water, and energy, among others (Arslan et al., 2018; de Bruin et al., 2021). These forces are particularly relevant for sub-Saharan Africa (SSA). Rapid urbanization rates, for example, continue to characterize most countries in SSA. Illustratively, with the annual urban population growth rate at 4.1%—twice the world rate of 2%—the region is arguably the fastest urbanizing in which its urban population is projected to triple between 2018 and 2050 (UN DESA, 2019). Continued migration from rural to urban areas is also significantly adding to the stock of urban population (Arslan et al., 2018; Serraj et al., 2019). Happening in tandem is the considerable demographic change. SSA has had a tripling of its population between 1950 and 2000, and its population is unprecedented with about 35% of the total population living in urban areas currently (UN DESA, 2020). Overall, these dynamics have considerable transformational implications on the present and future forms of agrifood systems and associated livelihoods.

In the backdrop of the ongoing dynamics of urbanization, rapid population growth, and ruralurban migration, agri-food systems are increasingly being characterized by a surge of activities ranging from production, processing, distribution, and trading of agricultural/food products (Barrett et al., 2022; Bricas et al., 2019), as well as a considerable increases in the level of participation of households in these activities (Reardon, 2015; Yeboah & Jayne, 2018). However, literature on the patterns of engagement of households in the agri-food systems has not kept pace with these dynamics (Barrett et al., 2022; Crush & Young, 2019). This study specifically focuses on agri-foodbased livelihood activities as pursued by households in urban and peri-urban contexts. A nuanced understanding of the patterns of engagement of urban and peri-urban households in the agri-food systems is particularly critical for two reasons: First, the current dynamics of urbanization, rapid population growth, rural-urban migration, and climate change, among others, have considerable transformational implications that will continue to shape the present and future forms of agri-food systems and associated outcomes in terms of employment and urban food insecurity and poverty. Second, a great deal of literature over the past decade has focused relatively more on "formalized" and export-oriented agri-food value chains (See, for example, German et al., 2020; Ma & Sexton, 2021; Tallontire et al., 2014), with relatively less attention being given to the "less formalized" and local agri-food value chains.

Using the context of urban and peri-urban areas of Tanzania, this study, therefore, contributes to literature by: (1) examining the nature of urban and peri-urban agri-food-based livelihood activities and the associated extent of household participation and (2) assessing the drivers of household participation in such activities. The remainder of the paper presents a description of the data used followed by the analytical methods employed to assess the nature, levels, and drivers of household participation in agri-food-based livelihood activities. Then, the emerging empirical results are presented and discussed. Conclusion is presented in the last section.

1.1 Agri-food-based livelihoods and households' participation

Globally, agri-food livelihoods are documented to be a lifeline for the majority of households, particularly those in the low-income bracket. IFAD (2019) notes that the bulk of the global poor depend in one way or another on some part of the agri-food system for their livelihoods through activities such as crop cultivation, livestock keeping, fishing as well as processing, distribution, and trading of food. Although much of the emphasis has been on the rural poor, in terms of their reliance on the agri-food system, recent literature documents that a considerable proportion of urban and peri-urban households derive their livelihoods from the system (de Bruin et al., 2021).

In the urban context, agri-food-based livelihoods are continually shaped by forces such as rapid population growth and rural-urban migration, among others. Urbanization, for example, impacts agri-food systems through influencing changes in spatial patterns of food demand as well as food preferences. Food demand in urban areas is projected to increase as urban population grows as well as average incomes. Illustratively, de Bruin et al., (2021) demonstrate that in comparison to 2010, food demand for food in SSA will rise 1.7-fold by 2050. Apart from increases in food demand, urbanization also goes hand in hand with changing food preferences as urban food environments shape consumption patterns in terms of the type of demanded—due to the widely available varieties of food products, where it is purchased as well as where it is consumed—at home or outside home (Pingali et al., 2019).

For most countries in SSA, including Tanzania, the sustained increases in food demand alongside demand for diverse food products continue to give rise to numerous opportunities to farmers, processors, transporters, and traders (Jayne et al., 2018). Essentially, recent studies show that employment in the agri-food value chain activities is rapidly expanding (Yeboah & Jayne, 2018). In Tanzania, for example, agri-food-based livelihoods are, at present, not only instrumental for enhancing food production and availability but also critical for providing employment to the majority of urban dwellers (Tschirley et al., 2015). Such opportunities arise as urbanization leads to more complex market linkages that involve more actors to deliver food from the farm to final consumers. Because of proximity to the city market, urban and peri-urban households integrate themselves into agri-food-related value chains with activities such as farming, processing, transporting, and trading (Djurfeldt, 2015). For example, peri-urban households as well as their urban counterparts do engage in farming of food crops (such as vegetables and fruits) that have readily available markets. Essentially, despite challenges of urban and peri-urban agriculture, literature shows that it continues to expand due to increasing and changing food demand (Follmann et al., 2021). Food trading is also a crucial segment that a sizable proportion of households participate in. Urban and peri-urban households utilize both formal trading channels (such as registered food markets) and informal channels (such as kiosks and street vending) to undertake these activities. Other activities in the agri-food value chains (such as processing and transportation/distribution of agri-food produce) are also playing an increasing role and are a source of new employment opportunities to households (Barrett et al., 2022; HLPE, 2017).

Overall, agri-food systems are linked to—and play an increasingly crucial role in—urban and peri-urban households' livelihoods (Battersby & Watson, 2019). With the ongoing dynamics within

the agri-food system, it is thus imperative to adequately understand the nature of households' participation in agri-food-based livelihoods within the urban and peri-urban contexts. This is particularly crucial in the face of current urban challenges relating to food insecurity, poverty, and unemployment.

2. Materials and methods

2.1 Conceptual framework

In understanding the agri-food-based livelihoods among urban and peri-urban households, this study integrates "the agri-food system" thinking and the "ivelihood" concept. These are used to underscore how agri-food systems—as impacted by various drivers such as socio-economic and environmental contexts—impact livelihoods that are dependent on the system as depicted in Figure 1 (FAO, 2020; HLPE, 2017; Ingram, 2011). According to the FAO (2020), the agri-food system "covers the journey of food from farm to table—including when it is grown, fished, harvested, processed, packaged, transported, distributed, traded, bought, prepared, eaten and disposed of. It also encompasses non-food products that also constitute livelihoods and all of the people as well as the activities, investments and choices that play a part in getting us these food and agricultural products." Embedded in this definition is the livelihood concept, which entails the strategies that people employ to improve the quality of life, i.e., their livelihood outcomes such as food security, well-being, income, and decreased vulnerability to shocks (Scoones, 2009). Households, in rural or urban areas, often deploy a diverse set of strategies to enhance livelihood outcomes.

Within this framework, agri-food systems are assumed to be driven by socio-economic and environmental factors as well as related trends such as population dynamics and urbanization, rural-urban migration, climate change, and socio-economic development, among others. These drivers transform agri-food systems through changes in aspects such as land use, food demand, employment in (non-)agriculture, dietary patterns, purchasing power, and increased complexities of agri-food value chains. Transforming agri-food systems influence the nature of agri-food-based livelihoods through changes in livelihood opportunities as driven by social, physical, economic, and economic conditions. From the perspective of the livelihood's framework, the emerging types of agri-food-based livelihood activities pursued by households are assumed to be determined by the level of access to livelihood capitals (human, social, natural, physical, and financial). Furthermore, these livelihoods are themselves impacted by the socio-economic and environmental drivers and associated trends, and they also impact the drivers in feedback loop.

This study focuses predominantly on the participation of urban and peri-urban households in existing and emerging agri-food-based livelihood opportunities as continually shaped by transforming agri-food systems.



Figure 1. Agri-food systems transformation and associated urban and peri-urban livelihoods.

2.2 Data

This study uses comprehensive household-level, demographic, and socio-economic data from the latest wave of the National Panel Survey (NPS) of 2019/2020 implemented by the National Bureau of Statistics (NBS) of Tanzania (NBS, 2021). The data, which were collected from January to April 2020, are nationally representative and compile a wide variety of household-level information including agriculture, livestock and fisheries, and family/household non-farm enterprises, among others. In the NPS 2019/2020, all eligible households and household members from four domains (Dar es Salaam, other urban areas on mainland Tanzania, rural mainland Tanzania, and Zanzibar) were interviewed, thereby resulting in a comprehensive individual-level and sex-disaggregated data.

Drawing from these comprehensive data, this study uses data of households that meet the criteria of residing in urban or peri-urban areas. As this study focuses on these specific localities, a proper definition of these is important. The NBS uses a size-density criterion to designate an area to either "urban", "peri-urban," or "rural" ([Tanzania] (2015); Tasciotti & Wagner, 2015). Further, regional centers are classified as "urban" as per the by the Urban Ward Act, 1976 and the Village Act, 1975. This paper draws from categorization adopted in the 2014/ 2015 NPS, which classifies households based on the location of their wards, whether urban, peri-urban, or rural. Peri-urban areas are localities situated on the fringes of urban centers, and they are known to play a crucial function in the agri-food value chains with agriculture and livestock keeping being the dominant activities. Adopting these definitions, and drawing from the comprehensive NPS data, the study used a sub-sample of 502 households. As noted earlier, aari-food-based livelihoods in SSA comprise a wide range of activities from production all through to trading of agricultural and food products. To facilitate understanding of these livelihood activities in urban and peri-urban Tanzania, households' activities were grouped into six categories: (1) cultivating permanent/vegetable crops; (2) keeping livestock; (3) processing agri-products; (4) transporting agri-produce; (5) trading/retailing agri-produce; and (6) food vending. In the subsequent analysis, a household is taken as a reference as most of the agrifood-based livelihood activities are organized at the household level and mainly utilize household resources including family labor.

2.3 Analytical methods

Descriptive and econometric analyses were employed to assess the nature of and drivers for household participation in agri-food-based livelihood activities. On the one hand, descriptive analysis was used to comprehend the patterns and extent of participation of urban and peri-urban households in agri-food-based livelihood activities. On the other hand, econometric analysis was used to estimate the influence of a set of demographic and socio-economic variables on household participation in agri-food-based livelihoods. In this, a binary logistic model was employed as the dependent variable (household participation in agri-food-based livelihood activities) is dichotomous. Specifically, the econometric analysis used probit models to estimate likelihood of participation in agri-food-based livelihood activities. Participation was captured as a binary variable taking the value 1 for households participating in the activities and 0 for otherwise. The model, as specified by Greene (2003), can be written as:

$$\mathbf{Y}_i^* = \begin{cases} \mathbf{1} & \text{if } \mathbf{Y}_i^* > \mathbf{Y} \\ \mathbf{0} & \text{if } \mathbf{Y}_i^* \le \mathbf{0} \end{cases}$$
(1)

The probit model is therefore given by:

$$P\left(Y = \frac{1}{X}\right) = F(XB) = \frac{1}{\sqrt{2\pi}} \int_{-\infty}^{XB} e^{\frac{-(XB)^2}{2} dx}$$
(2)

where:

$$X = (1, x_{1i}, x_{2i}, \dots, x_{ki})$$
 (3)

$$X = (\beta_0, \beta_1, \dots, \beta_k) \tag{4}$$

Therefore, the empirical model estimated for household participation in AfVC activities is specified as:

$$Y_{i} = \beta_{0} + \beta_{1}AgeHH + \beta_{2}GendHH + \beta_{3}EduHH + \beta_{4}HHsize + \beta_{5}Land + \beta_{6}Loan + \beta_{7}FormEmpl + \beta_{8}HHLocation + \beta_{9}HousTenure + \varepsilon_{i}$$
(5)

where $Y_i and \varepsilon_i$ represent participation in agri-food-based livelihood activities and the error term, respectively. Households' participation in agri-food-based livelihood activities is assumed to be influenced by access to livelihood capitals: human capital (age, gender, education, and household size), financial capital (access to credit), physical assets (land size owned and house tenure), and natural capital (location of household either urban or peri-urban).

3. Results and discussion

3.1 Sample characteristics

Table 1 presents descriptive results of the sample. These show that urban and peri-urban households participating in agri-food-based livelihood activities have a mean age of 43 years, with about 77% of the households being male-headed. About 41% have secondary education or higher, while the rest have at least completed primary school. These households possess an average of 1.9 ha of land whereby those in peri-urban areas hold about 2.5 times more land (about 3.4 ha) than their urban counterparts who hold an average of 1.3 ha. A sizable proportion of urban and peri-urban households (37%) have some form of formal employment. Analysis of these households indicates that a greater proportion of these are from middle- to higher-income brackets. Access

Table 1. Selected household characteristics					
Variables	Obs	Mean	SD		
Age of household head (years)	502	43.3	15.94		
Gender of household head (1 = male, 0 otherwise)	502	0.77	0.42		
Education (1 = secondary education or higher, 0)	502	0.41	0.49		
Household size (number)	502	4.02	2.36		
Land size owned (Acres)	502	1.96	5.89		
Formal employment (1 = tes, 0 otherwise)	502	0.37	0.48		
Access to loans (1 = yes, 0 otherwise)	502	0.18	0.38		
House tenure (1 = owned, 0 otherwise)	502	0.47	0.49		
Household location (1 = urban, 0 = peri-urban	502	0.72	0.44		
Participating in agri-food- based livelihood activities (1 = yes, 0 otherwise)	502	0.52	0.50		

to credit is indicated by only 18% indicating constraints accessing financing of agri-food-based livelihood activities. In terms of house tenure, about 47% of the households own the house they live in. The higher proportion of house ownership is in part driven by the peri-urban group in which the majority own the plots and houses they live in, although in most cases these are made of cheap and rudimentary building materials. With respect to livelihood activities, the results show that slightly above half (52%) households engage activities within the agri-food system.

3.2 Nature and levels of participation in agri-food-based livelihood activities

Results show that urban and peri-urban households undertake activities that are based on various aspects of agri-food systems (Table 2). Although about 39% do not participate in any agri-food-based activities, the remaining majority of the sampled households do report to participate. Sizable proportions of urban and peri-urban households participate in cultivation of permanent and vegetable crops (about 23%), livestock keeping (about 18%), agri-produce trading and retailing (about 9%), and food vending (about 10%). A relatively small proportion of urban and peri-urban households participate in agri-produce processing and transportation segments of the agri-food system. Overall, while agriculture (cultivation of permanent/vegetable crops and livestock keeping) is relied upon by a larger proportion of peri-urban households, agri-produce trading and retailing and food vending/services also appear to be critical livelihood activities that urban households depend on. Notably, a larger proportion of peri-urban households do rely on agri-food-based livelihoods compared to their urban counterparts.

The higher participation of urban and peri-urban households in crop cultivation and livestock keeping suggests the continued importance of urban and peri-urban agriculture amid rapid urbanization and increase in population for most cities in SSA. Although agriculture is practiced in urban areas of cities in SSA, the data show that farming and livestock keeping activities are more practiced by households in peri-urban areas: almost twice as many compared to urban areas. One major contributing factor to this pattern is the availability of land in which most peri-urban areas have more land available for urban agriculture compared to the little and contested agricultural lands in urban centers. Furthermore, farming and livestock keeping are not only instrumental for enhancing food production and availability but also vital for providing employment to the majority of urban and peri-urban dwellers (Tschirley et al., 2015). For Tanzania, Tasciotti and Wagner (2015) observe that urban agriculture (which includes both crop cultivation and livestock keeping) appears to continue to play a crucial role among urban and peri-urban households, particularly in enhancing diversity of food items consumed at the households as well as improving health status of children.

Table 2. Participation in urban agri-food value chain activities						
Category	Urban	Peri-urban	Pooled			
Not participating agri- food-based livelihood activities	45.54	25.00	39.16			
Cultivation of permanent/ vegetable crops	19.01	32.29	23.14			
Livestock keeping	14.32	26.04	17.96			
Agri-produce processing	0.94	0.52	0.81			
Transportation of agri- produce	0.23	0.00	0.16			
Agri-produce trading/ retailing	8.69	9.38	8.90			
Food vending	11.27	6.77	9.87			
Total	100	100	100			

From the results, it is apparent that food vending is also an important activity for urban and periurban households. Rapidly growing cities in SSA have witnessed a drastic rise in street food vending (Crush & Young, 2019; Swai, 2019). This increase is attributed to increased spending by urban households as well as the growing demand for food away from home (FAFH), which is taking hold in most urban centers (Barrett et al., 2022). Ambikapathi et al. (2021), in an attempt to understand the food environment, classified food vending into informal, semi-formal, and formal in which six vender typologies operate, namely, umbrella vendors, butchers, semi-formal prepared food vendors, shops, mobile vendors, and restaurants.

Processing of agri-produce and transportation are nonetheless pursued by few households. On the part of processing of agri-produce, only a fraction of the urban and peri-urban households reported to undertake the activity. In essence, much of the processed foods, which are particularly well demanded by urban dwellers, are mostly produced by small and medium enterprises (SMEs) as well as larger processors and food manufactures (Reardon et al., 2021). These include food products such as milled grain, cooking oil, and sugar. Nonetheless, small-scale processing is still notable in many urban settings. Maize mills are a good example for these. Transportation of agrifood produce, which is also an important aspect of the agri-food value chain, is undertaken by a smaller proportion of households. Despite this, it is increasingly recognized that there is an increasing role of intermediaries such as transporters in agri-produce markets (Reardon, 2015).

In terms of gender, analysis of the sample reveals varying levels of participation in agri-foodbased livelihood activities by male and female households (Table 3). The proportion of male households participating in agriculture and processing and transporting in agri-produce is slightly higher than that of female households. Conversely, the proportion of female households participating in agri-produce trading/retailing and food-vending activities is almost twice that of male households. The dominance of women in retailing of agri-produce and food vending is a common phenomenon in cities around SSA as observed by Tasciotti (2015) Ambikapathi et al. (2021), and Wegerif and Kissoly (2022), among others. Tasciotti (2014) argues that urban farming, processing, and selling of agri-produce and/or food are activities that blend well with household chores such as cooking and raising children. As such, they constitute a critical source of livelihood for most of the urban poor, the majority of which are women (Tacoli, 2016). In Tanzania, Ambikapathi et al. (2021) conducted a comprehensive food vendor mapping in peri-urban Dar es Salaam and found that women constitute the majority, about 78%.

Disaggregating household participation in agri-food-based livelihood activities by consumption expenditure quartiles, the results reveal that these activities are far more relied on by households in lower expenditure quartiles (Figure 2). The proportion of households participating in these

Table 3. Participation in urban agri-food value chain activities (by gender)					
	Gender of the household head				
Category	Male (n=387)	Female (<i>n</i> =115)			
Not participating agri-food-based livelihood activities	40.27	38.46			
Cultivation of permanent/ vegetable crops	23.89	19.23			
Livestock keeping	19.25	13.08			
Agri-produce processing	0.88	0.00			
Transportation of agri-produce	0.22	0.00			
Agri-produce trading/retailing	7.75	13.85			
Food vending	7.73	15.38			
Total	100	100			

in tower expenditure quartities (righte 2). The proportion of households participating in these

Figure 2. Share of households

livelihoods by consumption expenditure quartiles.



activities consistently declines, from 76% in the lowest consumption expenditure quartile down to 65% in the highest quartile. As consumption expenditure is associated with poverty status of the households, these results suggest that local agri-food systems provide critically needed livelihood opportunities for most urban dwellers, particularly those in lower-income brackets. This result reinforces the observation by IFAD (2019) that most of the global poor are engaged in some aspect of the agri-food system for their livelihoods. In essence, the urban poor, majority of which are women and youth, are engaged in the informal component of the agri-food-based livelihood activities (Tacoli, 2016). These informal livelihoods dominate the agri-food system in most of the growing cities and towns in the developing countries. The low level of participation for households at higher consumption expenditure quartiles could be attributed to their capacity to access other livelihood opportunities including formal employment.

Table 4. Estimates of the determinants of participation in agri-food-based livelihood activities						
Variables	Coef.	S.E	Z	P>z		
Age of household head (Years)	0.008196	0.005266	1.56	0.12 ^{ns}		
Gender of household head (1 = male)	-0.09252	0.164294	-0.56	0.573 ^{ns}		
Education (level)	0.160005	0.139331	1.15	0.251 ^{ns}		
Household size (number)	0.093342	0.033941	2.75	0.006***		
Land size owned (ha)	0.004871	0.010641	0.46	0.647 ^{ns}		
Access to loans (1 = yes)	0.162729	0.17532	0.93	0.353 ^{ns}		
Formal employment (1 = Yes)	-0.52953	0.163198	-3.24	0.001***		
Household location (1 = urban)	-0.27492	0.157676	-1.74	0.081**		
House tenure (1 = owned)	0.35567	0.172623	2.06	0.039**		

Number of observations = 502; log likelihood = -233.65^{***} ; pseudo R² = 0.1451;

Prob > chi2 = 0.0000 (p < 0.99).

Source: author's calculation, 2023;

***p < 0.01, **p < 0.05, *p < 0.1 and ns p > 0.1.

3.3 Determinants of participation in agri-food-based livelihood activities

Multivariate probit regression model was used to estimate the parameters of the determinants of participation of urban and peri-urban households in agri-food-based livelihood activities. Results are presented in Table 4. The likelihood ratio (LR) was significant indicating that at least one of the variables in the model had a significant influence on households' participation in agri-food-based livelihood activities and that the independent variables jointly influence household's decision to participate in the activities.

Overall, the results reveal that participation of urban and peri-urban households in agri-foodbased livelihood activities is significantly associated with household size, formal employment, location of the household, and house tenure status. Household size is associated positively with participation in agri-food-based livelihood activities. One explanation for this could be the availability of more labor capacity at the household, which could be deployed to various activities related to agri-food value chains. Christiaensen et al. (2021) and Maertens and Swinnen (2012), for example, note that for most developing economies, the production, processing, and services nodes of agri-food systems tend to be labor-intensive and in most cases involve women and unskilled workers. This suggests that, owing to the labor-intensive nature of these activities, households with more members are more likely to undertake agri-food-related businesses as they can rely on the support of family members in the day-to-day operations.

Results also reveal that formal employment is associated with less participation in agri-food-based livelihood activities. This may reflect the opportunity cost of participating in these activities and possibly alluding to the fact that most participate not because they are profitable ventures but rather as a coping strategy for unemployment in urban areas (Tasciotti and Wagner, 2014). This result is supported by most literature. For example, Tawodzera (2019), in a study focusing on food vending in Cape Town, South Africa, observes that the businesses are started by individuals seeking employment. In addition, these results are consistent with those of Emeru et al. (2022) and Debele and Desta (2016) who found that access to formal employment increases the capacity of urban households to diversify toward off/farm and non-farm livelihoods, away from urban agriculture. Additionally, the inherent informality in these activities may mean that the sector is not properly regulated to provide a decent living, thus not being attractive for most households with formal employment.

Locational influence is also important in participating in agri-food-based livelihoods. Results show that being in peri-urban areas is associated with increased likelihood of participating in agri-food livelihood activities. This clearly indicates that peri-urban areas continue to constitute an important source of agri-food-based livelihood opportunities. Essentially, urban agriculture is increasingly peripheralized by moving to peri-urban areas (Mackay, 2018). In Tanzania, in particular, most households in peri-urban areas are primarily engaged in some aspect of the agri-food system, the majority being involved in farming and livestock keeping (Mlozi, 2019). Results also show that ownership of a house is associated with more participation in agri-food livelihood activities. House ownership signals access to resources such as access to credit. For urban households, houses are also used as a business premise often against planning regulation (Wegerif, 2014). As such, houses are an important asset used to access livelihood opportunities within the agri-food sector or other sectors.

4. Conclusion and policy implications

This study set out to examine the nature of urban and peri-urban agri-food-based livelihood activities and the associated levels of household participation. Using household data from urban and peri-urban households in Tanzania, the study demonstrates that livelihoods of urban and peri-urban households are closely linked with agri-food systems. As agri-food systems are rapidly transforming, new livelihood opportunities arise in the many aspects of the system through activities in production, processing, distribution, and trading of agricultural/food products as well as food services.

Specifically, this study underscores the fact that agri-food systems are a source of livelihood to the majority of urban and peri-urban households. From our case study of urban and peri-urban households in Tanzania, slightly above half report participating in activities within the agri-food system. Higher participation is seen in crop cultivation and livestock keeping suggesting continued importance of urban and peri-urban agriculture (crop cultivation and livestock keeping) amid rapid urbanization for most cities and towns in SSA. Results also show that food vending is an important livelihood activity for most urban and peri-urban households. The importance of this livelihood activity to urban households is likely to grow with increases in spending of disposable income by urban households together with the culture of consuming FAFH. Although results show that a relatively small proportion of households participate in processing of agri-produce and transportation, emerging trends point to an increasing role of processing and transportation in agriproduce markets. Furthermore, results reveal that agri-food-based livelihood activities are far more relied upon by households in lower-income brackets, underscoring the critical role that agrifood system plays in enhancing the livelihoods of the majority of the urban poor. In terms of drivers of participation, results highlight the role of household socio-demographic factors such as household size, lack of formal employment, house tenure status, and location.

Several important implications for policy arise from this study. Agri-food-based livelihoods will continue to be a lifeline to most urban and peri-urban households owing to the increasing urban food demand and changing food preferences as driven by dynamics of urbanization, among other drivers. Importantly, agri-food value chains in urban and peri-urban areas are bound to see an increased role as shorter food supply chains are increasingly being advocated as being more sustainable (Karg et al., 2016). It is thus imperative for policy efforts to aim at facilitating an "enabling environment" for formal and informal, urban and peri-urban agri-food livelihoods through facilitative regulatory frameworks. This may involve: (1) institutionalizing agri-foodbased livelihood activities (such as agriculture that includes crop cultivation, livestock keeping, and fishing; processing and distribution of agri-produce; and trading and/or retailing of agriproduce and food) through incorporating them in city and territorial development plans, laws, and regulations; (2) enhancing inclusive governance these activities, as most urban dwellers (in particular the poor, youth, and women) engage in urban agri-food-based livelihood activities that occur within the "unregulated" or "informal" economy; and (3) improving security of tenure for land and housing. For urban areas, security of tenure is mainly critical in facilitating households to engage production and trading within the agri-food system, as it boosts confidence to invest their capital in urban land and premises. In the peri-urban areas, which continue to experience increased urban pressure, security of tenure can be integral in aiding more beneficial engagement of peri-urban households in agri-food-based livelihood activities such as crop cultivation and livestock keeping. In addition, strengthening land tenure is essential for enhancing policies and measures to protect, manage, and develop peri-urban agricultural landscapes, thereby promoting more sustainable short food supply chains. Overall, improving the governance of agri-food-based livelihoods is critical to urban and peri-urban households' welfare.

Acknowledgments

The author is very grateful to all members of the Department of Economics and Social Studies for their constructive comments and, equally important, also grateful to the anonymous reviewers for their fruitful comments on this manuscript.

Funding

The author received no direct funding for this research.

Author details

Luitfred Kissoly¹ E-mail: kissolyluit@gmail.com ORCID ID: http://orcid.org/0000-0003-2762-2339 ¹ Department of Economics and Social Studies, Ardhi

University, Dar es Salaam, Tanzania.

Disclosure statement

No potential conflict of interest was reported by the author.

Data availability statement

The data supporting this study's findings are available from the corresponding author upon reasonable request https://www.nbs.go.tz/tnada/index.php/catalog/35.

Citation information

Cite this article as: Households' participation in agri-food based livelihoods: Insights from urban and peri-urban contexts of Tanzania, Luitfred Kissoly, *Cogent Economics & Finance* (2023), 11: 2196859.

References

- Ambikapathi, R., Shively, G., Leyna, G., Mosha, D., Mangara, A., Patil, C. L., & Gunaratna, N. S. (2021). Informal food environment is associated with household vegetable purchase patterns and dietary intake in the DECIDE study: Empirical evidence from food vendor mapping in peri-urban Dar es Salaam, Tanzania. Global food security, 28, 100474.
- Arslan, A., Egger, E.-M., & Winters, P. (2018). Migration, Demography, and Agri-Food Systems. In Agriculture & Food Systems to 2050 (Vol. 2, pp. 87–135). New Jersey: World Scientific.
- Barrett, C. B., Reardon, T., Swinnen, J., & Zilberman, D. (2022). Agri-food value chain revolutions in low-and middle-income countries. *Journal of Economic Literature*, 60(4), 1316–1377.
- Battersby, J., & Watson, V. (2019). The planned 'cityregion' in the ne urban agenda: An appropriate framing for urban food security? *The Town Planning Review*, 90(5), 497–519. https://doi.org/10.3828/tpr. 2019.32
- Bricas, N., Barles, S., Billeng, G., & Routhier, J. L. (2019). Urbanization issues affecting food system sustainability. In *Designing urban food policies: Concepts and approaches* (pp. 1–25) Cham: Springer International Publishing.
- Christiaensen, L., Rutledge, Z., & Taylor, J. E. (2021). The future of work in agri-food. *Food Policy*, 99, 101963. https://doi.org/10.1016/j.foodpol.2020.101963
- Crush, J., & Young, G. (2019). Resituating Africa's urban informal food sector. In Urban Forum, 30(4), 377–384. December, Springer Netherlands https:// doi.org/10.1007/s12132-019-09374-4
- Debele, B. N., & Desta, G. D. (2016). Livelihood diversification: Strategies, determinants and challenges for pastoral and agro-pastoral communities of Bale zone, Ethiopia. International Review of Social Sciences and Humanities, 11(2), 37–51.
- de Bruin, S., Dengerink, J., & van Vliet, J. (2021). Urbanisation as driver of food system transformation and opportunities for rural livelihoods. *Food Security*, 13(4), 781–798. https://doi.org/10.1007/s12571-021-01182-8
- Desa, U. N. (2019). United Nations Department of Economic and Social Affairs. Population Division. World Population Prospects.
- Djurfeldt, A. A. (2015). Urbanization and linkages to smallholder farming in sub-Saharan Africa: Implications for food security. *Global Food Security*, 4, 1–7. https://doi.org/10.1016/j.qfs.2014.08.002
- Emeru, G. M., Fikire, A. H., & Beza, Z. B. (2022). Determinants of urban households' livelihood diversification strategies in North Shewa Zone, Ethiopia. *Cogent Economics & Finance*, 10(1), 2093431. https:// doi.org/10.1080/23322039.2022.2093431
- FAO. (2020). Food and agricultural organization strategic framework 20222-31. https://www.fao.org/3/ nd976en/nd976en.pdf. Accessed 23 March, 2022.
- Follmann, A., Willkomm, M., & Dannenberg, P. (2021). As the city grows, what do farmers do? A systematic review of urban and peri-urban agriculture under rapid urban growth across the Global South. Landscape and Urban Planning, 215, 104186. https:// doi.org/10.1016/j.landurbplan.2021.104186
- German, L. A., Bonanno, A. M., Foster, L. C., & Cotula, L. (2020). "Inclusive business" in agriculture: Evidence from the evolution of agricultural value chains. World Development, 134, 105018. https://doi.org/10.1016/j. worlddev.2020.105018
- Greene, H. W. (2003). *Econometric analysis*. Pearson Education India.

- HLPE. (2017). Nutrition and food systems Rome: A report by the high-level panel of experts on food security and nutrition of the committee on world food security.
- IFAD. (2019). IFAD RDR 2021 Framework for the analysis and assessment of food systems transformations background Paper IFAD Rural Development Report 2021.
- Ingram, J. (2011). A food system approach to researching food security and its interactions with global environmental change. *Food Security*, 3(4), 417–431. https://doi.org/10.1007/s12571-011-0149-9
- Jayne, T. S., Chamberlin, J., & Benfica, R. (2018). Africa's unfolding economic transformation. The Journal of Development Studies, 54(5), 777–787. https://doi.org/ 10.1080/00220388.2018.1430774
- Karg, H., Drechsel, P., Akoto Danso, E. K., Glaser, R., Nyarko, G., & Buerkert, A. (2016). Foodsheds and city region food systems in two West African cities. *Sustainability*, 8(12), 1175. https://doi.org/10.3390/ su8121175
- Mackay, H. (2018). Mapping and characterising the urban agricultural landscape of two intermediate-sized Ghanaian cities. Land Use Policy, 70, 182–197. https:// doi.org/10.1016/j.landusepol.2017.10.031
- Maertens, M., & Swinnen, J. F. (2012). Gender and modern supply chains in developing countries. The Journal of Development Studies, 48(10), 1412–1430. https://doi. org/10.1080/00220388.2012.663902
- Ma, M., & Sexton, R. J. (2021). Modern agricultural value chains and the future of smallholder farming systems. Agricultural Economics, 52(4), 591–606. https://doi.org/10.1111/agec.12637
- Mlozi, M. R. (2019). Urban agriculture, production and marketing: The Tanzania experience. In David, G., Leo, V., & Hyacinth, A. (Eds.), Urban and Peri-Urban Agriculture in Africa (Vol. 1, pp. 79–92). Routledge.
- National Bureau of Statistics (NBS) [Tanzania]. (2015). National Panel Survey (NPS) - Wave 4, 2014 - 2015. http://Ref.TZA_2014_NPS-R4_v03_M. Downloadedfrom[https://microdata.worldbank.org/ index.php/catalog/2862] on [20/06/2020].
- Dar es Salaam, Tanzania: NBS. (www.nbs.go.tz). National Bureau of Statistics (NBS) [Tanzania]. (2021). National Panel National Panel Survey (NPS 2019-2020: Extended Panel with Sex-Disaggregated Data). http://Downloaded from [https://datacata log.worldbank.org/search/dataset/0047118/ Tanzania—National-Panel-Survey-2019-2020— Extended-Panel-with-Sex-Disaggregated-Data] on [25/12/2022].
- Pingali, P., Aiyar, A., Abraham, M., & Rahman, A. (2019). Transforming Food Systems for a Rising. Springer international publishing.
- Reardon, T. (2015). The hidden middle: The quiet revolution in the midstream of agrifood value chains in developing countries. *Oxford Review of Economic Policy*, 31(1), 45–63. https://doi.org/10.1093/oxrep/ grv011
- Reardon, T., Tschirley, D., Liverpool-Tasie, L. S. O., Awokuse, T., Fanzo, J., Minten, B., Vos, R., Dolislager, M., Sauer, C., Dhar, R., Vargas, C., Lartey, A., Raza, A., & Popkin, B. M. (2021). The processed food revolution in African food systems and the double burden of malnutrition. *Global Food Security*, 28, 100466. https://doi.org/10.1016/j.gfs. 2020.100466
- Scoones, I. (2009). Livelihoods perspectives and rural development. The Journal of Peasant Studies, 36(1), 171–196. https://doi.org/10.1080/03066150902820503

- Serraj, R., Krishnan, L. M., & Pingali, P. (2019). Agriculture and Food Systems to 2050: A Synthesis. In Agriculture & Food Systems to 2050 (Vol. 2, pp. 3–45). New Jersey: World Scientific.
- Swai, O. A. (2019). Architectural dynamics of street food-vending activities in Dar es Salaam city centre, Tanzania. Urban Design International, 24(2), 129–141. https://doi.org/10.1057/s41289-019-00083-9
- Tacoli, C. (2016). Informal food systems and food security in rural and urban East Africa. IIED Briefing, February 2016. Available at: http://pubs.iied.org/pdfs/ 17336IIED.pdf [Accessed 22 Jan. 2022].
- Tallontire, A., Opondo, M., & Nelson, V. (2014). Contingent spaces for smallholder participation in GlobalGAP: Insights from K enyan horticulture value chains. The Geographical Journal, 180(4), 353–364. https://doi. org/10.1111/geoj.12047
- Tasciotti, L., & Wagner, N. (2015). Urban agriculture and dietary diversity: Empirical evidence from Tanzania. European Journal of Development Research, 27(5), 31–649. https://doi.org/10.1057/ ejdr.2014.38
- Tawodzera, G. (2019). The nature and operations of informal food vendors in Cape Town. Urban Forum,

30(4), 443-459. December, Springer Netherlands https://doi.org/10.1007/s12132-019-09370-8

- Tschirley, D. L., Snyder, J., Dolislager, M., Goeb, S., Haggblade, J., Ejobi, L., Traub, F., Meyer, F., Meyer, F., Haggblade, S., Dr, J. B., & Kaneen, D. (2015). Africa's unfolding diet transformation: Implications for agrifood system employment. Journal of Agribusiness in Developing and Emerging Economies, 5(2), 102–136. https://doi.org/10.1108/JADEE-01-2015-0003
- United Nations, (2020). World Urbanization Prospects (WUP): The 2018 revision, methodology. Retrieved from https://population.un.org/wup/Country-Profiles/
- Wegerif, M. C. (2014). Exploring sustainable urban food provisioning: The case of eggs in Dar es Salaam. Sustainability, 6(6), 3747–3779. https://doi.org/10. 3390/su6063747
- Wegerif, M. C., & Kissoly, L. (2022). Perspective from an African City: Food market governance in Dar es Salaam. In Moragues-Faus, A., Clark, J., Battersby, J., & Davies, A. (Eds.), Routledge handbook of urban food Governance (pp. 278–292). Routledge.
- Yeboah, F. K., & Jayne, T. S. (2018). Africa's evolving employment trends. *The Journal of Development Studies*, 54(5), 803–832. https://doi.org/10.1080/ 00220388.2018.1430767