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Role of Smallholder Farmers in Food Supply to Urban Consumers During Covid-19 Pademic:

Case of Kinale and Magumu Farmlands

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Abstract

This paper presents findings from a study that analysed the role of smallholder farming in food supply while revealing the impacts of Covid-19 pandemic on smallholder farmers as they complied with containment measures imposed by the government. Purposive sampling was used to collect data in Kinale and Magumu farmlands and the nearby Soko Mjinga Food Market. Findings show that smallholder farming produces food for own consumption and income from the sale of surplus produce to urban consumers. Nairobi Metropolitan region is the main destination of food supply from the farmlands with Mombasa, Nakuru and Kisumu being the other main food market destinations. Notably, Covid-19 impacted negatively on food production and urban-rural flows. The article concludes that smallholder farming and food flow from the farms to urban consumers confirm urban-rural relations are critical linkages that sustain the interdependence of urban and rural areas. It recommends planning for urban-rural relations in terms of rural farmlands territories, food markets, sites and city spaces.

Keywords: Urban-rural linkages, smallholder farming, food transporters and traders, food market, informal vendors.

INTRODUCTION

Food flow from smallholder farmlands to urban consumers occurs through a chain of multiple supply actors that sustain mutual urban-rural relations. The spaces in the supply chain include food markets and vending sites where wholesaling and retailing to urban consumers take place. In Kenya for example, smallholder farming households, food transporters, traders and vendors are key actors in the food supply to consumers. However, the outbreak of Covid-19 pandemic and subsequent enforcement and compliance of its containment measures to reduce infection and curb its spread imposed hardships to smallholder farmers.

The food supply chain between the farmlands and urban consumers sustains relations that are the linkages of urban and rural areas through transactive function. As such, rural areas are spaces of sparse population that supply raw materials and food while urban areas are spaces of population concentration and consumption. The food produced at the farmlands and supplied to urban food markets in Kenya account for 75% of the total agricultural output and employ 70% of labour force (Kravva and Smith, 2021). Transactions in the delivery of food generate income for smallholder farming households, food transporters, and wholesale and retail food traders at food markets, and informal food vendors who sell the food to urban consumers. Thus, integrated urban and territorial planning offers better prospects for effectiveness and sustainability of food production and supply through transport, trade and vending along the urban-rural continuum.

The rest of the paper presents theoretical perspectives of urban-rural linkages, the role of smallholder farming in producing food and the flow of food in urban-rural relations. This is followed by explanation of the research methods, discussion of the study findings; and conclusion and recommendations.

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URBAN-RURAL LINKAGES: THEORETICAL PERSPECTIVES

Urban-Rural Linkages are: "flows of agricultural and other commodities from rural to urban markets for local, regional and international markets; and in opposite direction, flows of manufactured and imported goods from urban centres to rural settlements" (Tacoli, 2003:4). While this definition is restricted to the distinction and complementarity in urban-rural tangible flows and counter flows, Tacoli (ibid) posits the flows also include people and intangibles; including information, financial resources, trade transactions, government disbursements and grants, statutory transfers, investments and credit.

Early studies on spatial-sectoral concerns in urban-rural relations focused on socioeconomic comparisons and evolution between countries as measures of development (Stewart Jr, 1958). Initial concerted responses to tensions that increasing urbanization placed on the relations, however, were couched in terms of either anti-urban or pro-urban policy and planning for national or/and regional human settlements (Mutizwa-Mangiza, 1999). Decentralization was a prescribed anecdote to augment policy and planning responses in the context of urban-rural continuum, resting on visible and indivisible spatial and sectoral inter-urban-rural flows. Lynch (2005) argues that increasing level of urbanization emasculated benefits of economic and social development in favour of cities against rural areas, especially in Africa and Asia regions. This emasculation, happened against a backdrop of emerging dominance of globalized movement of capital in trade and investment. A shift towards globalized policy interventions that are not only multi-spatial and multi-sectoral, but also territorial resulted from the emasculation.The infinitesimal flows in contemporary urban-rural linkages framework, transcends direction, types and nature of the flows in traditional urban-rural dichotomy (Tacoli, 2007). The 2000s to mid-2010s environmental melt-down drew attention to the increasing impacts of climate change. The inculcation of sustainability principles and practices in ecological ethics globally that, as national and local recourse to sustainable development that followed; served to stamp the reality of ever-growing inexorable interdependence between urban and rural areas (United Nations, 2015).

The interdependence of urban and rural areas presents a framework of rural households and urban dwellers relations in resource "transactions" that each offer the other. Undoubtedly, the "transactions" underline the need for sustainability of the relations for which implementation of sustainable development goals (SDGs) seeks to achieve (Eppler et al., 2015). Morey et al. (2022) posit that as urbanization bear more influence on nature and structure in the flow of food, other resources and people; urban-rural relations have gained more relevance in quest for sustainable supplies. Bafoe et al. (2021) suggest building relations on principles that inter-link goals of poverty reduction and inequality.Promoting resilience in human settlements while revitalizing partnership across social, political and economic groups; can contribute to securing sustainable flows. Hubbard and Onumah (2001) point out increasing urbanization, conflicts between traders and municipal authorities, and ineffective planning for markets and roads undermine territorial development. In response, the international guidelines on urban and territorial planning and urban-rural linkages guiding principles promote the linkages as a track in realization of sustainable development (UN-Habitat, 2015 and UN-Habitat, 2019).

Smallholder farming for Food Supply

Smallholder farming is agricultural production on land below two hectares of land for household consumption using family labour, limited skills and capital; and striving to produce surplus for sale to generate income (Thapa and Gatha, 2011). The 475 million smallholder farm land units of less than two hectares that dominate emerging economies reflect widespread poverty, food insecurity and limited access to markets by smallholder farmers (Rapsomanikis, 2015). This smallholder land unit category account for 98% of all farm land units in China, 80% in India, 90% in Ethiopia and Egypt, and 50% in Mexico. Distribution of actual average land size show for example, 1.04 hectares in Albania, 1.10 hectares in Bolivia, 1.40 hectares in Nepal and 0.96 hectares in Tanzania. In Kenya, smallholder food production accounts for 78% of the total agricultural output from between 0.2 and 3.0 hectares of land (Birch, 2018). This production is critical in supplying

food to rural and urban food markets (Ihle et al., 2020). However, land sizes are getting smaller, in addition to the lack of effective policies on delivery of agricultural services, food markets and prices of farm input.

Fan and Rue (2020) point out that smallholder farming is key in resolving hunger and malnutrition but it should be profitable. Notably, there is need to improve acquisition of knowledge of land management to produce surplus, marketing and cost of farm inputs. Studies show that African countries will have to revolutionize the dominant smallholder farming to achieve economic transformation for which Rwanda has embraced value-creating market oriented-sector (Diao, et al., 2010 and Weatherspoon et al., 2021).

Role of Food Markets in Food Supply

Balineau et al. (2021) describe "food markets" as sites, sheds and buildings for food trade and warehousing. They differ from "market" as a system of exchange in trade and commerce which is organized around supply and demand in a liberal economy. Food markets are essential part of urban-rural food supply chain (Schmit and Gomez, 2011) as they play a catalysing role in economic development in Sub-Sahara Africa (SSA). Urban food markets are a source of affordable and easily accessible food by low-income consumers (Davies et al., 2022). Wholesaling and retailing to informal food vendors who distribute the food to consumers close to where they live, work or/and travel create informal self-employment. Employment is also created from food retail trade and transport activities at the food markets.

Rural and urban markets increasingly play critical role in the food supply system by providing spaces of agglomerating diverse food types for supply and distribution to urban consumers (Romanik, 2008). The markets are critical local economic and social institutions on account they stimulate rural businesses by attracting distant consumers who combine travel to visit relatives, and rural tourism. Activities at the markets narrow the spatial gap of accessing food and absorb strains in local, regional, national as well as global trade and disruptions that disasters such as Covid-19 pandemic introduced in the food supply chain, from enforcing and complying with its containment measures (Ledesma and Morales, 2021). A study by Jarvandi et al. (2022) show that rural food markets are key community assets that catalyse rural socio-economic development through food trade, but restriction on daily operating hours to trade and transport the food, to and from the markets, diminish benefits of the markets to the economy of the surrounding farmlands.

Implications of Covid-19 Containment Measures on Food flow

The outbreak of Covid-19 pandemic introduced the need to re-think global effort in leveraging the pivotal role of urban-rural linkages in deepening integrated urban and territorial [rural] planning and realize sustainable development. Projected recession of negative 5.1% growth potential and fragility of 90% of jobs in the informal sector for women, least educated young workers and smallholder farmers at the peak of the pandemic underlined the implications for the pandemic, in worsening poverty and inequality in Africa (Leke, 2020). Four months after Covid-19 outbreak was declared a global pandemic on 11th March 2020, 13 million infection cases were reported globally. Infection transmission affected the most vulnerable socio-economic groups such as smallholder farming households; with food purchases from the farms, income from sale of farm produce and access of farm inputs severely disrupted (IGC 2020 and Hammond, et al., 2022:1).

The impacts of governments' strategies that focused on enforcing the compliance with Covid-19 containment measures had a disruption of their own in flow of food for distribution, income of the farmers and volume and value of food trade and transport business (Cesar and Megumi, 2021). In Kenya, the government launched guidelines on Covid-19 case management and public health protocol for physical and social distancing, handwashing, use of face masks and quarantine (Kenya, 2021). Ban of international travel and lockdown were also enforced in Nairobi, Mombasa, Kisumu, Nakuru and Kilifi at different times on advice of health professionals. This led to controlled and regulated flow of essential goods including food, services and people.

RESEARCH METHODS

Purposive sampling was used to collect data for this article (Etikan et al., 2016). The method was used in selecting sample units with characteristics

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of interest to the researcher (Guarte and Barrios, 2006). Researchers use the characteristics to select respondents and key informants who, based, on their knowledge and experience; is assigned "point" of data collection (Robinson, 2014). Data was collected when Kenya was transitioning from the peak of the Covid-19 pandemic, after the containment measures were relaxed before complete cessation.

Household questionnaires were administered to thirty-five heads of smallholder farming households in Kinale and Magumu farmlands that supply food to nearby Soko Mjinga Rural food Market **(Figure 1)**. Key informants' questionnaires were administered to the superintendent of Soko Mjinga Food Market and the two Chiefs of Kinale and Magumu location, respectively. The superintendent is responsible for enforcing Covid-19 containment measures at the food market while the Chiefs enforced compliance by farmers in the farmlands. Focused Group Discussions (FGDs) was also conducted with fifteen retail traders at the food market.

RESULTS

Social Profile and Smallholder Farming by the Respondents

Smallholder farming respondents consisted of females and males at 77% and 23%, respectively. This represents dominance of women in food production at Kinale and Magumu farmlands. The dominance is in part due to most women being at home or nearby farms during and soon after the government relaxed Covid-19 restrictions. The small proportion of male respondents is attributed to most of them being way from their rural homes in search of employment in urban areas, at nearby Soko Mjinga Food Market, family businesses or at other farms as labourers.

Primary education accounted for nearly half of the respondents at 49%, followed by 37% for secondary education. Mature adults of over 18 years, with age bracket of between 40 and 59 years accounted for 60% of all respondents. Marital status of the married respondents reported by 91% of all respondents is a strong indicator that household labour in smallholder farming is highly valued in the study area.

Statistically, 26 % of the respondents cultivated crops only while the remaining 74% cultivated crops and reared livestock. About 77% had over 10 years farming experience. A mere 6% had been farming for less than three years at the time of the study. Majority of the respondents were, therefore, skilled, experienced and knowledgeable of the seasons, local weather patterns, timing

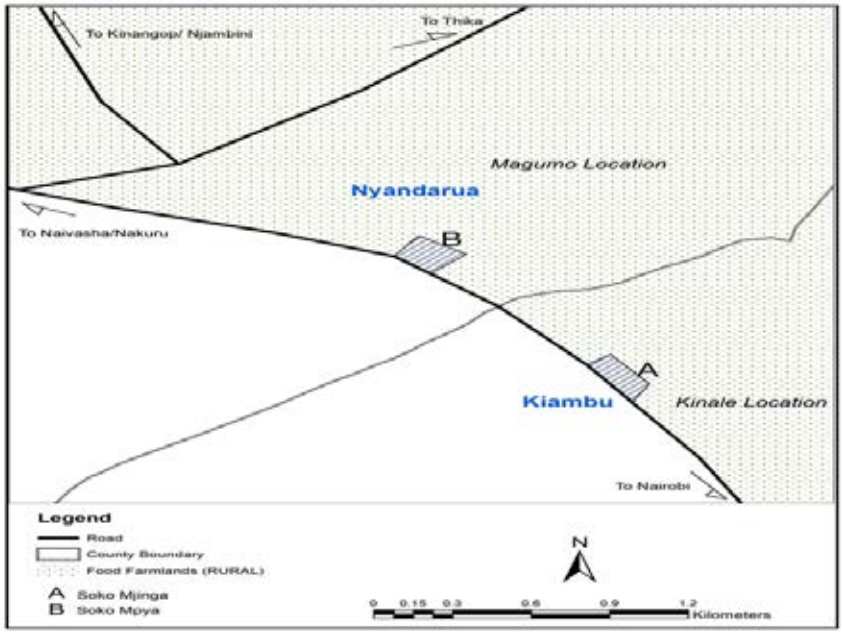

FIGURE 1
Kinale and Magumu farmlands and Soko Mjinga/ Soko Mpya food markets*
Source: Authors, 2022.

***Soko Mpya is implied in all reference to Soko Mjinga throughout the paper.**

for land preparation, type of crops and inputs for better farm yields. Freehold land ownership through inheritance and purchases accounted for 55% of the respondents. Another 20% reported combined leasehold and rented land. These two sets of land ownership and crop production by skilled and experienced farmers is the foundation of the smallholder farming economy on land sizes of 0.25 to 3.25 hectares for 29% of the respondents, and 4.25 to 6.25 hectares for 5% of them. crops and reared livestock. About 77% had over 10 years farming experience. A mere 6% had been farming for less than three years at the time of the study. Majority of the respondents were, therefore, skilled, experienced and knowledgeable of the seasons, local weather patterns, timing for land preparation, type of crops and inputs for better farm yields. Freehold land ownership through inheritance and purchases accounted for 55% of the respondents. Another 20% reported combined leasehold and rented land. These two sets of land ownership and crop production by skilled and experienced farmers is the foundation of the smallholder farming economy on land sizes of 0.25 to 3.25 hectares for 29% of the respondents, and 4.25 to 6.25 hectares for 5% of them.

Crops Production and distribution

Potatoes and kale are the two most widely grown food crops by over 20% of the respondents, i.e., 25% and 21%, respectively. Growing of cabbages by 12% of respondents is the third most widely grown food crops. Two sets of food crops namely carrot and spinach; and maize and green peas reported by between 9% and 8% of the respondents each, are third and fourth most widely grown food crop, respectively **(Table 1).**

Six of the seven dominant food crops in **Table 1**, namely: potatoes, kale, cabbages, carrots, green peas and spinach, are grown with surplus consideration for sale to generate household income in addition to consumption. These are fresh food products with limited "shelve life". Transport of the food from smallholder farming producers to urban consumers take place through a supply chain consisting of food markets, traders and transporters/distributors and food vendors who had to comply with Covid-19 containment measures. **Table 2** presents destinations where food produce was dispatched for distribution to consumers.

TABLE 1

Crops grown by smallholder farmers in Magumu and Kinale

Name of Crop	Percentage (%) of Respondent Farmers Growing the Crops
Cabbages	12
Green Peas	8
Ground nuts	4
Potatoes	25
Kale	21
Maize	8
Carrots	9
Cauliflower	1
Spinach	9
Cow Peas	1
Fruit (pears and Plums)	1
Onions	1
Trees	1
Pyrethrum	1

Source: Authors, 2022.

TABLE 2
Destination of food produce

Name of Destination Where Food is Sold		Specific Name of Market	Percentage (%) of Respondent Farmers
Where Food Market is Located	Category of Market		
Kinale-Magumu Farmlands	Rural Food Market*	Soko Mjinga	76
		Soko Mpya	
Nairobi Metropolitan Region	Urban Food Market**	Wakulima Market	5
	Peri-urban Food Market**	Wagige Food Market	2
	Urban Food Market	Kajiado	5
Nakuru	Urban Food Market	Not Given	2
Mombasa	Urban Food Market	Not Given	5
Kisumu	Urban Food Market	Not Given	2
Food Distributors***	Distributors	Not Given	2

Source: Authors, 2022.

Notes:
***Food from a respondent's farm to either Soko Mjinga or Soko Mpya trading sites depended on prevailing prices or whether the consignment was an order for delivery.**
****Nairobi Metropolitan Region**
***** Transporters did not disclose market destinations to the farmers**

The food produced by 76% of the respondents was sold at Soko Mjinga rural market. This food was then re-sold through wholesale trading to transporters for onward transport to food markets in various urban areas across Kenya. A combined 12% of the food was transported from smallholder farms to Wakulima Urban Food Market (5%), Wangige Peri-urban Food Market (2%) and Kajiado (5%). Another 5% of the respondents transported their food products to Mombasa while food produced by 2% each was transported to Kisumu and Nakuru, and to food distributors who did not disclose their market destination. As the table show, the bulk of food produced at the farmlands is sold at rural food market.

Livestock Farming

Cattle, chicken, goat and sheep are reared by 84% of the respondents with a distribution of cattle, chicken, goats and sheep; 37%, 25%, 12% and 10%, respectively. Out of the 84 %, 62% of the respondents relied on periodic sale of their livestock to generate income. Dairy cattle are the dominant livestock while donkeys are reared as means of transporting farm produce to the rural food market. Chicken and sheep; as well as ducks and rabbits reared by 2% and 6% of the households were important sources of protein. Eight percent of the respondent did not keep any livestock. Specific proportions of respondents selling livestock were18% each for cows, goats, and chicken. Sale of milk and eggs by 18% and 7% of respondents, respectively, also generated income for the respondents.

Overall, livestock farming is essential part of household economy in Kinale and Magumu farmlands but without an elaborate urban-rural linkage flows compared to that of crop production. Other than milk that is processed and packaged at Njabini, the regional capital 40 km from the farmlands; other livestock products are traded and consumed within the farmlands and adjoining rural communities.

About 39% of the farmers sold their livestock and livestock products to buyers who came to the farms in search of animals and/or animal products. The farmers also invite buyers, especially middlemen, to purchase their livestock and/or products. A combined 26% of the farmers sell their livestock and/or livestock products at Soko Mjinga food markets. In terms of volume, livestock and livestock products sold at the farm surpassed that which was transported to the food market.

Urban-Rural Food Flow between Relatives

Data collection covered exchange of food, money and visits as well as business through farm produce between relatives in urban (Nairobi metropolitan region) and respondents in the rural (Magumu and Kinale) farmlands. While 52% of the rural respondents had relatives in the metropolitan region excluding other towns, 48% of respondents in the city had relatives in rural areas. Out of the 52% of the respondents with relatives living in Nairobi, 45% of them had their relatives in the metropolitan region visiting them regularly at their rural homes. Visits by 18% of the relatives to rural villages were irregular while 36% of respondents reported their relatives living in Nairobi rarely visited them. In contrast, 18% of the respondents are never visited by their relatives in Nairobi.

On the other hand, 36% of the respondents visited their relatives in Nairobi regularly, 27% rarely made visits to the metropolitan region while 18% irregularly visited relatives in the city. Also, 45% of the respondents with relatives in the metropolitan region had the relatives regularly relying on their farm produce for food while for another 45%, their relatives did not rely on food from their farms. The proportion of the respondents with relatives who irregularly depended on the food produced at their farms as the main source was 9%.

Impact of Covid-19 Containment Measures on Smallholder Farming Households

Covid-19 containment measures were reported to have negatively impacted sales of farm produce by 82% of the respondents, while 18% of the respondents reported no impacts on the sales. Enforcing the measures reduced the sales of 51% of the respondents and reduced customer base and prices of food products for 24% and 11% of the respondents.

Restricted movement to transport food to Nairobi metropolitan region and other urban markets was reported by 14%. Curfew contributed to decreased sales from reduced operating hours in the two rural food markets (Soko Mjinga and Soko Mpya), and shorter period of working in the farmlands. Farm produce was wasted following lockdowns that restricted movement of food buyers from the main consumer market - Nairobi Metropolitan Region. Enforcing lockdown alone adversely affected sale price of farm produce of 91% of the respondents, for which 81% reported decrease in prices due to lack of buyers. Three most severe reported impacts were: reduced family income at 26%, loss of jobs for employees at 17%, and inability to afford tuition fees for their school children at 11%.

Compliance to Containment Measures and Coping Mechanisms

Wearing of masks was the leading measure adopted by 39% of respondents, followed by hand-washing and maintaining social distancing by 14% each. In contrast 17%, 23% and 31% did not wear face mask, hand wash and observe physical distancing, respectively. A cumulative proportion of 27% of the respondents reported staying at home to reduce social interaction at public spaces, self and family isolation and reduced activities at home were also adopted. With mere 6% of the respondents reporting not to have complied at all, compared to 70% who did, the overall compliance was significant. **Table 3** summarises observance to the five main Covid-19 containment measures.

Concerning coping mechanism against the pandemic, 29% of the respondents endured the Covid-19 situation without work while 13% of them took loans to finance their farming operations. Some farmers stopped selling their farm produce at Soko Mjinga market; opting instead to produce for household consumption using compost manure to reduce costs associated with industrial fertilizer. Eight percent of the respondents sold their farm produce at prices below prevailing prices to sustain their families.

Other coping strategies that smallholder farmers adopted were sharing food from their farms with neighbours, selling their food products along main roads with no police checkpoint, stockpiling to sell latter in the market and selling to neighbours who risked to take more varieties of farm produce to the market and increase their chances of making sales. Finally, trading in live animals especially chicken, sheep and cows whose market prices were stable compared to food products was adopted. **Table 4** presents 16 coping strategies adopted by smallholder farming households. Other challenges that 14% of the smallholder farming household faced include absolute lack of money to buy daily household consumer items (sugar, processed food and medicines), lack of social interactions and reduced level of income by 12% of the respondents.

TABLE 3
Observance of the five Covid-19 containment measures by respondents

Frequency (when)	Proportion of Respondents Adherence to Five Covid-19 Containment Measures (%)				
	Curfew	Lockdown	Physical Distancing	Wearing of Masks	Washing Hands
Always	71	74	31	49	34
Sometimes	23	20	37	34	43
Never	6	6	31	17	23

Source: Authors, 2022.

TABLE 4
Coping Strategies

Coping Strategies	Percentage (%) of Respondents
I had to store to wait for better prices	5%
I was sharing with neighbours the products I didn't sell	5%
Just continued farming since I have to find a way of getting around the situation	3%
Mixed the crop types that I farmed to avoid a single crop type	3%
Opted to selling livestock since the prices were somehow stable to avoid crop production losses	3%
Sold at lower prices	8%
Sold directly to the market	3%
Sold to neighbours	3%
Stocked food stuffs like maize flour	3%
Stopped selling crops - used them for my household's consumption	8%
Taking products closer to Nairobi where there were no police roadblocks	3%
Took loans to sustain farming activities	13%
Using home-made fertilizer/Organic Manure	8%
Was content in that situation	3%
We endured the challenges since there was nothing we could do	29%
We tried to sell all varieties of produce to increase income and potential for selling more	3%
Total	100%

Source: Authors, 2022.

Only 19% of them were not affected by any other challenges in complying with Covid-19 containment measures with 2% through 5% to 7% of the respondents having faced challenges that include bribery of police and road blocks, expensive transport costs, inaccessibility of farms and Soko Mjinga food market (2%); through loss of employment, high cost of farm inputs and lack of farm workers (5%); to lack of food (7%). In spite of these challenges that smallholder farming faced, 89% of the respondents did not change types of crops grown on their farms. The remaining 11% changed to growing varieties of coriander, potatoes and green peas that mature within the short-rains during the months of September to November.

Farming activities recovered after enforcement of the containment measures eased. However, at the time of study, there was no respondent who reported full recovery. Fifty-three percent of them reported moderate extent of recovery, 38% small extent recovery and 9% no recovery at all. All respondents reported that the government could not have protected them from impacts of containment measures. However, 32% and 14% of the smallholder farmers reported the government

could have reduced prices of fertilizer and consumer goods, respectively, while for 11% the government could have supported the farmers by supplying seeds (7%), and subsidized farm inputs and creating jobs in rural areas (5%) each.

DISCUSSION

Dominance of females actively involved in smallholder farming make women key drivers of the rural economy and actors in food production to feed urban population. The small proportion of males actively involved in smallholder farming for which majority are engaged in productive work away from household land reflect a move to diversify household economy of the smallholder farmers as land size reduce from subdivision, more family members especially men will increasingly seek productive work outside household land. The high incidence of marriage status of the respondents partly explains the importance attached to family ties, for which smallholder farming derive its farm labour. Together with fairly literate respondents with combined certification of primary and secondary level of education, food production in the farmlands is by fairly productive human resource. This can be connected to the large proportion of households that cultivated crops and reared livestock as livelihoods diversification strategy that also generated income. The over three quarters of the respondents with over ten-year experience build a strong foundation for food production at Kinale and Magumu farmlands. A combined freehold (55%) and rented/leasehold (20%) land on smallholder land units (0.25 to 6.25 hectares) further underline the strong foundation of smallholder farming as an economic activity that can be relied on, to produce and supply food for distribution to urban consumers.Cultivation of potato, kale, cabbage, carrot, spinach, green peas and maize at proportions ranging from 25% to 8% of the respondents suggest the importance of the farmlands as source of valuable food in the urban-rural supply value chain. Except maize, the other foods are valued fresh food products. Moreover, the food products have strong demand in urban food consumer market especially in Nairobi Metropolitan Region, Mombasa, Nakuru and Kisumu.

Destination Food Markets and Urban-Rural Linkages

The food produced by smallholder farming is transported to urban consumers along two food transportation pathways. The first pathway is to the nearby Soko Mjinga rural food market where food is traded in wholesale to transporters who distribute the food to Wakulima urban food market in the Nairobi central business district, Wangige urban food market and Kajiado – all in the metropolitan region. Retail traders also buy the food to sell at sites near the rural food market; to motorists on Nairobi-Naivasha-Nakuru highway. Other retailers transport the food to nearby trading locations and vending sites out of reach of the food markets.

In the second food pathway, the food is transported directly from the smallholder farmers to the urban food markets for distribution to urban consumers without first delivering to Soko Mjinga rural food market. The proportion of the food delivered to urban consumers along this direct food transport pathway is from 5 % of the respondent, and was transported to Wakulima urban food market in Nairobi Metropolitan Region; and Mombasa city. The small proportion of food that was transported to Wangige, Kajiado, Kisumu and Nakuru, and by food distributors who did not disclose urban food market destination **Table 2**; is significant component of the urban rural relations because it is a direct flow of food from farmlands to urban food markets.

Urban-Rural Food Flow between Urban and Rural Relatives

Exchange of food, money, conducting business and visits between relatives living in Nairobi Metropolitan Region (urban) and smallholder farming respondents (rural) revealed significant level of urban-rural linkages interaction. The exchange underlies the existence of tangible linkages of the urban-rural relations. It was evident that relatives in Nairobi metropolitan region regularly and irregularly, relied on their smallholder farm produce for food. Overall, counter visits by relatives to and from Nairobi metropolitan region and Kinale and Magumu smallholder farmlands, and food that urban relatives carry with them from visits to rural relatives represented urban-rural relations in the food and people flows. These are active and dynamic flows, which rest on the dictates of social-economic relations and resource use imperatives.

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Impacts of Covid-19 and Compliance with containment measures

The Covid-19 pandemic and its containment measures exposed the fragility of urban-rural linkages especially on food flows and movement of people. Specific impacts of the containment measures included reduction in customer base, reduced prices of food and; restricted transportation logistics to and from the farms and at rural food market (Soko Mjinga); to Nairobi Metropolitan Region, Mombasa, Kisumu and Nakuru urban food markets. Reduced business hours for trading at Soko Mjinga Market from 4:30 am to 8:00pm before pandemic; to 7:00am to 6:00pm during the pandemic to enforce compliance with curfew hours resulted to a fall in sales volume, compared to the contribution of fall in selling price of farm produce by the farmers, with 81% of respondents reporting absolute lack of buyers.

Levels of compliance with containment measures by the farmers was significant, showing they were responsive to the call of arresting the pandemic. Self-quarantine by staying at home and going out when it was unavoidable were the most preferred compliance. Wearing of face masks, hand-washing and adhering to the 2-metre spatial social distancing were significantly complied with. However, the respondents who reported not to wear face, hand wash and observe social distancing presented high risks of spreading the Covid-19 virus. Overall, curfew was the most complied for fear of arrest by the police followed by wearing of face masks. Social distancing was the least complied with; with some respondents (31%) reporting they "never" complied and other (37%) only complying "sometimes".

Coping Strategies and Challenges

A third of the respondent did not take any step to enhance capacity of their households to cope with adversities of the pandemic even though taking of loans to finance farm operations was widely adopted coping strategy. Not selling food at all but selling at low prices when necessary were the second most widely used strategy; followed by storing farm produce (potato) for prices to improve and sharing farm produce with neighbours. These three coping strategies were augmented with substituting compost manure for industrial fertilizer for farm inputs, stopping the sale of farm produce at Soko Mjinga rural food market; and sale of live animals especially chicken for occasional finances.

In spite of embracing these coping strategies, smallholder farming households had times of absolute lack of money to buy consumer items such as sugar, food and medicines while they could not socially interact even with neighbours, exposing them to psychological and mental health risks due to isolation. Bribes to the police enforcing curfew at road blocks, unaffordable transport costs, as well as inaccessibility of farms and Soko Mjinga food markets; through to loss of employment and lack of food were constant challenges in the smallholder farmlands.

Easing compliance with covid-19 containment measures set smallholder farmers on recovery and normalizing social life and the economic activities around farming to produce food for own consumption and sale at Soko Mjinga rural food market. To aid in the recovery, 46% of the respondents suggested government interventions in reduced prices of fertilizer and consumer goods. Supply of seeds and subsidizing farm inputs to create jobs in the farmlands were also suggested.

CONCLUSION AND RECOMMENDATIONS

The study demonstrates direct food flows from Kinale and Magumu smallholder farmlands and Soko Mjinga food market to Wakulima urban food market and Wangige peri-urban food market in Nairobi Metropolitan region, Kisumu, Mombasa and Nakuru cities in part confirm the reality of urban-rural relations. In addition, food flows on account of visits by relatives– represent flow of food and people that underline the urban-rural relations. The enforcement and compliance with Covid-19 containment measures disrupted social activities and food production. In response, farmers adopted coping strategies including taking loans to produce food and paid for exorbitant transport costs for which they expected government interventions, but were not cushioned against. It is thus evident that smallholder farmers play critical role in food supply to rural and urban consumers.

The paper recommends re-orienting planning of the urban areas to inculcate resource use, physical

and economic development practices centred on urban-rural relations traction to secure an enduring tangible and intangible urban-rural linkages that the paper has ascertained. The planning should accord with the principles and practices of multi-sectoral, multi-level and multi-stakeholders leveraged territorial development from a level of technology supported production and accessing livelihoods in smallholder social-economy. Second, the paper recommends designing of resilient coping and mitigation measures for enduring global pandemics such as Covid-19; and other types of disasters with regional, national and localized impacts. Governments should offer material and services to alleviate hardships and support coping strategies during disasters. For example, direct financial subsidies or/and tax breaks offered can be effective measures for sustaining urban-rural food flows linkages.

CITED REFERENCES

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Bafoe, G., Zhou, X., Moinuddin, M., Somanje, A. N., Kuriyama, A., Mohan, G., Saito, O. and Takeuchi, K. (2021). Urban–rural linkages: Effective solutions for achieving sustainable development in Ghana from an SDG interlinkage perspective. *Sustainability Science*. 16, 1341-1362.

Balineau, G., Bauer, A., Kessler, M. and Madariaga, N. (2021). *Food systems in Africa: rethinking the role of markets*. Washington DC: World Bank Group.

Birch, I. (2018). *Agricultural productivity in Kenya: Barriers and opportunities*. London: DFID.

Cesar, C. and Megumi, K. (2021). *Exploring the Growth Effects of Covid-19 across Developing Countries*. Washington DC: The World Bank.

Davies, J., Blekking, J., Hannah, C., Joshi, N., Anderson, P., Chilenga, A., Evans, T. (2022). Governance of Traditional Markets and Rural-Urban Food Systems in Sub-Sahara Africa. *Habitat International*. 127, 1-11.

Diao, X., Hazell, P. and Thurlow, J. (2010). The role of agriculture in African development. *World Development*. 38(10), 1375-1383.

Eppler, U., Fritsche, U. R. and Laaks, S. (2015). *Urban-rural linkages and global sustainable land use*. Berlin: International Institute for Sustainability Analysis and Strategy.

Etikan, I., Musa S.A., and Alkassim, R.S. (2016). Comparison of Convenience Sampling and Purposive Sampling. *American Journal of Theoretical and Applied Statistics*. 5(1), 1-4.

Fan, S. and Rue, C. (2020) The role of smallholder farms in a changing world. In Paloma, S.G., Rison, L. and Louhichi, K. (eds). *The role of smallholder farms in food and nutrition security.* (pp 13–28) . Cham, Switzerland: Springer Nature Switzerland AG.

Guarte, J. and Barrios, E. B. (2006). Sampling Theory: Estimation under Purpose Sampling. Communication in Statistics. *Simulation and Computation*. 35(2), 277-284.

Hammond, Lukuyu, B. and Daniel Milner, D. (2022). Perceived effects of COVID-19 Restrictions on smallholder farmers: Evidence from seven lower- and middle-income countries. *Agricultural Systems*.198, 1-11.

Hubbard, M. and Onumah, G. (2001). Improving urban food supply and distribution in developing countries: The role of city authorities. *Habitat International*. 25(3), 431-446.

IGC (2020). *Economic impacts of the COVID-19 pandemic on smallholder farmers*. London: International growth centre, London school of economics and political science.

Ihle, R., Rubin, O. D. Bar-Nahum, Z. and Jongeneel, R. (2020). Imperfect food markets in times of crisis: economic consequences of supply chain disruptions and fragmentation for local market power and urban vulnerability. *Food Security*. 12, 727–734.

Jarvandi, S., Johnson, K., and Franck, K. (2022). Facilitators and barriers to farmers' market use in a rural area. *The Journal of Extension*. Retrieved August 8, 2023. from http://doi.org/10.34068/joe.60.02.08.

Kenya, Republic of (2021). *Guidelines on case management of Covid-19 in Kenya*. Nairobi: Ministry of Health.

Kravva, V. and Smith, B. (2021). *Strengthening urban-rural linkages in Kenya for increased resilience*. Tamale, Ghana: URBANET.

Ledesma, E. and Morales, A. (2021). *Farmers markets growing role as essential sources of healthy food for rich and poor*. Carlton, Australia: The conservation Africa.

Leke, A. (2020). *Afronomics: The economic impact of Covid-19 (Coronavirus) in Africa.* Washington DC: The World Bank Group.

Lynch, K. (2005). *Rural–urban interaction in the developing world*. New York: Routledge.

Matizwa-Mangiza, N. (1999). Strengthening rural-urban linkages. *The Habitat Debate*. 5(1), 4-6.

Morey, B., Deshkar, S., Sukhwani, V. and Mitra, P. (2022). Towards Circulating and Ecological Sphere in Urban Areas: An Indicator-Based Framework for Food-Energy-Water Security Assessment in Nagpur, India. *Sustainability*. 14, 1-25.

Rapsomanikis, G. (2015). *The economic lives of smallholder farmers: An analysis based on household data from nine countries.* Rome: UN-FAO

Robinson, S. R. (2014). *Purposive sampling***.** In Michalos, A C. (eds). Encyclopaedia of Quality of Life and Well-Being. Dordrecht, Netherlands: Springer Science+Business Media.

Romanik, C. T. (2008). *An urban-rural focus on food markets in Africa*. Washington DC: The Urban Institute.

Schmit, T. M. and Gomez, M. I. (2011). Developing viable farmers markets in rural communities: an investigation of vendor performance using objective and valuations. *Food Policy*. 36(2), 119-127.

Stewart, Jr., C. T. (1958). The urban-rural dichotomy: Concepts and uses. *American Journal of Sociology*. 64(2), 152-158.

Tacoli, C. (2003). The links between urban and rural development. *Environment and Urbanization*. 15(1), 3-12.

Tacoli, C. (2007). Poverty, inequality and the underestimation of rural-urban linkages. *Development*. 50(2) 90–95.

Thapa, G. and Gaiha, R. (2011). *Smallholder farming in Asia and the Pacific: Challenges and opportunities*. Rome: IFAD

Weatherspoon, D.D., Miller, S.R., Weatherspoon, L. J., Niyitanga F. and Oehmke, A.mes F., (2021). Rwanda's commercialization of smallholder agriculture: implications for rural food production and household food choices. *Journal of Agricultural & Food Industrial Organization*. 19(1), 51-62.

UN-Habitat (2015). *International guidelines on urban and territorial planning*. Nairobi: UN-Habitat.

UN-Habitat (2019). *Urban-rural linkages: guiding principles*. Nairobi: UN-Habitat.

United Nations (2015). *Sustainable development goals*. Retrieved December 5, 2023 from: https:// sdgs.un.org/ goals.