

ROLE OF HIGH-VALUED MARKET PARTICIPATION ON POVERTY REDUCTION AMONG AFRICAN LEAFY VEGETABLE FARMERS IN KENYA

Evans Ngenoh^{1,2,*}, Sindu W Kebede¹, Hillary K Bett², and Wolfgang Bokelmann¹

¹ Department of Agricultural Economics, Humboldt University of Berlin, Invaliden str. 42, 10115 Berlin, Germany

² Department of Agricultural Economics and Business Management, Egerton University, P.O. Box 536, 20115 Egerton, Kenya

*Correspondence: ken.ngenoh@gmail.com

Abstract

Agriculture is fundamental for achieving food and nutritional security as well as income generation to the poor and has a strong linkage effects in driving the overall growth and contributing to poverty reduction. Agricultural markets provide an opportunity for farm production to contribute to household food security and poverty reduction through the cash income realized from the sales of farm produce. Despite this role, smallholders are the world poorest who face chronic poverty and food insecurity yet they are the main players in the agriculture sector. Additionally, there is little knowledge and/or documentation regarding the linkages between smallholder African leafy vegetables (ALVs) production and marketing in Kenya. Therefore, this paper aimed at determining the role of high-valued market participation on the welfare of the smallholder ALVs producers' in Kenya. It highlights the contribution of ALVs in promoting households' Food and Nutritional Security (FNS). The paper concludes that high-valued market participation is a core element in smallholder commercialization as it links power between input and output markets as well as being a tool, which equips them with voices to fight for their economic, social, and cultural rights. Additionally, high-valued market participation is an empowerment through which individuals develop and adopt new technological activities in response to their livelihoods challenges, henceforth a key element towards successful achievement of welfare gains and poverty reduction.

Keywords: Food Security; Nutrition; African Leafy Vegetables; Household income; Participation; and High-valued Markets

Introduction

Globally, agriculture is fundamental to achieving Food and Nutritional Security (FNS) because it has a typically strong linkage effects in driving the overall growth and contributing to poverty reduction through food supply and income generation to the poor (Diao et al., 2010; Webb and Block, 2010; Christiaensen et al., 2011). The opportunity to stimulate growth in other sectors of the economy relies heavily on agriculture because it directly boosts food security, and ultimately reduces rural poverty. Despite these role, about 1.4 billion people in the world are living on less than US\$1.25 a day with one billion of them living in rural areas where agriculture is their main source of livelihood (IFAD, 2014). It is estimated that, more than 0.87 billion of the world's population are currently underweight with 0.82 billion coming from developing

countries where hunger and malnutrition affects all the categories of the population (FAO, 2011; Khush et al., 2012). In addition, Sub-Saharan Africa (SSA) only accounts for 13% of the population in the developing world, but it accounts for over 25% of its undernourished (Ravallion et al., 2007; IFAD 2010; FAO, 2011). This is because 85-90% of agricultural activities are rain-fed in Sub-Saharan Africa (SSA) and accounts for 35% of the region's Gross National Product (GNP), 40% of exports and over 70% of employment (World Bank, 2008; Omiti, 2012). Nonetheless, despite all these challenges, the contribution of smallholder ALVs farmers to food production is significant with both urban and rural food consumers in Kenya counting heavily on them to satisfy their food and nutritional needs (Abukutsa, 2007; Kremen et al., 2012; Chelang'a et al., 2013). This, therefore, puts

its production, marketing and consumption as a major determinant of both inclusive and equitable development, a fundamental factor to hunger and poverty reduction (Omiti, 2012).

Approximately, 10% of Kenya's population live in a chronic state of food insecurity with the majority being women and children (RoK, 2011; FAO, 2014). This is a critical challenge as it is closely linked to poverty and may be best addressed through increased ALVs production and consumption in addition to other development strategies. This is because the role of the agricultural sector in the growth prospects can only be harnessed to improve livelihoods through scaling out technological innovations that require functional inputs and outputs markets (Olwande and Mathenge, 2010; Prakash-Mani, 2013). The production of ALVs in Kenya is majorly on rain-fed and mainly conducted on a subsistence basis in rural and peri-urban areas with poor seed quality, drought, poor marketing systems and infrastructure being the major constraints (Abukutsa, 2007). However, its consumption is dominant among rural and urban households since they rely on consumption of these vegetables to fulfil their daily food and nutritional requirements of micronutrients particularly vitamin A and iron (Chadha, 2004; Chelang'a et al., 2013). Fresh leaves of most ALVs contain useful amounts of the recommended vitamins, minerals and proteins for growing children and lactating mothers (Chweya, 1985). This therefore, puts ALVs production and marketing at a unique position since it provides an opportunity for the poorest category of people to earn a living without necessarily requiring substantial capital investment (Schippers, 2000).

Due to these enormous opportunities from ALVs production and marketing, the government of Kenya has in the recent past been carrying out enormous campaigns for intensive production and consumption of ALVs towards the reduction of hunger and malnutrition since they contain various nutritive microelements (FAO, 2011; RoK, 2011). This was also exacerbated by the higher rate of urbanization, which was

coupled with changes in dietary habits, and enormous consumer awareness campaigns on nutritional importance of ALVs. This has led to an upward trend of demand for ALVs and have created a major concern about its supply conditions in high-valued markets such as hotels, hospitals, and supermarkets (Chelang'a et al., 2013). Therefore, how can we improve on the effective and efficient ALVs production and marketing so as achieve sustainable household FNS in Kenya? This is because it is the only viable and long-term option towards ending hunger and malnutrition. Generally, the country is currently facing a major challenge of adequately feeding its population through various strategies of increasing agricultural production capacity as well as enhancing the commercialization of the product to match the demand (FAO, 2011; IFAD, 2014).

Smallholder Agricultural Market Participation

Agricultural markets provide a means of effectively integrating smallholder farmers into the mainstream of national economies. This is because markets provide an opportunity for farm production to earn income from the sales of farm produce and hence contribute to household food security and poverty reduction (FAO, IFAD and WFP, 2013). In addition, markets drive production as farmers strive to meet the quantity and quality demanded by consumers and other end-users (UNDP, 2003). The predominance of market participation has led to the emergence of globalization, which has become more important to the economic development (Van Schalkwyk and Jooste, 2003). This is because it presents an immense opportunity through value addition and high-valued market participation to benefit countries whose principal economic activities are in agriculture (Van Schalkwyk, 2003). The strategies that improve market access coupled with pro-poor policies that emphasize on income generation perform best, and have a high potential for sustained and broad-based food security and poverty reduction (Dorward et al., 2002).

Many ALVs smallholder producers have access to major towns in Kenya and are trading solely on ALVs while others are trading on them alongside other vegetables because of increasing demand (Chadha, 2004). Mwangi and Kimathi, (2006) reported that the consumption dynamics of ALVs especially in Nairobi rose from 31 tons valued at USD 6,000 in 2003 to 600 tons valued at USD 142, 000 in 2006. These increases were attributed to the opening of supermarkets, which have significantly risen to be major retail outlets in Kenya, South Africa, and Nigeria (FAO, 2003; Reardon et al., 2007). The growth of supermarkets between 1993 and 2003 was reported to be 18-20% (Weatherspoon and Reardon, 2002; Ngigi et al., 2010), and this was evident in Kenyan top five cities which are Nairobi, Mombasa, Eldoret, Nakuru, and Kisumu. Currently, ALVs trading in Kenyan supermarkets have increased to twelve different species, and therefore its potential has led to enhanced agricultural productivity, more-stable vegetable supplies, improved nutrition, and higher incomes in rural and peri-urban areas across the country. Therefore, participation in market exchange is a core element in smallholder commercialization as it links power between input and output sides of the market (Jaleta *et al.*, 2009).

The importance of well-integrated markets for household high-valued market participation and better returns from technology adoption cannot be overemphasized. This is because a well-integrated market has been identified to be transmitting excess supply even to distant locations and therefore, making the technology adoption to diminish slowly due to the returns to increased output than in segmented or poorly integrated markets (Barret, 2008; Martey, 2014). In addition, the potential for adverse welfare effects due to a fall in output prices is also lower in well-integrated markets (FAO, 2009). Therefore, for smallholder farmers to have confidence and make the necessary investments to supplying the product to the market, consistent and attractive financial benefits must prevail. This is because a successful agricultural enterprise must provide the

means, under which farmers market the new surplus from the adopted productivity-enhancing technologies and management methods. Consequently, there is high potential beneficial impacts of market-oriented agricultural production to the participating smallholder household irrespective of the response of net-consuming households and/or the constraints that are associated with high-valued market participation of other categories of smallholder (Jagwe et al., 2010; Arias et al., 2013).

The Effects of High-valued Market Participation on Household Poverty

According to DFID (2000), smallholder market participation is a tool that equips them with voices to fight for their economic, social and cultural rights. In addition, the key to high-valued market participation is empowerment through which individuals develop and adopt new technological activities in response to their livelihoods challenges. According to Johnson and Forsyth (2002), these rights also pave the way for security, productivity, and sustainable development. Although high-valued market participation put increased emphasis on specialization, it is not confined to the production of high-value commodities. Smallholder farmers prefer to move gradually from subsistence to commercial crop production system then ultimately shifting to a specialized high-value commodities production system (Pingali *et al.*, 2005). In addition, Omiti et al. (2009) argued that initial smallholder high-valued market participation across developing economies is mostly seen in the form producing a marketable surplus of food commodities over what is needed for own consumption.

Smallholder producers must remain competitive if they want to continue to function in local, regional or even international markets and the power of purchasing agents (wholesale, retailers, and supermarkets) put margins under pressure (Pingali et al., 2005). Particular attention to pro-poor economic development has led to applying value chain approaches to an

agricultural sector where poor smallholder farmers are linked formal markets (Hawkes and Ruel, 2011). Nowadays, high-valued markets are the standard in many development-oriented activities and target smallholders because it translates into higher household incomes, hence household FNS improvement (Haddad 2000; World Bank, 2007). It has been identified globally that household food security is an important determinant of an individual's nutritional status and therefore, when the food available to the household is limited or uncertain or when there is limited or uncertain ability to acquire suitable food in ways that are socially acceptable, then there is food insecurity in such households (Skalicky *et al.*, 2006; Shetty, 2015). Moreover, the accessibility dimension of food security becomes more important because farmers and other actors in the value chain have been increasingly involved in the monetary economy. Therefore, an increase in the access of high-valued markets by smallholder farmers would stimulate production, which would eventually lead to lower food prices and hence increased rural incomes (Omiti *et al.*, 2009).

4. Conclusion

The paper aimed at reviewing relevant articles in order to determine the main role of high-valued market participation on the welfares of ALVs producing households in Kenya. The paper focused on the household food security status (as a proxy of poverty) of smallholder producers' who are the main players in the production and marketing of ALVs. Therefore, based on the findings of the paper it is concluded that, successful business practices in the agricultural sector requires a high-valued market-oriented production which will benefit farmers through the achievement of welfare gains from regular interaction and exchange of ideas as well as from comparative advantage, and economies of scale. Besides, access to high-valued markets among smallholder farmers can play an expanded role in poverty reduction because it enables smallholder farming household to accumulate assets as well as invest in new farming technologies that would give a higher yields and more income. In

addition, access to high-valued markets eases the cash constraints and enables smallholder farmers to meet the cost of purchased inputs such as fertilizer, improved crop varieties, irrigation facilities among other necessary factors of production, and hence exiting poverty. With respect to ALV smallholder farmers, it would be imperative to document the role of drivers and incentives towards participating in high-valued markets as a strategy to enhance their livelihood situations. This would provide the necessary and sufficient basis for formulating effective and efficient policies towards development of a vibrant ALV value chain in Kenya. Finally, the findings of the paper suggest that further studies need to be done especially on the actual contribution of high-valued market participation to the household income of both small- and large-scale producer of ALVs in Kenya.

References

- Abukutsa-Onyago MO. 2007. Response of Selected Slender Leaf (*Clotalaria brevidens Benth*) to inorganic nitrogen application. *African Journal of Food Agriculture, Nutrition and Development* 7(3): 1-10.
- Arias, P., Hallam, D., Krivonos, E., and Morrison, J. (2013). Smallholder integration in changing food markets. *Food and Agriculture Organization of the United Nations, Rome*.
- Barret CB. 2008. Smallholder market participation: Concepts and evidence from Eastern and Southern Africa. *Journal of Food Policy*, 33: 299-317.
- Chadha ML.2004. AVRDC's experiences within marketing of indigenous vegetables: A case study on African eggplant. Paper presented in the expert workshop on Marketing Strategies and Capacity Strengthening to Realize the Economic Potential of Underutilized Plant Species, University of Macerata, Macerata, Italy, 28-31 January, 2004.
- Chelang'a PK, Obare GA, Kimenju SC. 2013. Analysis of urban consumers' willingness to pay a premium for African leafy vegetables (ALVs) in Kenya: A case of

- Eldoret Town. *Journal of Food Security*, 5: 591–595.
- Christiaensen L, Demery L, Kuhl J. 2011. “The (Evolving) Role of Agriculture in Poverty Reduction: An Empirical Perspective.” *Journal of Development Economics* 96(2): 239-254.
- Chweya JA. 1985. Identification of the nutritional importance of indigenous green leafy vegetables. *Acta Hort* 153:99-108
- DFID. 2000. Realising Human Rights for Poor People: Strategies for Achieving the International Development Targets. London: Department for International Development.
- Diao X, Hazell P, Thurlow J. 2010. “The Role of Agriculture in African Development.” *World Development* 38(10): 1375-1383.
- Dorward A, Poole ND, Morrison J, Kydd J, Urey I. 2002. Critical Linkages: livelihoods, markets and institutions. ADU Working Paper 02/03. Available at: <http://ageconsearch.umn.edu/handle/10919>.
- FAO (Food and Agriculture Organization). 2003. Rise of Supermarkets Across Africa Threatens Small Farmers: Opportunities and Challenges in a Changing Market. Workshop on Globalization, Urbanization and Food Systems in Developing Countries.
- FAO (Food and Agriculture Organization). 2009. *The State of Food Insecurity in the World 2009: Economic crises – Impacts and Lessons Learned*. Rome: Food and Agriculture Organization of the United Nations.
- FAO (Food and Agriculture Organization). 2010. *The State of Food Insecurity in the World 2010: Addressing Food Insecurity in Protracted Crises*. Rome: Food and Agriculture Organization of the United Nations.
- FAO (Food and Agriculture Organization). 2011. *The State of Food Insecurity in the World 2011: How Does International Price Volatility Affect Domestic Economies and Food Insecurity?* Rome: Food and Agriculture Organization of the United Nations.
- FAO (Food and Agriculture Organization). 2014. Linking farmers to moving markets. [Online] Available at: <http://www.fao.org/news/story/en/item/179362/icode/> [Accessed on 15 December 2014].
- FAO, IFAD, and WFP. 2013. The State of Food Insecurity in the World 2013. The multiple dimensions of food security. Rome, FAO.
- Government of Kenya (GOK). 2011. National Food Security and Nutrition Policy (FSNP). Kenya National Bureau of Statistics (KNBS). Government Printers. Nairobi.
- Haddad L. 2000. A conceptual framework for assessing agriculture-nutrition linkages. *Food and Nutrition Bulletin* 21 (4).
- Hawkes C, Ruel MT. 2011. Value chains for nutrition. 2020 Conference Paper 4, Advance copy. New Delhi, 10-12 February 2011.
- IFAD (International Fund for Agricultural Development). 2011. Rural Poverty Report. 2011. New realities, new challenges: new opportunities for tomorrow’s generation. Rome. Available at: <http://www.ifad.org/rpr2011/>. Accessed on 15 December, 2014.
- IFAD (International Fund for Agricultural Development). 2014. IFAD’S Annual Report. 2013. A years work in facts, figures and stories. Rome. Available at: <http://www.ifad.org/pub/ar/2013/web.htm>. Accessed on 15 December, 2014.
- IPGRI (International Plant genetic Resource institute). 2003. Rediscovering a forgotten treasure, In: IPGRI Public Awareness. Rome, Italy. <http://ipgri-pa.grinfo.net/index.php?itemid=101>. Accessed on 05 December 2014.
- Jagwe J, Ouma E, Machethe C. 2010. Transaction costs and smallholder farmers’ participation in Banana markets in the Great Lakes region of Burundi, Rwanda and the Democratic Republic of Congo. *African Journal of Agricultural and Resource Economics*. 6(1): 302-317.
- Jaleta M, Berhanu G, Hoekstra D. 2009. Smallholder commercialization: Processes, determinants and impact.

- Discussion Paper No. 18. Improving Productivity and Market Success (IPMS) of Ethiopian Farmers Project, ILRI (International Livestock Research Institute), Nairobi, Kenya. 55pp
- Johnson C, Forsyth T. 2002. In the eyes of the state: negotiating a 'rights-based approach' to forest conservation in Thailand. *World Development*, 30 (9): 1591–1605.
- Khush G, Lee S, Cho JI, Jeon JS. 2012. Biofortification of crops for reducing malnutrition. *Plant Biotechnology Reports* 6: 195-202.
- Kremen C, Iles A, Bacon C. 2012. Diversified farming systems: An agro-ecological, systems-based alternative to modern industrial agriculture. *Ecology and Society* 17(4): 44.
- Martey, E, 2014. Market Information and Extent of Agricultural Commercialization: Empirical Evidence from Smallholder Farmers in Effutu Municipality of Ghana. *American Journal of Experimental Agriculture*, 4(12), 1680.
- Mwangi F, Kimathi M. 2006. African leafy vegetables evolve from underutilized species to commercial cash crop. A paper presented at the research workshop on collective action and market access for small holders, held on 2-3 October, 2006 at Cali, Colombia.
- Ngigi MW, Okello JJ, Lagarkvist C, Karanja N, Mburu JS. 2010. Assessment of Developing-Country Urban Consumers' Willingness to Pay for Quality of Leafy Vegetables: The Case of Middle and High Income Consumers in Nairobi, Kenya. Paper Presented at the Joint 3rd African Association of Agricultural Economists (AAAE) and 48th Agricultural Economists Association of South Africa (AEASA) Conference in Cape Town, South Africa, September 19 to 23, 2010.
- Olwande J, Mathenge M. 2010. Market participation among poor rural households in Kenya. Paper prepared for presentation at the International Association of Agricultural Economists (IAAE) Triennial conference, Fozdo Iguacu, Brazil, on 18th-24th August, 2012.
- Omiti J, Otieno D, Nyanamba T, McCullough E. 2009. Factors influencing the intensity of market participation by smallholder farmers: A case study of rural and peri-urban areas of Kenya. *African Journal of Agricultural and Resource Economics*. 3(1): 57-82.
- Omiti JM. 2012. Research challenges in Agriculture and Rural Development in Kenya. *Africa Journal of Food, Agriculture, Nutrition and Development*. 12(6): 1-5.
- Pingali P, Khwaja Y, Mejer M. 2005. Commercializing small farmers: Reducing transaction costs. FAO/ ESA working paper no. 05-08. FAO, Rome, Italy.
- Prakash-Mani K. 2013. *Enabling food security through smallholder farming*, [Online] Available at: <http://cgd.swissre.com/global_dialogue/topics/Strengthening_food_security/Enabling_food_security_through_smallholder_farming.html> [Accessed 15 July 2014].
- Ravallion M. 2007. Evaluating anti-poverty programs. *Handbook of Development Economics*, 4:3787 - 3846.
- Reardon T, Stamoulis K, Pingali P. 2007. "Rural Nonfarm Employment in Developing Countries in an Era of Globalization." In K. Otsuka and K. Kalirajan, editors *Contributions of Agricultural Economics to Critical Policy Issues*. Malden, MA: Blackwell.
- Schippers RR. 2000. African indigenous vegetables and overview of the cultivated species. Chatham, UK. Natural Resources Institute /ACP-EU Technical Centre for Agricultural and rural Cooperation.
- Shetty PS, 2015. "Food and nutrition." In Detels R., (ed.), *Oxford Textbook of Global Public Health* (sixth edition), Oxford University Press, Great Clarendon Street, Oxford, United Kingdom, 180-200.
- Skalicky A, Meyers AF, Adams WG, Yang Z, Cook JT, and Frank DA, 2006. "Child food insecurity and iron deficiency anaemia in low-income infants and toddlers in the United States," *Maternal and Child Health Journal*, 10(2), 177-185.
- United Nations Development Programme (UNDP). 2003. Human development report 2003 – Millennium Development Goals: A compact among nations to end

- human poverty. UNDP, New York, NY, USA.
- Van Schalkwyk HD, Jooste A. 2003. The role of trade reform in growth and poverty reduction. Paper presented at the pre-IAAE Conference, 13-14 August, 2003 at the President Hotel, Bloemfontein, South Africa.
- Van Schalkwyk HD. 2003. Intra-regional trade and economic development in Southern Africa. Paper presented at the pre-IAAE Conference, 13-14 August, 2003, at the President Hotel, Bloemfontein, South Africa.
- Weatherspoon DD, Reardon T. 2002. The Rise of Supermarkets in Africa: Implications for Agri-food systems and the rural poor. *Development Policy Review* 21(3), 333-335.
- Webb P, Block S. 2010. "Support for Agriculture During Economic Transformation: Impacts on Poverty and Undernutrition." Proceedings of the National Academy of Sciences of the United States Doi: 10.1073/pnas.0913334108.
- World Bank, 2003. World Bank Development Report– Sustainable development in a dynamic way of transforming institutions, growth, and quality of life. International Bank for Reconstruction and Development/The World Bank, Washington, DC, USA.
- World Bank, 2007. From Agriculture to Nutrition: Pathways, Synergies and Outcomes. Washington, Washington, USA.
- World Bank, 2008. World Development Report: Agriculture for Development. The International Bank for reconstruction and development/The World Bank, Washington DC. 2007: 1-25.