Food Policy xxx (2016) xxx–xxx

Contents lists available at ScienceDirect

Food Policy

journal homepage: www.elsevier.com/locate/foodpol

Are African households (not) leaving agriculture? Patterns of households' income sources in rural Sub-Saharan Africa ☆

Benjamin Davis [a], Stefania Di Giuseppe [b], Alberto Zezza [c,*]

[a] Food and Agriculture Organization of the United Nations, Italy
[b] Universitá di Teramo and Food and Agriculture Organization of the United Nations, Italy
[c] World Bank, United States

ARTICLE INFO

Article history:
Available online xxxx

JEL classification:
Q1
O1
R2

Keywords:
Income
Non-farm employment
Agriculture
Africa
LSMS

ABSTRACT

This paper uses comparable income aggregates from 41 national household surveys from 22 countries to explore the patterns of income generation among rural households in Sub-Saharan Africa, and to compare household income strategies in Sub-Saharan Africa with those in other regions. The paper seeks to understand how geography drives these strategies, focusing on the role of agricultural potential and distance to urban areas. Specialization in on-farm activities continues to be the norm in rural Africa, practiced by 52 percent of households (as opposed to 21 percent of households in other regions). Regardless of distance and integration in the urban context, when agro-climatic conditions are favorable, farming remains the occupation of choice for most households in the African countries for which the study has geographically explicit information. However, the paper finds no evidence that African households are on a different trajectory than households in other regions in terms of transitioning to non-agricultural based income strategies.

1. Introduction

Agriculture declines as a share of aggregate output with overall growth in GDP per capita as countries undergo the structural transformation that accompanies economic development (Chenery and Syrquin, 1975). In rural areas of developing countries, the decline in the relative importance of agriculture and the expansion of rural non-farm activities are likely features of the process of economic development. Growth in rural non-farm activities cannot be seen in isolation from agriculture, however, as both are linked through investment, production, and consumption throughout the rural economy, and in relation to urban centers, and both form part of complex livelihood strategies adopted by rural households. Better incentives for agriculture during the past decade, via the improvement of the policy environment and better terms of trade, provide a more conducive environment for higher agricultural growth and an opportunity for the much awaited structural transformation in Africa (Binswanger-Mkhize et al., 2010).

A rather large body of literature has developed over the last 20 years investigating the importance and features of rural non-farm income and employment in the developing world, the determinants of households' participation in and returns to different income-generating activities, and the extent and determinants of rural household income diversification (FAO, 1998; Barrett et al., 2001; Lanjouw and Lanjouw, 2001; Haggblade et al., 2007; Winters et al., 2009, 2010; Davis et al., 2010). The 2007 World Development Report on agriculture and the 2011 IFAD Rural Poverty Report also devoted much attention to these themes. A major conclusion of these studies is that rural household income diversification is the norm rather than the exception, and that while endowments (e.g. physical, human, natural capital) and wealth play a role in driving engagement in different economic activities, some degree of diversification off the farm is common at all levels of welfare. Due to data limitations, however, the question remains as to whether this is occurring in Africa, a latecomer to the process of structural transformation. Conventional wisdom would have it that rural households in Sub-Saharan Africa are primarily

☆ We would like to thank an anonymous reviewer, Raka Banerjee, Chris Barrett, Gero Carletto, Luc Christiaensen, Roberto Esposti, Peter Lanjouw, and participants to two "Agriculture in Africa – Telling Facts from Myths" team workshops for comments on earlier drafts. We are indebted to Amparo Palacios Lopez and Siobhan Murray for helping us link the household data with georeferenced information. We also acknowledge the excellent research assistance of Marco Tiberti. We are solely responsible for any errors.

* Corresponding author.
E-mail addresses: benjamin.davis@fao.org (B. Davis), stefania.digiuseppe@fao.org (S. Di Giuseppe), azezza@worldbank.org (A. Zezza).

http://dx.doi.org/10.1016/j.foodpol.2016.09.018
0306-9192/

employed in agriculture, with relatively little agricultural wage labor, and even less non-agricultural wage labor due to limited industrialization.

Less discussed in the literature is the role of geography in determining rural household income strategies. Deichmann et al. (2008) identify two main strands of literature that help frame the arguments around location and income diversification. First, one key empirical regularity of the rural farm/non-farm employment literature is that at very low levels of development, non-farm activities tend to be closely related to agriculture. Growth in the agricultural sector (e.g. due to technological change) leads to growth in the non-farm economy, thanks to the backward and forward linkages from agriculture.

Such growth patterns are not likely to be location neutral, as potential for agricultural growth and agro-industrial demand for agricultural products are not randomly allocated across space. Over time endogenous sectoral growth biases may play a role, as infrastructure and other investments may tend to locate where growth is occurring, leading to increased spatial disparities in growth patterns. In Latin America, this has attracted considerable attention in the context of the debate on the 'territorial approach' to rural development (de Ferranti et al., 2005). As sectoral policies are likely to have differential impacts across space, explicitly incorporating spatial issues into policy design can help counter territorial distortions in development patterns.

The second key strand of literature is the new economic geography debate, which focuses on the extent to which geography, as opposed to institutions, explains differential development outcomes. One main tenet of that debate is that even if soil quality and climate were the same everywhere, location would still matter. On the one hand, dispersion of economic activities occurs as firms tend to locate in areas with lower wages, and the production of non-tradable goods and services locates close to demand. Activities connected to non-mobile inputs (such as agricultural land) will by definition be spread across space to some extent. On the other hand, agglomeration pushes businesses to locate close to consumers or to the source of raw material. Businesses depending on mobile inputs but with higher transport costs for their outputs would tend to have the highest gains from concentrating in particular locations.

Moreover, the location of economic activities across space may be nonlinear. Fafchamps and Shilpi (2003) find for instance that in Nepal, agricultural wage employment is concentrated in rural areas close enough to cities to specialize in high-value horticulture, but not so close as to be taken over by unskilled 'urban' wage labor opportunities. Non-linearities may also be relevant when city size is found to matter for engagement in non-farm activities (Fafchamps and Shilpi, 2003) or for poverty reduction (Christiaensen et al., 2013). Also, specialization may be dependent upon a particular market size or specific types of markets (Fafchamps and Shilpi, 2005).

Agricultural potential and distance may interact in determining locational advantage, occupational choices and returns to economic activities, but relatively few empirical studies have been able to assess these interactions in low-income country settings. In Uganda, Yamano and Kijima (2010) show how soil fertility is positively associated with crop income, but not with non-farm income, whereas remoteness and poor road infrastructure lead to lower crop income. In Bangladesh, Deichmann et al. (2008) find that the higher the distance to an urban 'growth pole', the lower the level of employment in high-return non-farm jobs, particularly in areas with good agricultural potential.

Finally, different patterns of urbanization (megacities versus growth in small towns) may be associated with development outcomes, but the incentives and constraints driving them change with different stages of industrialization and urbanization processes, rendering them difficult for modeling. In early stages, resource-based industrialization may be geographically scattered, but as activities that are not based on natural resources increase, they tend to be located in large centers. The extent to which these activities will move to secondary urban centers and/or rural areas will depend upon the policy environment (Hamer and Linn, 1987).

Bringing these arguments and evidence together, it becomes clear that both exogenous physical location as well as the interaction between sectors and endogenous policy-related issues come into play in complex ways that complicate predictions of the spatial location of economic activities in rural areas.

Taking advantage of newly available data, this paper seeks to compare the income strategies of rural households in Sub-Saharan Africa with those of households in other countries, taking into account different levels of development. Specifically, this paper seeks to understand the role of agriculture in the rural economy, the profiles of households reducing their participation in the agricultural sector, and the degree to which income portfolio patterns can be linked to geographical features such as agro-ecological potential and urban access.

In order to answer these questions, we use comparable income aggregates from 41 national household surveys with high-quality income data conducted across 22 developing countries, constructed as part of FAO's Rural Income Generating Activities (RIGA) project. The initial exploration of the RIGA database (Winters et al., 2009, 2010; Davis et al., 2010) highlighted a number of regularities concerning household patterns of income diversification in developing countries. The Sub-Saharan African countries included in the database stood out as the only countries for which specialization in farming, as opposed to holding a diversified income portfolio, was the norm.

That analysis was however based on data for only four countries in Sub-Saharan Africa: Madagascar, Malawi, Nigeria, Ghana. This paper takes advantage of more recent data from some of the same countries and additionally includes data on five more countries (Ethiopia, Kenya, Niger, Tanzania, Uganda), collected as part of the Living Standard Measurement Study - Integrated Surveys on Agriculture (LSMS-ISA)[1] project. This new set of countries accounts for 51 percent of the Sub-Saharan African (SSA) population in 2012, as opposed to 26 percent in the initial RIGA sample. While caution is still warranted in treating this sample as representative of SSA as a whole, its coverage is arguably much more complete. Also, we take advantage of the geo-referencing of households and of the focus on agricultural activities that are two of the defining features of the LSMS-ISA datasets, in order to analyze the role of geography in shaping rural income strategies.

The paper continues as follows. In Section 2, we present and describe the construction of the RIGA database. In Section 3, we analyze the participation of rural households in income-generating activities and the share of income from each activity in household income, across all households and by expenditure quintile. We then move from the level of rural space to that of the rural household, examining patterns of diversification and specialization in rural income-generating activities, again across all households, and by expenditure quintile. We also use measures of stochastic dominance to characterize the relationship between types of income-generating strategies and welfare. In Section 4, we examine the role of location in income generation strategies in a multivariate framework, and we conclude in Section 5.

[1] See www.worldbank.org/lsms for more information on the LSMS-ISA program of the World Bank, and for full access to the data and documentation.

Please cite this article in press as: Davis, B., et al. Are African households (not) leaving agriculture? Patterns of households' income sources in rural Sub-Saharan Africa. Food Policy (2016), http://dx.doi.org/10.1016/j.foodpol.2016.09.018