Patterns of labor productivity and income diversification in the rural farm and non-farm sectors in Sub-Saharan Africa

By Abdoulaye Djido and Bekele Shiferaw

African researchers measure labor productivity in staple crops, high value crops, and non-farm activities and explain how productivity gaps affect income diversification in Uganda and Nigeria

Labor productivity and structural transformation in African agriculture and rural economies

In many sub-Saharan African (SSA) countries, high population growth in rural areas has reduced farm sizes and encouraged growth in non-farm employment and income sources with the aim of improving rural incomes. As agricultural productivity grows, so does agricultural labor productivity, the latter has long been recognized as an important instrument for structural transformation while contributing to accelerated poverty reduction. Unemployment and underemployment in the agricultural sector can be reduced through increased labor productivity, which also promotes the transfer of agricultural labor into non-farm activities in both rural and urban areas. This transfer is a central factor to economic growth in SSA countries where agriculture still accounts for about one fifth of the national GDP and employs over half of the total labor force.

However, studies have so far not investigated how the agricultural and non-farm sectors are transforming, the patterns and dynamics of this change, nor the determinants of this process. Understanding of labor productivity gaps between traditional food staples and high value agriculture and other non-farm sectors, which can provoke the gradual transfer of family labor from the low to high labor productivity sectors, remains low. Despite the proliferation of literature explaining labor productivity and income diversification, much less is known about the shifting patterns of household

labor allocation and productivity changes in both agriculture and non-farm activities, across and within sectors.

A team of local researchers in Africa aims to bridge this knowledge gap by examining patterns of labor productivity in agriculture and related non-farm sectors, productivity gaps across the sectors, and how this affects household income diversification strategies within agriculture and the non-farm sector in the process of structural transformation. Understanding patterns of labor productivity across sectors and constraints to labor productivity growth, especially in the agricultural sector, is necessary to facilitate structural changes to African agricultural and rural economies.

Data and methodology

The researchers use panel data from the Living Standards Measurement Study-Integrated Surveys on Agriculture data for 2,008 Ugandan households (2009/10, 2010/11, and 2011/12) and 4,419 Nigerian households Nigeria (2010/11 and 2012/13). The team constructs a measure of labor productivity to examine patterns of labor productivity within and outside agriculture. Using labor productivity measures per person day for each sector of activity, the team identifies the determining factors.

Accounting for the censored structure of the data, the model used allows the team to further cross-examine the existing productivity gap across staple crops, high value crops, and non-farm activities. The research team uses shares of income from different activities and a normalized Herfindahl-Simpson index to determine factors affecting income diversification and the relationship with labor productivity.

Key findings

The results in both countries indicate some **evidence of an underemployment gap in the farm sector relative to the non-farm sector**.
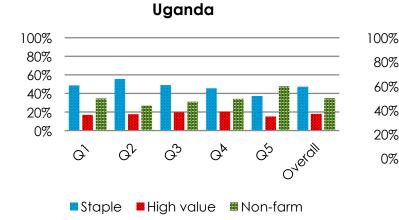
- Labor productivity in non-farm activities in Uganda and Nigeria is, respectively, twelve and three times higher when expressed on a per worker basis but falls to twofold when expressed on a per person-days basis.

The findings also show that **diversification into non-farm activities seems to be negatively affected by higher returns in staple or high value crops** (see Figure, below), indicating the existence of some tradeoffs to improvements in farm and non-farm labor productivity.

- In rural areas in both counties, the poorest and richest households have the most diverse sources of income.
- In Uganda, income diversification seems to be driven primarily by pull factors such as better education, access to roads and proximity to urban areas.
- In Nigeria push factors, such as smaller farms, land constraints, and poverty in livestock assets, appear to have a significant impact on the poorest households, pushed to engage in several income activities to improve their livelihoods.

Figures: Share of agriculture and non-farm sources to household income (by quintile) in Uganda and Nigeria

Implications and recommendations for policy

The findings from this study suggest that increased labor productivity in the nonfarm sector could be a key driver for structural economic transformation in Uganda and Nigeria, with workers in the farm sector able to increase their productivity by allocating some of their time to non-farm activities.

The analysis also highlights the importance of push-factors (e.g. remoteness or geographical isolation, small landholdings and other assets, and family pressure) and pull-factors (e.g. education, proximity to roads, and proximity to urban areas or towns) in explaining the participation and income shares derived from each sector.

Furthermore, the results suggest that diversification is important for the survival of low-income households while richer households diversify their portfolios as a means of further increasing their income. In particular, the negative effect of non-farm labor productivity in staple and high value crop income shares indicates a potential tradeoff as non-farm income may increase at the expense of farm income.

Based on these empirical findings, the research team recommends that policies be put in place to:

- Target improving productivity growth in farming activities where the largest share of the workforce and the poor are concentrated. This could be achieved by promoting the uptake of improved technologies (e.g. inorganic fertilizers and high-yielding seeds) to boost productivity in staple and high value crops.
- Improve education and market infrastructure as key factors to reduce underemployment in the farm sector, help absorb excess labor, and create jobs for the poor or for those who wish to step-out of agriculture.
- Reduce the potential tradeoffs between farm and non-farm income sources and promote complementary investments for inclusive growth across sectors. The researchers recommend further in-depth research to identify specific win-win policies and strategies.