FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

INNOVATION LAB FOR FOOD SECURITY POLICY RESEARCH, CAPACITY, AND INFLUENCE

Structural Transformation in Rural Ghana: The Trends and Drivers

Policy Brief No.10
July 2023

Background

The agricultural sector in rural Ghana is the largest employer of the labour force and is projected to remain so in the next decade (Yeboah and Jayne, 2018). Ghana has also undergone rapid urbanization which is estimated at 58% (World Bank, 2021). However, this urbanization has not been accompanied by an industrial revolution (Jedwab, 2013). Consequently, there have not been marked improvements in agricultural technologies, farming arrangements, mechanization, and agricultural productivity as those that accompanied the Green Revolution.

Yet, there have been significant shifts from subsistence agriculture to medium-scale farms where technology has facilitated household's movement from subsistence agriculture over the last two decades (1992-2013). The adoption of some productivity-enhancing technologies and labor-saving tools may facilitate this dominance of medium-scale farms and the release of rural agricultural labour to non-agricultural work. This transformation in rural agriculture may also engender the structural transformation of rural spaces.

Despite these trends, there is still limited understanding of the patterns and drivers of structural transformation in rural areas to guide effective policy-making. Except for a few anecdotal pieces of evidence, there is limited appreciation of the changes taking place within rural spaces, the various forces or influences of rural transformation in Ghana and their implications.

Research Objectives

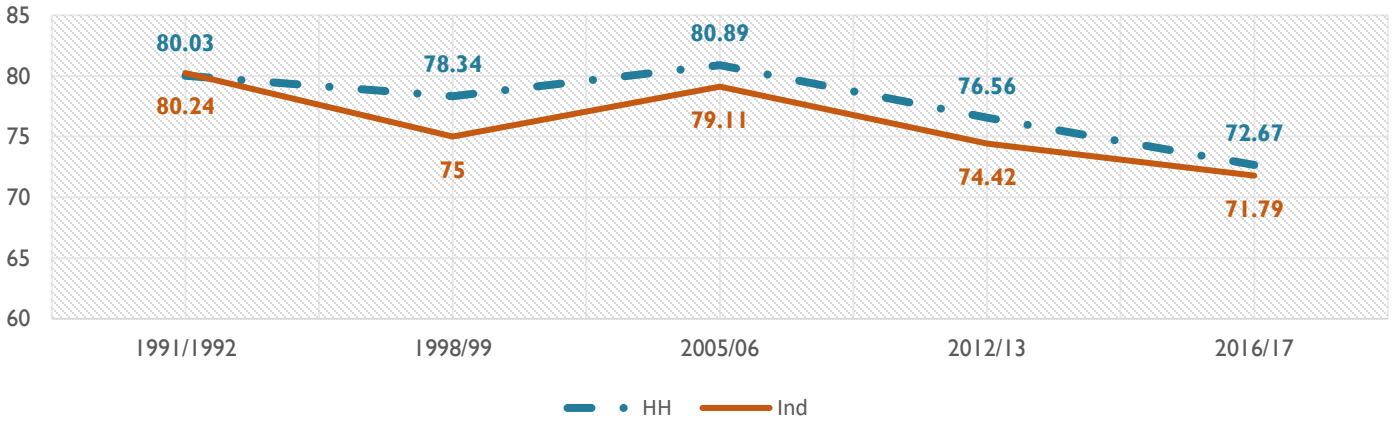
The aim of the study is to provide a micro-level analysis of changes taking place in rural spaces in Ghana and the forces behind the structural transformation. Recent empirical evidence underscores the role of general-purpose technologies such as electrification and Information and Communications Technology (ICT) as key functions of rural structural transformation. This occurs through their influence on agricultural productivity and labour allocations (Dinkelman, 2011). In this study we estimate the effects of access to electricity and ICT in the form of mobile networks coverage. We test the hypothesis that increased access to such technologies opens the rural economy and serves as a catalyst for its transformation.

Key Policy Messages

- The pace of structural transformation in rural spaces in Ghana over the last few decades has been slow.
- Improvements in access to electricity in these rural spaces could spur structural transformation.
- Public policy should be aimed at sustaining infrastructure investment in rural electrification through Public-Private-Partnerships (PPPs) while expanding electricity access and reliability through renewable energy systems.
- The Ministry of Food and Agriculture can take the lead in coordinating the development and implementation of these policies and programs which could accelerate the pace of structural transformation in rural spaces in Ghana to improve livelihoods and wellbeing of the rural labour force.

USAID FROM THE AMERICAN PEOPLE
MICHIGAN STATE UNIVERSITY
INNOVATION LAB FOR FOOD SECURITY POLICY RESEARCH, CAPACITY, AND INFLUENCE (PRCI)
2023 AKADEMIYA
ReNAPRI
African Union

Fig1: Trends in agricultural household's vs individuals in agriculture in rural areas



Data & Analytical Approach

The study employs nationally representative data over a twenty-seven-year period from the third to the seventh wave of the Ghana Living Standards Survey (GLSS III, IV, V, VI and VII). These five rounds of the GLSS were conducted in 1991/92, 1998/99, 2005/06, 2012/13 and 2016/17 respectively.

We consider structural transformation on two levels – one at the household level and another at the individual level. We define a household as an agricultural household, or a household engaged in agriculture if at least one member of the household aged 15 years and above had worked in agriculture (including forestry and aquaculture) during the past 12 months preceding the survey. Thus, the variable indicates the proportion of total households that identify agriculture as a main occupation for at least one member of the household. This measure of structural transformation gives a sense of how much of the working population are engaged in agriculture if at least one member of the household aged 15 years and above had worked in agriculture (including forestry and aquaculture) during the past 12 months.

At the individual level, the share of individual agricultural workers as a proportion of the total employed persons is used. This measure of structural transformation gives a sense of how much of the working population is engaged in agriculture. The general-purpose technologies considered are access to electricity and mobile phone network coverage which are estimated as the share of households per cluster that have access to the national electricity grid and the share of households within the range of a mobile service signal.

Main Findings

We observe a decreasing trend in the share of agricultural households over a twenty-seven-year period. Similar trends are noted at the individual level. The share of individuals engaged in agriculture dropped from 80.24% in 1991/92 to 71.79% in 2016/17 at the rural level, as seen in Figure 1. Overall, the pace of rural structural transformation in Ghana has been slow over the almost three decades covered.

In respect to electrification, the proportion of households across the country who had connected to the national grid rose from 28.53% in 1991 to 72.14% in 2017. Among rural households, the shares increased from 7.57% in 1991 to 58.02% in 2017. In 1991, no rural household in four regions – the Brong Ahafo, Northern, Upper East and Upper West – had access to the national grid, while only 10% - 20% of rural households in five regions: Volta, Eastern, Western, Central, and Greater Accra regions had access to the national electricity grid. In the Ashanti region, the proportion stood at between 20% - 40%. Over time, however, the situation improved as more rural households got connected to the national grid. By 2017, the Upper East region was the only region with electricity access via the national grid available to only 20% - 40% of rural households with a better access rate in all other regions. In the Central and Greater Accra Regions, between 80% - 100% of all rural households had access to the national electricity grid.

In figures 2 and 3, we observe that young people and educated people are driving the transformation in rural areas over the period. In terms of where labour is moving

Fig 2: Share of individual rural workers in agriculture by age group

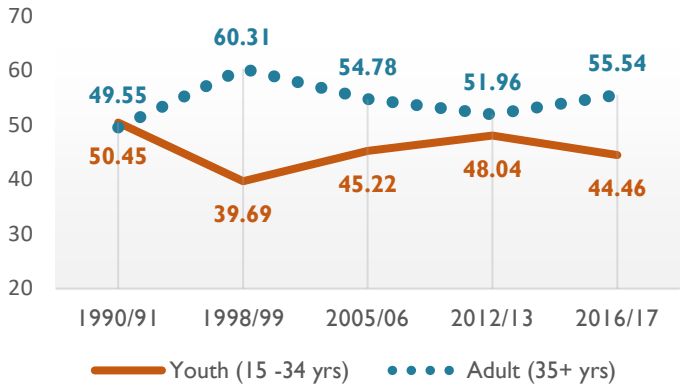
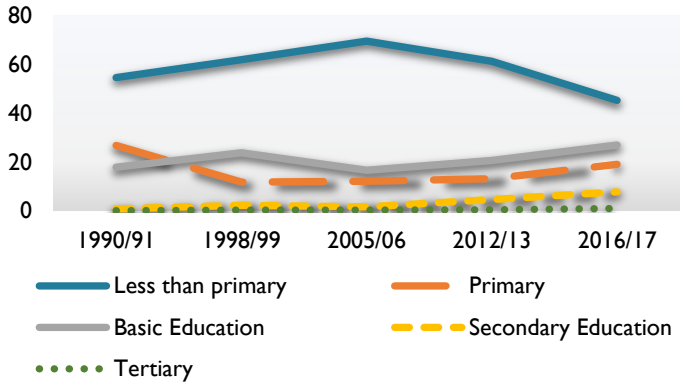


Fig 3: Share of individual rural workers in agriculture by level of education.



to, we find that labour is moving from agriculture into the services sector while we find decreasing labour shares in the manufacturing sector.

Our results also show that access to electricity serves as a catalyst to structural transformation in rural areas in Ghana. We posit that access to reliable electricity may encourage the uptake of electricity-intensive technologies including agro-processing equipment as well as refrigeration systems and entertainment systems, thereby facilitating households' movement from the agricultural sector. There are also the spill-over effects of electricity access through education which may also influence rural structural transformation.

Recommendations

Our findings present several important policy implications surrounding the synergy between agriculture and infrastructure development and expansion towards renewable energy systems.

- Deepen engagement on public-private partnerships (PPPs) as a pathway towards the promotion of rural electrification will be important to ensuring sustained investment in rural electrification. Government-led initiatives must eliminate barriers to private sector investment in electricity infrastructure.
- Expand access to renewable energy systems such as solar and wind as a means of diversifying energy sources and mitigating the risk associated with the reliance on hydro-electric generation should be championed through policy. This will help sustain the transformation of rural spaces through reliable access.
- Investments in rural electrification can increase use of electricity-intensive technologies such as agro-processing equipment and irrigation systems. This has the potential to significantly transform rural agriculture; increasing the effectiveness of government-led drives towards technology uptake.
- Government ministries such as the Ministry of Food and Agriculture, the Ministry of Energy, the Ministry of Trade & Industry, and the Ministry for Local Government & Rural Development must coordinate efforts to develop and implement policies and programs to accelerate the pace of structural transformation in rural areas for inclusive growth.
- Public policy can leverage on the interest that young and educated people in rural areas are observed to be having in the agricultural sector by sponsoring and supporting the modernisation of the agricultural sector towards improving its efficiency and productivity.

USAID FROM THE AMERICAN PEOPLE
MICHIGAN STATE UNIVERSITY
INNOVATION LAB FOR FOOD SECURITY POLICY RESEARCH, CAPACITY, AND INFLUENCE (PRCI)
AKADEMIYA
ReNAPRI
African Union

This policy brief was prepared by the Feed the Future Innovation Lab for Food Security Policy, Research, Capacity and Influence (PRCI) with funding from the United States Agency for International Development (USAID) under Grant No. 7200AA19LE00001. The contents are the responsibility of the authors of this repor (i.e., PRCI team) and do not necessarily reflect the views of USAID, the United States Government, Michigan State University, IFPRI, Cornell University, ReNAPRI, University of Ghana, Kasetsart University, and Research and Information System for Developing Countries (RIS).
–

Authors:

Monica P. Lambon-Quayefio is a Researcher and Senior Lecturer in the Department of Economics at the University of Ghana.

Kwame Adjei-Mantey is a Researcher and Lecturer at the Department of Sustainable Energy and Resources, University of Environment and Sustainable Development, Ghana.

Emmanuel Adu-Danso is a Researcher and Lecturer at the Department of Economics of the University of Ghana