Crop Productivity and Implications for Food Security and Rural Livelihood Development in Africa

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Abstract

Over the past few decades, there have been major advances in crop productivity across the world, which has been made possible through a combination of productivity enhancing technological innovations. Beyond this achievement however, most parts of Africa are still battling with low crop productivity resulting in food shortages and food insecurity. The yields of many staple crops are still far below their agronomic potentials with output increases being attributed largely to area expansion. This paper examines the implications of the current trends of crop/plant productivity for food security and rural livelihood development in Africa using Ghana as a case study. The paper argues that crop production in Africa is becoming a less viable and unattractive livelihood activity with farmers diversifying out of agriculture into non-agricultural activities such as illegal small-scale mining, which have negative consequences on the ability of African countries to attain the Sustainable Development Goals (SDGs).

Keywords: Agriculture, Africa, Productivity, Rural Livelihoods, Staple Crops

1. Introduction

Agriculture is and will continue to be the centrepiece of the economies of most developing countries, especially those in Africa. This assertion is in line with the empirical literature that the economies of countries in Sub-Saharan Africa (SSA) are largely dependent on agriculture which employs over 60 per cent of the labour force and accounts for about 35 per cent of Gross National Product (GNP) as well as 40 per cent of foreign exchange earnings [1]. Thus, agriculture is a major sector, which provides livelihoods, especially in rural Africa. This is particularly so because majority of the population in Africa resides in rural areas, with an estimated 70 per cent of the workforce being

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engaged in agriculture for survival [2]. [3] argued that growth in agriculture is one of the most effective ways of reducing poverty, improving rural livelihoods and promoting economic growth in Africa. However, the inherent risks associated with the sector make populations that hitherto depended on agriculture diversify their livelihoods into non-farm activities such as petty trading [4] and small scale mining which is fast becoming an important livelihood activity in rural Africa including Ghana [5-7].

The central role of the agricultural sector in the pursuance of sustainable socio-economic development in SSA with the overall objective of poverty reduction and improvement in livelihoods can only be attained with improvement in productivity performance in the sector. Enhanced crop and agricultural productivity are thus seen to be critical for the overall socio-economic and politico-cultural well-being of the people of SSA, especially those in the rural areas. A number of multi-country studies [1, 8, Examples include 9, 10-15] have therefore been conducted over the years to look at how crop and general agricultural productivity performance across countries in SSA can be enhanced for sustainable livelihoods and socio-economic development. Despite the fact that these studies are different in terms of geographical coverage and timings, the central point is that there has been little variation in their findings. According to [1], almost all studies conducted in the region over the past decade report productivity gains in the 1960s, productivity losses or stagnations in the 1970s and recovery to productivity gains in the 1980s and early 1990s with varying degrees of influences on livelihoods. To sustain the positive gains in productivity, there is the need to harness the vast natural resource base of the region to ensure that agriculture continues to play its expected roles in the regional development agenda.

African governments have generally shown their commitment to improving rural livelihoods by putting the agricultural sector at the top of their development priorities [15]. That notwithstanding, the sector is said to be underperforming [16, 17] and this has left many people who largely depend on agriculture for their livelihoods in abject poverty. This is consistent with [15] who reported that large percentages of people who depend on farming for a living in SSA are still in poverty. According to them, there are widening income gaps between farmers and non-farmers and rural populations continue to suffer from food insecurity, malnutrition and social exclusion.

Poverty in Ghana is said to be a rural phenomenon and agrarian [15]. According to [18] and [19], poverty and food insecurity are widespread in rural Ghana, particularly the three northern regions where most of the people depend on agriculture for their livelihoods. Unfortunately, public spending on agriculture in the northern regions is the lowest in

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the country [20]. It is however, important to note that Ghana has made impressive strides towards the attainment of the first goal of the Millennium Development Goals (MDGs) of halving the 1990s extreme poverty and hunger levels by 2015. This is evidenced in the report of the [21] that the country has reduced its 1990s poverty levels from about 52 per cent of the population in 1991/1992 to about 29 per cent in 2005/2006 representing a 44 per cent reduction during the period. However, the reductions in poverty levels recorded did not only come from improvements in the agricultural sector in general and crop productivity in particular. This is because farm households in Ghana have diverse sources of income, which could have accounted for the general improvements in their livelihoods. As observed by [15], the fact that agricultural Gross Domestic Product (GDP) per capita in Ghana is less than 50 per cent of agricultural workers' total earnings implies the successes chalked in reducing rural poverty in the country may be as a result of advancements in the rural non-farm rather than the farm economy.

This paper examines the current trends of staple crop productivity in Ghana and the implications for food security and rural livelihood development. The rest of the paper is organised into four main sections. Section 2 presents an overview of commitment of governments to agriculture and rural livelihood development in SSA and Ghana in particular. Section 3 presents the materials and methods. Section 4 presents a discussion of the study results and section 5 presents the conclusion and policy implications.

2. Commitment of Governments to Agriculture Development

The commitment of African governments to agriculture as the mainstay of their economies and a means to promote rural livelihood development is seen in their spending on the sector. The decreasing trends of government spending on agriculture by the different nation states across Africa warranted the African Union (AU) Heads of State and Government to adopt the Comprehensive Africa Agriculture Development Programme (CAADP) in June 2003 at the African Union Summit in Maputo, Mozambique. The overall objective of CAADP is to achieve a 6 per cent annual agricultural growth rate across member countries. There was a general consensus among participants at the summit that investments in the sector over the years were insufficient which was seen as a major setback to the realisation of improved agricultural productivity and rural livelihood development in the continent. African governments therefore pledged to increase agricultural spending to at least 10 per cent of total government budgetary resources by 2008.

With the Maputo Declaration by the African leaders, agriculture was placed at the centre of continental and national level policies, programmes, projects and strategies geared towards the stimulation of broad-based economic growth for poverty reduction and rural livelihood development. In this way, the African leaders reiterated their commitment to the attainment of the MDGs, especially MDG 1 on halving extreme poverty and hunger by 2015. This is in line with the argument that government spending does not only lead to improvements in technology, human capital and infrastructure development necessary for growth, but it also creates an enabling environment for the promotion of private sector investments to promote further growth and socio-economic development [20]. Increased government spending in the agricultural sector was therefore seen as critical for the attainment of the MDGs hence the pledge. A decade after the Maputo Declaration, most African states have not been able to reach the targeted 10 per cent of annual budgetary allocations to the agricultural sector [2].

In the specific case of Ghana, the main objective of government has been to make the country a leading agro-industrial country through modernization of agriculture-based rural development [22]. To achieve this, successive governments continue to show commitment to the sector by formulating and implementing different projects, programmes and policies in the sector (Table 1). Prominent amongst these are the recent Ghana Poverty Reduction Strategy (GPRS I and II); the Food and Agricultural Sector Development Policy (FASDEP I and II); and the Medium-Term Agricultural Sector Investment Plan (METASIP) all in line with CAADP and the MDGs. All these interventions reflect the commitment of government towards the attainment of self-sufficiency in food production, national food security, alleviation of rural poverty and promotion of equitable socio-economic development across the country. The overall objective of these projects, programmes and policies has been to reduce the incidence of poverty and to bridge the development gap between urban and rural Ghana as well as farm and non-farm households through agricultural modernisation and productivity improvements (ibid).

Table 1: Selected projects, programmes, plans and policies that affected the agricultural sector of Ghana

Period	Agricultural Sector Projects, Programmes, Plans and Policies
Projects	
2006-2013	Programme for the Promotion of Perennial Crops in Ghana (PPPCG)
2007-2011	Export Marketing & Quality Awareness Project (EMQAP)

2007-2012	**Afram Plains District Agricultural Development Project (APDADP)**
---	Inland Valleys Rice Development Project (IVRDP)
---	Rice Sector Support Project (RSSP)
---	Nerica Rice Dissemination Project (NRDP)
---	Ghana Commercial Agriculture Project (GCAP)
2009-2014	Sustainable Development of Rain-Fed Lowland Rice Production Project (SDRLRPP)
Programmes	
1983-1990s	Structural Adjustment Programmes (SAPs)
2002-2006	Agricultural Services Sub-Sector Investment Programme (AgSSIP)
2007-2012	West Africa Agricultural Productivity Programme (WAAPP)
2007-2014	Root & Tuber Improvement & Marketing Programme (RTIMP)
2008-Date	Fertilizer Subsidy Programme (FSP)
2009-2016	Northern Rural Growth Programme (NRGP)
2009-2016	Youth in Agriculture Programme (YIAP)
2009-2016	Block Farming Programme (BFP)
2011-Date	Ghana Agricultural Insurance Programme (GAIP)
Plans	
2011-2015	Medium Term Agriculture Sector Investment Plan (METASIP) I
2016-Date	Medium Term Agriculture Sector Investment Plan (METASIP) II
Policies	
2003-2009	Ghana Poverty Reduction Strategy (GPRS) I & II
2007-Date	Food and Agriculture Sector Development Policy (FASDEP) I & II
2008 - Date	Ghana Tree Crop Policy (GTCP)
2010-2017	Ghana Shared Growth and Development Agenda (GSDA) I & II
2010-Date	Ghana Irrigation Development Policy (GIDP)
2017-Date	Planting for Food and Jobs (PFJ)

Source: Authors' compilation (2019)

Despite these policy interventions, evidence on the ground suggests that the budget share of Ghana's Ministry of Food and Agriculture relative to the other ministries declined from 1.75 per cent in 2000 to 1.58 per cent in 2008, increasing marginally in 2009 to 1.98 per cent, the highest since 2000 [23]. According to [24], Ghana's agricultural sector suffers from underinvestment by government. [25] also reported in their study

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that MOFA's budget share has been rather low receiving only 3 per cent of the discretionary government of Ghana's spending. For instance, in the Ghana Poverty Reduction Strategy (GPRS II), which contained three Pillars, Pillar I, which was aimed at promoting private sector competitiveness including agricultural modernisation, was to receive the largest amount of government's budget allocation. However, the Government of Ghana released only half of the approved budget funds for the Pillar, compared with 69 per cent for Pillar II and 59 per cent for Pillar III. Pillars II and III also received more resources from the donor community than foreseen while Pillar I received only 80 per cent of planned donor funds [26]. This raises critical questions on the commitment of government and donors to ensure that agricultural productivity and rural livelihoods are improved. The capacity of farmers and other actors in the agricultural sector to improve their productivity depends largely on the ability of the state institution responsible for the sector to deliver quality services. Unfortunately, the low share of budgetary allocations to the ministry as indicated earlier ultimately affects its ability to deliver productivity enhancing technologies to farmers, especially in rural areas with dispersed settlements and difficult to reach populations [27]. This is particularly worrying, as agricultural extension service delivery remains largely the responsibility of government through the sector ministry. These developments in the sector have negative implications on food security, social inclusion and rural livelihood development.

3. Materials and Methods

Epistemologically, the mixed methods approach was employed in the study. This involved combining quantitative and qualitative techniques for the data collection and analyses. The essence of adopting the mixed methods paradigm is to take advantage of the complementarities of the different techniques so as to overcome their individual weaknesses. The quantitative technique involved the use of secondary data. Outputs of some selected staple crops and the land area put to their cultivations from 1999 to 2009 were gathered from publications of MOFA for quantitative analyses. The selected staple crops include maize, millet, rice, sorghum, cassava, cocoyam, plantain and yam. These crops were selected for the analyses because they are consumed across the country. Seven different estimations were carried out to examine the trends and growth of productivity of each staple crop from 1999 to 2009. The estimations were carried out using the growth model specified as [28]:

$$Y_i = \alpha_i e^{X\beta_i} + \varepsilon_i \quad (1)$$

Where Y_i = Productivity of crop *i*; X = Time; α and β are parameters to be estimated; and ε_i is the stochastic term of the model used to estimate

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the productivity growth of crop i. Transforming equation (1) by taking the natural logarithm, the empirical growth model is obtained as:

$$Log(Area/Output/Productivity) = \alpha_i + \beta_i X + \varepsilon_i \quad (2)$$

Productivity was measured as output of the specific crops in metric tonnes per area in hectares and time measured in years. The model was estimated using Ordinary Least Squares (OLS). The estimated βs are the average annual growth rates of area under cultivation, output and productivity of each staple crop included in the study. The estimations also gave the trends of productivity of the selected staple crops over the period.

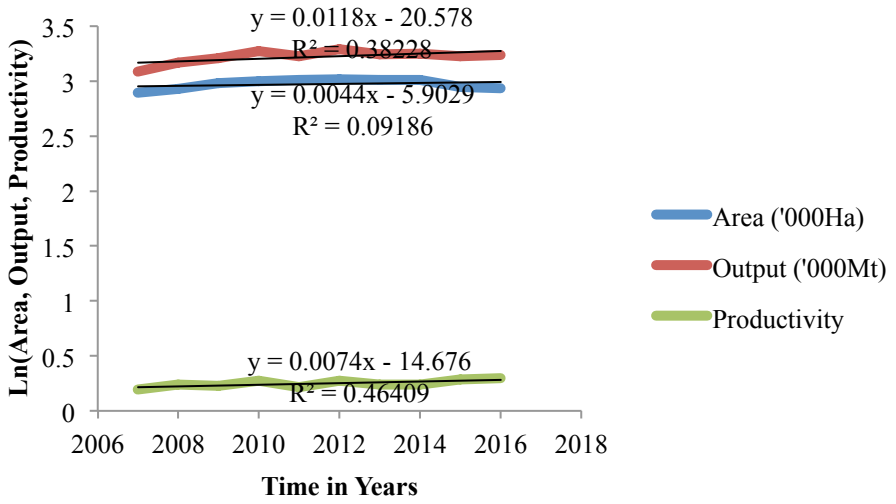
The qualitative technique was the use of interviews to elicit primary information on issues of trends in crop and agricultural production, food security and livelihood development in rural Ghana. Data were gathered from farmers in the Builsa District of the Upper East Region representing the Savannah Ecological Zone of Ghana, the Ahafo Ano South District of the Ashanti Region representing the Forest Ecological Zone of Ghana and the Mfantseman Municipality of the Central Region representing the Coastal Ecological Zone of Ghana. Two farming communities were sampled from each of the selected Districts and Municipality and this gave a total of six (6) communities selected across the three main agro-ecological zones of Ghana. Ten (10) farmers were interviewed in each of the six sampled communities and this gave a total of sixty (60) farmers. The selection of farmers for the interviews was by means of multistage sampling. The first stage was the division of the country into strata of coastal, forest and savannah ecological zones. The second stage was the selection of a region from each stratum (ecological zone). The third stage was the selection of one district from each selected region. The fourth stage was the division of selected Districts and Municipality into strata of the geographical North and South for the Savannah and Forest ecological zones and East and West for the Coastal Ecological zone as the sea lies in the South. The fifth stage was the selection of one farming community from each stratum. The sixth stage was the division of each selected farming community into strata of North and South or East and West. The seventh and final stage was the selection of ten (10) farmers from each stratum by means of simple random sampling. Proceedings of the interviews were audio recorded, transcribed and analysed.

4. The Results and Discussion

To start with, results from the quantitative analyses revealed that the productivity of most of the major staple crops produced and consumed across Ghana has been growing at a rather low rate with some crops

even experiencing negative growth rates. At the individual crop levels, it was found that the productivity of maize, which is a major staple crop consumed across Ghana and also an important input for the production of poultry has been growing at a very low rate. From 2007 to 2016, the area under maize production grew by about 0.4%, output by about 1.2% and productivity by an annual rate of about 0.7% (Figure 1). This means that the growth in output is not only as a result of increased productivity but also area expansion. This has serious implications for the attainment of food security and self-sufficiency in food production in Ghana. Although the growth rate of the crop is positive, it is not big enough to account for the annual growth in population which is about 3% [29].

Figure 1: Productivity growth of maize



Source: Authors' calculations based on data from MOFA, 2017

Another staple crop of importance in Ghana is millet cultivated mostly in the northern part of the country. This crop is very important in the socio-economic and cultural lives of the people of northern Ghana, particularly Upper East, North East and some parts of Northern, Savannah and Upper West regions as well as other countries in the Sahel. The early maturing variety is a hunger-bridging crop as it is harvested between the hunger period and the major harvest season. Unfortunately, the area allocated to its production and output have been declining generally but productivity has assumed an upward trend, experiencing an annual growth rate of about 0.04% during the period between 2007 and 2016 (Figure 2).

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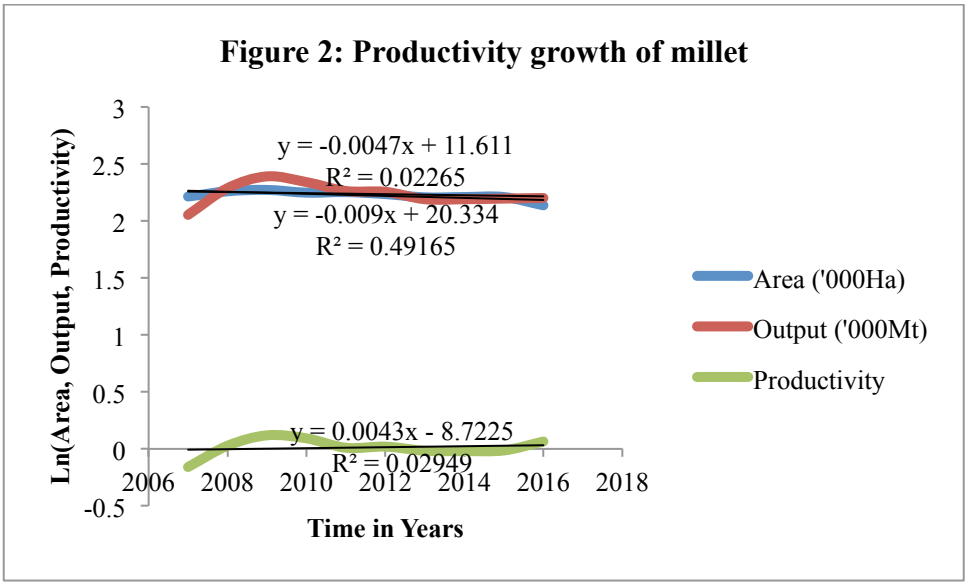
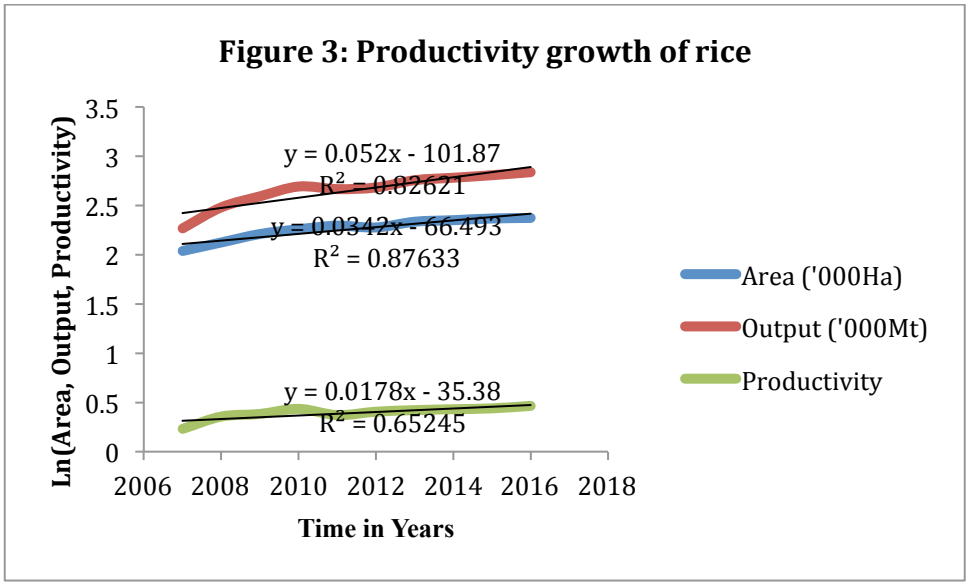


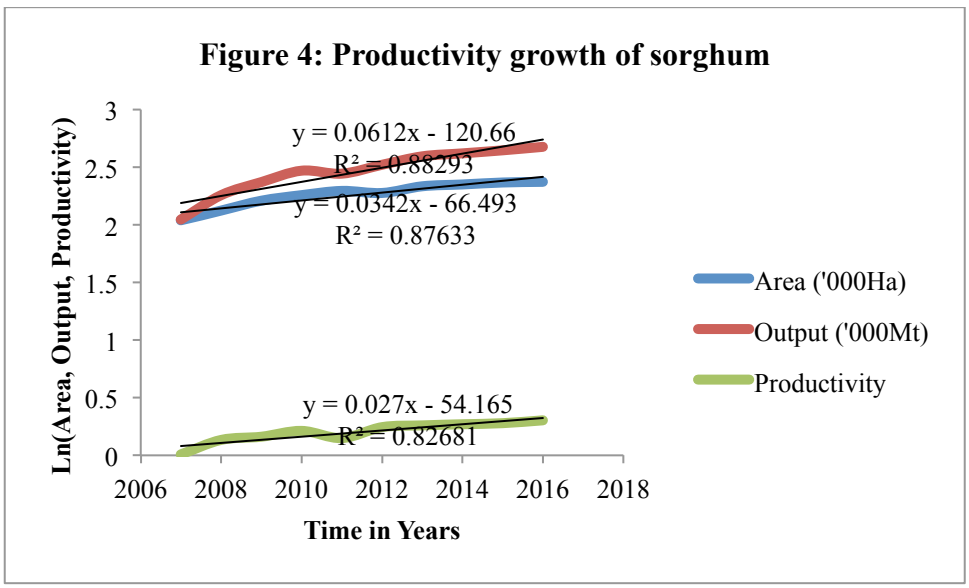
Source: Authors' calculations based on data from MOFA, 2017

Rice, which has become a widely consumed crop across Ghana and most of Afirca has been experiencing a low productivity trends. Since 2007, productivity of rice has been growing positively at an annual average rate of about 1.8% (Figure 3). However, the productivity growth could be attributed to increased area under production, which grew by about 3.4% resulting output growing by about 5.2% over the period. Thus, this productivity growth rate may not be high enough to offset the growing trends of rice consumption in the country. This probably explains why rice importation in the country continues to increase at the expense of local production. The low growth rate of productivity of rice does not only affect food security of households, particularly those in the rural areas but their livelihoods in general given that most of them cultivate it as a cash crop. It may also have negative repercussions for their social inclusion as farmers with low incomes are given low social status among their contemporaries in rural communities across Ghana and elsewhere in Africa. Low productivity therefore means low incomes which translate to low ability of farm households most of whom are in rural areas to finance other livelihood outcomes such as healthcare, education, and performance of socio-cultural rites among others. This ultimately affects rural livelihoods negatively.



Source: Authors' calculations based on data from MOFA, 2017

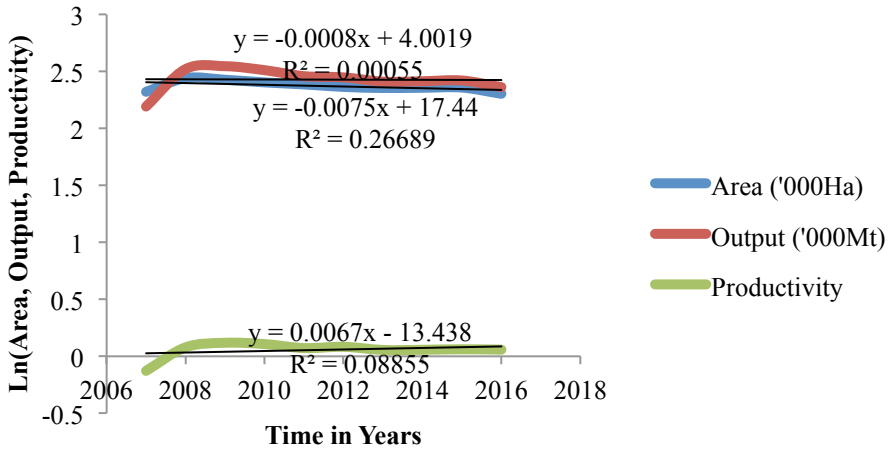
The productivity of sorghum, which is both an industrial and a household crop, has been positive for sometime now. Productivity growth of the crop during the period between 2007 and 2016 was within the positive zone. During the period, the area put under cultivation of this crop grew by about 3.4% resulting in a corresponding output growth rate of about 6.1%. The crop experienced an impressive annual average growth rate of about 2.7% (Figure 4) over the period (2007-2016). Again, this has positive implications for food and cash security and rural livelihoods in general.



Source: Authors' calculations based on data from MOFA, 2017

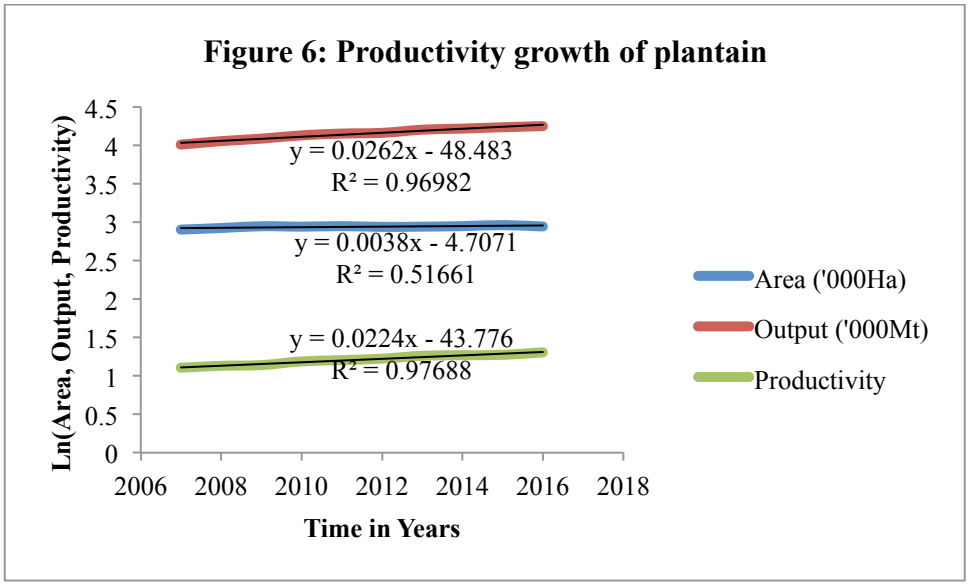
The productivity of cassava which is also an important staple and industrial crop in the country has been generally stagnant since 2007. It was found that between 2007 and 2016, both area under cultivation and output experienced negative growth rates of about 0.8% and 0.08% respectively, with productivity experiencing a marginal growth rate of 0.07% per annum (Figure 5). Although the growth rate is positive, it is not high enough to meet the demands of industry and households and this has serious implications for food security and rural livelihood development. This is supported by the fact that the 0.07% annual productivity growth of cassava is far less than the 3 per cent annual population growth rate [29].

Figure 5: Productivity growth of cassava



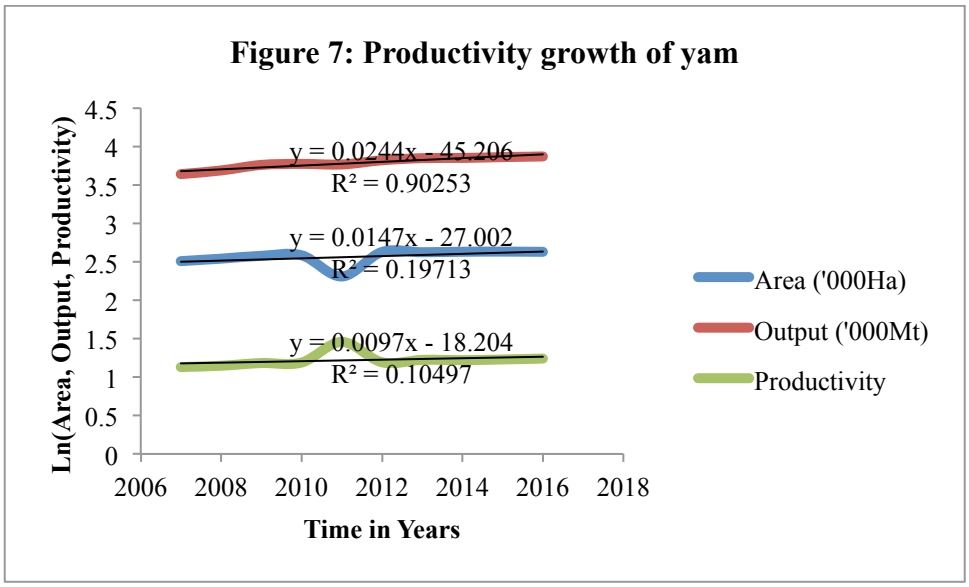
Source: Authors' calculations based on data from MOFA, 2017

Plantain is another important crop cultivated mostly in the southern part of Ghana and consumed across the country. The productivity of this crop has been growing positively since 2007. Between 2007 and 2016, the crop experienced an average annual productivity growth rate of about 2.2% with area under cultivation and output growing at about 0.04% and 2.6% per annum respectively (Figure 6). This indeed has positive implications for the attainment of food and cash security among rural farm households and other actors along the agricultural value chain. This is because the crop is cultivated for household consumption and for cash hence increases in productivity are likely to translate into increased food and cash security among producers and traders.



Source: Authors' calculations based on data from MOFA, 2017

Another crop of importance is yam, which is cultivated and consumed across Ghana and most of Africa. The crop has been growing positively since 2007. It was found that between 2007 and 2016, the area allocated to the production of the crop grew at an annual growth rate of about 0.61.5%, output by about 2.4% and productivity by about 0.97% (Figure 7).



Source: Authors' calculations based on data from MOFA, 2017

This positive growth rate though low has positive implications for food security and rural livelihoods. This is because the positive annual productivity gains are likely to translate into increased food and income for rural dwellers most of who depend on agriculture as a primary

source of survival. This also helps improves the rural economy because it attracts agricultural produce traders from the consumption centres such as Accra, Tamale, Kumasi and Cape Coast among others to the production areas thereby increasing the supply of non-farm products from the urban centres and vice versa.

To further examine the implications of the results of the quantitative analyses of staple crop productivity for food security and rural livelihood development, qualitative analyses through interviews were also conducted. The aim of the qualitative analyses was to allow farmers on the ground to validate or otherwise the quantitative results and to draw the implications for their food security, social inclusion and livelihood development in general. Most of the farmers who participated in the interviews lamented that staple crop productivity is either stagnating or declining despite the continuous use of modern agricultural production technologies. According to them, years back, they cultivated crops without using any agro-chemicals and had good harvest. This view expressed by the farmers is better captured by one of the farmers interviewed, who stated that,

"... Nowadays, many of the crops we cultivate do not yield much. ... Those days, it was easy to cultivate a small piece of land the yield of which will be enough to feed a whole family for a year. It is no longer the case. We use the so-called improved crop varieties and technologies such as herbicides, fertilisers and the rest, yet, crop productivity is nothing to write home about and this has negative implications for the attainment of household food security, social inclusion and rural livelihood development in general. This is because incomes are low and continue to be low and this compromises our ability to be able to access quality healthcare, quality education and feed our families all year round. It even affects one's social standing and/or inclusion in the community. This is because no one will respect you when you cannot feed your family. In some cases, you cannot even attend social functions and meetings where important decisions are made because you are poor due to low crop productivity. For instance, in our culture, one should be able to perform the funeral of dead relatives, especially parents and anybody who is not able to do this is ridiculed and this leads to social exclusion. The situation has become worse because of poor crop productivity and the modernisation of socio-cultural activities such as the performances of funerals, marriage and naming ceremonies among others with the introduction of 'takeaways' and the 'white man's' drinks such as coke and the rest. In fact, the social standings of those of us who find it difficult to perform

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socio-cultural activities particularly funerals of relatives are greatly affected", [A 57-year-old male farmer, a husband of two women, father of 9 children and the household head].

The current low trends of crop productivity cause some rural dwellers to diversify into non-agricultural activities some of which are detrimental to environmental and livelihood sustainability. As noted by [30], young people in many developing countries such as Ghana do not see farming as a viable and lucrative career and thus reject agriculture in favour of non-agriculture related jobs. Most of the people who participated in the interviews asserted that farmers are abandoning their farms for other livelihood activities such as illegal small-scale mining and others are migrating to the city centres in search for non-existent menial jobs. As noted by one of the farmers interviewed,

"... These days most people, especially the youth move to the cities to do all manner of jobs to survive because farming and staple crop production for that matter is no longer good enough. The individualistic attitudes of our times have made things worse. People are interested in becoming rich at all cost and crop and agricultural production in general does not offer that opportunity. As such, the youth are driven to engage in antisocial behaviours including armed robbery and prostitution among others all of which present a threat to the socialisation process of our communities" [A 43-year-old female farmer and a mother of six children only two of who are in school].

The research participants also lamented that most of the alternative livelihood activities that they engage in, particularly the illegal small-scale mining does not promote sustainable livelihood development given that most small-scale miners degrade farmlands and operate under hazardous conditions that are inimical to their health and that of others. As noted by one of the research participants, a small-scale miner and a farmer,

"... I got involved in small-scale mining because of decreasing yields from my farms. I continuously found it difficult to take care of my family with my farm proceeds. So, I had to find another way of meeting their educational, health, food and socio-cultural needs. This led to me migrating to one of the small-scale mining communities in the country to engage in illegal small-scale mining. Some of my friends who find the illegal small-scale mining activity to be risky have migrated to Accra, Kumasi and other big cities across the country in search of jobs. Most of these friends are engaged in kayayo (head portage) and truck pushing among others and these do not offer sustainable income sources. This is because as one grows old, it is almost impossible to engage in these ardours activities. Most of them live in inhuman

conditions, sleeping on the streets, etc. The most painful thing is that they, are socially excluded by both the original and settler communities from decision-making processes. Whereas the original communities consider them as miscreants, the settler communities see them as migrants with no rights to participate in decision making processes even in cases where decisions taken directly affect their lives", [A 27-year-old male farmer and migrant illegal small-scale miner].

When asked of her view about the sustainability of the alternative rural livelihood activities, especially small-scale mining, one of the research participants, a small-scale miner herself stated that

"... Most of the things that we engage in for survival aside farming is not sustainable. For example, for how long can one continue to be a small-scale miner or do kayayo (headpottage)? It is practically impossible for one to continue to engage in these activities continuously for more than 10 years because of the labour demands. Besides, the gold and other minerals that are being mined are not renewable and will certainly be exhausted one day. Unfortunately, the rate at which the land is being degraded because of these illegal mining activities poses serious danger to most agricultural lands in the mining communities and this has negative consequences on food security and livelihoods development generally. Also, most water sources are polluted and aquatic life being endangered and things will only get worse" [A 39-year-old female farmer and a mother of 5 children].

Some of the views expressed by other research participants can be summarised as follows:

"... We want alternative livelihood activities that are sustainable. Nowadays we are rarely able to feed our families all year round due to poor crop productivity. The rains are highly unreliable and there are no dams for us to irrigate the crops. Successive governments seem not to be concerned about the plight of farmers and so we [farmers] have to engage in activities that are detrimental to current and future generations. We [farmers] are well aware of the negative consequences of such activities but we have to survive. ... I think the low crop productivity is due to poverty. Most of us cannot afford productivity enhancing technologies such as fertiliser. The so-called government subsidy on fertiliser still does not help the poor get access to fertiliser for their crops because they cannot afford the subsidised amounts".

The situation transcends beyond occupations such as farming, which is seemingly dominated by unskilled people. Some rural dwellers who are trained as hairdressers and dressmakers among others find it difficult to

practice their trades because of low patronage and this is directly linked to the low crop and agricultural productivity which translates to low incomes for farm families. As stated by one of the respondents,

"... I am a qualified motor mechanic but I cannot ply my trade in this community because the people in this community who bought motorbikes some few years back had to park them due to poverty. As long as these machines are not running, there will be no tear and wear and therefore mechanics are left out of business. For example, my father who used to be a commercial rice farmer continues to get less and less from his rice farms and this is attributable to declining trends of crop productivity. That warranted my father to send me to go and learn this motor mechanic work. I have completed my training and have come back to the community to practise but the low crop yields is also having its toll on me as people do not demand my services. I am not the only one that is affected by these events. My friends have also been trained as carpenters, masons, electricians and the rest but they cannot also find any work to do in our community and this has made some of us desperate" [A 21-year-old male farmer and auto-mechanic].

Other research participants who are trained as carpenters, mechanics, tailors and welders among others find themselves jobless. According to them, in the first place, it was the low crop and agricultural productivity that warranted them to go in for training in these non-agricultural professions with the hope that things will get better but it has rather become worse as they have to revert to agriculture and illegal small-scale mining among others in order to survive. Some of them migrate to the urban centres in attempts to practice their trades but that is difficult because of the lack of initial capital outlay to start.

Even those into small-scale businesses such as petty trading are not left out of the negative consequences of low crop and agricultural productivity. This is better captured by a petty trader in agricultural inputs as, *"... my business is at risk. Farmers are my customers and as long as they don't get good harvest, I don't get good sales" [A 52-year-old male farmer and trader, a husband of one and father of 6 children*]. Another grains trader lamented,

"... It is becoming increasingly difficult to get grains to buy from farmers for resale in the town centres from year to year and this has negative implications on my ability to feed my family and to take care of their basic needs on sustainable basis. For instance, I am finding it extremely difficult to pay my children school fees and to take care of their health needs. The number of food and cash insecure households in our community continues to increase astronomically. Things are

hard!" [A 42-year-old female farmer, petty trader and a mother of four children all of who are in school].

There is no doubt that low and stagnating productivity of staple crops negatively affects the livelihoods of rural dwellers in Ghana. The fact is that it goes beyond farmers. It affects all facets of rural livelihoods and people. This is because most rural areas in Ghana and elsewhere in the world display similar complex and interdependent livelihood systems. Defects in any of the system components affect the entire livelihoods setups, communities and people.

In effect, most rural dwellers in Ghana have low incomes as a result of low crop and agricultural productivity in general and this translates into low access to healthcare, low ability to educate children, low social esteem, low access to food all year round and consequently unsustainable natural resource use. There is a consensus among the farmers who participated in this study that low crop and agricultural productivity is negatively impacting on their livelihoods. They reiterated that the number of food insecure households is on the increase and farm households who are the majority in rural Ghana are the worse hurt. This supports the findings of [18] and [19] that most households in rural Ghana are food insecure.

5. Conclusion and Recommendations

In conclusion, crop and agricultural productivity in Africa and Ghana particularly is generally on the decline. This makes farming a less viable and unattractive livelihood strategy. Most of the staple crops cultivated and consumed across Africa are characterised by low productivity levels. As a consequence, most people who hitherto depended on agriculture for survival, especially rural dwellers are diversifying out of agriculture into non-agricultural activities such as small-scale mining and migration to urban centres which have negative consequences on socio-economic and environmental sustainability. The rural-urban drift leads to more pressure on social amenities and increasing trends of social vices such as armed robbery and prostitution in urban areas. All these have negative implications for sustainable livelihood development in rural Africa.

The policy implications are that agricultural development policies must focus on making the appropriate productivity enhancing technologies available to farmers and other actors in the agricultural sector. These policy interventions must be properly targeted and context specific to ensure optimal benefits. For instance, subsidies on inputs must be restructured by increasing the level of subsidy for the very poor who

find it difficult to afford the 'across board' subsidized prices. The current situation where the rich and poor farm households are given the same level of subsidy must be revised to ensure proper targeting of those who really deserve subsidies. This among other things is a must if African countries are to succeed in their fight against rural poverty as well as food and cash insecurity. Besides, current development interventions and strategies need to recognise the fact that rural livelihoods are interdependent and are becoming more diversified and complex and cannot be promoted only through agriculture. There is the need to formulate and implement holistic policy frameworks for the development of the agricultural value chain using an integrated approach. For such policy frameworks to be economically viable, politically neutral, environmentally sustainable, gender sensitive, generationally stable, culturally agreeable, and socially acceptable to the target people, the programmes, projects and strategies must be area specific and driven by community people. In essence, the decision-making process as to where government and its development partners should focus on their rural livelihood development interventions must be bottom-up and not top-down as has been the case.

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Conflict of Interest

The authors wish to state that they are not in any conflict of interest situation as far as this publication is concerned.

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