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Ghana's Agriculture, Food security and Job creation
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The Relative Importance of Credit in Agricultural Production in Ghana: Implications for Policy and Practice

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Abstract

Empirical literature and policy documents always capture access to credit as one of the most important determinants of successful agricultural production in Ghana and elsewhere in the developing world, particularly Africa. It is often argued that access to credit allows farmers to invest confidently in their agricultural production activities leading to increased productivity, which consequently is able to urge them out of poverty. The extent to which these long held views and narratives are true in modern Ghana is yet to be ascertained. This paper therefore uses mixed methods to ascertain whether or not farmers accord the same level of importance to credit in their agricultural production as being perceived by policy makers, development practitioners and researchers. Thus, the paper analyzed the importance of credit relative to other factors of agricultural production of farm households in Ghana. Multistage sampling was employed in the selection of sub-study areas and research participants across the three main ecological zones (i.e. coastal, forest and savannah) of Ghana. The results indicated that the five most important factors of agricultural production, in the view of farmers are, in descending order, equity finance, technological change, farm implements, credit finance and labor. This result show that in relative terms, access to credit is the fourth most important, which means that its importance has over the years been exaggerated in the empirical literature and by policy makers, implementers and development practitioners. The implication of this is that policies that aim to improve agricultural production and promote transformation of Ghana's agricultural sector must focus on helping farmers accumulate equity capital, provide them with the requisite technologies and mechanized farm equipment before thinking of credit financing.

Key Words: Agriculture, Credit, Ghana, Policy, Transformation



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1. Introduction

Credit has long been identified as a significant factor that can create effective route out of poverty by poor borrowers. This view gave wave to different interventions employed by different governments in the developing world and Ghana in particular across space and time to promote rural financial service delivery. The goal of these interventions has been to accelerate rural development through enhanced agricultural productivity and cottage industry development by improving the financial capability of economic actors. These interventions according to Yaron *et al.* (1998) were rife in the 1950s as a result of Keynesian economics which inspired many governments across the world to design fiscal interventions in the financial sector at the macroeconomic level. Governments established formal financial and related institutions as the main providers of financial services to the poor and vulnerable with the main objective of alleviating their poverty levels through credit induced increases in productivity (Matin *et al.*, 2002). This view corroborates the observations made by Yaron *et al.* (1998) and Komareka and Ahmadi-Esfahani (2011) that traditionally, governments have intervened in rural credit markets through subsidies to promote agricultural productivity growth and to reduce rural poverty.

There is a hot debate regarding whether or not governments and nation states should continue to intervene in rural financial markets. Those who advocate state intervention in rural financial markets argue that credit is a critical component of rural development strategies and that there is the need for governments and world development bodies to intervene in providing subsidized credit facilities to enable economic agents in rural areas of developing countries to pursue sustainable livelihoods development. This is in line with the views expressed by Braverman and Guasch (1997) and Muhammad *et al.* (2003) that subsidized credit facilities enhance the adoption of technical innovation which lead to improvement in productivity. This ultimately increases the growth of output and the development of the agricultural sector and thus rural areas. This they argued is particularly relevant given that rural credit markets are imperfect. In their view, the imperfectness of rural financial markets limits access to credit by rural farmers most of whom



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produce at subsistence level and that the only way to improve access to credit by smallholder farmers is for governments to intervene. According to Levine (1998), there is causality between financial development and economic development and therefore governments need to intervene to enhance financial service, particularly credit delivery and development in rural areas.

The advocacy for governments in developing countries to intervene in rural financial markets was particularly popular in the 1970s and 1980s (see for instance Adams and Graham, 1981; Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Roubini and Sala-i Martin, 1992; Pagano, 1993; King and Levine, 1993a, 1993b). It is further argued that interventions in rural financial markets by governments help alleviate the sufferings of farmers as a result of trade liberalization (Amikuzuno *et al.*, 2011) which leads to the importations of cheap food products thereby causing farmers to receive low prices for their products and hampering their creditworthiness. To proponents of state interventions in rural financial markets, it is the responsibility of governments and their development partners who sign trade agreements and treaties effecting trade liberalization to compensate farmers in rural areas of developing countries for the adverse effects of those policies by providing subsidized credit. In response to those arguments, the World Bank (1993) reports that donors provided considerable support for subsidized credit. The bank provided approximately \$16.5 billion in subsidized agricultural credit programs prior to the 1990s.

Those against the idea of governments and their development partners intervening in rural financial markets argue that there is a weak link between financial and socio-economic developments (Lucas, 1988; Stern, 1989; Chandavarkar, 1992; Stiglitz, 1994; Xu, 2000; Kar *et al.*, 2011). In their view, previous interventions in the form of subsidized credit policies rolled out for rural areas in developing countries did not make any significant impacts (Yaron *et al.*, 1998; Woolcock, 1999). It is argued that past interventions in rural financial markets have led to poor credit culture in the agricultural sector giving rise to over dependence on subsidies, low loan recovery rates, inadequate portfolio diversification and wrong targeting of credit programs. This was exacerbated by rent-seeking behaviors of influential farmers and bank officials (Khan, 1977; Ladman and Tinnermeier, 1984; In Yaron *et al.*, 1998).



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It is further argued state-sanctioned rural financial intermediaries crowd out private sector financial intermediation. Opponents of state interventions also argue that subsidized credits have made matters worse in rural financial markets as a result of deliberate defaults and political interferences (Akudugu, 2012). This is because political sympathizers in rural communities mistake those credit facilities for rewards for their political stewardship and will therefore not repay. Besides, such subsidized credits do not go to the target groups and are characterized by high administrative costs, which make them unsustainable (World Bank, 2008). In the specific case of Ghana, the empirical literature reports low access to subsidized formal credit and other financial services by people in rural areas (IFAD, 2003; Quaye, 2008; Akudugu, 2010; Asante *et al.*, 2011).

The emergence of proponents and opponents of state interventions in rural financial markets is an indication of the lack of consensus among academics and policy makers on the link between financial service delivery and socio-economic development. This means that actors in the financial markets and socio-economic development continue to face the problem of supply-leading and demand-following dichotomy (Murinde, 1996; Shan *et al.*, 2001; Deidda, 2006). Years of empirical research across the world have not contributed to building a consensus as to whether or not intervention of governments in credit markets is necessary for socio-economic development. There rather seem to be further widening of the dichotomy (Lawrence, 2006).

In summary, whereas the demand for interventions by governments and their development partners in rural financial markets was widespread and strong in the 1970s through to the early 1990s, the late 1990s to early 2000s witnessed decreasing trends in the calls for interventions by governments. Following the world food crises in 2007 and economic meltdown in 2008 however, state interventions in the financial sectors of developed and developing countries across the world have become widespread. Drawing heavily from the empirical literature, proponents of intervention of governments argue that developments of financial systems translate positively to socio-economic development. Opponents however, think otherwise, stating unequivocally that previous interventions of governments in rural financial markets through the provision of subsidized credit facilities have had little or no positive effects on socio-economic development.



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What is clear in this debate is that, all the arguments are based on expert opinions with the target beneficiaries being passive observers. There is therefore the need to find out from the people who are supposed to benefit from these interventions majority of who are farmers, their opinions on the subject matter. Thus, this current paper looks at the relative importance of credit in agricultural production using Ghana as the case.

2. Methods

This paper analyzed the importance of credit relative to other factors of agricultural production activities of farm households in Ghana. Multistage sampling was employed in the selection of sub-study areas and research participants. The first stage was stratification of the country according to the main ecological zones – Coastal, Forest and Savannah. One administrative region was then randomly selected from each stratum. The second stage was a random selection of one administrative district from each sampled region. This was followed by further stratification of the three sampled districts into south and north and then a random selection of one farming community from each stratum. The third stage was to divide the selected farming communities into four main strata – North, East, South and West. Eight (8) households were randomly selected from each stratum and each selected household asked to send a representative to participate in the focus group discussions. Each selected household had to send an elderly man, elderly woman, young man or young woman to the focus group discussions. The essence of this was to ensure that generational and gender perspectives were properly captured. In each farming community, four different focus group discussions were held – elderly men; elderly women; young men; and young women giving a total of 24 focus groups. Also, twelve (12) key informants were interviewed in each sampled district giving a total of 36 key informant interviews. The selection of key informants was by means of purposive and snowball sampling techniques. The key informants were people deemed to have very good knowledge on credit administration, credit management and utilization and included influential farmers, formal and informal lenders and policy makers.



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In each sampled farming community, the households were also stratified according wealth class – poor, average and rich using local standards. A household was randomly selected from each stratum for case studies making a total of 18 case studies. Key informants and the selected case households were asked to assess the levels of influence of credit on agricultural production relative to other identified factors of production. Thus personal narratives and life stories were used to analyze the level of importance farm households place on credit vis-à-vis the other factors of production. Need assessment was also used to examine at the collective level the significance of credit relative to the other factors of production. This was done using the focus group discussions in which participants were tasked to illustrate how in their opinion, farmers in the selected communities view credit relative to the other factors of production. This was done in terms of the influence of each identified factor on the agricultural production processes. The participants were asked to identify ten factors deemed to have the most influence on their agricultural production activities. The ten identified factors were then ranked by the participants in terms of the levels of influence on household agricultural production. The factor deemed by participants to have the highest level of influence on agricultural production was assigned a rank of one (1) and the least assigned a rank of ten (10). To get a better understanding of the scores assigned to each identified factor of production, participants were asked to give reasons for their rankings.

To ascertain the level of agreement among the research participants in their rankings, the Kendall's Coefficient of Concordance (Kendall's W) was estimated. This [Kendall's Coefficient of Concordance (W)] is used to test the level of agreement in ranking a set of issues of interest among different judges, in this case research participants (Legendre, 2005). The essence of this computation was to ascertain whether or not there is agreement among the farmers in their rankings of the different factors including credit that influence their agricultural production activities. It is computed (Siegel, 1956:234; Siegel and Castellan, 1988:266; Zar, 1999:446) as cited by Legendre (2005:229-230) in theory as follows:

$$W = \frac{12S}{p^2(n^3-n)-pT} \quad (1)$$



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Where:

S = Sum of squares statistic computed as:

$$S = \sum_{i=1}^n (R_i - \bar{R})^2 \quad (2)$$

R_i is the row sum of ranks; \bar{R} = Mean of the R_i values; p = Number of judges; n = Number of issues of interest; and T = Correction factor for tied ranks which is computed as:

$$T = \sum_{k=1}^m (t_k^3 - t_k) \quad (3)$$

t_k = Number of tied ranks in each k of m groups of ties.

A significant value of the Kendall's Coefficient of Concordance (W) is interpreted to mean that the research participants are applying the same standards in their rankings of the issue of interest implying that there is agreement among the people doing the ranking.

3. Results

The participating farmers in focus groups and household case studies identified equity finance, credit finance, labor, technology, farm land, rainfall, farm implements, storage facilities, safety nets and solidarity groups as the ten most important factors influencing agricultural production in the sampled communities. Overall, equity finance was ranked first by focus group participants and case study households relative to the other factors (Table 1). This means that in the view of farmers, irrespective of gender, age, wealth or geographical location, equity finance is the most important factor influencing agricultural production activities relative to the other factors. This view is consistent with earlier studies by Akudugu (2011) who reported that equity financing has higher returns to agricultural production of farmers compared to credit financing. Similar studies across the developing world have emphasized the importance of equity financing to farmers (Pitt and Khandker, 1998; Atieno, 2001; Khandker and Faruquee, 2003; Guirkingner, 2008). Explaining the rankings, it was commonly held across the focus group discussions with men, women, young, and old farmers as well as case study of poor, average and rich households that equity finance is the building block of all farming and related activities households embark on. This common view is well captured in the following excerpts from one of the focus group discussions:



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... Equity finance has the most important influence on our agricultural production because without own funds, there is no way any farmer will be able to engage in production. ... As a farmer, one must have some amount of money of your own to at least start the farming process before you could possibly get support in the form of credit from elsewhere. In situations where some farmers don't have their own funds at the beginning of the season, they must at least have things like the seed for planting to be able to engage in farming. ... If you don't have anything at all, then you cannot farm because credit cannot come unless you work for it, which means that you need your own resources. ... [Excerpts from FGD with elderly men in the Forest ecological zone: 17/10/2012].

The farmers ranked technology as having the second most important influence on their agricultural production activities. They were of the view that technology is a critical factor in modern agricultural production because it brings about enhanced productivity levels and this view is consistent with the empirical literature (Adesina and Baidu-Forson, 1995; Nin *et al.*, 2003; Ministry of Food and Agriculture, 2007; Mapila, 2011; Akudugu *et al.*, 2012b; Benin *et al.*, 2012). This view was consistently expressed across the different focus groups and household case studies. According to some of the research participants:

... The days when we relied on our traditional methods of farming are gone. If you use only the traditional farming systems today, you can be sure of not getting anything. ... For example, those days we did not apply fertilizers but had good harvest because the soils were fertile. We planted long maturing traditional crop varieties such as late millet, sorghum and maize and had good harvest because the rainfall was reliable. ... In fact, the major rains started between February and April across the country and ended around December/January. This has changed dramatically. Now, the rains start at June/July and stops around September/October. So without the use of modern agricultural production technologies, one gets nothing. ... The most important of all, we can now sit in our houses and call friends and relatives in the cities to know the prices of inputs and outputs through our mobile phones. Our hope is that in the future, we will be able to buy inputs and sell our produce through the mobile phones so that we will not have to travel to



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the market centers. ... [Excerpts from FGD with young men in the Savannah ecological zone: 27/10/2012].

Following technology, the farmers ranked farm implements as the third most important production factor. It was explained that farm implements such as hoes, cutlasses, tractors and carts among others facilitate their production processes. The fourth most important factor according to the farmers is credit finance (Table 1). This is corroborated by the empirical literature that credit plays important roles in agricultural production (Atieno, 2001; Khandker, 2005; Kibaara, 2006; Akudugu, 2011; Besharat and Amirahmadi, 2011; Khoi *et al.*, 2013). In explaining the reasons for the rankings, some of the farmers across the different gender, generation, wealth class and ecological zones noted that credit financing in most cases though helpful is not the best. This is because credit, especially from the formal financial market either comes late or is inadequate. It mostly attracts high transaction costs that erode the benefits. When one gets credit and has to sell all the farm produce to be able to pay back that credit, then it is better not to have taken that credit in the first place. But in the absence of adequate equity funds, credit becomes important in the production process hence the ranking. As noted by one of the case study household heads:

... It is better to use our own resources for our agricultural production instead of credit because if you make profit it is for you and if you make loss, it is for you. Nobody will worry you for none payment. ... Some of us take credit and have to even use the profit you make to pay the credit. In some cases, you even have to pay with your own resources and this makes you worse off. ... For me, I would never go for credit because those who take credit only work for the lenders and not themselves. I am saying this because hardly do people who take credit, especially from the formal credit market benefit from it. Profits made are often added as interest payments and this leaves borrowers with nothing. So why should I be working hard for other people who do not do any work to benefit. It is better to use the little I have to produce so that whatever I get belongs to my family and me. ... [Excerpts from HCS in the Coastal ecological zone: 11/10/2012].



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This view is however, contrary to others who noted that credit is very important in complementing equity finance in the production processes. Credit they noted is particularly important because most rural farm households in Ghana have limited equity finance through savings that can be used to finance their farming activities. This is corroborated by earlier studies including that of Quaye (2008) that most farm households across rural Ghana have remarkably little or no surplus produce to sell for savings as they struggle to meet their household food consumption requirements. Minten and Barrett (2008) reported that a significant fraction of farmers in low-income countries such as Ghana are net buyers of the crops they produce which means no savings from their farming activities. Diange and Zeller (2000) and Akudugu (2011) reported that farmers who manage to save do so in such small amounts that is negligible for production purposes and therefore credit from formal and informal sources is important in their farm production activities.

Labor was ranked the fifth most important factor influencing agricultural production in Ghana. They indicated that labor has critical influence on agricultural production because without labor, investments in agricultural production activities cannot yield optimal returns. This is because agricultural production in Ghana continues to be labor intensive as mechanization is very limited (Ministry of Food and Agriculture, 2007, 2010a, b). According to some of the research participants without labor, planting, controlling of weeds and insecticides, harvesting, processing of agricultural produce, and carting of the produce to homes and markets cannot be done.

Solidarity groups were ranked in the focus groups as the sixth most important factor influencing agricultural production of farmers. In contrast, solidarity groups were ranked the seventh most important factor influencing agricultural production of farmers in the household case studies. In both focus groups and household case studies, it was generally noted that social groups enable farmers to access some productive resources including credit, particularly from formal financial institutions which engaged in group lending in order to circumvent moral hazards (Pitt and Khandker, 1998; Pitt *et al.*, 2006; Akudugu *et al.*, 2009b; Akudugu *et al.*, 2009a; Akudugu, 2010; Armendáriz de Aghion and Morduch, 2010). The focus group participants also ranked storage facilities as the seventh most important factor influencing agricultural production processes.



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Storage facilities were however, ranked the sixth most important factor influencing agricultural production of farmers by case study households. One of the key reasons given by both focus group participants and the case study households was that most agricultural produce is perishable and therefore availability of improved storage facilities will incentivize farmers to increase their scale of production.

The eighth most important factor influencing agricultural production in the view of farmers and farm households is farmland (Table 1). They noted that land is an important agricultural production factor (Pendera *et al.*, 2004). The fertility of land influences agricultural production. This was especially so among farmers in the coastal and forest agro-ecological zones. Some of the farmers in those zones indicated that they had to pay for the land on which they farm. Others noted that they engage in share farming in which the landowner gives out his or her land to a landless farmer who cultivates it and the output shared between them. This is however, not the case in most of the savannah ecological zone where many farmers own the land they farm on.

Rainfall was ranked the ninth most important factor influencing agricultural production of Ghanaian farmers. In the view of the participating farmers, agricultural production in Ghana remains largely rain-fed and this makes it dependent on the natural climate. This view is supported by earlier empirical studies which generally reported that climatic factors including rainfall seriously influence agricultural production (Masters and Wiebe, 2000; Parry *et al.*, 2004; Ayinde *et al.*, 2010; Igwe and Esonwune, 2011; Akudugu *et al.*, 2012a). So rainfall is very important in their production activities given the inadequacy of well-developed irrigation facilities in the country (Ministry of Food and Agriculture, 2007, 2010a, b). According to the farmers, one of the main reasons for their ranking of rainfall as the ninth most important factor influencing their agricultural production is because of the fact that they have no control over it.

In the views of farmers, safety nets are ranked the tenth most important factor influencing their agricultural production. An example of these safety nets is the situation where the landless are able to get land from landowners to farm for free. It also includes the provision of labor to the aged, disabled and vulnerable members of their communities for free. This involves people who



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are strong going to work on the farms of the aged, disabled and vulnerable community members without charging any fee. It also includes sons-in-law organizing their colleagues to go and work on the farms of fathers-/mothers-in-law for free.

To test the level of agreement among the focus group participants and case study households in their rankings, the Kendall's Coefficient of Concordance simply referred to as Kendall's *W* was employed. The test gave Kendall's *W* of 0.76 for focus groups and 0.77 for case study households. This means that more than three-quarters of the focus group participants and case study households agreed in the rankings assigned to each of the factors deemed to be influencing agricultural production. This level of agreement is statistically significant at 1 percent per the Chi square statistic (Table 1). Thus, there is unanimity among the farmers in their rankings of the relative importance of each of the ten most important factors influencing agricultural production in Ghana.

Table 1: The ten topmost factors influencing agricultural production activities

Agricultural production factor	Mean ranks by FGDs	Position	Mean ranks by HCSs	Position
Equity finance	1.25	First	1.28	First
Technology	2.25	Second	2.22	Second
Farm implements	3.50	Third	3.56	Third
Credit finance	3.75	Fourth	3.72	Fourth
Labour	5.46	Fifth	5.22	Fifth
Solidarity groups	7.25	Sixth	7.39	Seventh
Storage facilities	7.29	Seventh	7.33	Sixth
Farm land	7.50	Eighth	7.44	Eighth
Rainfall	8.00	Ninth	8.17	Ninth
Safety nets	8.75	Tenth	8.67	Tenth
n	24		18	
Kendall's W	0.76		0.77	
Chi-Square	164.36		124.57	
Degrees of freedom (df)	9		9	
Asymptotic Significance	0.000		0.000	

Source: Field Data, 2012.



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4. Conclusion

Farmers and farm households employ a number of factors in their agricultural production activities. The ten most important of these factors are equity finance, credit finance, labor, technology, farmland, rainfall, farm implements, storage facilities, safety nets and solidarity groups. The five topmost factors influencing agricultural production in contemporary Ghana are equity finance, technological change, farm implements, credit finance and labor. The responding farmers as the most important rate equity finance because it forms the foundation block upon which their agricultural production takes place. Most of the research participants are of the view that better returns are obtained when equity funds are used for production compared to credit funds.

The participating farmers ranked technology as the second most important factor influencing agricultural production in modern Ghana. The rank assigned to technology is based on the fact that it has come to occupy a major place in agricultural production activities of farmers and farm households across rural Ghana. Farm implements were ranked the third most important factor influencing agricultural production of farmers. The research participants noted that farm implements facilitate their farm production processes by way of reducing drudgery. The research participants also ranked credit finance as the fourth most important factor that influences farm household agricultural production activities. The fact that farmers see credit as the fourth important factor influencing their agricultural production challenges the long held view that credit is of topmost importance in farm production activities in contemporary Ghana. The participating farmers ranked labor as the fifth most important factor influencing agricultural production in Ghana. The implication of this is that labor occupies the last position in the context of the five most important factors influencing agricultural production in Ghana. It is concluded that credit is perceived by farmers to be less important in their agricultural production activities relative to equity finance, technology and farm implements.

References

ADAMS, D. W. & GRAHAM, D. H. 1981. A critique of traditional agriculture credit projects and policies. *Journal of Development Economics*, 8, 347-66.



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- ADESINA, A. A. & BAIDU-FORSON, J. 1995. Farmers' perceptions and adoption of new agricultural technology: Evidence from analysis in Burkina Faso and Guinea, West Africa. *Agricultural Economics*, 13, 1-9.
- AKUDUGU, M. A. 2010. Assessment of access to financial capital by rural people in Ghana: The case of the Upper East Region. *Savings and Development*, 34, 169-189.
- AKUDUGU, M. A. 2011. Rural banks' financial capital and livelihoods development of women farmers in Ghana. *Journal of Enterprising Communities: People and Places in the Global Economy*, 5, 248-264.
- AKUDUGU, M. A. 2012. Estimation of the determinants of credit demand by farmers and supply by Rural Banks in Ghana's Upper East Region. *Asian Journal of Agriculture and Rural Development*, 2, 179-190.
- AKUDUGU, M. A., DITTOH, S. & MAHAMA, E. S. 2012a. The Implications of Climate Change on Food Security and Rural Livelihoods: Experiences from Northern Ghana. *Journal of Environment and Earth Science*, 2, 21-29.
- AKUDUGU, M. A., EGYIR, I. S. & AKWASI, M.-B. 2009a. Access to credit from rural banks in Ghana: The case of women farmers in the Upper East Region. *Ghana Journal of Development Studies*, 6, 142 - 167.
- AKUDUGU, M. A., EGYIR, I. S. & AKWASI, M.-B. 2009b. Women farmers' access to credit from rural banks in Ghana. *Agricultural Finance Review*, 69, 284 - 299.
- AKUDUGU, M. A., GUO, E. & DADZIE, S. K. 2012b. Adoption of modern agricultural production technologies by farm households in Ghana: What factors influence their decisions? *Journal of Biology, Agriculture and Healthcare*, 2, 1-13.
- AMIKUZUNO, J., ABARIKE, M. A. & AKUDUGU, M. A. 2011. Testing the performance of fresh tomato markets following import trade liberalization in Ghana: A price transmission approach. *Ghana Journal of Development Studies*, 8, 1-14.
- ARMENDÁRIZ DE AGHION, B. & MORDUCH, J. 2010. *The economics of microfinance (2nd Edition)*, Massachusetts Institute of Technology.
- ASANTE, B. O., AFARI-SEFA, V. & SARPONG, D. B. 2011. Determinants of small scale farmers' decision to join farmer based organizations in Ghana. *African Journal of Agricultural Research*, 6, 2273-2279.
- ATIENO, R. 2001. Formal and informal institutions' lending policies and access to credit by small-scale enterprises in Kenya: An empirical assessment. *African Economic Research Consortium Research Paper 111*, pp.46.
- AYINDE, O. E., AJEWOLE, O. O., OGUNLADE, I. & ADEWUMI, M. O. 2010. Empirical analysis of agricultural production and climate Change: A case study of Nigeria. *Journal of Sustainable Development in Africa*, 12, 275-283.
- BENCIVENGA, V. R. & SMITH, B. D. 1991. Financial intermediation and endogenous growth. *Review of Economic Studies*, 58, 195-209.
- BENIN, S., MOGUES, T., CUDJOE, G. & RANDRIAMAMONJY, J. 2012. *Public expenditures and agricultural productivity growth in Ghana*, Washington DC, USA, Routledge.
- BESHARAT, A. & AMIRAHMADI, M. 2011. The study of factors affecting productivity in the agriculture sector of Iran. *African Journal of Agricultural Research*, 6, 4340-4348.



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- BRAVERMAN, A. & GUASCH, J. L. 1997. Rural credit in developing countries. *World Bank Working Paper Series*, 219, 39pp.
- CHANDAVARKAR, A. 1992. Of finance and development: neglected and unsettled questions. *World Development*, 22, 133–142.
- DEIDDA, L. G. 2006. Interaction between economic and financial development. *Journal of Monetary Economics*, 53, 233–248.
- DIANGE, A. & ZELLER, M. 2000. Determinants of access to credit and its impact on food security. In: INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE (ed.). Washington D.C.
- GREENWOOD, J. & JOVANOVIC, B. 1990. Financial development, growth, and the distribution of income. *Journal of Political Economy*, 98, 1076–1107.
- GUIRKINGER, C. 2008. Understanding the Coexistence of Formal and Informal Credit Markets in Piura, Peru. *World Development*, 36, 1436–1452.
- IFAD. 2003. *Ghana: Women's access to formal financial services* [Online]. Rome . [Accessed from <http://www.ifad.org/gender/learning/sector/finance/42.htm> on April 16 2012].
- IGWE, K. & ESONWUNE, C. 2011. Determinants of agricultural output - Implications for government funding. *Journal of Economics and Sustainable Development*, 2, 86-90.
- KAR, M., NAZLIOĞLU, S. & AĞIR, H. 2011. Financial development and economic growth nexus in the MENA countries: Bootstrap panel granger causality analysis. *Economic Modelling*, 28, 685-693.
- KHAN, A. R. 1977. Poverty and landlessness in rural Asia. Geneva: International Labour Organization.
- KHANDKER, S. R. 2005. Microfinance and poverty: Evidence using panel data from Bangladesh. *The World Bank Economic Review*, 19, 263–286.
- KHANDKER, S. R. & FARUQEE, R. R. 2003. The impact of farm credit in Pakistan. *Agricultural Economics*, 28, 197-213.
- KHOI, P. D., GAN, C., NARTEA, G. V. & COHEN, D. A. 2013. Formal and Informal Rural Credit in the Mekong River Delta of Vietnam: Interaction and Accessibility. *Journal of Asian Economics*.
- KIBAARA, B. 2006. Rural Financial Services in Kenya: What is Working and Why. *Tegemeo Working paper*
- KING, R. G. & LEVINE, R. 1993a. Finance and growth: Schumpeter might be right? *Quarterly Journal of Economics*, 108, 717–737.
- KING, R. G. & LEVINE, R. 1993b. Finance, entrepreneurship, and growth: theory and evidence. *Journal of Monetary Economics*, 32, 513–542.
- KOMAREKA, A. M. & AHMADI-ESFAHANI, F. Z. 2011. Impacts of price and productivity changes on banana-growing households in Uganda. *Agricultural Economics*, 42, 141-151.
- LADMAN, J. & TINNERMEIER, R. (eds.) 1984. *The political economy of agricultural Credit: The case of Bolivia*.
- LAWRENCE, P. 2006. Finance and development: Why should causation matter? *Journal of International Development*, 18, 997–1016.



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- LEGENDRE, P. 2005. Species associations: The Kendall Coefficient of Concordance revisited. *Journal of Agricultural, Biological, and Environmental Statistics*, 10, 226-245.
- LEVINE, R. 1998. The legal environment, banks, and long-run economic growth. *Journal of Money, Credit, and Banking*, 30, 596-620.
- LUCAS, R. E. 1988. On the mechanics of economic development. *Journal of Monetary Economics*, 22, 3-42.
- MAPILA, M. A. T. J. 2011. Rural Livelihoods and Agricultural Policy Changes in Malawi. In: IN: MANNERS, G., AND SWEETMORE, A., (EDITORS) (ed.) *Agricultural Innovations for Sustainable Development*. Accra-Ghana: CTA and FARA.
- MASTERS, W. A. & WIEBE, K. D. 2000. Climate and food production.
- MATIN, I., HULME, D. & RUTHERFORD, S. 2002. Finance for the poor: From microcredit to microfinancial services. *Journal of International Development*, 14, 273-294.
- MINISTRY OF FOOD AND AGRICULTURE 2007. Food and Agriculture Sector Development Policy (FASDEP II). *Government of Ghana publications*, 1-63.
- MINISTRY OF FOOD AND AGRICULTURE 2010a. Agriculture in Ghana: Facts and figures. *Government of Ghana publications*, 1-41.
- MINISTRY OF FOOD AND AGRICULTURE 2010b. Ghana Medium Term Agricultural Sector Investment Plan (METASIP). *Government of Ghana publications*, 1-89.
- MINTEN, B. & BARRETT, C. B. 2008. Agricultural Technology, Productivity, and Poverty in Madagascar. *World Development*, 36, 797-822.
- MUHAMMAD, I., MUNIR, A. & KALBE, A. 2003. The Impact of Institutional Credit on Agricultural Production in Pakistan. *Munich Personal RePEc Archive*, , 469-483.
- MURINDE, V. 1996. *Financial markets and endogenous growth: An econometric analysis for Pacific Basin Countries*, London, Routledge
- NIN, A., ARNDT, C. & PRECKTEL, P. 2003. Is agricultural productivity in developing countries really shrinking? New evidence using a modified nonparametric approach. *Journal of Development Economics*, 71, 395-415.
- PAGANO, M. 1993. Financial markets and growth: an overview. *European Economic Review*, 37, 613-622.
- PARRY, M. L., ROSENZWEIG, C., IGLESIAS, A., LIVERMORE, M. & FISCHER, G. 2004. Effects of climate change on global food production under SRES emissions and socio-economic scenarios. *Global Environmental Change*, 14, 53-67.
- PENDERA, J., NKONYAA, E., JAGGERA, P., SSERUNKUUMAB, D. & SSALIC, H. 2004. Strategies to increase agricultural productivity and reduce land degradation: evidence from Uganda. *Agricultural Economics*, 31, 181-195.
- PITT, M. M. & KHANDKER, S. R. 1998. The impact of group-based credit programmes on poor households in Bangladesh: does the gender of participants matter? *Journal of Political economics*, 106, 958-996.
- PITT, M. M., KHANDKER, S. R. & CARTWRIGHT, J. 2006. Empowering women with micro finance: Evidence from Bangladesh. *Economic Development and Cultural Change*, 54 791-832.



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- QUAYE, W. 2008. Food Security Situation in Northern Ghana, Coping Strategies and Related Constraints. *African Journal of Agricultural Research*, 3, 334-342.
- ROUBINI, N. & SALA-I MARTIN, X. 1992. Financial repression and economic growth. *Journal of Development Economics*, 39, 5-30.
- SHAN, J. Z., MORRIS, G. & SUN, F. 2001. Financial development and economic growth: An egg-and-chicken problem? *Review of International Economics*, 9, 443-454.
- SIEGEL, S. 1956. *Nonparametric statistics for the behavioural sciences*, New York, McGraw-Hill.
- SIEGEL, S. & CASTELLAN, N. J. 1988. *Nonparametric Statistics for the Behavioral Sciences (2nd ed.)*, New York, McGraw-Hill.
- STERN, N. 1989. The economics of development: A survey. *The Economic Journal*, 100, 597-685.
- STIGLITZ, J. 1994. The role of the state in financial markets. In: BRUNO, M., AND PLESKOVIC, B. (EDS.) (ed.) *The World Bank Conference on Development Economics (Proceedings)*. World Bank, Washington D. C.
- WOOLCOCK, M. J. V. 1999. Learning from failures in microfinance: What Unsuccessful cases tell us about how group-based programs work. *American Journal of Economics and Sociology*, 58, 17-42.
- WORLD BANK 1993. A Review of Bank Lending for Agricultural Credit and Rural Finance (1948-1992). *World Report 12143*. Washington, D.C. World Bank.
- WORLD BANK 2008. Agriculture for development. *World Development Report*. Washington, DC: World Bank.
- XU, Z. 2000. Financial development, investment, and economic growth. *Economic Inquiry*, 38, 331-344.
- YARON, J., BENJAMIN, M. & CHARITONENKO, S. 1998. Promoting efficient rural financial intermediation. *The World Bank Research Observer*, 13, 147-170.
- ZAR, J. H. 1999. *Biostatistical analysis (4th ed.)*, Upper Saddle River, New Jersey, Prentice Hall.