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Principal Trends and Debates in African Agricultural Development

Erik Green, Ellen Hillbom and Mattias Lindgren

1. Introduction

Africa has generally been described as a continent of stagnation. Collier and Cunning (1999: 4) argue in a summarizing article that ‘it is clear that Africa has suffered a chronic failure of economic growth’. One fundamental explanation given for the stagnation has been the assumed low productivity levels of African agriculture. Yet, we know very little about long-term actual performance of the agricultural sector at the aggregate level. Data on agricultural production and factor productivity in Africa is scarce and the quality of existing data is known to be inaccurate, albeit we know little about the degree of inaccuracy (Jerven 2010a: 84).

While acknowledging both the limited information we have and the great variety of local systems of production as well as the impropriety of compressing them into one all-embracing story, our first aim in this paper is to comment on existing data and with it identify some very preliminary general trends. Our second aim is to review and present what we see as the principally most important debates in attempting to unravel factors affecting Africa’s agricultural production and productivity. First is the question of the potential conflict for farmers in choosing between the production of food or cash crops. It is followed by an assessment of what we know about the relative efficiency of small and large scale farm units. Finally, we present the arguments for the costs and benefits of family and/or wage labour.

2. Data on production and productivity

1890-1930: Export growth

The most reliable source used as a proxy for growth in agricultural production in the first part of the 20th century consists of figures on agricultural export. These are combined with various guesstimates on the size of the so-called subsistence sector in order to construct a more comprehensive view of total agrarian change. As a result we know quite a lot about production of major cash crops such as cocoa, coffee, cotton and tobacco from the late 19th century and onwards, but less about staple crops like maize, cassava, rice, finger millet and

beans although they presumably played a significant role for the average farmers in terms of generating capital and food security.

The increase in production of cash crops among African farmers started in West Africa in the late 19th century. Unfortunately, aggregate data tells us nothing about the processes of change and to what extent the expansion was enabled or triggered by institutional and/or technological change, or changes in factor endowments. It is therefore of limited use unless it is combined with more qualitative oriented case studies. Consequently, a number of historians and economic historians have opted for using case studies to analyze instances of agricultural growth in late-19th and early 20th century West Africa. The growth processes differed from case to case, but shared two fundamental characteristics, namely that the main producers were peasants and that expansion of cash crop production was not simply a reallocation of previously idle resources. On the contrary, the growth processes was accompanied by both institutional and technological change. New relations of labour emerged, capital investments increased and farmers adjusted to the expansion by reforming farming methods (Austin 2005). Research has also, though very tentatively, shown that increased cash crop production was followed by increased living standards (Moradi 2007).

1930-1970: Geographical diffusion

There is a geographical bias in the data as we know more about agricultural development in the first half of the 20th century in areas where cash crop production expanded rapidly, like West Africa and parts of Central Africa. The cash crop producers in West Africa were mainly African smallholders and studies on the role of small-scale farming in Africa's agricultural performance 1900-1930 are based on information from a few geographical limited areas.

While the increased cash crop production in the first decades of the 20th century did not only take place in West Africa, it was not until the 1930s that we see a notable growth in the value of exports for countries in eastern and southern Africa. Here, in contrast to West Africa, both African peasants and European settlers were engaged in the production of cash crops. E.g. in countries like Malawi, African farmers became main producers of tobacco and cotton in the 1930s after the European controlled estates sector almost collapsed during the Great Depression (Palmer 1985). In other cases, like Kenya and Zimbabwe, the European settlers continued to dominate production of major cash crops, such as coffee and tobacco.

In the 1950s the financial situation improved considerably for the colonial states as colonial development funds were established in Europe. The new sources of income combined with an intensified ambition of supporting growth of African small-scale farming

enabled the colonial governments to conduct more proper surveys and collecting household data became more common. Due to the time available for each interview household surveys have the potential of producing more accurate statistics than censuses and aggregate data. The quality of household surveys, however, varies significantly and is generally low mainly due to lack of financial resources and staff (see e.g. Block 2010; Jerven 2010b). That being said, micro evidence has contributed to improving our knowledge on production and productivity in numerous ways. There are a number of examples where findings from household surveys provide a different picture from that of the aggregate data. Reij and Smaling (2008) e.g. contrast aggregate data with a survey of a large number of case studies at the sub-national level during the last couple of decades. This line of micro-evidence has produced a much more optimistic picture of agricultural development than the aggregated national statistics. There are several possible explanations for this micro-macro discrepancy. One would be that Africa is characterised by large local variations in development paths, something that aggregate data can fail to capture.

After 1960 FAO data constitutes the only comprehensive dataset available of aggregate statistics for agricultural inputs and outputs. The quality problems are significant, but due to lack of alternatives this is the key data source for a wide range of aggregated quantitative studies (Block 2010). Again data for exports and major cash crops are more reliable, while we have very little information on the subsistence sector. Without proper information about the subsistence sector we can say very little about productivity levels and changes in farming methods. As a consequence we run the risk that “the neglect of subsistence production can lead to serious misunderstandings of the process of development and therefore to inappropriate policies and plans to accelerate development” (Stolper cited in Jerven 2010b).

Still, the sources combined indicate that a continued growth of aggregate agricultural value from the 1950s and onwards was accompanied by technological and institutional change and it became increasingly directly linked to state programs and policies. New technologies were introduced, e.g. the spread of chemical fertilizers from the mid-1960s and onwards, and several governments set up special credit schemes for smallholder farmers and experimented with various land titling programs (see e.g. Eicher 1995). The most notable change was increased land inequality in commercial areas, e.g. among the cocoa growers in Nigeria and the coffee growers in Kenya (Berry 1993: 127). Meanwhile, despite technological change, findings suggest that the growth of land productivity remained relatively modest. One possible explanation is labour scarcity that continued to set limits to more efficient use of land, i.e. farmers could not efficiently use the new technologies since these demanded

increased labour input (Green 2010). Though, there are exceptions, e.g. in Ivory Coast farmers began to cultivate cotton on more intensive forms than previously in the 1960s and 70s, possible because of the relatively low land-labour ratios (Basset 2002).

Mid-1970s: crisis and structural change?

It was not until the mid-1970s when African countries faced depressed world market prices that value of agricultural exports began to stagnate. The crisis was further reinforced by the second oil crisis 1979-81. Case studies also indicate increased difficulties for African producers to keep yields intact with population growth. Hence, the general rule of the late 1970s and early 1980s seems to have been a decline in production per capita, coupled with an increased land labor ratio. According to several authors growth in productivity more or less came to a standstill in the mid 1970s. Southern Africa was the exception, where yield increases exceeded labour per land increases (Block (2010).

In the course of the 1980s things started to improve step-by step. The growth in production as well as productivity picked up, so did exports. Since 2001, the growth rates of African exports (both in volume and value terms) exceeded the world average. Mosley (2002) points out that different areas have followed different paths of expansion. Increased production in several countries has been mainly due to yield increases. These are, not surprisingly, land scarce countries. Others, like Ethiopia, have followed a more extensive path and their agricultural growth is more linked to expansions in agricultural land. Both paths exhibit many cases of poverty reduction, but it seems to be more common in cases of intensification.

Although output per hectare has risen significantly for Africa as a whole, this has in several countries been achieved largely by an increased input of labour so that output per worker in these countries has in fact kept declining in spite of the perceived total factor productivity growth. The increase in labour input indicates that Africa is in the midst of a transition face, marked by changes in factor endowments. In several countries, such as Uganda and Ethiopia, yields grew faster than population (Mosely 2002: 713-714). The same goes for Ghana, Mali and Cameroon (Dewbre & de Battisti 2008) where both yields and land under cultivation increased. In these cases food production increased faster than the population, implying an increased per capita production. Still, the agricultural labour force has also increased significantly in these countries, so that the production per agricultural worker only increased slightly in Ghana and Mali, while Cameroon experienced faster growth. The growth in food crop production was poor prior to the mid-1980s, since then there has been an

improvement that exceeded the population growth, giving rise to increased per capita food production. Still, performance and composition of productivity changes vary significantly across areas (Pratt & Yu 2008; Nkamleu et al. 2008).

3. Food and cash crops production

There has been a common view that agricultural production in SSA is divided into being either food crops for subsistence purposes or cash crops for export earnings for the nation and cash incomes for the producers. With the expansion of local, regional and international markets the divide between food and cash crops has become increasingly blurry. As a growing number of crops are used for home consumption while also being marketed the definition between subsistence and market oriented production, specifically among smallholders, could rather be dependent on the temporary outcome, such as the harvest, and not the structures of production patterns. A more correct terminology for distinguishing between different types of crops would perhaps be food cash crops (maize, beans, etc.) and promoted cash crops (tobacco, coffee, tea, etc.).

As noted before, commercialization of agriculture among smallholders started in the mid-19th century in areas in West Africa. The primary products were groundnuts in present day Senegal, the Gambia and Guinea Bissau and palm oil in Sierra Leone, south-eastern Nigeria and northern Cameroon (Austin 2009). During the colonial era exports of promoted cash crops was the only reasonable source of incomes for colonies lacking mineral wealth. Before the 20th century most exports came from crops that were gathered and hunted, but with colonialism came the promotion of crops that needed to be cultivated, thereby affecting existing production systems more profoundly than before. In many areas that had not been commercialized in the pre-colonial era smallholders started to produce export crops as a response to colonial demand for taxes, so called hut tax (Freund 1998).

During colonial rule in West Africa cocoa was introduced and a new promoted crop was added to the previous production of ground nuts and palm oil. As in the case of the earlier commercial crops it was the smallholder sector that dominated the cocoa production in present day Senegal, the Gambia, northern Nigeria and Ghana (Austin 2009). Eventually as certain areas became increasingly specialized in the production of promoted cash crops market opportunities for smallholders producing food crops also expanded (Austin 2009). E.g. in South Rhodesia smallholders produced the most foodstuffs for towns and mine camps until the 1920s (Freund 1998: 111).

In East and Central Africa promoted cash crops were instead primarily produced by large scale estates owned by Arab elites during the pre-colonial era and white settlers in the early phase of colonialism. Coffee, tea, tobacco and cotton became the most important export crops coming out of these regions and contrary to West Africa smallholders were not always encouraged to participate in the production.

The great depression in the 1930s struck a hard blow to the smallholders as they were hit by declining world prices. By that time, however, they had no choice but to stay in commercialized agriculture. One good thing that came out of it was that the colonial administrations started to shift their focus from promoting estate farms to appreciating local production systems with smallholders. As the latter handled the economic crisis better than the former it became clear to the administrations that it could be beneficial to support them (Freund 1998: 116). A significant smallholder production of cotton in Sudan and Uganda as well as coffee in Tanganyika in the Kilimanjaro region and from the 1950 in Kenya established itself (Freund 1998: 114-115).

Several authors have, with various degrees of confidence, connected the upturn in agricultural productivity since the mid-1980s with the liberalisations of the Structural Adjustment Programs (e.g. Pratt & Yu 2008; Badiane 2008). With the liberalisation it was expected that production prices for food and cash crops would improve. Reforms that improved the relative prices of agriculture, e.g. devaluations and export tax reductions, are mentioned by several authors. Meanwhile costs for inputs, such as fertilizers, pesticides and seeds also increased and caused a significant decline in the use of inputs for both cash and food crops during the 1990s. It has been argued that this in turn prevented an improvement in rural-urban terms of trade and in agricultural production generally (Poulton et al. 1998).

In the case of Uganda there are both those who claim that SAP has had a positive impact on agricultural production (Bussolo et al. 2007) while others claim negative consequences (e.g. Bakunda 2008). The same kind of debate can be found for Cameroon, Ghana and Mali (Dewbre & de Battisti 2008). Dorward et al. (2004) notes some positive effects, e.g. better functioning supply-chains for some cash-crops. Albeit, they argue that the private sector has not stepped in to fill the gap of the dismantled public procurement organisations, however defunct those might have been, and this has led to a lower market access for many farmers.

Although the majority of African smallholders are currently defined as net consumers and the element of subsistence production remains strong smallholders are also diversifying their farm activities as demand and supply, or consumption and production patterns, are

changing. Preference for a certain crop appears to be correlated to several incentives other than production price and profitability, such as farm gate price, labour costs, reliability of prices, access to inputs and extension, prior experiences and access to markets and traders (Lukano et al. 2010). Further, if all things fail a marketable food crop has the advantage that it can always be consumed by the household. Studies have shown that because of these multitudes of aspects smallholders will opt for a food cash crop unless profitability is considerably higher with a promoted cash crop (Boateng et al. 1987; Gladwin et al. 2001).

Growing demand driven by rising incomes, urbanization, de-agrarianisation, greater female participation in the work force, etc. constitutes a push for the shift to high value products as well as semi-processed and processed products. Changes in preference and taste paired with the entry and rapid growth of supermarket chains are trends that presently open up new markets for a wide range of high value agricultural products (World Bank 2007: 124).

Most high-value agricultural products such as semi-processed foods (dairy, meat) and fresh foods (fruits, vegetables) are perishable and they require functioning market infrastructures. A transfer from low value to high value markets is one efficient way of enhancing profitability within smallholder farming. High value domestic markets for agricultural products, led by livestock and horticulture, are presently growing at 6-7 per cent per year in developing countries (World Bank 2007: 12). Studies show that participating in modern supply chains through contract farming and associating with supermarket buying agents, can increase smallholder's incomes by 10 to 100 per cent (World Bank 2007: 127).

Arguments have come and gone on what could be the comparative advantage of getting into new food/cash crop markets compared to staying with the traditional starchy staples, e.g. cassava and yams. Some have argued that staples are to be preferred as many countries in Africa have the natural advantages in their production (Pearce 1990). Meanwhile, cereal imports have also increased between the 1970s and 1990s with 8% per annum in volume and 18% per annum in value (Pearce 1990: 374). Since the independence era improvements have been made in food production, but they have not been able to keep pace with concurrent population increase. It appears that Africa is under producing for its own food requirements and that there could be a great potential for smallholders. Starchy staples have primarily been produced as a subsistence strategy. Roughly 80% has been consumed by the producing household and the reasons for poor marketing have been poor infrastructure, lack of storage facilities and perishability (Pearce 1990: 376). Food prices have increased with 140% during the time period 2002-2008 and staple crop prices have doubled just in 2009 (Molony and Smith 2010: 495). The development has also been helped by increases in world market prices

for certain traditional promoted cash crops, e.g. coffee for Uganda and coca and cotton in Cameroon, Mali and Ghana (Bussolo et al. 2007; Pratt and Yu 2008; Dewbre & de Battisti 2008).

Further, the growing global interest in renewable energy has led to a tripling of global biofuel production during the period 2000-2007 and it is expected to double again in 2007-2011 (Molony and Smith 2010). Biofuels have been produced for decades in sub-Saharan Africa, e.g. jathropa grown in Mali and Tanzania, although it has not been considered highly profitable until recently. A growing number of African countries, e.g. Malawi, Mali, Mauritius, Nigeria, Senegal, South Africa, Zambia and Zimbabwe are now enacting new pro-biofuel national strategies and the number of joint ventures with other countries and private enterprises is growing (Molony & Smith 2010). These enterprises are at the moment controversial as it is still uncertain whether or not they will benefit the rural population and smallholders taking into account raising food prices, possible future employment and improving incomes as the cash crop for the future.

4. Smallholders and large scale farming

A reoccurring theme in scholarly literature as well as policy making has been the debate on the relative advantages and efficiency of independent smallholders and larger estate farms in sub-Saharan Africa in general. This debate on the relationship between land holdings and productivity has drawn primarily on theory while the empirical evidence has been meager and it has included issues of security of tenure as well as optimal land seize. Two tracks can be identified. One involves the arguments for redistribution of land resources via either the consolidation of land or the splitting up of larger holdings for the benefit of small scale farmers. Neither of these arguments have, however, been proven by empirical experiences. The second track is of a more pragmatic nature. Due to the fact that the majority of farmers are smallholders and that with the exception of a smaller number of former settler colonies the agricultural sector is dominated by small scale farming it is argued that an agricultural transformation process must be broad based in order to be successful.

The general call for a relatively equal distribution of natural resources within the agricultural sector came up in the 1970-80s and rests on the argument that there is a causal relationship between equity and agricultural development and growth leading to increase in incomes and living standards for the rural population (see e.g. Berry & Cline 1979; Cornia, 1985; Deininger & Squire 1996; Griffin et al. 2002; Kay 2001). The larger the holding of the

resource the lesser the value per unit for the property holder who instead attempts to increase output per labour unit as labour in this case is the evasive production factor. Meanwhile, it is proposed that the situation is the opposite for the smallholder who relies on family labour and on increasing output per resource unit. As the relative factor price of agricultural resources increases the resource holder will intensify farming methods, which in turn leads to an increase in land productivity and a decrease in labour productivity. In societies with abundant labour and scarce agricultural resources capital total factor productivity should increase after redistributive reform since smallholders all in all allocates resources more efficiently than larger ones (Cornia 1985; Deininger & Squire 1996; Griffin et al. 2002: 185-7). This theoretical literature rests primarily on an analysis of historical and contemporary land distribution in Asia and Latin America. There is, however, empirical evidence collected from sub-Saharan African smallholder sector that indicate similar types of causal relationships and a relative success of smallholder agriculture.

During the second half of the 19th century a growing number of African smallholder systems of production became involved in the international trade with agricultural products. While the cause for the increased trade is to be found in improved incomes in Europe and increased demand for tropical products many local systems of production in sub-Saharan Africa proved to be adaptable and dynamic. The most well known example of this is probably West Africa where the production of export crops such as cocoa, ground nuts and palm oil was performed almost solely by smallholders. Development of commercial smallholder agriculture was much more modest in Central and Eastern Africa during the same time period (Austen 1987; Freund 1998).

During the colonial era the agricultural sector continued to be completely dominated by smallholders in most African colonies. Considering the economic constraints put on the colonies there were few resources to invest in agricultural development. Where commercial smallholder systems of production were found they were largely expected to continue with 'business as usual' and provide a tax base for the colonial administrations. Throughout the colonial era they played an important role for the colonial economies.

Moving on to post-colonial studies Kimhi et al. (2005) investigated the relationship between plot size and maize productivity in Zambia. While controlling for endogenous determination of plot size devoted to maize they found that yields is inversely related to size, but only in plots less than 3 hectares. In plots large than that they find that yields increase with size. Further, in a study on Tanzania there is an overall claim that pro-poor rural policies in agricultural development would lead to improved productivity (Malley et al. 2009). Further,

investigations into the cattle sector demonstrate that smallholders on communal land in Zambia show a significant positive causal correlation between secure land tenure, fixed investments and productivity increase in cattle husbandry (Smith 2004). And data from South Africa indicates that herds on the communal grazing range that have access to more natural resources also have a higher productivity rate (Mapiye et al. 2009).

Meanwhile, the critiques of the call for land distribution in favor of smallholders advocate that “the continued focus on the egalitarian family farm can only be ideologically driven” (Sender & Johnston 2004: 142). The claim is made that there is no empirical proof that small farm production is more efficient and productive compared to large scale land holdings in sub-Saharan Africa and that, consequently, the arguments put forward for land distribution are not valid.

It is true that the advocacy of land distribution relies mostly on theoretical reasoning and the experience from other developing countries, foremost in Latin America, while empirical evidence are scarce or even lacking. However, equally there appears to be no empirical evidence for advantages of scale and the counterargument that the most realistic way to increase agricultural production is through investments in large scale commercial agriculture is also on shaky empirical ground. Many studies fail to include the very largest farms, and it might be mainly for those that the economies of scale kick-in. Many also exclude the very smallest farms, which might be too small to be efficient. Some studies that do include both of these size-categories, do indeed find a positive relationship at the extreme end of the size-distribution.

During the colonial era plantation agriculture was established and segmented. Some colonies, such as South Africa, Kenya and South Rhodesia become distinct settler colonies while other showed a mix of estate and smallholder production, e.g. Tanganyika, Uganda. However, the settlers also brought several negative aspects with them from the administrations’ point of view. With few exceptions (in Portuguese and Italian colonies) settlers expected to use cheap African labour, establish capitalist farms and get the full political and economic support from the colonial administrations. They demanded investments in large scale infrastructure that drained the colonial finances. Often they harbored more racist opinions than administrators and traders as they were threatened by smallholders’ agricultural production.

Settler estates focused their production on tropical cash crops such as coffee, tea, cotton and tobacco. Until the years of the Great Depression in the 1930s they were considered to be the backbone in the settler economies as they provided export incomes. This in turn gave

them a position of power, which on occasion enabled estate holders to push for the exclusion of smallholders from the cash crop sector. Unfortunately, they were usually less efficient in their endeavors than the African smallholders and they therefore required substantial subsidies and price supports. E.g. in the 1920s settlers in present Kenya convinced the colonial administration to allocate them prime farm land for coffee plantations as well as to give them the monopoly of coffee production. This monopoly was not reversed until 1951 and in just a few years smallholder production of coffee became dominant (Austen 1987; Cooper 2002; Freund 1984).

Paul Collier (*The Times*, April 15 2008) has suggests that the most realistic way to increase the global food supply is to invest in “large-scale commercial agriculture” using for example “large swaths of Africa... that have good land that could be used far more productively if it were properly managed by large companies. Betting on smallholder is a mistake as peasant farming is not well suited to innovation and investment”. Dyer (2004) argues that the negative relationship exists, but only when the capital-intensity and degree of modernization is low. When production becomes more capital intensive the economies of scale become stronger, which is more visible in the labour-productivity relationship, but that also becomes visible in a positive relationship between size and land-productivity.

The smallholder pessimists, who also point at the new global reality, add a number of conditions which they claim make a broad-based agricultural development process unlikely. In a world of ample food supplies and low prices in the world market for food staples, open borders for trade, and continued agricultural protection in the rich countries small-scale African farms cannot compete. Additional arguments refer to prohibitively high cost of necessary investments in infrastructure due to low population densities; lack of technology suitable for Africa’s cropping systems and lack of water control. Given the globalization of food trade and the revolution in supply chains with a rapid growth of supermarkets transforming food retail markets, a strategy aiming at increased productivity in small-scale agriculture is according to the pessimists doomed to fail. Instead it is the large-scale farms with state-of-the-art technology that will be able to respond to the domestic and international markets for high-value crops and products. The world has changed so dramatically since the 1960s and 1970s that the positive experiences in many Asian countries of rapid agricultural growth are not very useful when designing policies for Africa today.

However, most countries in sub-Saharan Africa are agricultural-based and agriculture is dominated by smallholder producers with the household as the basic unit of production. Meanwhile, rural poverty rates in the region remain among the highest in the world as 51 per

cent of people living on the continent fall below the international poverty line of US\$1.25-a-day and the majority of those belong to the 63 per cent of the population who live in rural areas (World Bank 2011). The way for an agricultural based country to achieve economic growth and poverty reduction is through a process of agricultural transformation based on significant long-term productivity increase giving rising incomes for people employed in agriculture and releasing labour to be transferred to other sectors of the economy. Where smallholder farming is dominating this transformation process will be most successful if it is broad-based, i.e. inclusive and based on smallholders' productivity increase (see e.g. Haggblade & Hazell 2010; Hazell 2005; Mellor 1986; Timmer 2009). Only with a substantial increase in the productivity of staple food agriculture will the great majority Africa's population, the millions of semi-subsistence smallholders be able to invest in more education, in a more diversified output mix including high-value crops, and in new economic activities outside the farm. Only if labour demand increases due to a more productive and labour intensive agricultural sector will the rural economy employ a larger share of a growing rural population for which the traditional alternative of opening up new land is fast closing (Lipton 2005; Hazell 2005).

5. Family and wage labour relations

In a seminal article Gareth Austin argues that the long-term history of African agriculture must be understood in terms of land abundance and labour scarcity. Although, there are a number of exceptions, the generalization seems to be a valid one at least until the 1980s when land scarcity in rural Africa became increasingly widespread. It implies that supplies of labor have played a central role in paths of agrarian change in Africa, in the short-term because it has set limits to extensive and intensive strategies to increase production. In the longer run labour supply is crucial because African agriculture is generally a single-factor production function, as "the stock of fixed capital comprised the net accumulation of previous labour inputs" (Austin 2008: 10). The labour scarcity thesis implies that strategies to mobilize and control labour have played a decisive role for agricultural output on both large-scale and small-scale farms and our understanding and conceptualizations of rural labour relations are thus decisive for unpacking the different trajectories of agrarian change and development.

Regarding small-scale farms, there are in very general terms two contesting claims regarding labour relations. One that argues that African farmers are family enterprises facing no or at least very low labour costs and the other that highlights African farmers' difficulties

in mobilizing labour and their dependence on a wide range of labour arrangements. Research on large-scale farms in Africa is less developed. However, two lines of thought can be detected both depending on the proposition that growth of output on large-scale farms depended on how successful they were in controlling labour. A number of scholars have argued that the control of labour demanded state support and that the state thus played a decisive role in creating a rural proletariat. The other downplays the role of the state and instead emphasizes the large-scale farmers' dependency on African agency and how long-term growth on large-scale farms often was associated with non-capitalist labour relations.

In policy circles, as well as among mainly economists, African small-scale agriculture is often described as primarily family farms. Their dependence on family labour is regarded as a key advantage for small-scale agriculture. E.g. Deininger and Feder from the World Bank (1998) write:

Family members are residual claimants to profits and thus have higher incentives to provide effort than hired labor. They share in farm risk, and can be employed without incurring hiring or search costs. These attributes underlie the general superiority of family farming over large-scale wage operations, manifested empirically in an inverse relationship between farm size and productivity. (cited in Sender and Johnston 2004: 145)

As the quotation reveals, the assumption that African small-scale farmers rely mainly (or only) on family labour has a notable effect on policy. It is used as one of the strongest arguments for intensive support of small-scale agriculture in Africa. African small-scale farmers are able to increase land productivity at a low (or no) cost by increasing input of labour. A theoretical problem with this argument is that it neglects labour productivity. It is correct that as long as peasants utilize family labour they can increase labour input despite decreased marginal productivity. This describes a process of *involution* and does not clash, in the short-term, with strategies to increase production per capita (Geertz 1963). But if the process continues and more labour is applied on the same parcel of land, the effect will sooner or later be a decreased production per capita and thus an emerging agrarian crisis.

Historical case studies partly supports the notion of family labour as the developments in 20th century rural Africa cannot be characterised in terms of the separation of producers from the means of production. Family farms have remained as the dominant form of production. However, family labour should not be treated as a costless input. On the contrary, the use of family labour is associated with opportunity costs that seem to have increased over time, at least up to the 1980s. To understand the costs associated with the use of family labour

we must acknowledge that African farmers, throughout the 20th century, have engaged in a number of economic activities. The most common strategy has been to combine farming with day laboring on neighboring farms, on estates or in the urban centers (Berry 1993). African farmers' engagement in off-farm work and dependence on off-farm income has during the 20th century been most notable in southern Africa, with the creation of so-called labour reserves (Bryceson 2002). In short, diversification of economic activities has had a notable impact on both the supply and flexibility of the labour force by creating imbalances between farm and off-farm work. Farmers had to calculate with the opportunity costs of engaging family members in farming or farm work. The actual opportunity costs depended on labour densities, sources of income (both farm and off-farm) and the local agricultural production cycles. The latter determined to what extent labour could be devoted to both farm and off-farm activities (Green 2008).

Historical cases also depict that although family labour has remained the dominant form it has often been supplemented with labour allocated through social networks and markets (Austin 2005; Freund 1998; Iliffe 1983). The increased dependency on several different labour arrangements is a significant characterisation of African farming systems in the 20th century. A common form of accessing additional labour has been through so-called collaborative labour regimes. Its dominance is explained by the high land-labour ratios, which prevent the rise of a class of landless labourers ready to be employed as wage workers (Mahir 1993; Austin 2005). The key aspect is really to which extent reciprocity was applied. Reciprocity implied that labour was exchanged for labour. As a host you were obliged, not only to provide food and drinks, but to volunteer at future parties arranged by the attending workers. It enabled farmers that lacked the means to pay for labourers to access additional workers. In addition, work parties also enabled farmers to access a relatively large amount of labour for a limit period of time. It made them very suitable for tasks where timing was central (Austin 2005). Reciprocal labour arrangements, following this line of argument, are thus superior in terms of allocating labour in cases of labour scarcity. On the other hand, as Berry (1993: 160-166) argues the dependence on social networks to mobilise labourers implies that farmers invest substantial amount of time and capital in non-productive investments in order to strengthen their position in the community. Collaborative labour arrangements are therefore, given the high land-labour ratios, fairly efficient but are associated with high indirect costs and might even have prevented productive investments.

A number of historians have argued that despite the continued importance of collaborative labour regimes small-scale farmers have over time become more dependent on

wage-labour due to commercialisation of agricultural production. Such conclusion is often based on cross-sectional comparisons (Berry 1993: 139). Using a longitudinal approach, evidence reveals that rather than being the final stage of a linear development, the use of wage labourers had fluctuated over time and there are examples where an expansion of cash crop production actually led to a decline in the use of wage labourers. A classic example is the rise and fall of wage labour (ca. 1910-1930) among cocoa growers in southern Ghana and how it was replaced by sharecropping arrangements (Austin 2005: 304-321; Illiffe 1983: 24-28). Austin (2005: 304-321), in his discussion about the Ghana case, argues that share-cropping replaced wage labour because it reduced the risks of both the employer (of paying high wages in years of failed harvest or low prices) and the employee (of not getting paid at all in bad years). A more recent example is provided by Green (2010) who shows that state initiated commercialisation of small-scale production in central Malawi in the 1970s led to a decline in supplies of wage labourers and hence forced farmers to intensify the use of non-wage arrangements.

A recognition that several different labour arrangements have co-existed allows for a more precise analysis of how different labour arrangements have complemented and/or substituted each other in order to maximise output. For example, additional labour are, in the short-term perspective, more easily mobilised through commercial labour relations than collaborative (reciprocal) arrangements as the latter arrangements require long-term investments in social networks. But commercial labour relations are less flexible than older systems of slavery and pawning where labourers were 'always available'. In general terms, without major technological changes that yield economic advantages of scale, farmers are forced to rely on a wide range of labour regimes that, all together, does not lead to sustained increase of productive investments and hence prevent structural change.

The sustained population growth have altered factor ratios and sub-Saharan Africa might be in the mid of a transition from abundance in land to abundance in labour. This reduces the cost of hiring casual and permanent wage labourers. The possibility to increase production through labour intensive measures is larger today than previously. It suggests that support to small-scale agriculture is more valid today than before. At the same time, the role of cash crop production as source of income seems to be on decrease in favour of off-farm activities. It indicates that the opportunity costs of employing family labour might have remained fairly high and that access and control of additional labour is still a major challenge for small-scale farms.

Let us briefly shift our focus to large-scale farming. Large-scale agriculture are relative to small-scale production more capital intensive and large landowners face at average lower capital costs due as they have greater access to commercial banks (Griffin et al. 2002). It enables them to more efficiently exploit capitalist relations of labour. On the other hand, there are numerous examples where limited access and control of labour have hampered growth of output and where land have been underutilized because of shortages of labour.

6. Concluding remarks

This text should be characterized as a literary review and in it we have attempted to give a summary of a number of debates related to the possible lack of growth in African agriculture. As a point of departure we discussed the data sources available for determining agriculture production and factor productivity. Although, those figures are of poor quality at the aggregate level, apart from export data, we combined them with evidence from micro studies and surveys and outlined three time periods: 1890-1930, 1930-1970 and mid-1970s and onwards.

We then went on to give an account of what we understand to be the three main debates attempting to explain opportunities and weaknesses in the agricultural sector: the potential conflict for farmers in choosing between the production of food or cash crops; the relative efficiency of small and large scale farm units; and the arguments for the costs and benefits of family and/or wage labour.

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