

African Agriculture in 50 Years: Smallholders in a Rapidly Changing World?

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Summary. — For economic development to succeed in Africa in the next 50 years, African agriculture will have to change beyond recognition. Production will have to have increased massively, but also labor productivity, requiring a vast reduction in the proportion of the population engaged in agriculture and a large move out of rural areas. The paper questions how this can be squared with a continuing commitment to smallholder agriculture as the main route for growth in African agriculture and for poverty reduction. We question the evidence base for an exclusive focus on smallholders, and argue for a much more open-minded approach to different modes of production. To allow alternative modes and scale of production to emerge, new institutional and policy frameworks are required. A rush to establish “mega-farms” with government discretionary allocation of vast tracts of land is unlikely to be the answer. Allowing a more dynamic agriculture to develop will require clear institutional frameworks, and not just a narrow focus on smallholders.
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1. INTRODUCTION

It is instructive to think ahead and ask the following question. If, over the next half-century, Africa were to converge on the performance of much of the rest of the developing world both in growth and in poverty reduction, what would be the defining features of the organization of its agriculture in 2060? The historical experience of most rich economies and the recent experience of fast growing developing Asian economies suggest that five essential characteristics would be concomitant with success: first, a vast reduction in the number of people engaged in agriculture (as this is a feature of economic transformation); second, a massive increase in the urban population and coastal population (as this is where economic activity will increasingly be located); third, in rural areas, a vast reduction of the size of the population living in areas relatively far away from urban areas and from the coast (as incomes in agriculture can only keep up with other incomes where demand is located or where transport is cheap); fourth, a considerable increase in labor productivity in agriculture (as otherwise poverty will have remained high); and fifth, a considerable increase in overall agricultural production, especially in those countries and areas relatively inaccessible from coastal areas (as plentiful and sufficiently cheap food is essential for living standards and growth, and in these non-coastal or less accessible countries and regions, imports will be too expensive to sustain real wages, affecting growth).

The first three are directly linked to migration as part of economic transformation; the fourth is not linked by necessity but nevertheless is typically linked to migration, as throughout the history of development, sustained labor productivity increases have been strongly associated with the release of labor from the land. For example, between 1500 and 1800 there was such a transformation in England (Allen, 2009), and in recent years the same has occurred much more rapidly in China, where the rural share of the population has decreased from more than 80% to about 55% in the last 20 years, with rapid increases in labor productivity in agriculture (McErlean & Wu, 2003).

The five characteristics of success are unlikely to be contentious. Nevertheless, they contrast with the current character of

much of African agriculture: a vast and only slowly changing number of poor smallholders contributing most of agricultural output, with low yields, limited commercialization, few signs of rapid productivity growth, and population–land ratios that are not declining. In sum, the recent experience is far from being the radical economic transformation which would be appropriate over the next 50 years.

To switch from the slow changing pattern of the past few decades to an agriculture which is rapidly evolving during the next five decades to the entirely different pattern of 2060, a radical improvement in the performance of agriculture is evidently needed. So far, little that we have said should be controversial. The contentious issue is whether the current model favored by donors and many agricultural economists and scientists is likely to achieve such a transformation. Its approach is to stimulate growth in smallholder agriculture by a variety of interventions, from technology to market development (for discussions see e.g., Conway, 2012; the World Bank's *World Development Report, 2008*).

The rationale for this conventional donor approach is embedded in the standard development model taught in any basic course in agricultural or development economics. It has three principles: first, both growth and poverty reduction will have to start from agriculture; secondly, smallholder agriculture is efficient in what it does; and thirdly, it needs improvements in technology as well as the functioning of markets (such as for inputs, credit, and output). Once we unlock this potential, growth in agriculture and from this, growth in the rest of the economy will follow. It justifies the current focus of much thinking on supporting African agriculture: an exclusive focus on smallholders as the key to growth and poverty reduction.

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In this article, we question this model. More specifically, we argue that the perceived wisdom of the likely success of this strategy is based on weaker evidence than is commonly suggested, while both the changing global economic context suggests that this strategy is unlikely to be successful. In short, without considering more radical strategies, Africa's agricultural growth prospects may be weak. The alternative is not to ditch smallholders and return to the discredited 1950s and 1960s models of mechanized agriculture in the spirit of the Groundnut Scheme. Rather, it is to consider more flexible organizational models in which not all bets are placed on a single unquestioned mode of production. There are striking examples of rapid successful commercialization elsewhere in the world, most notably in the Brazilian Cerrado region or in the Northeast region in Thailand. Both regions started from "backward" regions in the 1960s to become successful centers of commercial agriculture, run by private commercial farm and trading enterprises. In Brazil, the farming conditions led to large-scale mechanized production of soybean and rice; in the Northeast region of Thailand, cassava and rice dominate, and farms remain of relatively smaller size but with plot consolidation, vast area expansion, and some mechanization, they became commercial farm enterprises different from the typical small peasant and family firms dominating Thai agriculture (World Bank, 2008). No doubt, success will not just come from a naïve replication of these experiences, and it will require appropriate and flexible governance and other institutional arrangements, in terms of access to land and the development of other factor markets. Successful transitions will require a recognition that smallholders are heterogeneous in potential and that there is scope for large scale farmers as commercial enterprises, often in interaction with smaller scale farmers using institutional frameworks that encourage vertical integration and scale economies in processing and marketing.

In the rest of the paper, we first discuss whether the evidence base for an exclusive focus on smallholders is really justified, and argue for a much more open-minded approach to different modes of production. In the second section, we return to the case for smallholders as engines for growth and poverty reduction. Again, the evidence is far more mixed than the exclusive emphasis upon the smallholder approach would lead us to believe. Indeed, too much focus on smallholders may actually hinder large scale poverty reduction. Fast labor productivity growth is what is needed for large scale productivity reduction but smallholders and the institutions to support and sustain them are weak agents for labor productivity growth in Africa. The current policy ignores one key necessity for labor productivity growth: the kind of growth that will trigger successful migration out of agriculture and rural areas. In the final part of the paper, we discuss some of the challenges of an appropriate institutional setup for the emergence of a more dynamic agriculture with scope for investment in larger scale commercial agriculture. We contrast this with the recent African vogue for "mega-farms." We argue that while commercialization of African agriculture is desirable, the mega-farms are fundamentally geopolitical rather than commercial, and are therefore not an appropriate vehicle for African societies.

2. IS AN EXCLUSIVE COMMITMENT TO SMALLHOLDERS WARRANTED?

In this section, we discuss the case for a focus on smallholders as the preferred mode of production. The lens taken is that of (static) efficiency and the presence or lack of scale economies. In the next section, the focus is more strongly on dy-

namic arguments: the role of smallholder agriculture in growth and in poverty reduction. There is plenty of evidence that poor smallholders are quite efficient in what they do. This view of "poor but efficient" was powerfully promoted by T.W. Schultz, who famously stated that "(t)here are comparatively few inefficiencies in the allocation of factors of production in traditional agriculture" (Schultz, 1964, pp. 37–38). In itself, this is not a justification for focusing on smallholders as the agents for growth in agriculture, as other modes of production may be better at shifting the technology frontier. The empirical argument in favor of smallholders over large scale production tends to rely on the "inverse productivity" relationship, going back to Chayanov (1926), but found to be present across a wide variety of contexts: that yields or output per hectare are higher on smaller farms. To explain this, standard explanations focus on labor supervision costs making hired labor expensive relative to family labor and reducing land productivity on larger farms (Eswaran & Kotwal, 1986). They are usually considered the most plausible explanation for the inverse productivity relationship, although other market failures, such as failing insurance markets, could also deliver this result (Barrett, 1996; Barrett *et al.*, 2010).

Against this, there are good theoretical reasons why market imperfections would actually result in scale economies in agriculture (Eastwood, Lipton, & Newell, 2008, chap. 5). Reasons include lumpy investment (e.g., machinery, oxen) or working capital needs. For example, Eswaran and Kotwal (1986) use the latter to argue that the smallest farms may be less efficient if collateral requirements affect their ability to raise working capital. In several settings, there is evidence that these factors matter (Eastwood *et al.*, 2008, chap. 5). The result is that any empirical regularity regarding the inverse productivity relationship requires that these sources of economies of scale are outweighed by plausible market imperfections. And even if it exists, the specific market failure driving the result is important to understand. For example, if small farmers seem more efficient because of insurance market failures, trying to fix insurance markets would be the first best solution—not promoting smallholder agriculture.

Descriptive statistics (e.g., showing higher profits per hectare on smaller plots in national farm surveys) are not particularly helpful as agro-climatic and especially soil quality differences should at least be controlled for. There are (only) a handful of reasonably careful studies showing the inverse farm-size/productivity relationship in African settings (including van Zyl, Binswanger, & Thirtle, 1995 for South Africa; Kimhi, 2003 for Zambia; Barrett, 1996, for Madagascar; Larson, Otsuka, Matsumoto, & Kilic, 2012 across a number of African countries) but also some showing the reverse (i.e., positive) farm-size/productivity relationship (e.g., Kevane, 1996 for Sudan; Zaibet & Dunn, 1998, for Tunisia).

The evidence is definitely not without its problems and is still attracting academic research, even questioning its existence in settings in which it had previously been taken for granted. Factors such as unobservable land quality, selection issues, and measurement error could plausibly account for the evidence in data sets such as the ICRISAT village level data for Southern India (Assunção & Braido, 2007). Barrett *et al.* (2010), while recognizing the presence in the data of the inverse-productivity relationship in Madagascar, argue after eliminating other explanations that the most plausible explanation is measurement error.

Furthermore, it is not clear how much of this evidence really tells us about yields of large *versus* small farms, in any meaningful sense of "large." One key issue is that the nature of the data examined for most investigations of the inverse produc-

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