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Abstract

This paper sheds light on how to harvest the "youth dividend" in Sub-Saharan Africa by creating jobs in agriculture. The agriculture that attracts the youth will have to be profitable, competitive, and dynamic. These are the same characteristics needed for agriculture to deliver growth, to improve food security, and to preserve a fragile natural environment. With higher priority accorded to implementation of well-designed public investments in agriculture, continued progress on regulatory and policy reform, and attention to assure inclusion of young people in Africa's agricultural renaissance, the sector's handsome youth dividend can be collected and widely shared.

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Agriculture as a Sector of Opportunity for Young People in Africa

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1. Introduction

Employment and job creation remain front-page issues around the world. Policy makers and citizens in high income countries struggle with persistent unemployment associated with economic recession and recurrent financial crises. Those in middle income countries are concerned that growth has bypassed large segments of the population and resulted in increased income inequality and disaffection of key social groups. In low income countries, job creation is the key to shared prosperity and reduction of poverty. The need for jobs is especially acute when large numbers of young people enter the labor force and seek employment. Africa south of the Sahara has a large and growing population of young people yet little job creation in the formal sector. The employment challenge in this region is therefore not just one of creating jobs in the wage sector – important as that may be – but of creating opportunities for productive activity of the 70-80 percent of workers in agriculture and informal nonfarm enterprises. In the long run, many of these workers will move to the formal wage sector as have their counterparts elsewhere in the world as economies have undergone growth and structural change.

Where will the large cohort of young Africans currently entering the labor force find employment? Agriculture is uniquely positioned to absorb these workers, although farming does not often occur to policy makers as a solution to the challenge of job creation. Africa is urbanizing rapidly, but it is still predominantly rural and most young people are born into farm families. Regional markets for food are booming, and tight global food supplies create high prices and active export markets. But to appeal to young people and deliver good job opportunities, African agriculture must break through a number of constraints that impede growth and competitiveness.

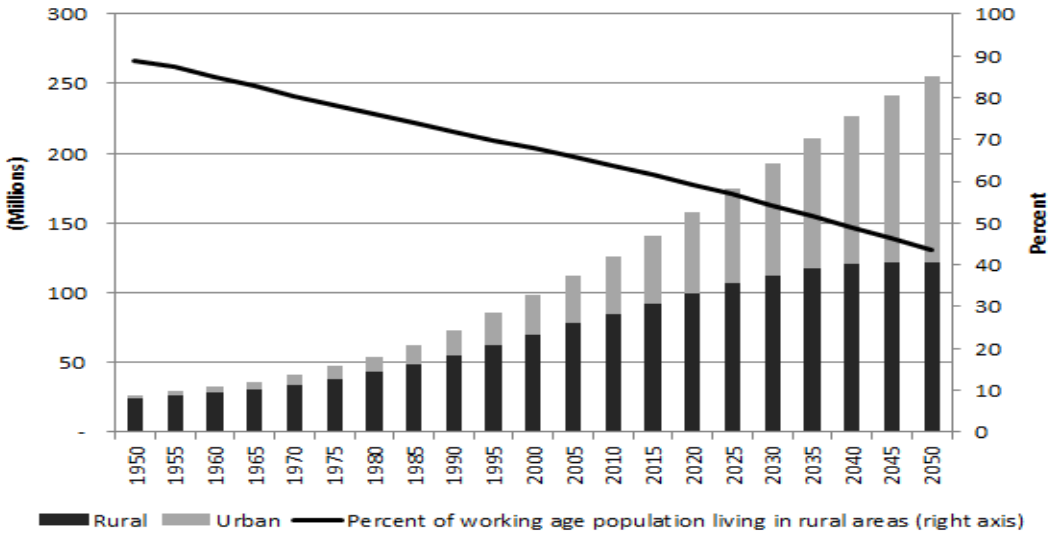
This paper argues that Africans can harvest the "youth dividend" by accelerating the transformative change in agriculture that simultaneously raises productivity, reduces real food prices, boosts rural incomes, and creates jobs. Although farming is now often done by the elderly, the profession's requirements for energy, innovation, and physical strength make it ideally suited for those in the 15-34 year-old age range; that is, "the mature young." Energy, creativity, and strength are attributes that Africa's young people have in abundance. The agriculture that attracts them will have to be profitable, competitive, and dynamic. These are the same characteristics needed for agriculture to deliver growth, to improve food security, and to preserve a fragile natural environment. With much higher priority accorded to implementation of well-designed public investments in agriculture, continued progress on regulatory and policy reform, and a modest overlay of attention to assure inclusion of young people in Africa's agricultural renaissance, the sector's handsome youth dividend can be collected and widely shared.

2. Africa's Demographic Dividend

Sub-Saharan Africa (SSA) has the world's fastest growing population and the youngest. By 2050 the sub-continent, with its projected 1.7 billion people, will be the second most populous region in the world (after South Asia) and the only region in which the rural population will still be growing (Figure 1). Other regions will experience a significant *decrease* in rural populations between 2010 and 2050 (-50 percent in East Asia, -10 percent in South Asia, -45 percent in Europe), at the same time that SSA adds an estimated 150 million rural people (nearly +30 percent) (Losch, Fréguin-Gresh and White 2012). The size of the youngest cohort of 15-24

years old will grow from 126 million to 265 million between 2010 and 2050, and be increasingly urban.

Figure 1: Cohorts Entering Rural and Urban Labor Markets and Rural Population Share in SSA



Source: World Bank estimates.

Young people bring energy, vitality, and innovation into the work force, and when their willingness to contribute is matched with opportunity; they can have a transformative impact on economic growth and social development. African leaders know that this "youth dividend" will not be deposited automatically into national accounts; they will have to take proactive steps to collect it, and most are ready to do so. Yet some may still perceive the topic of "youth employment" as pertaining to formal jobs in the urban wage sector. Efforts to accelerate agricultural growth and improve food security have been separated conceptually from efforts to create jobs for young people. This is a damaging compartmentalization, and if continued will very likely result in forfeit of Africa's youth dividend. Efforts to enhance agricultural growth and those to create employment for young people are complementary, and must be so understood.

3. Agriculture in Africa Now

Most economies worldwide started out predominantly agricultural and became less so over time. Historically, an economy's relative share of agriculture fell as the accumulation of wealth, innovations in technology, and connections through trade allowed diversification and structural change. Faster growth in non-agricultural sectors drew labor in sufficient amounts that the share of employment in agriculture fell. The force shifting labor out of agriculture was the gap in productivity and earnings between activities on the farm and those elsewhere. Whether an economy's agricultural labor force rose or fell in absolute numbers as the relative share of the sector declined depended on birth and death rates in rural areas, migration, and the size and labor intensity of sectors growing more rapidly than agriculture.

In many African countries today, the inter-sectoral gap in productivity is extreme by historic standards. Continent-wide, agriculture's share of GDP has declined over time, from 21

percent in the decade of 1961-70 to approximately 14 percent at present, but this includes South Africa and the mineral-producing countries (World Bank 2012d). If South Africa and the mineral exporters are excluded, agriculture in the remaining countries contributes a quarter to a third of GDP but employs two-thirds to three-quarters of the labor force (OECD 2009). This suggests a gap in labor productivity between the non-farming and farming sectors on the order of two to one. One would expect that such a large gap would rapidly draw labor out of agriculture, and that the productivity of those who remained would rise. Young people are leaving Africa's farms in large numbers; 40 percent of Africa's population already lives in cities and it is projected that this trend will continue. But earnings from the extraction of natural resources and urban construction and services have raised GDP without drawing significant numbers of workers out of agriculture. The number of young Africans that can be absorbed into jobs in manufacturing and services even under optimistic assumptions is likely to be much less than the cohort of people now entering the labor force in rural areas (World Bank 2012e).

The gap in earnings has not closed appreciably, due primarily to the lack of opportunity in the non-farm sectors. That in turn can be attributed in part to the failure of African agriculture to reduce the cost of food and thus keep reservation wages low enough to attract labor-intensive manufacturing. The low growth rate of agricultural productivity has also been a factor. As estimated by Fuglie (2011), the annual growth of agricultural total factor productivity in Africa has been higher since 2000 than the average in the four prior decades, but at just under 1 percent annually, it is not sufficient to bring a transformation in the sector. Total factor productivity in Southeast Asia and South America is growing at just over and under 3 percent annually, respectively. Nin-Pratt, Johnson and Yu (2012) find a higher rate of growth in total factor productivity in Africa in the decade starting in 2000 at just over 2 percent annually, which is higher than other estimates, but still short of being transformative. The divergence in these two studies reflects severe deficiencies in the underlying data. Area cultivated in Africa is expanding to accommodate the large number of new entrants into farming, but the expansion to date has not been accompanied by the technical change that brings higher productivity. Furthermore, high birth rates have created a constant and growing pool of young people who apply their energies and talents where they are—on the farmsteads of their birth. Agriculture will continue to be the dominant sector of employment for most young people over the next few decades (Proctor and Lucchesi 2012). The benefit that they and their countries realize from this employment will depend critically on whether governments can take policy decisions required to lift constraints to innovation in agriculture.

The reasons for Africa's slow growth in productivity are well known in general. The systems of wheat and irrigated rice that yielded spectacular gains in productivity in South and East Asia are not widely replicable under conditions in Africa south of the Sahara. The complexities of Africa's agro-ecology and the wide diversity of crops and livestock within the major production systems create a need for research intensity at least as great as elsewhere, and perhaps greater. Low investment in technology within the national systems has, however, only recently started to turn around, and it will take several years for the benefits to be felt in earnest. In the interim, gains will need to come from increased adoption of presently known superior technologies. Adoption rates have increased in the past ten years, and modern varieties are now used on an estimated 35 percent of all planted area, compared to just 23 percent in 1998 (Renkow and Byerlee 2010). These rates of adoption are significantly below those in other regions. Adoption is slowed in Africa by high costs of marketing of inputs and output and related depressed productivity, poor systems of advice and mentoring to assist early adopters, and

regulatory barriers that slow the release of new technologies. Current programs of investment and policy reform are intended to facilitate more rapid adoption, but most have been in place for only a few years. Overall, levels of investment, the pace of implementation, and the quality of programs have not yet been sufficient to bring the needed shift in productivity.

Moreover, a number of programs in Africa introduced after 2008 have emphasized use of fertilizer on staple crops without corresponding emphasis on new varieties and better management. Food staples are land intensive and if promoted by poorly managed subsidies they crowd out more labor-intensive higher value crops, reducing productivity growth and the pace of job creation for young people. Much can be done through improvement of existing programs to increase production of staple foods without compromising growth and job creation. Management of fertilizer should be seen in a broad context of promotion of productivity gain, rather than a narrow and often politicized focus on distribution of subsidies.

> "You see, our village is just fertile and there are enough fields for agriculture and grazing. Now, if you are not stupid and life is hard, your only savior is agriculture." *Young man in Mbabala, Tanzania*

Although African countries placed little emphasis on agriculture for several decades prior to the early 2000s, this neglect has reversed, particularly since the price spikes starting in 2007/08. A number of African countries have set annual growth targets for agriculture in the range of 8-10 percent. The African Union, through the Comprehensive Africa Agriculture Development Programme (CAADP), has set a growth target of 6 percent. This rate is very ambitious by global standards and higher than recently observed aggregate annual growth rates of 3.8-4 percent continent-wide (World Bank 2012d).

To attain such high target growth rates, yields of crops and livestock and area planted would need to rise, as would agriculture's share of GDP, since in most countries the rest of the economy is not growing at 8-10 percent, or even consistently at 6 percent. A rise in agriculture's share during the course of development would represent an historical anomaly, but the current circumstances facing African economies are also not typical; its occurrence is not impossible either arithmetically or theoretically. The forces pulling down agriculture's share of GDP over time are the income elasticity of demand for food (less than 1) and the assumption that the economy is either closed or that the costs of trade favor domestic production of a large share of non-food products with high income elasticities. Under these circumstances, as incomes grow, consumers increase their purchases of non-food items more than those of food, and employment shifts to the non-food sector in response to growing demand for manufactured products. Open economies with a comparative advantage in agriculture facing buoyant external demand and low transport costs and in which both productivity and area can grow could in theory experience agriculturally-based income growth that would keep the share of the sector stable or even allow it to rise over time. The shifts in consumption associated with growth would be met by imports of non-food items, and exports of food and agricultural products would grow. At present, average yields (and thus land productivity) are so low compared to those in other regions and to estimated potential yields in Africa that increases can still generate economic growth for many

years to come.[2] Productivity in the sector could grow through shifts in technologies and in the composition of output without the net outflow of resources to other sectors usually seen in the development process. Sufficient land is still available in many parts of rural Africa for expansion of farming, and about half of the growth observed in the 2000s was at the extensive margin.[3]

The possibility that agriculture's share in African GDP could grow is a reminder that the circumstances for agricultural development in Africa now (i.e., high global food prices, few non-tradable manufactured goods, potential growth in both area and yield, and shifts in comparative advantage in the developed world in favor of technology-intensive services and products) are quite different from those that shaped traditional expectations about development and structural change (Losch, Fréguin-Gresh and White 2012). Furthermore, the cost of withdrawing labor from agriculture seems to have increased over time around the world. Timmer and Akkus (2008) show that over the past fifty years, the point at which wages in agriculture converge with those earned in non-agricultural jobs has been reached at later and later stages in the economic transformation of successful growth performers, perhaps suggesting that globally, industry is becoming less and less able to absorb labor. Thus, although many young people born on farms will continue to leave for other occupations, agriculture is and will remain the sphere of employment for more young people in Africa now than has been the case elsewhere and earlier.

4. A Sector of Opportunity

The opportunity that farming now represents in Africa can be seen clearly in the sub-continent's trade accounts. The value of food markets is projected to increase from US $313 billion in 2010 to US $1,000 billion in 2030 (World Bank 2013). Food imports surged ahead of exports as recently as 2003, and have continued to climb. The growth in imports has been variously attributed to failure of agricultural production to keep up with population growth (which is wrong—per capita production over this period has risen), climate change, and other supply side factors. Of course supply matters, but more fundamentally, high income growth, population growth, and urbanization are increasing demand for imported food faster than the supply of domestically produced substitutes is growing. Moreover, much of the urbanization is *in situ*, as rural settlements become denser and pass the mark that reclassifies them as towns. A band of settlements of 10,000 or more inhabitants now stretches from Djibouti to Dakar, with few gaps in between. Another rings Lake Victoria, and another marks the Kinshasa/Brazzaville corridor. Denser patterns of settlement reduce marketing costs for agricultural producers in the hinterlands, and raise the returns to investments in primary processing of raw products. Growth in demand is not limited to domestic markets. Global food prices are higher than has been observed for several decades, and, barring significant policy shifts in biofuels, are expected to remain high for at least the medium term.

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[2] Average farm yields of maize in Africa are estimated to be 20 percent of the estimated potential yield. For oil palm and soybeans, the rate is 32 percent, and 54 percent for sugarcane (Deininger and Byerlee 2011). In other regions, the gap between actual and estimated yields for these crops seldom exceeds 40 percent.

[3] FAO STAT 2013.

Shifts on the demand side create new opportunities for changes in supply. Although on average the agricultural sector is one of low labor productivity and high employment, great heterogeneity exists within the sector. Even in developed countries, there is sufficient heterogeneity in agriculture to raise questions about what constitutes a farm. In the African context, heterogeneity takes the form of a continuum of farm size, capital intensity, use of mechanical and biological technology, and degree of commercialization. An understanding of how to create good opportunities for young people in African agriculture thus requires a detailed look at the agricultural sector, peeling back the averages and looking at the dispersion of participants' activities, command of assets, and utilization of skills. New opportunities corresponding to changes in local and national markets draw on segments of the farming structure that have been underdeveloped in the past but now have room to grow.

That growth can fuel other sectors as well. While agriculture can help create jobs directly by employing more people and providing raw materials for agri-processing industry, it can also help create non-farm jobs indirectly, by reducing the cost of food. When food represents a high share of consumers' budgets, as is the case in much of Africa, the cost of food is an important determinant of wage rates in manufacturing and services, and is thereby a contributor to the overall competitiveness and ability of an economy to attract new labor-intensive investments.

Despite differences in the global context and in national economic circumstances, the contribution of agricultural productivity growth to the economy more generally in the United States (U.S.) in the past 45 years holds some useful lessons for Africa for the decades ahead. In the U.S. from 1960 to 2005, the real prices of most agricultural commodities declined by 20-50 percent (Table 1). Despite a recent reversal in direction, most food prices in 2010 (in constant US$) were lower than those in 1960. As a result, primary food products were available at lower prices, which resulted in employment-generating additional transformation of foods for final consumption and greater consumer expenditures on non-food categories.

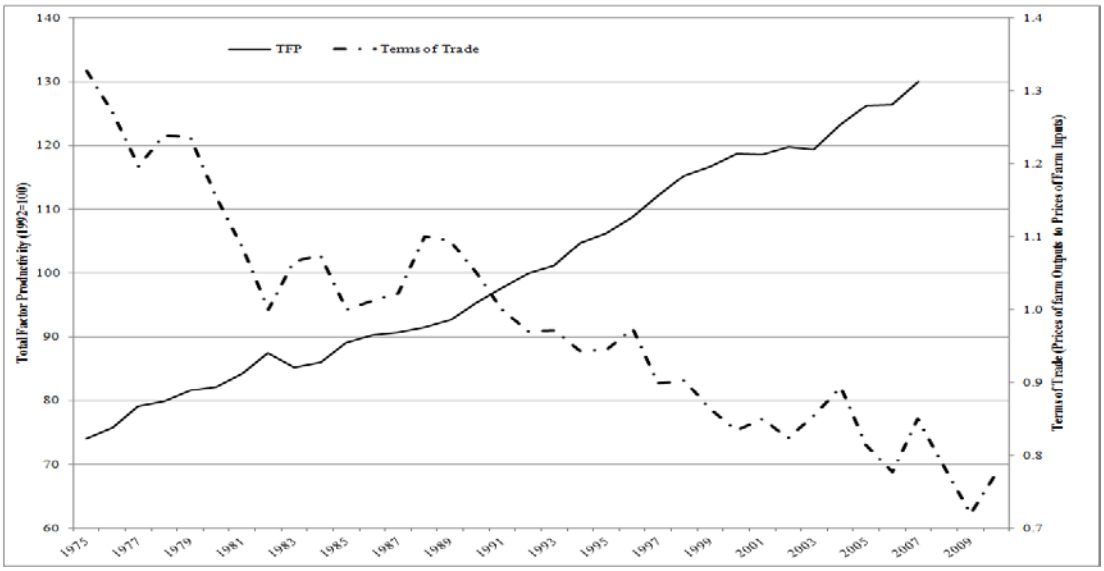
Table 1: Change in Prices of Selected Food Products in the U.S.

Period	Wheat	Maize	Sugar	Beef
1960-2005	-43%	-52%	-19%	-23%
2006-2010	8%	41%	50%	22%
1960-2010	-24%	-18%	24%	-10%

Source: World Bank Pink Sheets.

The decline in real agricultural prices in the U.S. was accompanied by an increase in the cost of inputs and factors of production. The terms of trade (ToT) for agriculture, defined as the ratio of prices received by farmers for their output to prices paid by farmers for factors of production and inputs, declined by 1.2 percent annually between 1975 and 2010 (Figure 2), even accounting for the well-recognized commodity programs that supported farm-gate prices. Farmers in the U.S. and other OECD countries maintained profitability by shifting technologies to use inputs more efficiently and to achieve a different mix of outputs. In the U.S., total factor productivity rose annually by 2.2 percent over this period, low by historic standards, but sufficient to maintain profitability in the face of deteriorating ToT (Figure 2).

Figure 2: Higher TFP Helped U.S. Farmers Compensate for Declining ToT



Source: USDA ERS and the Executive Office of the President 2011.

In many African countries, food prices are very high, mainly due to low agricultural productivity and high transport costs. The price of maize, the main food staple in Eastern and Southern Africa, is 30-40 percent above export prices in South Africa, the U.S., and Ukraine (Table 2). Rice prices in many African capitals are twice as high as those in Asian exporting countries. Many African consumers spend 40-50 percent of their expenditures on primary food products (OECD-FAO 2012), and high food prices choke off investment in labor-intensive manufacturing and services. Local producers can capture thriving domestic and regional markets only if they become more competitive. Promotion of measures that reduce costs of production (such as dissemination of improved technology) and costs of marketing (e.g., investment in transportation and infrastructure) will enable increased profitability and reduce food costs. Even in countries relatively well-linked to world markets, increased local production can bring down food prices due to friction in the transmission of international prices into local markets (Minot 2011). Lower food prices help consumers and offer a secondary benefit by tempering demands for higher wages in the non-farm sector, thus attracting new investment in manufacturing and services. New investment creates new jobs, fueling a virtuous cycle.

Given the growth in demand due to rising population, higher incomes, and urbanization, growth in total factor productivity is necessary simply to keep real prices from rising and choking off potential opportunities for job creation. Growth in demand that outpaces increased productivity will push real prices up, as more resources are drawn into agriculture from alternative uses. Without serious attention to agricultural research, development of farming skills, and adoption of new and better varieties, growth in output will come through increased use of purchased inputs. Under these circumstances, this growth may be rapid, but it will come at increased cost and higher real prices, thus eroding the potential gains to producers, consumers, and society at large. Fuglie (2011) decomposed agricultural growth over the period of 1960-2008 and found that area expansion dominated yield expansion. Of the yield expansion, about 40 percent came from increased use of purchased inputs, and 60 percent from changes in total factor productivity. Specifically for the period of 2006-2008, when African governments began to show

a markedly increased interest in agriculture, yield growth dominated area growth, and total factor productivity rose. Thus recent developments are cause for cautious optimism. Efforts to raise factor productivity must be intensified and sustained, however, to secure lower prices for consumers, higher earnings for farmers, and good opportunities for young people to enter farming.

Table 2: Wholesale Price of Maize and Rice in Selected Countries (average Jan.-Apr. 2012)

Maize		Rice	
Markets in Africa	**US$/ton**	**Markets in Africa**	**US$/ton**
Ethiopia	390	Benin	1,055
Kenya	393	Burkina Faso	738
Malawi	400	Madagascar	593
Mozambique	378	Mali	690
Rwanda	318	Mozambique	865
Tanzania	334	Niger	850
Togo	453	Senegal	810
Uganda	334	Togo	1,097
Zimbabwe	300	Uganda	1,368
International prices		**International prices**	
South Africa	293	Vietnam	434
U.S.	276	Thailand	556
Ukraine - Black Sea Region	267	India	378

Source: FAO GIEWS.

5. Young People Do Not Yet Recognize Agriculture as an Opportunity

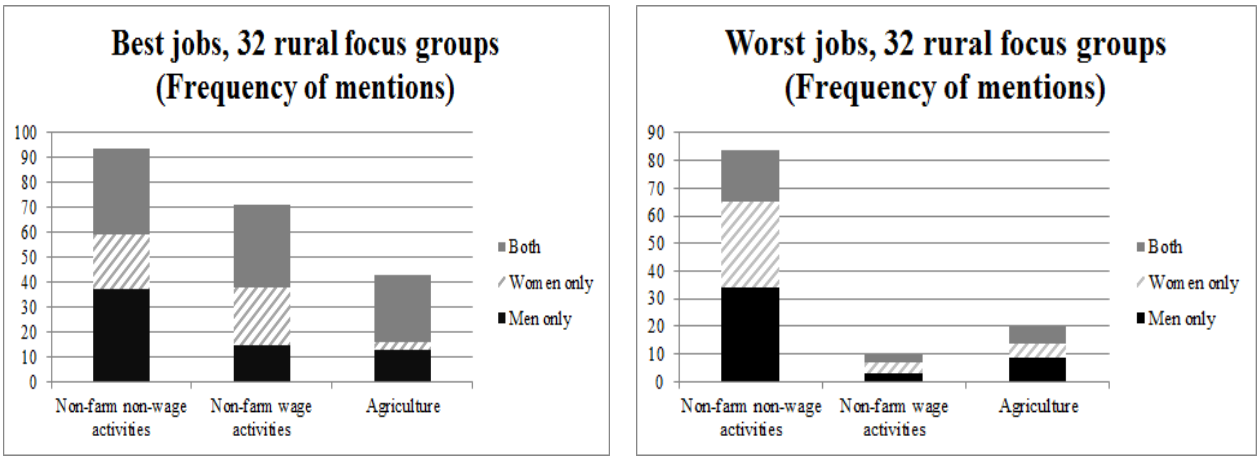
Agriculture in Africa has untapped potential to create jobs, both directly and indirectly. In order to attract young people, agriculture will need to be more dynamic and appealing than it is now, and young people will need to view the sector more positively than they do now (Institute of Development Studies 2012). The farms that offer attractive opportunities will have to be quite different from those that most young Africans know. Worldwide and historically, farming as a profession has rarely carried high prestige. Colloquial terms for farmer in English, such as "hayseed" and "clod-hopper," reflect the low status of the profession even where it yields incomes higher than the national average. Thus, it is not surprising that most young people in the developing world express a desire to leave farms. When 32 focus groups of young, rural Africans were asked about the best and worst ways to earn a living in their communities, agriculture was rarely mentioned as a "best job," although it was not considered to be the worst either (Figure 3).

Good jobs were identified by the focus groups as those that commanded good pay and respect, features not typically associated with farming under the conditions most familiar to young Africans. Bad jobs were characterized as those with poor, insecure returns, physically damaging/demanding conditions, and/or illegal status. But the focus groups gave mixed messages regarding the desirability of farming as a livelihood, and their perception varied widely across SSA. For example, within the broad categories of job types in Figure 3, "family farming" was the single most often named desirable job. Yet with the exception of a women's group in North Darfur, none of the focus groups from South Africa, Sudan, or Togo mentioned any farming activities as good jobs (Petesch and

> "Farming is a good job because it is where I can get food to eat and live good." *Young woman in Woimah, Liberia*

Caillava 2012). Also within the broad categories, farming followed only illegal and anti-social jobs as a "worst job." Preliminary results from comparable focus group interviews with urban young people show that agriculture virtually disappeared from mention as a "best job," and was comparable to non-farm wage activities as a "worst job" (Figure 4).

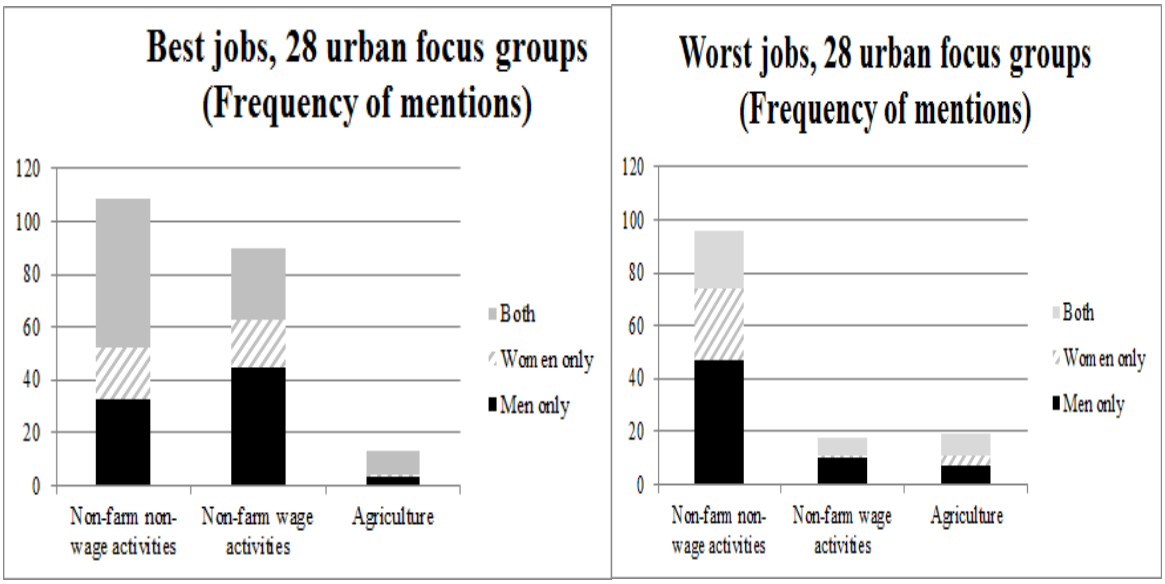
Figure 3: Best and Worst Jobs Cited by Rural African Young People



Source: Petesch and Caillava 2012.

The responses of the focus group participants reveal confusion about what constitutes a job. In addition, young people display very natural aspirations to move beyond the horizons of their childhood years, and a limited understanding of the opportunities and dynamism possible in farming today. Many young people who can leave farms will, but simple demography implies that the numbers of those left on farms and in rural areas will continue to rise.

Figure 4: Best and Worst Jobs Cited by Urban African Young People

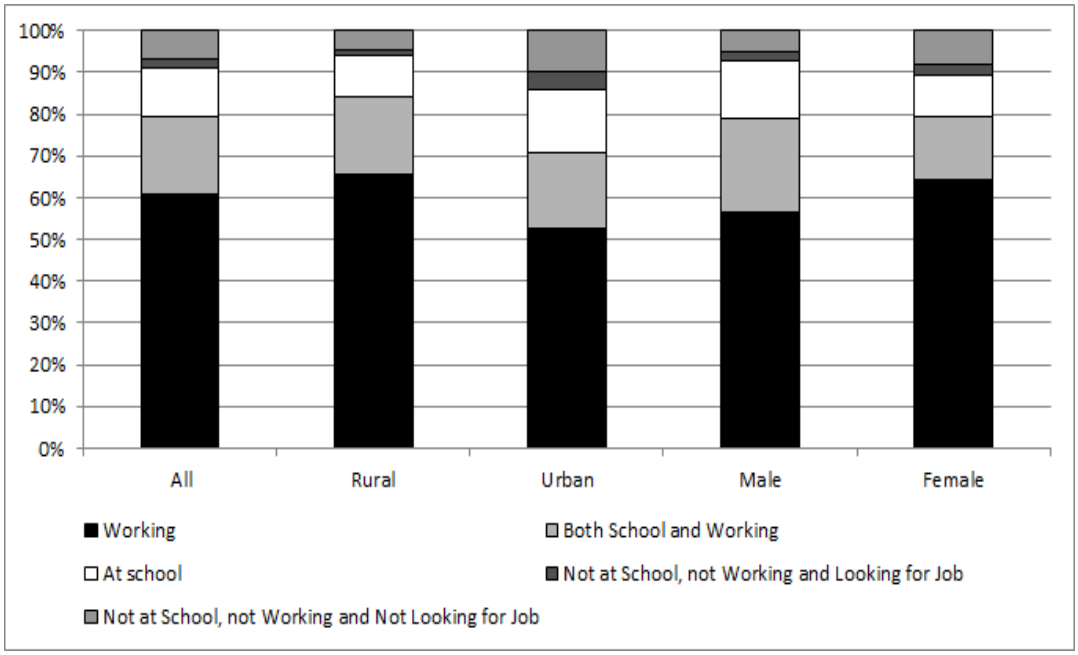


Source: Petesch and Caillava 2012.

Young people already work on farms

World Bank data on fifteen selected African countries[4] reveal significant differences in the employment and education of rural and urban young people, as well as differences by gender. In all fifteen countries, rural young people are more likely to work (average 64 percent, ranging from 36 percent in Uganda to 65 percent in Cote d'Ivoire) than the urban young (average 52 percent, ranging from 15 percent in Zambia to 52 percent in Rwanda) (Figure 5). Young women in all countries are more likely to work than young men (63 versus 56 percent), and are less likely to be in school (10 versus 14 percent).

Figure 5: Employment Profile of Young People (15-34 years old) by Location and Gender

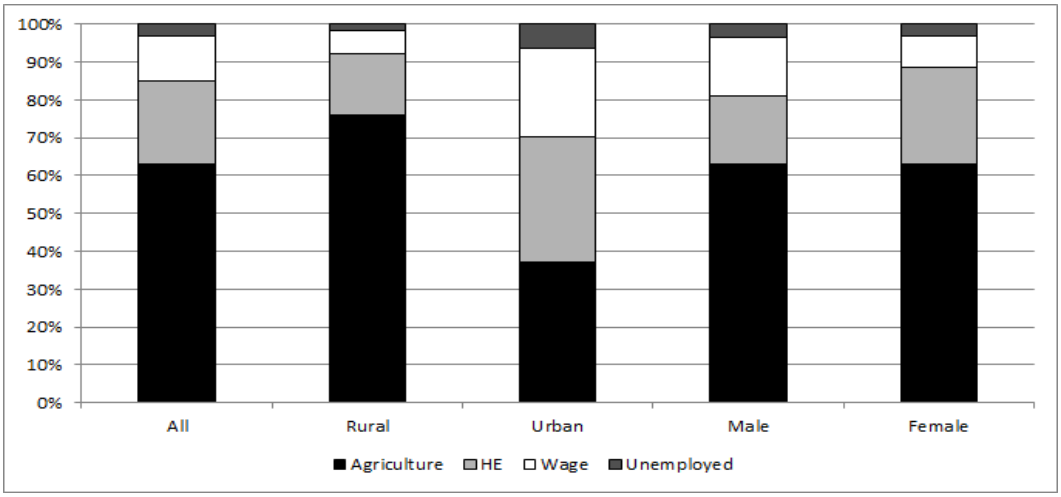


Source: Authors' calculations based on the World Bank SHIP files 2012.

On average, 90 percent of rural young people are employed by their families or self-employed in agriculture and household enterprises, while the same is true of 69 percent of urban youth (Figure 6). More young women (87 percent) than young men (79 percent) are employed by their families or self-employed. Although it is not clear whether this is by choice or lack of other options for employment, these figures give some notion of the limited professional mobility of young people.

[4] Cote d'Ivoire, Cameron, Comoros, Ghana, Kenya, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sao Thomas and Principe, Tanzania, Uganda, and Zambia.

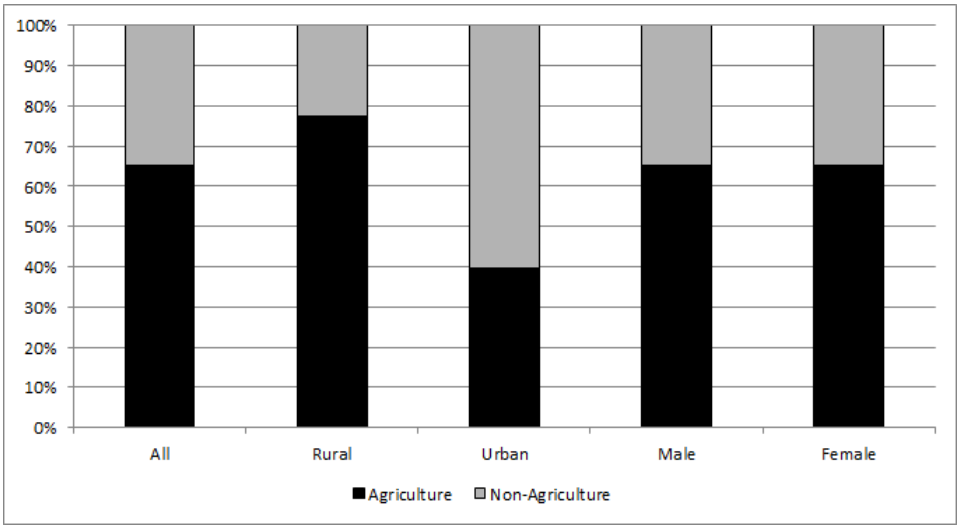
Figure 6: Type of Employment for Young People (15-34 years old) by Location and Gender



Source: Authors' calculations based on the World Bank SHIP files 2012.

For those young people who are employed, on-farm employment constitutes the lion's share of jobs (64 percent on average across the fifteen countries). The rural/urban divide is great here, not surprisingly: 76 percent of rural young people are employed in agriculture, while only 39 percent of urban counterparts are (Figure 7). Young women are similarly to young men likely to work in agriculture (64 percent of both women and men).

Figure 7: Farm versus Non-Farm Employment of Young People (15-34 years old) by Location and Gender



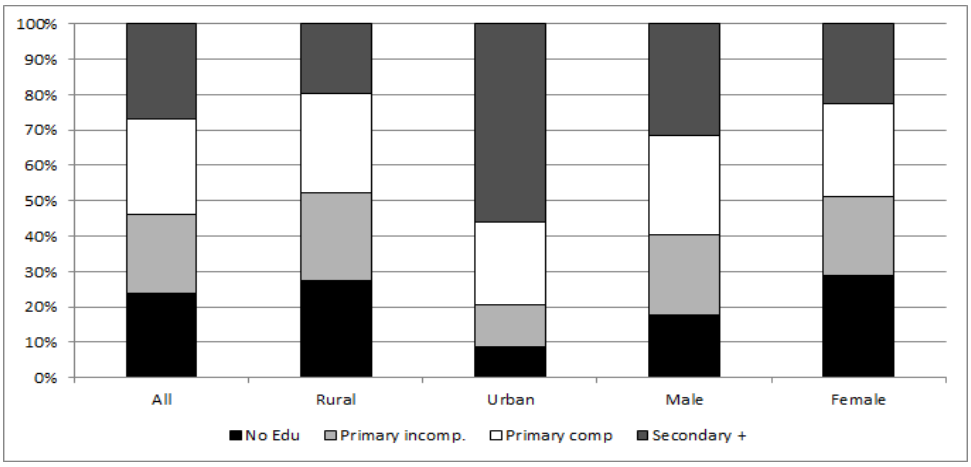
Source: Authors' calculations based on the World Bank SHIP files 2012.

Young African farmers have low levels of education

Figure 8 demonstrates the difference in rural and urban education rates over the fifteen countries. On average, 52 percent of rural young people working in agriculture either have no education or have not completed primary school, versus 21 percent of urban peers. About 27 percent of rural young people have no education at all. Young women fare less well than young

men: about 51 percent of young women have no or incomplete primary education compared to 40 percent of young men.

Figure 8: Education of Young People Working in Agriculture (15-34 years old) by Location and Gender



Source: Authors' calculations based on the World Bank SHIP files 2012.

6. Agricultural Career Paths for the Future

Four basic pathways to employment in agriculture exist, and each requires a different mix of land, capital, and skills (Table 3). These pathways are compatible with those described by Proctor and Lucchesi (2012), who note that 51 percent of households in a 2008 survey of nine SSA countries reported that inheriting land already under cultivation was the most common means for their young people to obtain land, while 16 percent would be allocated land not previously cultivated, 9 percent would rent or borrow land, and 12 percent would buy land.

Table 3: Pathways for Agricultural Employment and Their Requirements

Type of employment	Need for land	Need for capital	Need for skills
Full-time on existing family holding	None	Medium	Medium
Full-time on new holding	High	High	High
Part-time combined with household enterprise; e.g., sale of services	Low	Medium	High
Off-farm wage work	None	None	Medium or High

Source: Authors.

Each pathway is described briefly next, followed by a discussion of approaches for removing the constraints to acquisition of capital, land, and skills that affect the success of young people in each of the pathways. Relevant case studies from various African countries are identified to suggest approaches that show promise.

Pathway 1: Full-time employment on an existing family holding. Many young people will remain on the holdings of their families and simply farm a portion, essentially subdividing an already small parcel. This is the default outcome for young people for whom all other options are closed. Those born on farms who choose not to or cannot leave will simply add to the family labor force. Eventually they can expect to inherit a portion of the land, but if many siblings are in

the same position, the holding will be small. These people already have land, but need some capital and skills to manage higher valued agriculture. Young people who foresee this as their future, however, may have little incentive to invest in skills, since they will not have the power to use them as long as the parental generation retains recognized rights of decision.

Families in this situation may find themselves in increasingly difficult circumstances, with alienated young people resentful of the continued control of their elders over resources. With some guidance and mentoring, however, families could turn this situation to advantage by adopting an approach to management of the household as an enterprise. The additional skills and labor of multiple young adults in the household could allow for specialization. Those capable of earning off-farm wages could do so, thus easing the capital constraints of the household. Those with sufficient skill to manage higher valued agriculture could sharpen the specific skills required through short courses or focused training. Some superior technologies, such as conservation tillage, require high investment of labor at peak periods, and a household enterprise with several young adults should be able to undertake the required work.

Thus even if young people are absorbed into the farms of their birth as young adults, a change in management of the household enterprise could make this absorption more rewarding for the individuals and the family. A combination of pooled off-farm earnings, a shift in farming technology to higher valued and more commercial products, and aggregation of household labor at peak periods could allow small farms to absorb young adults constructively. An emphasis on extension programs that focus on the household as an enterprise, and not just on technical and economic advice on crops or livestock activities, could help in this regard.

This view of the evolution of the small household farm as young adults become economically active provides an important perspective on the conceptual understanding of youth employment. A young person in, for example, Northern Uganda who is a member of such a household and has also benefitted from the Youth Opportunities Program of the Northern Uganda Social Action Fund might have acquired vocational skills as a hairdresser. She might see her primary occupation as “hairdresser,” but she would also be an equity holder in a small farm enterprise (if her earnings were applied in part to investment on the farm) and an occasional laborer at times of peak demand. Her economic security would come from the farm earnings as well as from her trade. To create space for the contributions of young people like this, the parental generation would need a new understanding of the farm as an enterprise.

Pathway 2: Full-time employment on new farm starts. A second group of young people will succeed in leaving the farms of their childhood and establishing new and separate holdings, ideally larger than the parcels they left. Those more likely to succeed in such an undertaking would probably be relatively experienced in farming and hence on the older end of the age range for “youth.” They also have the highest potential returns in the form of increased productivity. These young farmers have the greatest need for land, start-up capital, and advisory services or training to assist with technical and managerial challenges. Few young farmers will be able to assemble the elements required for establishment of a new farm without additional assistance.

New holdings may be in the localities where the young people already live and on land newly available for cultivation through clarification of ownership, conversion of marginal or grazing land, and/or public investment in irrigation and improvement. Alternatively, new holdings may be farther away, in which case establishment of the new farmsteads will require

relocation. Resettlement is often controversial. Global experience and that in Africa attest to the importance of strict adherence to voluntary decision-making on the part of participants, careful selection, full information for all stakeholders, effective support services for the new arrivals, and adequate investment in infrastructure. An assessment of several decades of public support for resettlement in Indonesia shows mixed results tending toward the negative. Improvements in the incomes and access to public services of settlers were offset by disappointing outcomes in agricultural production, environmental degradation, and resentment against the newcomers on the part of indigenous inhabitants (World Bank undated). Preliminary results regarding a program of market-assisted land reform in Malawi, in contrast, indicate more positive outcomes (Chirwaa 2008). The Government of Ethiopia has operated a substantial program of voluntary resettlement for a targeted group of vulnerable residents in densely settled parts of the country. The program has generated much attention and controversy, but a rigorous assessment is not yet available. If local young people can secure access to land in or near their communities, this is clearly the simpler approach. If relocation is required, lessons of past experience should be fully weighed.

Pathway 3: Sale of services and part-time farming. Higher valued agriculture will be more intensive in use of services, creating employment opportunities for those who can provide them. Demand for transport, plant protection, veterinary services, mechanized field operations, and advice can be met by young men and women who have skills and enough capital to start small businesses. Thus a third group of young people may be part-time farmers, either managing their own holdings or contributing to family operations described under pathway 1, with enough capital to establish themselves as sellers of services or as occasional wage workers. While these young people may not have the capital to acquire a full array of farm machinery, they could offer services on a paid basis through purchase or leasing of a limited selection of equipment. Young people entering these activities would also need skills to deliver the required services and maintain the machinery.

Pathway 4: Wage work. The seasonal nature of agriculture creates demand for part-time wage work at peak periods even on small farms. In a heterogeneous farm structure with significant numbers of large holdings, wage work on a regular basis is also observed. Most of this is relatively low-skilled and low-paid, and few young people aspire to be low-skilled day laborers. However, paid work, even if undesirable, is a better option than not working at all for the very poorest. Therefore it is anticipated that a fourth group of young people will take wage work, whether formal or informal, on large commercial farms or in the processing and service sectors (see Box 1). These young people need skills to handle a range of tasks and equipment. At a minimum, for the most basic low-skilled work, they need good health to withstand often grueling working conditions. Such wage work could fit into the livelihood strategies described above in combination with other activities, or could be considered a temporary option until better opportunities appear.

Not all wage work is poorly paid or low-skilled. Some very large enterprises, both in primary production and processing, require a range of skills depending on the technical sophistication of the production process and types of machinery used. Drivers, machine operators, mechanics, quality testing technicians, and others will be required in increasing numbers in the future, and these jobs are often better paid than unskilled day labor. For example, Red Fox Ethiopia, a floriculture firm located outside of Addis Ababa draws labor from the

surrounding rural areas and towns and offers employer-provided transport to work, life and health insurance, and a subsidized cafeteria (Sutton and Kellow 2010).

Box 1: Off-farm Opportunities for Agricultural Employment

The labor market effects of high-valued agriculture are evidenced in a number of SSA countries. In 1985, export of high-value agricultural products in SSA countries accounted for just 14 percent of their agricultural and food exports; by 2005, the share had risen to 30 percent, with many jobs created along the way. In Madagascar, the export of vegetables has fully relied on about 10,000 smallholders contracted for procurement of primary produce. In other instances, production of primary produce has been vertically integrated with large estate farms, as is the case with tomato and bean exports in Senegal; the jobs created are for wage-earners in processing units and pack houses. The table below gives several examples of employment created in export horticulture chains. Horticulture is generally labor intensive, providing strong poverty alleviation benefits, especially for women.

Employment in SSA Export Horticulture Supply Chains

Country	Commodity	Year of survey	No. of employees in the FFV agro-industry	Share of female employees
Cameroon	Banana	2003	10,000	--
Cote d'Ivoire	Banana and pineapple	2002	35,000	--
Kenya	Flowers Fruits and vegetables	2002 2002	40,000-70,000 2,000,000	75%
Senegal	French beans Cherry tomatoes	2005 2006	12,000 3,000	90% 60%
Uganda	Flowers	1998	3,300	75%
Zambia	Vegetables Flowers	2002/03 2002/03	7,500 2,500	65% 35%
South Africa	Deciduous fruit	1994	283,000	53%

Source: Maertens, Minten and Swinnen 2009.

Food processing for local markets is another growth area for rural employment. A proliferation of new towns through *in situ* urbanization is generating increased demand for processed foods, with corresponding increased investment in processing. Increased attention to food safety at the level of public policy will help to improve conditions within the processing plants, since the conditions that assure safe products also contribute to improved hygiene and safety for workers. The regulatory bar for wages and working conditions should, however, not be set so high as to choke off investment, since this would eliminate jobs and depress demand for primary production. The surge in food imports in Africa since 2003 reflects the underdevelopment of local food processing. Remedying this underdevelopment will create jobs and raise returns to investments in primary agriculture.

7. Constraints to Enhanced Agricultural Employment

The farms that many young Africans know from childhood are small and worked with a low level of mechanization. Holdings of one to two hectares predominate, with the hand hoe and machete as the most common implements (Nagayets 2005). World Bank data from four countries show that land use, both owned and rented, increases with age, and that the average plot size even for older farmers often remains well under one hectare (Table 4).

This pattern of land use is seen in areas of both land scarcity and abundance, although for different reasons. Where settlement is dense and land scarce, as for example in Rwanda and Malawi, holdings per household and per worker are small and shrinking with population growth. Here, constraints on availability of land determine the size of holdings. Investments in irrigation, application of purchased inputs and improved varieties, double and triple cropping, terracing, and other measures can increase productivity of land and incomes. With increased demand and lower transport costs due to investments in roads and shorter distances to markets, the returns to intensification rise, and more such investments are taking place.

Table 4: Land Ownership by Age Group

	Malawi		Tanzania		Uganda		Nigeria	
Age group	**Proportion of individuals who own at least one plot**	**Average land size owned (HA)**	**Proportion of individuals who own at least one plot**	**Average land size owned (HA)**	**Proportion of individuals who own at least one plot**	**Average land size owned (HA)**	**Proportion of individuals who own at least one plot**	**Average land size owned (HA)**
15-19	4.31%	0.37	1.10%	0.56	5.02%	0.54	1.63%	0.53
20-24	25.63%	0.42	10.88%	0.81	13.19%	0.65	1.74%	0.60
25-29	38.00%	0.48	26.12%	1.04	30.26%	0.63	3.13%	0.68
30-34	39.20%	0.54	38.05%	1.10	43.37%	0.72	3.10%	0.41
35-39	43.56%	0.60	46.80%	1.16	50.76%	0.83	3.68%	0.51
40-44	45.28%	0.65	56.49%	1.35	60.18%	0.96	4.52%	0.60
45-49	49.23%	0.71	58.81%	1.26	62.63%	0.99	5.68%	0.51
50-54	51.24%	0.73	59.64%	1.39	64.35%	1.01	5.16%	0.58
55-59	50.56%	0.68	64.62%	1.36	69.70%	1.16	6.54%	0.45
60+	50.35%	0.63	61.56%	1.19	67.87%	0.91	7.70%	0.43
Ave.	**33.39%**	**0.57**	**32.64%**	**1.20**	**33.06%**	**0.85**	**3.77%**	**0.52**

Source: World Bank LSMS-ISA data 2012.

The prevalence of small holdings in areas of abundant land is less intuitively explicable. Much of Africa is still land abundant, and one would expect to see large farms with significant mechanical power. Farm operators with access to capital do work on large holdings. The high costs of machinery, the poor credit-worthiness of small farmers, the limited outreach of the financial sector, and the indivisibility of many investments in mechanization, however, exclude most smallholders from access to mechanical power. The result is replication of farms limited by the size that a household can farm manually. Larger holdings are possible with animal traction, but tsetse and other animal diseases constrain the use of draft animals in parts of Southern and Eastern Africa where they would be most productive.

Ambiguities in transactability of land through purchase, sale, leasing, inheritance, assignment under traditional rules, and mortgage overlay population pressures and capital constraints (World Bank 2012b). Even if land is abundant, when constraints to operation of land markets raise the cost of accessing new land, young people reaching adulthood may simply farm a portion of the family's original holding rather than securing new allotments. Fragmentation of existing small holdings can thus exist in environments where large tracts are available for outside investors.

When the factor endowments are such that small, labor-intensive farms are economically appropriate, such farms can be efficient and profitable. Recent evidence based on a

geographically wide and heterogeneous set of data finds an inverse relationship between maize yield and farm size, supporting the premise that small farms are productive in the African context and that smallholders do not necessarily forgo economies of scale (Larson *et al*. 2012). Primary production of most commodities has not historically exhibited increasing returns to scale, and the benefits of aggregation in marketing and access to information can be achieved through participation in voluntary producers' organizations (Morris, Binswanger-Mkhize and Byerlee 2009). The issue of desirable farm size, however, is an economic one and not a matter of principle or ideology. Where relevant costs of production are readily divisible, smallholders will do as well or better than others. Where costs are not divisible for whatever reason, smallholders will be at a disadvantage, but will still be very numerous. In the latter case, programs that facilitate adjustments in farm size or address the indivisible costs will be constructive.

Even where small farms are demonstrated to be efficient, crowding more family labor onto them is not necessarily economically desirable. Especially at the small end of the size distribution of farms, productivity growth requires opportunities for exit of young workers from the farms of their birth simply because the income that one or two hectares can generate is rarely sufficient to pull all members of a household out of poverty.

Changes in technology of production and increased differentiation of product quality on the demand side may be creating new indivisible costs in the production of some commodities, and hence may be contributing to factors influencing the evolution of farm size. Returns to managerial expertise increase as processors seek secure access to large quantities of raw materials of uniform quality. Similarly, more sophisticated management is required as urban consumers demand quality and traceability, and as changing weather patterns undermine the validity of traditional "rules of thumb" for the agricultural cycle. Young people are well suited to acquire and exercise managerial expertise, and can do so in many ways, but the managerial acumen of an individual farmer is as indivisible as a tractor. Each creates economic pressures for amalgamation of very small farms into larger units and/or development of new networks of producers to share costs. Increased fluidity of land markets, in particular through land rentals, is thus essential for creation of good opportunities for a new generation of young African farmers. In addition, farmers' organizations may need to innovate in delivery of managerial services, an area in which they have not been active in the past.

Increases in farm size from the very small (two hectares and less) to mid-sized holdings (5-100 hectares) are often associated in other parts of the world with displacement of labor. Indeed, concern has been raised that productivity growth in African agriculture could displace labor precisely when demography requires that labor be absorbed. The impact on employment will depend on the forces shaping the increase in farm size. If land is available and area is still expanding, increased farm size need not displace labor. If the expansion takes place on already farmed area and is accompanied by a capital subsidy that reduces the cost of mechanization, as was the case in the Brazilian development experience, then increases in farm size could lead to displacement of labor. If the change is occasioned by shifts in technology and markets that require greater managerial skill, former independent farm operators might become outgrowers or hired workers on technically more sophisticated larger holdings. Thus the impact of change in farm size on employment is specific to the factor endowment in a given market and to the forces triggering the change. The conditions in Africa offer ample opportunities for simultaneous increase in average farm size and increased employment.

Since mobility out of farming in Africa has been low, much of the land is now held by aging farmers despite the large cohort of potential new entrants. Constraints to intergenerational transfer of land are very costly when land is scarce and young people have difficulty acquiring holdings to start farming on their own. In the absence of old-age pensions and with poorly developed rental markets, elderly farmers may retain control over holdings that would be more efficiently managed by younger, more innovative, energetic farmers (see Box 2).

Box 2: Age and Gender Dimensions of Land Ownership in Kenya

Data from Kenya provide an interesting reading on the demographic aspects of land ownership. In a large national sample drawn from participants in the Kenya Agricultural Productivity and Agribusiness Project, the average age of primary farmers (i.e., those whose primary economic occupation is farming, and who in most cases are the decision makers on the farm) is late 50s—roughly the same as in the U.S., despite the sharply divergent underlying age distributions of Kenyan and American rural societies. The finding confirms that young people have great difficulty establishing themselves as farm operators.

The age of Kenyan farmers in this sample also has an interesting gender dimension. Men who identify themselves as primary farmers usually farm as their first occupation and have a spouse working in the household and on the farm, but not earning significant outside wages. Women who identify themselves as primary farmers either have an adult male in the household contributing wage earnings to the household income or do not. The latter (i.e., single women managing farms) are on average about ten years older than other farmers, and their earnings are the lowest. Women who are primary farmers with earning adult males in their households do very well in farming; in most cases, better than men.

Elderly women farmers probably retain control of land because the cost of holding it is low in the absence of land tax, and they have no other way to feed themselves in their declining years. The data suggest that both elderly women and land-hungry young farmers could be made better off by a program that eased intergenerational transfer.

Source: Torkelsson 2012.

When factor endowments and characteristics of technology and markets imply larger optimal farm sizes than what is observed, constraints on capital and land markets impose a high burden of inefficiency on rural people. Although smallholders may not have the skills or appetite for risk to manage as much as 100 hectares, many could probably handle five to ten hectares if they had access to machinery to work it, particularly if public investments were made in the infrastructure needed to allow more profitable farming. And the incentives for young people to remain in school and acquire basic numeracy and literacy skills would increase if intermediate-sized farms were among the options possible and were known to require such basic skills for successful operation.

These data on productivity, education, and farm size highlight the policy challenge for African leaders. Agriculture represents the sector of most immediate opportunity to realize gains in growth and to create employment for young people. The farming that can accomplish this must shift rapidly from low productivity and status to technical dynamism with recognized opportunity. The labor force that can best implement this transition is one that knows traditional

agriculture, and is young and full of aspirations, but this same group is poorly educated. What can African leaders do?

8. Addressing the Key Constraints

The four pathways described above are already operable and observable, but are highly constrained at present. Creation of opportunities commensurate with the number of young people who will need employment requires proactive efforts to relieve or remove constraints to the acquisition of capital, land, and skills. Recent developments in each area are discussed next. Removal of other constraints ranging from agricultural research and infrastructure to improving the rural investment climate is also important to raise agricultural productivity and create jobs but these constraints are not specific to opportunities for young people and therefore are not addressed here.

Financial services for more dynamic agriculture[5]

Access to capital and credit for smallholders has been a perennial problem and the subject of analysis for decades. Small farmers in Africa, like their counterparts elsewhere, work in risky environments that are expensive for financial institutions to serve. Most have little or no usable collateral and little experience with financial services. A history of public intervention in credit markets has created expectations that defaults on agricultural loans will carry little penalty to the borrower. All of these challenges for outreach of financial institutions to small farmers are relevant for young farmers, and are compounded by the fact that young farmers have little experience. Not everyone will be able to access credit, although many farmers can benefit from a wider array of financial services such as insurance and money transfer. Yet small farmers, particularly the young, need capital to adopt the technologies and secure the land and equipment that will allow them to become more commercially active. Because of the importance of finance and the potential future client base if the challenges can be overcome, banks and NGOs continue to experiment with innovations that will overcome the barriers and achieve sustainable outreach to large numbers of smallholders. A brief review of some of these new products and services follows. It should be noted that many of the innovations in rural finance discussed herein are still being tested and their performance and sustainability on a large scale are not yet known. They nonetheless warrant close attention in the future so that successes can be identified for replication and scaling up while failed designs are avoided.

Institutions and organizations. A variety of actors offers financial services, including bank and non-bank financial institutions, insurers, and payment service providers. As commercial banks tend to have limited outreach in rural areas, alternative institutions such as self-help groups, savings and credit associations, and cooperatives have emerged to fill the gap and to address both credit risk (usually higher in the agriculture sector) and covariant risks specific to agriculture (e.g., weather, climate, pests, disease, etc.). Community-based financial organizations have developed to serve primarily the rural unbanked poor, providing saving, lending, and other financial services (e.g., insurance). Two successful models include village

[5] This section draws heavily on AgriFin (2012) and IFPRI and World Bank (2010).

savings and loan associations (VSLA) and self-help groups (SHG). VSLAs were first started in Niger in 1991 by CARE International and have since spread to 39 countries, mostly in Africa. In a VSLA, members save on a regular basis and money is lent out on terms agreed upon by the group. Savings and interest earned are distributed back to members on a predetermined, regular basis (e.g., once a year). SHGs are used widely in India; replication in Africa has potential, but efforts by NGOs to do so have had mixed success. In a SHG, savings and interest are not distributed back to members but left to grow. SHGs link with banks and form federations with other villages, allowing them to accumulate more capital for lending.[6] SHGs in India rely on strong social dynamics among women within villages and social connections between villages for federation. The social structures in African villages have not been as conducive to development of strong women's groups, and women in Africa have been less able than those in India to devote the time required to attend meetings, in part because the lower density of settlement requires them to travel longer distances. Nonetheless, VSLAs and SHGs both hold potential for including young people and addressing their capital constraints, particularly if the groups offer mentoring and access to information as well as finance. These instruments require good recordkeeping and some means of oversight to ensure repayment.

Ghana's experience with rural and community banks (RCBs) also offers lessons relevant to the needs of young people. RCBs provide savings products (savings accounts, current accounts, daily deposits collected by agents who go door to door, and fixed or time deposits), credit products (microfinance loans, personal loans, salary loans, overdraft facilities, etc.), and money transfers and payments. Ghana's RCBs reach 2.8 million depositors and 680,000 borrowers, consisting mainly of farmers, government employees, and small and micro-entrepreneurs. RCBs are now the largest providers of formal financial services in rural areas in Ghana.[7] With some additional outreach, RCBs could benefit young people.

Access to credit: Allowing alternative forms of collateral (e.g., chattel mortgages, acceptance of warehouse receipts, future harvest, etc.) can help ease the credit market. The OHADA[8] Uniform Act on Secured Transactions, in effect in 17 SSA countries, was amended at the end of 2010 to allow borrowers to use a wide range of assets as collateral, including warehouse receipts and movable property such as machinery, equipment, and receivables that remain in the hands of the debtor (AgriFin 2012). Even where the regulatory framework allows collateralization, however, assets may not be attractive for a number of reasons, and banking practices require time for adjustment. Leasing also offers young farmers some relief, as it requires either no collateral or less than that typically required by loans. Most rural leases are financial (as opposed to operating leases), whereby the price of the asset is amortized and the lessee can purchase the asset at the end of the lease period for a small price.[9] A notable example is DFCU Leasing in Uganda, which provided over US $4 million in farm equipment leases in 2002 for items such as rice hullers, dairy processing equipment, and maize-milling equipment.

[6] IFPRI and World Bank (2010) Brief 3.

[7] IFPRI and World Bank (2010) Brief 5.

[8] OHADA is the Organization for the Harmonization of Business Law in Africa.

[9] IFPRI and World Bank (2010) Brief 6.

CECAM in Madagascar leased over US $2.8 million in 2002-03 to rural microenterprises (with an average US $945 per lease) (Kloeppinger-Todd, Nair and Mulder 2004). Thus, experience with leasing programs is growing and should yield useful lessons. Individuals in pathways 2 and 3, who may need new equipment to start their ventures, would particularly benefit from leasing. Despite the clear potential for leasing to relieve the constraints to access to mechanical technology, few firms have chosen to enter this business.

The needs of young farmers for simultaneous access to finance and information can be addressed by linking agricultural credit to extension services, as has been done in India by BASIX Social Enterprise Group, a livelihood promotion institution. Initially established to provide micro-credit to the rural poor, BASIX now provides rural households with financial services and advice in managing crop and livestock enterprises. Almost 1,000 service providers work with more than 25,000 villages in India under the program. BASIX's research has shown that farmers prefer cost-saving and risk-reducing interventions to yield-enhancing ones that require more investment; thus the combination of financial services and information or mentoring allows the financial institution to identify the products in greatest demand; e.g., savings, money transfer, and insurance, rather than credit.[10]

Grants.[11] Matching grants can be used to promote both employment and employability among young people. Many governments and development partners use matching grant schemes for a variety of purposes, including promotion of improved technologies, empowerment of farmers to hire service providers, strengthening of linkages with private firms through productive partnerships, and provision of rural infrastructure for common use (AgriFin 2012). Grants carry well-known risks of diversion and elite capture, and the successful use of grants depends crucially on the design of programs, with transparency on the rules, checks and balances in monitoring at the local level, and clear expectations regarding accounting and auditing. The expectation and encouragement of savings should also be a key feature. Although experience with grant programs in Africa is widespread, little effort has been made yet to focus grant programs specifically on the needs of young participants. In Sri Lanka, the Gemi Diriya program allocates a portion of its Livelihood Fund for the provision of one-time grants of US $46 to US $92 for income generation to help clients start an economic activity without incurring the risk of a loan (World Bank 2007a). The Gemi Diriya program focuses on young people among its targeted groups. Currently just over ten percent of participants are destitute young people (World Bank undated).

Contracting arrangements to meet financial constraints. A number of outgrower arrangements offer pre-financing of inputs and assured marketing channels. For example, Rabo Development (the parent organization of which is Rabobank) is active in Tanzania, Zambia, Mozambique, and Rwanda and provides management services and technical assistance to financial institutions that in turn finance supply chains including a range of agricultural clients. Participants include commercial farmers, those with little commercial presence, and an intermediate group of farmers with little present commercial engagement but ambitions to grow.

[10] IFPRI and World Bank (2010) Brief 13.

[11] The grants section draws from World Bank (2010).

Rabo takes particular interest in this last group to link them to finance through contract farming with financial arrangements that limit the risk of default or side-selling.[12] Similarly, the DrumNet Project in Kenya uses a supply-chain approach to promote agricultural lending. It has piloted the approach in the horticultural and oilseed sectors, with over 3,000 farmers participating. Risks of default are reduced through cashless direct payment to the input supplier via a bank transfer once the product is delivered to the buyer.[13]

E-transfers and payments. The use of technology to bring banking services to rural areas is spreading quickly where the regulatory environment supports it. For example, Kenya's M-PESA service has transformed rural banking in that country. This cell phone-based service allows users to transfer money safely without a bank account. Initially intended to enable wage earners to send money home to families in rural areas, M-PESA now allows customers to pay bills (including utilities, school fees, etc.) and repay loans and insurance and micro-insurance premiums. A new business feature allows companies to pay salaries to employees via M-PESA. Equity Bank in Kenya recently offered all M-PESA users the option to open a savings account, using M-PESA to deposit and withdraw funds.[14] Young people are especially quick to adopt innovations based on mobile phones when they have access.

The use of biometrics is being explored in the context of credit markets in countries where unique identification systems do not exist (and where, therefore, banks have more difficulty identifying repeat defaulters). Biometric identification allows lenders to withhold new loans from past defaulters and to grant loans to known responsible borrowers. An experiment in Malawi linked higher repayment rates with the use of fingerprint scanning of paprika farmers.[15] Biometric tools that reduce costs of identifying borrowers and lower default rates can enhance outreach to hard-to-serve clients. Introduction of such measures is not likely to be undertaken solely to address issues of employment of young people, but this is yet another example of measures to facilitate agricultural growth generally that will have significant benefits for the young.

Insurance. Innovations in micro-insurance are also under way. The International Labour Organization estimates that micro-insurance in Africa almost doubled between 2006 and 2009 from a very small base. Micro-insurance differs from traditional insurance with its low premiums, products with simple designs, flexible payments for premiums, prompt settlement of claims, and its issuance through well-trusted yet innovative channels. For example, more than 11,000 Kenyan maize farmers, some with as little as one acre, have obtained insurance policies that cover significant losses in the event of a drought or excess rain that destroys their harvest. Similarly, BASIX and a commercial insurer in India provide weather insurance based on a rainfall index to small farmers to improve their access to credit, with payments triggered when

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[12] IFPRI and World Bank (2010) Brief 4, and http://www.rabobank.com/content/products_services/business_clients/professionalproducts/raboagrifund/index.jsp.

[13] IFPRI and World Bank (2010) Brief 14.

[14] IFPRI and World Bank (2010) Brief 8.

[15] IFPRI and World Bank (2010) Brief 9.

rainfall at local weather stations exceeds a minimum threshold; insurance contracts secure the repayment of loans.[16]

Loan guarantees to encourage banks to enter agricultural finance. Banks reluctant to enter the business of agriculture can sometimes be induced to do so through partial guarantee schemes that protect their losses in cases of default. The Alliance for Green Revolution in Africa (AGRA) has established an Innovative Financing Initiative operating in Kenya, Tanzania, and Mozambique. The Initiative provides partial guarantees that result in lower interest rates on loans to smallholders. Since 2009, the Initiative has provided US $160 million in financing to smallholder agriculture. Rabobank's Rabo Sustainable Agriculture Guarantee Fund issues partial credit guarantees and provides other financial products to mitigate the risks of financial intermediaries, allowing them to offer commercial finance for production and export of agricultural produce at better pricing and conditions than would otherwise be possible.[17]

None of these innovations in rural finance is of relevance exclusively to young people. Nor should young people be segregated as a group and offered financial services designed specifically for them. The risks of working with this client base are high, and separating young people from a larger pool for sharing risks would make them even less attractive to financial institutions. Rather, any and all innovations in finance that facilitate outreach on a sustainable basis to small farmers and rural entrepreneurs should be supported. When necessary, additional features should be added to enhance the ability of these programs to serve young people.

Land policies that benefit the young

Of the many aspects of land administration that require attention in Africa, the two that matter most to young entrants to the labor force are improved security of tenure and relaxation of controls on rental. Redistribution of land and decentralization of land administration, two other issues of current interest, also affect young people's ability to access land. More generally, high food prices and the resulting spike in demand for land add urgency to the challenges of improving land governance for all citizens and applying appropriate safeguards to protect the land rights of the poor. Demand for land has increased in an environment in which arrangements for governance are often weak. As a result, traditional users' rights may be overlooked or abused, consultation with communities about impending transactions limited, and transparency constrained (Institute of Development Studies 2012).

The *Land Governance Assessment Framework*[18] and the *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security*[19] were established to assist decision-makers at the country level, and to help guide

[16] IFPRI and World Bank (2010) Brief 9.

[17] http://www.rabobank.com/content/products_services/business_clients/professionalproducts/raboagrifund/index.jsp

[18] See Deininger, Selod and Burns (2011) for more on this relatively quick and innovative tool.

[19] Endorsed by the Committee on World Food Security in May 2012, the Guidelines promote secure tenure rights and equitable access to land, fisheries, and forests as a means of eradicating hunger and poverty, supporting sustainable development, and enhancing the environment. They set out principles and internationally recommended standards for responsible practices. They are a framework that actors can use when developing their own strategies,

the development of land tenure projects and policies.[20] According to the World Bank (2012b), "…sound land policies can safeguard the livelihoods of the very vulnerable by giving them access to land and income-earning opportunities through rental markets or redistribution of land. Accelerated land registration facilitates land rental markets, which make it easier for the poor to access land on rental terms...Land access for the poor can also be improved by redistributing underused and unused agricultural land to them."[21] The same policies and measures that will help the poor access land as competition for it increases will also help young people. Programs addressing access to land can include special provisions to assist young people, and several examples already under way are described below.

Systematic inventory and registration of land. About 10 percent of occupied land in SSA countries is formally registered (World Bank 2012b). State ownership of land is widespread, but even this land is not fully documented, and long-term use and occupancy by individuals or groups blur the issue of ownership. For example, in Ghana in 2000, the state owned about 40 percent of all urban and peri-urban lands, most of which were undeveloped (Kasanga and Kotey 2001). Peri-urban land is often transitional between agricultural and non-agricultural use. Due to its location, it offers potential for high returns in intensive horticulture, tank aquaculture, or pig or poultry production, but also requires significant investment. Holders of peri-urban land often have other income streams and are linked to the financial system, so they can in principle make the required investments. They will not do so, however, with ambiguity in ownership or lack of clarity on their duration of tenure. Systematic registry of lands is necessary to underpin efforts to create employment opportunities in agriculture in any of the four pathways. Notable efforts are under way for various categories of tenure and are yielding fruits, but the pace of activity is not yet sufficient to address the urgency of the problem.

Inventory and registration of individual land rights. A number of SSA countries have made recent progress in formal documentation of individual land ownership. For example, by the end of 2012, Rwanda had demarcated all 10.5 million land parcels in the country and registered and prepared leases for at least 83 percent of them. Of the almost 1 million leases collected as of March 2012, 7 percent were claimed by women; 5 percent by men; 83 percent by married couples; and 1 percent by other legal entities (World Bank 2012b). Elsewhere, using a participatory, public process, Ethiopia has awarded certificates for more than 25 million parcels in rural areas throughout the country, with noted benefits including "reduced conflicts, empowerment of women, increased individual and community investment, and improved security" (World Bank 2012b). Madagascar has issued 75,000 certificates akin to traditional land titles, while about 27,000 Certificates of Customary Rights of Occupancy have been issued in two districts in Tanzania. Similarly, under a pilot program in Ghana nearly 10,000 land parcels in

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policies, legislation, and programs, allowing government authorities, the private sector, civil society, and citizens to judge whether their proposed actions and the actions of others constitute acceptable practices.

[20] Encouraging collaboration with the Sustainable Commodity Roundtables can also help to increase the extent to which crop production systems meet voluntary environmental and social criteria, including those of the Roundtable for Responsible Soy, the Roundtable on Sustainable Palm Oil, the Better Sugarcane Initiative, and a variety of forest certification processes.

[21] This section draws heavily from World Bank (2012b).

peri-urban areas were registered, as were 10,000 land parcels in three districts in Uganda under a similar program. Côte d'Ivoire, Benin, and Burkina Faso have been piloting rural land use plans (Plans Fonciers Ruraux - PFR) in a number of forms as another way to establish individual land use rights. While the methods used have differed (with varying degrees of success), these efforts where undertaken have done much to establish the rights of smallholders (see Box 3).

Box 3: Impacts of Documentation of Land Rights on Agricultural Investments and Productivity

The same documentation of rights that strengthens tenure can reduce the cost of transactions. By 2010, both Rwanda and Ghana had reduced the cost of transferring property to less than 1 percent of property value (World Bank 2011a). The economic literature has long held that more secure tenure results in increased investment in land. The evidence from Rwanda and Ethiopia appears to confirm this, and to highlight improvements in environmental management as well. Other analysis suggests that certification-induced investment increased output by about 9 percentage points (Deininger, Ali and Alemu 2011). Investment and productivity improvements were also found in Benin, where PFR program households were found to plant more perennial crops than non-PFR households (Selod 2012).

Inventory and registration of communal land. Where legal provisions to recognize customary tenure and communal land already exist, registration of communal land is in many cases more appropriate than registration of individual land. Registration of communal land can be an important step in advance of securing an agreement with an outside investor (that will generate jobs within the community) or for allocating a portion of communal land to young people for new farm starts. As noted in a recent World Bank (2012b) review, registration can be very slow if there are no clearly defined community owners of land and if new formal entities have to be developed. Demarcation of communal land boundaries requires time and financial resources and registration needs to be followed up with resources to plan for land use and to delineate common property resources (such as grazing land).

Inventory of state land. The extent of state landownership in SSA is largely unknown, as most lands have not yet been surveyed and registered. Some SSA governments have started inventorying state-owned land, and programs in Ghana and Uganda represent notable recent efforts from which lessons can be learned. Underutilized or poorly used state land can be auctioned to the private sector in ways that combine large-scale operators and small and medium farmers in innovative relationships (although care must be taken not to disenfranchise indigenous users such as herders, subsistence communities, etc.); long-term occupants can be formally (legally) recognized as owners (as in Kenya);[22] and land can be made available to land-poor farmers (as in Malawi), including the young.[23] Individuals in pathway 2 are most likely to be the beneficiaries of any of these actions, and underutilized state-owned land is a clear source of supply for young people showing promise in farming.

[22] United Republic of Kenya (2010) and World Bank (2011b).

[23] World Bank (2004) and Tchale (2012).

Reforms in land rental markets. For the very poor, the landless, the young, and migrants, land rental is the gateway to agricultural employment and eventual land ownership. For those pursuing pathway 1 (perhaps hoping to acquire additional land to scale up family holdings) and pathway 2, rental provides a workable approach to gain access to land. Worldwide evidence demonstrates that introduction of long-term leases and/or certification of land rights has increased land rental activity (e.g., in China, Vietnam, Ethiopia, the Dominican Republic, Nicaragua, and Ethiopia), since people secure of their rights are more likely to offer temporary use to others. In turn, well-functioning land rental markets can facilitate labor mobility, increase efficiency by transferring land to more productive users, increase equality, and enhance structural transformation. Rental can be particularly helpful in easing the intergenerational transfer of land while still providing income to elderly owners (see Box 4). The most common restrictions on rental markets, such as ceilings on rental rates or prohibitions against absentee landownership, are often introduced in an effort to safeguard the interests of smallholders. Instead, they may lock land into inefficient patterns of use, greatly disadvantaging young potential users (Deininger 2003).

Box 4: Land Transfer Program in Mexico

In Mexico, most land was in the past commonly owned. Traditionally, transfer of rights on this common land from one generation to another was heavily restricted, limiting access of young farmers to land. In the early 2000s, with the support of the World Bank, the Government of Mexico initiated the "Youth Rural Entrepreneur and Land Future Program" to accelerate the intergenerational transfer of land. This program has been successful. It provided credit to rural landless youth to acquire underutilized common land. The young people were trained and received technical assistance in setting up their farming activities. Older landowners who transfer their land to young farmers are helped to access social welfare schemes for their retirement.

Source: FAO, IFAD and MIJARC 2012.

Land rental markets have been shown to promote commercial farming in Ghana (Amanor and Diderutuah 2001) and to create new opportunities elsewhere in West Africa (Estudillo, Quisumbing and Otsuka 2001). In the Republic of Sudan, there is evidence that land rental markets facilitated the transfer of land to smaller producers (Kevane 1996). In contrast, Uganda's rental markets largely ceased to function in the 2000s due to severe ceilings on rent and controls on the eviction of tenants. In Ethiopia, restrictions on land rental markets in all regions except Amhara were found not only to have reduced the opportunity for more productive use of land, but may have also have inhibited development of the non-farm sector, as those who took non-farm jobs perceived a significantly high risk of losing their land through redistribution (Deininger *et al*. 2003).

Redistribution of agricultural land. Programs of redistribution can have a profound and positive impact on the poor. If operated at sufficient scale, they can change the income distribution and increase incentives and opportunities for investment by poor households. Poorly designed programs can also transfer land to those poorly suited to farm it, and choke off investment due to uncertainty about future redistribution. The success of programs of redistribution thus depends critically upon objectives and design. As individuals in pathway 2 have the greatest need for access to new land, they will have the most to gain or lose from

approaches to redistribution. Examples of approaches to land redistribution can be seen in South Africa and Malawi, and each has drawn on lessons from programs in Brazil.

South Africa's land reform program.[24] At the end of apartheid in 1994, South Africa's new government introduced tenure reform, restitution, and redistribution of land. The redistribution portion of its program was designed to facilitate transfer of land through market-mediated transactions to historically disadvantaged South Africans who wanted to enter farming. In 2001, after disappointing experience up until then, a new program was introduced that provided graduated levels of land and start-up grants depending on the amount of the beneficiary's contribution. Those who could contribute little (and most of that in kind) received a base allotment of land and a grant of R20,000. Those who could contribute more or leverage a bank loan could receive larger holdings and a grant of up to R100,000. Although the goal was to redistribute 30 percent of the land by 2014, as of March 2011, only 6.27 million hectares (7.2 percent of land owned by white African farmers) had been redistributed to black African farmers, and many of those who received it struggled to manage it well. The program had limited success because the allocations of land and start-up capital were not accompanied by advisory services or technical assistance. Moreover, the land available through the program was constrained by a prohibition on subdivision, even though repeal of the prohibition was announced several times. Beneficiaries of small allotments were forced into group structures similar to collective farms, and experienced the deficiencies in internal management under these arrangements that are well documented elsewhere. Despite programs in place for a decade and a half, South Africa has made little progress in providing growing numbers of underemployed rural young people with land that they can farm.

Malawi's land reform program.[25] Malawi recently piloted a land reform program in four districts in which underutilized land from former tea estates was made available to smallholders wishing to relocate from densely settled areas. Patterned after Brazil's market-based approach to land reform, the pilot had three key elements: (i) voluntary acquisition by communities of land from estate owners, the government, or private donations; (ii) resettlement and on-farm development, including transportation of settlers, establishment of shelter, and purchase of basic inputs and necessary advisory services; and (iii) survey and registration of redistributed land, initially under group title with the expectation that individual titles would be provided to beneficiaries upon demand in the future. A cap on the maximum amount of a grant that could be spent on acquisition of land improved the bargaining power of beneficiaries relative to that of sellers of land,[26] and access to advisory services significantly lowered the failure rate.

Although the program did not have an explicit focus on attracting young people, most participants were in fact young. Beneficiaries preferred to relocate within or close to their original homes, which served to preserve cultural and social ties. This was also beneficial for young people for whom links to the older generation during a period of family formation were

[24] Adapted from Lahiff and Li (2012) and World Bank (2012b).

[25] Adapted from Tchale (2012) and World Bank (2012b).

[26] Each family received a grant of US$1,050, managed directly by beneficiaries, of which up to 30 percent was for land acquisition, and the rest for transportation, water, shelter, and farm development.

very important. The program distributed an average of over 1.5 hectares of land to each of 15,142 rural households, agricultural incomes increased an average of 40 percent per year for beneficiaries between 2005/06 and 2008/09, and there were positive spillover effects on surrounding communities.

Zambia's Irrigation Development and Support Project. In this newly started project (approved in 2011, in the amount of just over US $200 million from all sources of funding), smallholders can exchange small parcels for holdings of 3-5 hectares as part of a larger scheme that will join small producers, large commercial operators, and mid-sized farmers in a shared area. Management of irrigation services for the entire scheme will be contracted to a concession. To ensure that small and mid-sized farmers have earnings sufficient to pay irrigation fees, professional farm management services will be available to assist with production and marketing. The selection of smallholders taking on the mid-sized parcels is not yet complete, so the age distribution of participants is still unknown, but it can be expected that this opportunity will appeal to young people with prior experience in farming.

Decentralization of land programs. Decentralization of land administration can empower local communities and provide more timely decisions on land management and uses. For individuals pursuing pathways 1 and 2, expediency in these regards would be highly desirable. Given the surge in demand for land in Africa and the increased need to recognize the legal rights of landowners and tenants, decentralized decision-making is even more critical. While there are various models for decentralization (see, e.g., Bruce and Knox 2009), their ultimate success depends on design, implementation, and the prevailing local conditions.

Enhanced skills and a better educational foundation

Investments in human capital are a significant factor determining agricultural performance and productivity. A positive return to human capital arises, for example, because better educated farmers are more likely to adopt modern farm inputs and technologies, make better use of purchased inputs and labor, choose technologies more effectively, and respond rapidly to changes on the markets or to natural calamities (Schultz 1988). Basic education can significantly improve the efficacy of agricultural training. The relationship between education and agricultural development cuts both ways, and the two are mutually reinforcing, with demand for schooling rising as rural incomes increase.

Modern ICT has also recast the institutional arrangements for flows of information and fundamentally altered the nature of the skill set relevant for agriculture. Advice and information are obtained via rural radio, television, the internet, and mobile services, and range from information about specific technologies and practices to information that enables reaction to climate change; disaster management; early warning of drought, floods, and diseases; price information; political empowerment; natural resource management; agricultural information; production efficiency; and market access (World Bank 2012a). For African smallholders operating in an environment that change rapidly, questions such as when to plant, what to plant, and how to plant have become immensely important. With the advent of new technology for information, the ability to frame the right question and to know whom to contact has become as important as knowing the answer.

> "We cannot even access newspapers. We do not have Internet and there are no firms in this community." *Young woman in Ezinyathini, South Africa*

Researchers have recently begun to rigorously test for the effectiveness of different ICTs at reaching and benefiting farmers, focusing primarily on the transmission of price information via ICT. Radio, a longstanding method of communicating with farmers, has led to increased farm-gate prices for producers and reduced information asymmetries between buyers and sellers (Svensson and Yanagizawa 2009). Internet stations with agricultural market information (*e-Choupals*) have been shown to improve the returns received by farmers in Madhya Pradesh, India (Goyal 2010). As cell phone connectivity expands, an increasing number of farmers have access to a powerful ICT in their own hands. In some cases, producers use phones to communicate with buyers and with one another to acquire and disseminate price information. Jensen (2007) finds that mobile phones allowed fishermen and onshore buyers to communicate supply and price information, resulting in higher profits, lower consumer prices, and less waste in Kerala state, India. In a study of grain traders in Niger, Aker (2008) finds that the introduction of cell phone coverage in two markets reduced price variation between the two, ultimately increasing trader profits, decreasing consumer price, and increasing total welfare. In a companion study, Aker and Fafchamps (2010) find that cell phone coverage also reduces intra-annual price variation for producers.

Both public and private sector actors are expressing interest in using mobile phone technology to deliver information to farmers in developing countries. A rigorous evaluation of such a program was done by Fafchamps and Minten (2011). The evaluation did not find any robust effects of receiving text messages provided by Reuters Market Light (RML) on producer prices or input use for farmers of five crops in Maharashtra state, India. Cole and Hunt (2010) and Camacho and Conover (2011) assess similar interventions in India and Colombia, respectively. Individually, none of these studies finds a substantial impact of price or weather information on crop choices, revenues, or profits. These findings suggest that different content and methods of delivery should be experimented with, and different methods of evaluation used. Moreover, more attention should be given to the under-investigated, distinct, and potentially complex issue of ICT use in support of agricultural production and production technologies, as distinct from marketing information.

Young people are particularly well placed to accelerate change in the use of ICT and to benefit from it, but framing relevant questions draws on learning acquired in good quality primary schools, coupled with practice in imagining states of the world other than ones already experienced. At present, most African educational systems are unfortunately far from delivering high quality basic education. While enrollment rates for primary school are increasing, empirical evidence confirms that children in these schools do not learn much (UWEZO Tanzania 2011). To equip young Africans with the skills needed for success in the four pathways for agricultural employment, schools must do a better job of providing them with basic skills for any endeavor. Foremost among these are reading, writing, numeracy, and the ability to use digital technology to access and interpret information. Beyond these basics, the skills requirements for those in pathways 1 and 2 may differ from those required in pathways 3 and 4. This section describes recent initiatives and changes in "schools of thought" regarding the role and delivery of both basic and agricultural education, agricultural extension, and other innovative training and R&D models. As with some of the finance mechanisms discussed earlier, many of these programs are still experimental, and have not been rigorously evaluated or tested for their effectiveness or sustainability on a larger scale.

Schooling and learning. To the extent that schooling raises literacy and numeracy skills and enhances the ability to process agricultural information, an education effect can exist independent of school curriculum design. Returns to such skills are particularly magnified in a modernizing agricultural sector, where access to advanced technology complements an understanding of how to use it. Whether to adopt new technologies is an investment decision if significant costs are incurred in obtaining information and learning about the performance of one or more new technologies, while the returns are distributed over time. Furthermore, only a small share of new technologies will be profitable for any given farmer to adopt. Given the degree and multiple sources of uncertainty facing farmers, effective schooling may help them make better adoption decisions to increase farm profitability.

Returns to schooling in rural areas depend, in part, on the pace of technological innovation in farming. A large body of literature has shown that more educated farmers are the first to adopt new seeds, tillage practices, fertilizers, and animal breeds (Welch 1970; Huffman 1977; Besley and Case 1993; Foster and Rosenzweig 1996; and Abdulai and Huffman 2005). Moreover, farmers with primary education tend to earn higher profits than farmers without schooling, assuming that both have access to the same assets, and this effect is magnified in environments with rapid technical change (Rosenzweig 2010). Schooling thus enhances learning, and a dynamic agricultural sector provides opportunities to apply it. Many African governments and their development partners in past years focused on vocational agricultural training, often at the expense of primary, secondary, or post-secondary education as a remedy for gaps in skills. The returns to vocational training have been mixed at best and often disappointing, in large part because the individuals undertaking the training and the neighbors who could learn from their example lacked sufficient basic education to make use of more advanced specific skills.

> "I decided to get married after my stepmother refused to pay school fees for me; and the job I could find there was only farming." *Young woman in Mbabala, Tanzania*

Education offers spillover effects when uneducated farmers are able to observe the choices and outcomes of their better educated neighbors. This type of social learning is usually inferred from observed behavior or outcomes over time. For example, in Ghana, social learning was shown to play an important role in the diffusion of knowledge amongst farmers regarding pineapple cultivation (Conley and Udry 2010). In this case, farmers' own and neighbors' experiences influenced the profitability and rates of adoption.

> "But even for a farmer, without education forget about good production." *Young man in Mbabala, Tanzania*

The importance of women's labor in agriculture brings into sharp focus the urgency of improving their access to schooling. Women work in agriculture as farmers on their own land, as unpaid workers on family farms, and as paid or unpaid laborers on other farms and agricultural enterprises, involved in both crop and livestock production at subsistence and commercial levels. Women comprise 43 percent of the agricultural labor force, on average, in developing countries; this figure ranges from around 20 percent in Latin America to 50 percent in parts of Africa and Asia. A number of SSA countries have seen substantial increases in women's share of the agricultural labor force in recent decades due to conflict, HIV/AIDS, and migration, but regional data conceal wide differences: the share of women in the agricultural labor force ranges from 36

percent in Côte d'Ivoire and Niger to over 60 percent in Lesotho, Mozambique, and Sierra Leone (FAO 2011). Although women's school enrollment rates have increased over time in SSA, the lower number of females relative to males in school reflects both fewer female entrants and a higher dropout rate among women. Petesch and Caillava's survey (2012) found that both sexes most often reported that economic difficulties prevented them from continuing their schooling, but early marriage and pregnancy were also common barriers preventing young women from completing their education. There is widespread recognition of the need to improve both basic education and agricultural vocational education for women and to enhance rural women's access to extension services.

Agricultural vocational education. A growing and diversifying agricultural sector creates employment opportunities in addition to those in primary production, and these will have a place in three of the four pathways. Already existing agricultural vocational schools can play a very constructive role in training skilled personnel for jobs in processing, marketing, machinery operation and repair, transport, logistics, and quality control. The number and quality of trained technical and professional personnel in agriculture is a critical factor in agricultural development, since a sector undergoing structural transformation has an expanding need for skills. In addition to gaining technical skills, workers need to master teamwork, communication, diligence, creativity, and entrepreneurship. In many cases, these behavioral "soft skills" are learned through mentoring and through the standards of performance set in the formal workplace. As formal employment in off-farm agricultural activities increases, behavioral norms within a larger cohort of young people will be affected.

Empowering young people with the skills they will need to thrive in agriculture requires investment in educational institutions at all levels. Institutional infrastructure for agricultural higher education and training has been in place in SSA since the 1960s and has strengthened over time, but not sufficiently to meet the enormous demands evident now. The sub-continent now has more than 200 public universities (compared with 20 in 1960), about 100 of which teach agriculture and natural resource management. In addition, private universities are appearing to complement this public capacity (World Bank 2007b). Much stronger national and regional institutions are needed to train future professionals and leaders with appropriate technical and functional skills.

As with basic education, women face special challenges when they seek higher technical training. Few women graduate from agricultural education programs, there are not many female agricultural extension workers, and women are often marginalized during agricultural events, activities, and programs, although detailed gender-disaggregated data are available only very sporadically or not reported at all (World Bank 2009). Efforts have been launched to give stronger recognition to the role of women in agriculture, to increase the number of female students in agricultural schools and colleges, and to provide resources for extension services directed to women farmers. An innovative program in this regard was launched in 2008 by the Gender and Diversity Program of the Consultative Group on International Agricultural Research (CGIAR). The African Women in Agricultural Research and Development program (AWARD) seeks to strengthen the research and leadership skills of African women in agricultural science, empowering them to contribute more effectively by establishing mentoring partnerships, building science skills, and developing leadership capacity.

Agricultural extension. Agricultural extension arose to address the informational needs of farmers in a wide array of settings around the world. The needs then were quite similar to those

of the cohort of young Africans now entering the labor force in both rural and urban areas. Much of what has been learned about extension methods that work may thus be generalized to inform programs of advisory services and mentoring for young people quite generally, both in farming and in other spheres of activity.

Early models of agricultural extension were centralized, public, and linear. The basic model was one in which a trained extension worker traveled over large areas to convey messages to farmers, who then applied the advice to improve their operations. A number of deficiencies with this model became clear over the years, especially in Africa. Foremost among these were cost, quality, and relevance. Traditionally designed agricultural extension programs are now a rarity, although the term is still used and applied to non-traditional approaches. Newer programs empower farmers to specify the information they require and to select the provider (see Davis 2008). Provision of information is still recognized as a public good, and the government assumes a share of the cost, particularly for small farmers and the poor. The advice may be delivered by public officials, private advisors, NGOs, or the media, depending on the needs of farmers. The new systems are decentralized, integrated with the private sector, coordinated with agricultural research, and tailored to local contexts. Extension is understood to be part of a broader innovation system.

Participatory and group-based approaches are gaining traction. These methods have the potential to overcome barriers to participation, foster inclusiveness, and lead to more demand-driven services. Pluralistic extension services (i.e., those with a variety of service providers) have been implemented in many SSA countries, including Mozambique, Kenya, and Uganda. Agricultural extension services can make a significant contribution to the success of young farmers, but the design and dimensioning of successful programs is still an open question empirically. A number of different approaches have been tried and reviewed in different contexts, but rigorous assessment is elusive (see Davis 2008). Many factors in addition to the mode of extension service affect agricultural performance. Spillover effects are hard to capture or isolate. Selection bias may enter even in controlled environments, and programs performing well at scale can be subverted by clientelism and patronage (Anderson and Feder 2004). Thus while most experts would agree that advisory services or extension of some kind are vital, particularly in light of the challenges that African rural young people entering agriculture now face, the profession does not have a clear view on the best approach to program design.

Specific training opportunities currently exist in many forms and are differentially suitable for individuals in the four different pathways. For example, programs of competence-based training in Uganda and Ethiopia in high-value export crops (floriculture and horticulture, respectively) provide a workforce for these demanding sub-sectors. Those in pathways 3 and 4 (i.e., those engaged in wage work either part or full time) might benefit most from this type of training. Farmer Field Schools (FFS), appropriate for those in pathways 1 and 2, exist in many countries, and are "… a participatory method of learning, technology development, and dissemination based on adult-learning principles such as experiential learning" (World Bank 2012a). A recent study in East Africa found that FFSs are especially beneficial to women, people with low literacy levels, and farmers with medium-size land holdings. FFS participants were found to have significant differences in outcomes with respect to the value of crops produced per acre, the livestock value gained per head, and agricultural income per capita (Davis *et al*. 2010). For those in pathway 1 who adopt a more corporate approach to family farming, the shift to entrepreneurial family farms can be aided by local agri-business development services, advisory

services with a business orientation. While the provision and use of these services are still relatively new, anticipated impacts for smaller-scale farmers and entrepreneurs include enhanced rural income (both directly and through employment) and enhanced small-scale entrepreneurial activity (World Bank 2012a).

Business incubators provide technical advice and, in some cases, a location with basic infrastructure, such as internet access, and can further assist young entrepreneurs by providing a means of leveraging the already significant resources invested in R&D and infrastructure. Business incubators that stimulate creation of small enterprises in food processing, for example, can create jobs, and incubators can assist young people seeking to combine self-employment as service providers with small-scale farming (pathway 3). Voluntary producer organizations can be a vehicle to organize training for members, and can also facilitate new forms of contracting that create opportunities. The ability to self-organize and to participate effectively in organizations such as these requires, again, the fundamentals of a solid education, access to modern communications, and even training in business development and management, depending on the level of sophistication of the organization.

Rural productive alliances can bring together commercial buyers with producers' organizations to increase income and employment for rural producers via participation in modern supply chains. These alliances have been shown to bring about higher agricultural incomes and increased rural employment, especially for agricultural workers and women working in post-harvest activities (World Bank 2012a). Farmers have also benefited from employment opportunities generated by public-private partnerships that enhance agricultural productivity. For example, a particularly successful model in Latin America that sought to increase competitiveness along the entire value chain for cassava (production, processing, and utilization) ultimately created jobs for farmers in cassava-based agro-industries.

The skills agenda to meet the needs of Africa's young people is diverse and the resources to address them highly constrained. Priority should be accorded to improving the quality of basic education and keeping young people in school long enough for them to acquire basic skills. Agricultural programs in tertiary education must be strengthened to produce a new generation of scientists and teachers in all fields. In the intermediate arena of extension and outreach, emphasis should be on providing resources to the final users of information, so that they can seek out the help they need, coupled with careful evaluation and transparent display of user satisfaction with the various channels of information. The alternative approach of seeking a highly structured unitary new style of extension system, widely applicable to all, is not likely to deliver good results.

9. Current Agricultural Programs Deliver Too Little Too Slowly to Meet the Needs of Africa's Young People

African leaders recognize the renewed importance of agriculture, and most have devoted increased attention and resources to the sector over the past decade. As early as 2003, African heads of state met in Maputo and pledged to give renewed emphasis to agriculture. The pledge

was made under the rubric of the Comprehensive African Agriculture Development Programme (CAADP) of the African Union and the New Partnership for Africa's Development (NEPAD).[27] The CAADP framework recognizes the breadth of the agricultural agenda and the corresponding need for multiple entry points and complementary public investments in several areas (Box 5).

Box 5: Overview of the Comprehensive African Agriculture Development Programme

CAADP emphasizes four pillars, each important and complementary to the others:

The land and water pillar (pillar 1) addresses the design of programs and investment required to improve land administration, sustainability of land use, and better management of water through irrigation and water harvesting and storage.

A second pillar identifies investment and reforms in policy and regulations needed to improve the access of smallholders to markets. Many of these interventions are in the area of rural infrastructure, including roads, rail transport, and power (both grid and off-grid), but important regulatory measures also require attention, such as regulation of the trucking industry and food safety standards. These measures aim to reduce marketing costs to make farming more profitable, while reducing food prices for net buyers to accelerate job creation.

The third pillar addresses measures that will make agriculture less risky for those with a commercial orientation, and strengthens the resilience of the very poor when shocks hit. Diversification, affordable insurance products, and rural safety nets can help people manage risks, and higher income levels associated with growth in productivity and profitability provide a cushion of savings for hard times.

Finally, the agricultural technology pillar underpins the other three. Modern agriculture is science-based, and producers at all levels of sophistication benefit from improved systems to generate and spread improved technologies. Some of these entail breeding of improved crops and animals to address changing demand or agro-ecological conditions or allow producers to select a desired level of risk. Others emphasize new systems of management and rotation, to reduce costs of inputs, enhance soil health, and capture carbon for additional revenue streams.

The CAADP framework is applied to help countries and regions improve the quality of their agricultural planning and policy making and to use this as the basis for scaled-up investment in the sector. CAADP offers political, technical, and financial support for countries and regions that engage in this process, through a partnership of continental and regional African institutions in collaboration with other stakeholders, including civil society, the private sector, and Africa's development partners.

The commitment to increase public spending on agriculture went largely unimplemented until the price spike of 2008, but between 2003 and 2008, the technical work to design a framework for reinvestment in agriculture under CAADP proceeded. Thus when several consecutive global food price spikes caught the attention of African and global leaders, a

[27] See http://www.nepad-caadp.net/

conceptual framework was available to address the several decades of neglect in provision of key public good and services. The framework does not specifically recognize the unique demography of Africa, nor does it make specific provisions for the needs of young farmers, but its key features can be enriched to address a youth agenda.

Complementing the largely public elements of the CAADP, local and international private investors are expressing increased interest in opportunities in agriculture. The African Union has declared a "Decade on Youth Development in Africa 2009–2019." The United Nations General Assembly has called for Member States to prepare a "National Review and Action Plan on Youth Employment," and the recent joint proposal between the AU, Economic Commission for Africa, African Development Bank, and International Labour Organization for a "Joint initiative on job creation for youth in Africa" all point to the attention being paid to the issue of youth employment (Proctor and Lucchesi 2012). Each of these organizations also has an emphasis on agriculture.

Thus efforts to reach out to Africa's young farmers can draw on resources from both the public and private sectors, domestically and internationally, under strategic initiatives already in place. No new or separate strategy is required, but the current slow pace of implementation, if continued, will fail young people and compromise the continent's future. Existing commitments must be accorded focused attention, with improved quality of public spending, more efficient approaches to increasing production of food staples, attention to meeting demand for high quality products by the growing urban middle classes, continued progress on policy and regulatory reforms, and improved data and tracking of progress. With better implemented public programs, private investment will accelerate, and opportunities for young people will increase. Some proactive additional attention to meet the specific needs of the large group of young people may be required, but doing so without more effective programs in general will be counterproductive. Successfully mobilizing the talents of young people will increase the likelihood that CAADP and other ongoing initiatives will meet their ambitious goals.

10. Conclusions

African agriculture is changing, and the entry of large numbers of young people into the sector will accelerate the pace. Agriculture is recognized by Africa's leaders as a source of growth, an instrument for improved food security, and a means to steward the continent's valuable natural resources. Attention to agriculture has accordingly increased in the past decade. Agriculture is already Africa's largest employer. As the potential for the sector to absorb the large numbers of new job-seekers and to offer meaningful work with public and private benefits becomes clearer, agriculture will gain even more attention from policy makers. This will be necessary because the sector's ability to create jobs will not be realized without modifications to existing public programs.

Present levels of public investment are not yet sufficient. The quality of investment is not adequate to yield high returns; too little has gone into short term palliatives, such as fertilizer subsidies, without complementary attention to improved technologies and management practices and long term investments in research and infrastructure. The investment climate is not yet adequate to attract private firms needed in marketing, processing, input supply, and finance. Public policies governing trade, introduction of new varieties, licensing and intellectual property rights, and taxation do not yet provide adequate incentives to producers and innovators. Detailed

agendas in each of these areas are beyond the scope of this paper, but the future of Africa's young people is at present hostage to the wide gap between rhetorical commitment to the importance of agriculture and actual effective attention accorded to it by Africa's leaders. Ongoing efforts to address constraints to land, capital, and skills must be redoubled, and features to make programs friendly to the needs of the young introduced. Examples of such programs are available on a piecemeal basis, but they have not yet been brought together with a clear focus on young people engaging in profitable and productive agriculture.

Although farming is often done by the elderly, the profession's requirements for energy, innovation, and physical strength make it ideally suited for those in the 15-34 year-old age range. Energy, creativity, and strength are attributes that Africa's young people have in abundance. The agriculture that attracts them will have to be profitable, competitive, and dynamic. These are the same characteristics needed for agriculture to deliver growth, to improve food security, and to preserve a fragile natural environment. With much higher priority accorded to the implementation of well-designed public investments in agriculture, continued progress on regulatory and policy reform, and a modest overlay of attention to ensure the inclusion of young people in Africa's agricultural renaissance, the sector's handsome youth dividend can be collected and widely shared.

11. References

Abdulai, A. and W.E. Huffman. 2005. "The diffusion of new agricultural technologies: The case of crossbreeding technology in Tanzania." *American Journal of Agricultural Economics* 87: 645–659.

AgriFin. 2012. "Making Finance Work for Africa: Policy Brief on Agricultural Finance in Africa." Report sponsored by the African Union, GIZ, and BMZ.

Aker, J.C. and M. Fafchamps. 2010. "How Does Mobile Phone Coverage Affect Farm-Gate Prices? Evidence from West Africa." Working paper.

Acker, J.C. 2008. "Does Digital Divide or Provide? The Impact of Cell Phones on Grain Markets in Niger." Washington, DC: Centre of Global Development Working Paper No. 154.

Amanor, K. S. and M. K. Diderutuah. 2001. "Share contracts in the oil palm and citrus Belt of Ghana." London: International Institute for Environment and Development.

Anderson, M., D. Brown and I. Jean. 2012. "Time to Listen: Hearing People on the Receiving End of International Aid." CDA Collaborative Learning Project, Cambridge, Massachusetts.

Anderson, J. and G. Feder. 2004. "Agricultural Extension: Good Intentions and Hard Realities." *The World Bank Research Observer* 19(1): 41-60.

Besley, T. and A. Case. 1993. "Modeling technology adoption in developing countries." *American Economic Review* 83: 396–402.

Bruce, J. W. and A. Knox. 2009. "Structures and Stratagems: Decentralization of Authority over Land in Africa." *World Development* (Special Issue on the Limits of State-Led Land Reform) 37(8): 1360-1369.

Camacho, A. and E. Conover. 2011. "The Impact of Receiving Price and Climate Information in the Agricultural Sector." IDB Working Paper Series No. IDB-WP-220. Washington DC: IDB.

Chirwaa, Ephraim W. 2008. “Land Tenure, Farm Investments and Food Production in Malawi.” Discussion Paper Series Number Eighteen. Paper prepared for the DFID-funded Research Programme, Institutions and Pro-Poor Growth (IPPG).

Cole, S. and S. Hunt. 2010. “Information, expectations and agricultural investment: Evidence from a field experiment in India.” Harvard University, Working Paper.

Conley, T. and C. Udry. 2010. "Learning about a New Technology: Pineapple in Ghana." *American Economic Review* 100(1): 35–69.

Davis, K. 2008. “Extension in Sub-Saharan Africa: Overview and Assessment of Past and Current Models and Future Prospects.” AIAEE Proceedings of the 24th Annual Meeting E.A.R.T.H. University, Costa Rica. International Food Policy Research Institute.

Davis, K., E. Nkonya, *et al*. 2010. “Impact of farmer field schools on agricultural productivity and poverty in East Africa.” IFPRI.

Deininger, K. 2003. *Land Policies for Growth and Poverty Reduction.* Washington, DC: World Bank.

Deininger, K., S. Jin, B. Adenew, S. Gebre-Selassie, and M. Demke. 2003. “Market and non-market transfers of land in Ethiopia: Implications for efficiency, equity and nonfarm development.” Policy Research Paper No. 2992, World Bank, Washington, DC.

Deininger, K., D.A. Ali, and T. Alemu. 2011. "Impacts of Land Certification on Tenure Security, Investment, and Land Market Participation: Evidence from Ethiopia." *Land Economics 87* (2): 312-34.

Deininger, K. and D. Byerlee. 2011. “Rising Global Interest in Farm Land: Can it Yield Sustainable and Equitable Benefits?” World Bank, Washington, DC.

Deininger, K., H. Selod, and A. Burns. 2011. “The Land Governance Assessment Framework: Identifying and Monitoring Good Practice in the Land Sector.” ARD Series, World Bank, Washington DC.

Estudillo, J. P., A. R. Quisumbing, and K. Otsuka. 2001. “Gender differences in land inheritance and schooling investments in the rural Philippines.” *London Economics* 77 (1): 130-43.

Executive Office of the President. 2011. “Economic Report of the President 2011.” Council of Economic Advisers. Washington, DC.

FAO, IFAD and MIJARC. 2012. “Facilitating Access of Rural Youth to Agricultural Activities.” The Farmers’ Forum Youth Session, February 18, 2012.

FAO. 2011. “Women in Agriculture: Closing the gender gap in agriculture.” The State of Food and Agriculture report. FAO: Rome.

Fafchamps, M. and B. Minten. 2011. "Impact of Sms-Based Agricultural Information on Indian Farmers." Oxford University and International Food Policy Research Institute.

Foster, A.D. and M.R. Rosenzweig. 1996. “Technical change and human-capital returns and investments: Evidence from the green revolution.” *American Economic Review* 86 (4): 931–953.

Fuglie, K. 2011. “Agricultural Productivity in Sub-Saharan Africa.” David R. Lee and Muna Ndulo, eds., *The Food and Financial Crises in Sub-Saharan Africa: Origins, Impacts, and Policy Implications.* CABI, Cambridge, MA.

Goyal, A. 2010. "Information, Direct Access to Farmers, and Rural Market Performance in Central India." *American Economic Journal: Applied Economics* 2(3): 22-45.

Huffman, W.E. 1977. “Allocative Efficiency: The Role of Human Capital.” *Quarterly Journal of Economics* 91: 59–79.

IFPRI and World Bank. 2010. “Innovations in Rural and Agriculture Finance: Focus 18.” Washington, DC.

Institute of Development Studies. 2012. “Young People and Agriculture in Africa.” Special Issue, Volume 43, Issue 6.

Jensen, P. 2007. “The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector.” *The Quarterly Journal of Economics* 122(3): 879-924.

Kasanga, K. and N. Kotey. 2001. “Land management in Ghana: Building on tradition and modernity.” London: International Institute for Environment and Development.

Kevane, M. 1996. “Agrarian structure and agricultural practice: Typology and application to Western Sudan.” *American Journal of Agricultural Economics* 78 (1): 236-45.

Kloeppinger-Todd, Renate, A. Nair, and A. Mulder. 2004. “Leasing : an underutilized tool in rural finance.” Agriculture and Rural Development (ARD) Discussion Paper No. 7. World Bank, Washington, DC.

Lahiff, E. and G. Li. 2012. “Land Redistribution in South Africa: A Critical Review.” Working Paper for the “Land Administration and Reform in SSA” study. World Bank, Washington, DC.

Larson, D., K. Otsuka, T. Matsumoto, and T. Kilic. 2012. “Should African Rural Development Strategies Depend on Smallholder Farms? An Exploration of the Inverse Productivity Hypothesis.” World Bank Policy Research Working Paper 6190. World Bank, Washington, DC.

Losch, Bruno, Sandrine Fréguin-Gresh, and Eric Thomas White. 2012. *Structural Transformation and Rural Change Revisited: Challenges for Late Developing Countries in a Globalizing World.* African Development Forum series. Washington DC: World Bank.

Maertens, M., B. Minten, and J. Swinnen. 2009. “Growth in High-Value Export Markets in Sub-Saharan Africa and its Development Implications.” LICOS Discussion Paper 245, Katholieke Universiteit Leuven.

Minot, N. 2011. “Transmission of world food price changes to markets in sub-Saharan Africa.” IFPRI Discussion Paper No. 01059. International Food Policy Research Institute. Washington, DC.

Morris, M., H. Binswanger-Mkhize, and D. Byerlee. 2009. *Awakening Africa's Sleeping Giant.* The World Bank: Washington, DC.

Nagayets, Oksana. 2005. “Small Farms: Current Status and Key Trends.” Information brief prepared for the Future of Small Farms Research Workshop held at Wye College, June 26–29.

Nin-Pratt, A., M. Johnson, and B. Yu. 2012. “Improved Performance of Agriculture in Africa South of the Sahara: Taking Off or Bouncing Back.” IFPRI Discussion Paper No. 01224. International Food Policy Research Institute. Washington, DC.

OECD. 2009. “Growing Prosperity. Agriculture, Economic Renewal, and Development.” Draft Outcome Document from the Experts Meeting Innovating Out of Poverty. OECD, Paris, April 6–7.

OECD-FAO. 2012. “Agricultural Outlook 2012-2012.” Annex B, Table B.1. Paris and Rome.

Petesch, P. and I. Rodríguez Caillava. 2012. "Voices of Young Villagers in Sub-Saharan Africa." Background paper based on Muñoz Boudet, A. M., P. Petesch, and C. Turk with A. Thumala. *"On Norms and Agency: Conversations on Gender with Men and Women in 20 Countries."* Washington, DC: World Bank (forthcoming).

Proctor, F.J. and V. Lucchesi. 2012. “Small-scale farming and youth in an era of rapid rural change.” IIED/HIVOS, London/The Hague.

Renkow, M. and D. Byerlee. 2010. “The Impact of CGIAR Research: A Review of Recent Evidence”. *Food Policy*.

Rosenzweig, M. 2010. "Microeconomic Approaches to Development: Schooling, Learning, and Growth." *Journal of Economic Perspectives, American Economic Association* Vol. 24(3): 81-96, Summer.

Schultz, T.P. 1988. “Education Investments and Returns.” In *Handbook of Development Economics*, eds. Chenery and Srinivasan (1988). Elsevier Science Publishers, Amsterdam.

Selod, H. 2012. “Formalizing rural land rights in West Africa: Results from an impact evaluation in Benin.” Paper delivered at the World Bank *Conference on Land and Poverty* 2012, April 23-26 2012. Washington, DC.

Sutton, John and Nebil Kellow. 2010. *An enterprise map of Ethiopia.* International Growth Centre, London, UK.

Svensson, J., and D. Yanagizawa. 2009. "Getting Prices Right: The Impact of the Market Information Service in Uganda." *Journal of the European Economic Association* 7(2-3): 435-445.

Tchale, H. 2012. “Pilot redistributive land reform in Malawi - Innovations and Emerging good practices.” Working Paper for the “Land Administration and Reform in SSA” study. World Bank, Washington, DC.

Timmer, P. and S. Akkus. 2008. “The Structural Transformation as a Pathway out of Poverty: Analytics, Empirics and Politics.” Centre for Global Development, Working Paper 150. Washington, DC.

Torkelsson, A. 2012. “Sex Disaggregated Data on Agriculture, Water and Food Security Lessons from the Kenya”. World Water Week Seminar on Global Practice in Promoting Gender Equality in the Water Sector, Stockholm, August 30, 2012.

United Republic of Kenya. 2010. “The Constitution of Kenya 2010.” National Council for Law Reporting.

UWEZO Tanzania. 2011. “Are Our Children Learning?” Annual Learning Assessment Report. http://www.twaweza.org/uploads/files/ALA_UWEZO.pdf.

Welch, F. 1970. “Education in production.” *Journal of Political Economy* 78: 35–59.

World Bank. Undated. “Sri Lanka Community Development & Livelihood Improvement Gemidiriya Project Analysis of Youth Inclusion and Participation in Gemidiriya.” World Bank, Washington, DC.

World Bank. Undated. “Transmigration in Indonesia.” Impact evaluation conducted by Independent Evaluation Group. World Bank, Washington, DC.

World Bank. 2004. “Malawi Community-based Rural Land Development Project.” Project appraisal document. World Bank, Washington, DC.

World Bank. 2007a. “South Asia: Livelihoods Learning: Community-managed Microfinance – A New Model from Sri Lanka.” Series 1, Note 5. World Bank, Washington, DC.

World Bank. 2007b. “Cultivating Knowledge and Skills to Grow African Agriculture: A Synthesis of an Institutional, Regional, and International Review, 2007.” Report No. 40997-AFR. Agriculture and Rural Development Department and Africa Region Human Development Department. Washington, DC.

World Bank. 2009. *Gender in Agriculture Sourcebook.* Washington, DC: World Bank.

World Bank. 2010. “Designing and Implementing Agricultural Innovation Funds: Lessons from Competitive Research and Matching Grant Projects.” Report No. 54857-GLB. World Bank, Washington, DC.

World Bank. 2011a. *Doing Business 2011*. Washington, DC: World Bank.

World Bank. 2011b. “Kenya Informal Settlements Improvement Project.” Project appraisal document. World Bank, Washington, DC.

World Bank. 2012a. *Agricultural Innovation Systems: An Investment Sourcebook.* Washington, DC: World Bank.

World Bank. 2012b. “Land Administration and Reform in Sub-Saharan Africa: From Piloting to Scaling Up.” World Bank, Washington, DC.

World Bank. 2012d. “World Development Indicators 2012.” Washington, DC: World Bank.

World Bank. 2012e. “Rural Transformation and Late Developing Countries in a Globalizing World: A Comparative Analysis of Rural Change.” Economic and Sector Work Report, Agriculture and Rural Development Unit, Africa Region, World Bank, Washington, DC.

World Bank. 2013. “Growing Africa: Unlocking the Potential of Agribusiness.” AFTFP/AFTAI Report. World Bank, Washington, DC.