Transforming Smallholder Agriculture in the Face of Rising Land Scarcity and Low Productivity

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Six “mega-trends”
Trend #1:

Urbanization and shift from farm to off-farm employment
Jobs by sector, Sub-Saharan Africa

Source: World Bank (Filmer and Fox), 2014
Jobs by sector, Sub-Saharan Africa

Source: World Bank (Filmer and Fox), 2014
African Population by Income Class: excluding North Africa and South Africa

81.8%
13.4%
4.8%

Source: Potts, 2012: calculated from the AfDB (2010)
Huge rise in demand for marketed food
Net Grain Exports for West Africa

Source: FAO, 2015

Net Export for Western Africa

Millions of Tonnes

Year


Maize Wheat Rice Total Net Export

Source: FAO, 2015
Trend #3:

The ‘Youth Bulge’
Trend #3:
Rising numbers of youth entering labor force

Source: UN Pop Council, 2013
Looming rural employment challenge in SSA

Total Rural Population (millions)

Source: UN 2013
Trend #4:

Rising land scarcity
Clustering of rural populations: Kenya
Adjusted prices in Western Tanzania 2008-2013

- Agricultural wage (TSH/day)
- Land rental rate (TSH/ha)
- Maize (TSH/kg)
Adjusted prices in Northern Tanzania 2008-2013

Survey year

Agricultural wage (TSH/day)
Land rental rate (TSH/ha)
Maize (TSH/kg)
Ag wage, land rental prices, and maize prices in high-potential Ethiopia
F2. Trends in fertilizer use and cropping intensity

- India 2009
- Thailand 2009
- Uganda Nigeria 2009
- Kenya 2009

Nitrogen application per hectare

Cereal cropping intensity (area harvested/area planted at least once)
The importance of SOM


![Graph showing the relationship between plot carbon content and marginal value product of applied nitrogen](image.png)

- **Price of Nitrogen (Khs 200/kg)**
- **Marginal value product of applied nitrogen**
- **Smooth = 0.2**

- **Plot carbon content (%)**
- **Marginal value product of applied nitrogen**
Trend #5: 

Rise of medium-scale ‘investor’ farmers
% of National Landholdings held by Urban Households

---|---|---|---|---|---|---|---
26.8% | 22.0% | 11.2% | 10.9% | 11.8% | 32.7% | 16.8% | 22.0%
% of National Landholdings held by Urban Households

<table>
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<th>Year</th>
<th>Ghana</th>
<th>Kenya</th>
<th>Malawi</th>
<th>Rwanda</th>
<th>Tanzania</th>
<th>Zambia</th>
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<td>2008</td>
<td>26.8%</td>
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<td>2009</td>
<td></td>
<td>22.0%</td>
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<td>2004</td>
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<td>11.2%</td>
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<td>2010</td>
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<td>10.9%</td>
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<td>2010/2005</td>
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<td>11.8%</td>
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<td>2013/2014</td>
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<td>32.7%</td>
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<td>2007</td>
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<td>16.8%</td>
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<td>2004</td>
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<td>18.3%</td>
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<td>11.8%</td>
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<td>2013/2014</td>
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<td>22.0%</td>
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Source: DHS
Crop sales by farm size over time (2011 Zmk prices)

Largest smallholder farms (8%) consistently doing better.

Source: MACO CFS 2000/1 to 2010/11 and authors’ computations
Trend #6:

Climate change
Recap: Six “mega-trends”

1. Growth in non-farm employment – urbanization - rising labor productivity
2. Rising food deficits / dependence on world markets for food
3. Youth bulge/labor force expansion
4. Rising land scarcity, land prices, land degradation
5. Rise of medium-scale investor farmers
6. Climate change
Main conclusions:

1. For the next 2-3 decades, most Africans will be engaged in farming

   - ~10% African farmers are already commercialized and contributing to ST
   - ~30% --with appropriate support -- have potential to be successful in farming
   - ~60% : difficult to pull out of poverty via farming, but raising their productivity will contribute indirectly to poverty reduction indirectly
Main conclusions (ii)

2. Most rural people will gradually exit farming

3. The pace at which they leave depends on non-farm job growth

4. Non-farm job growth will depend on ag growth!
   – Full circle: how to transform the ag. sector?
Now: What to do?
Now: What to do?

Business as usual won’t do!
Strategies for public sector consideration

• Much greater funding of
  – crop and animal R&D
    • Pest and disease control
    • Sustainable intensification technologies / practices / biomass
    • Technologies appropriate for small farms
  – extension systems: Bi-directional learning
  – infrastructure
  – Urban planning

• Support for local policy analysis units