Causes, consequences of changing farm size distributions in Africa, and implications on youth employment


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Outline

1. Document how rapidly farm structure is changing
2. Characteristics of MS farmers
3. Causes
4. Consequences
5. Implications
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## Changes in farm structure in Zambia (2001-2012)

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<tr>
<th>Farm size category</th>
<th>Number of farms</th>
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<td>2012</td>
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</tr>
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<td>638,118</td>
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<td>17.3</td>
</tr>
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<td>2,352</td>
<td>53,454</td>
<td>2272.7</td>
</tr>
<tr>
<td>20 – 100 ha</td>
<td>--</td>
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<td>na</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>820,341</strong></td>
<td><strong>1,399,737</strong></td>
<td><strong>100</strong></td>
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Source: Zambia MAL Crop Forecast Surveys, 2001 and 2012
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Source: Zambia MAL Crop Forecast Surveys, 2001 and 2012
### Changes in farm structure in Tanzania (2008-2012), LSMS/National Panel Surveys

<table>
<thead>
<tr>
<th>Farm size</th>
<th>Number of farms (% of total)</th>
<th>% growth in number of farms between initial and latest year</th>
<th>% of total operated land on farms between 0-100 ha</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2012</td>
<td>2008</td>
</tr>
<tr>
<td>0 – 5 ha</td>
<td>5,454,961 (92.8)</td>
<td>6,151,035 (91.4)</td>
<td>12.8</td>
</tr>
<tr>
<td>5 – 10 ha</td>
<td>300,511 (5.1)</td>
<td>406,947 (6.0)</td>
<td>35.4</td>
</tr>
<tr>
<td>10 – 20 ha</td>
<td>77,668 (1.3)</td>
<td>109,960 (1.6)</td>
<td>41.6</td>
</tr>
<tr>
<td>20 – 100 ha</td>
<td>45,700 (0.7)</td>
<td>64,588 (0.9)</td>
<td>41.3</td>
</tr>
<tr>
<td>Total</td>
<td>5,878,840 (100%)</td>
<td>6,732,530 (100%)</td>
<td>14.5</td>
</tr>
</tbody>
</table>
## Changes in farm structure in Ghana (1992-2013)

<table>
<thead>
<tr>
<th>Ghana</th>
<th>Number of farms</th>
<th>% growth in number of farms</th>
<th>% of total cultivated area</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 ha</td>
<td>1,458,540</td>
<td>1,582,034</td>
<td>8.5</td>
</tr>
<tr>
<td>2-5 ha</td>
<td>578,890</td>
<td>998,651</td>
<td>72.5</td>
</tr>
<tr>
<td>5-10 ha</td>
<td>116,800</td>
<td>320,411</td>
<td>174.3</td>
</tr>
<tr>
<td>10-20 ha</td>
<td>38,690</td>
<td>117,722</td>
<td>204.3</td>
</tr>
<tr>
<td>20-100 ha</td>
<td>18,980</td>
<td>37,421</td>
<td>97.2</td>
</tr>
<tr>
<td>&gt;100 ha</td>
<td>--</td>
<td>1,740</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>2,211,900</td>
<td>3,057,978</td>
<td>38.3</td>
</tr>
</tbody>
</table>

Source: Ghana GLSS Surveys, 1992, 2013, Jayne et al., 2016, using data from Ghana GLSS Surveys I and IV.
Available national datasets are unsuitable to understand changes in farm structure

1. Sample proportional to population and tend to systematically under-sample large farms
2. Often exclude non-smallholder farming sectors by default or design
3. Tend not to prompt urban households about farmland they may cultivate or own away from their main urban residences
4. Truncate landholding data
Changes in farm size distributions: Summary

1. Number of small farms growing slowly
2. Share of area under small farms declining
3. Number of medium-scale farms growing rapidly
4. Share of area under medium-scale is growing, and currently over 40% of farm holdings (> 25% of cultivated area)
Outline

1. Document how rapidly farm structure is changing
2. Characteristics of MS farmers
3. Causes
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Rise of the medium-scale farmers

• Who are the medium scale farmers?

  ✓ Farm-led?

  ✓ Non-farm led?
Rise of the medium-scale farmers

Three sub-categories of medium scale farmers (Kenya, Zambia, Ghana)

Percent

Successful smallholder farmers via farm expansion

100
90
80
70
60
50
40
30
20
10
0

5
Rise of the medium-scale farmers

Three sub-categories of medium scale farmers: Kenya, Zambia, Ghana

- "Elite rural based": 35%
- Successful smallholder farmers via farm expansion: 5%
Rise of the medium-scale farmers

Three sub-categories of medium scale farmers: Kenya, Zambia, Ghana

- Elite urban based: 60%
- Elite rural based: 35%
- Successful smallholder farmers via farm expansion: 5%
% of National Landholdings held by Urban Households

Source: Demographic and Health Surveys, various years between 2004-2014.
## Type 1: Urban-based investor farmer

<table>
<thead>
<tr>
<th></th>
<th>Mode of entry to medium-scale farming status: acquire farm using non-farm income</th>
<th>Zambia (n=164)</th>
<th>Kenya (n=180)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of cases</td>
<td></td>
<td>58</td>
<td>60</td>
</tr>
<tr>
<td>% men</td>
<td></td>
<td>91.4</td>
<td>80</td>
</tr>
<tr>
<td>Year of birth</td>
<td></td>
<td>1960</td>
<td>1947</td>
</tr>
<tr>
<td>Years of education of head</td>
<td></td>
<td>11</td>
<td>12.7</td>
</tr>
<tr>
<td>Have held a job other than farmer (%)</td>
<td></td>
<td>100</td>
<td>83.3</td>
</tr>
<tr>
<td>Formerly /currently employed by the public sector (%)</td>
<td></td>
<td>59.6</td>
<td>56.7</td>
</tr>
<tr>
<td>Current landholding size (ha)</td>
<td></td>
<td>74.9</td>
<td>50.1</td>
</tr>
<tr>
<td>% of land currently under cultivation</td>
<td></td>
<td>24.7</td>
<td>46.6</td>
</tr>
<tr>
<td>Decade when land was acquired</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1969 or earlier</td>
<td></td>
<td>1.1</td>
<td>6</td>
</tr>
<tr>
<td>1970-79</td>
<td></td>
<td>5.1</td>
<td>18</td>
</tr>
<tr>
<td>1980-89</td>
<td></td>
<td>7.4</td>
<td>20</td>
</tr>
<tr>
<td>1990-99</td>
<td></td>
<td>23.8</td>
<td>32</td>
</tr>
<tr>
<td>2000 or later</td>
<td></td>
<td>63.4</td>
<td>25</td>
</tr>
</tbody>
</table>

Source: MSU, UP, and ReNAPRI Retrospective Life History Surveys, 2015
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Causes of changing farm size distributions

1. Rise in world food prices – heightened investor interest in farmland

2. Urban elite capture of land policy / farm lobbies

3. Rapid population growth
   - Fragmentation/subdivision in areas of favorable mkt access
   - Land inheritance declining
   - Rising land scarcity \( \rightarrow \) land markets \( \rightarrow \) rising land prices

4. Rise of new towns converting formerly remote land into valued property
Sub-Saharan Africa: only region of world where rural population continues to rise past 2050

Source: UN 2013
Output and factor price indices, northern Tanzania

Price index (2008/9=100)

- Agricultural wage (TSH/day)
- Land rental rate (TSH/ha)
- Maize (TSH/kg)
Output and factor price indices, western Tanzania

<table>
<thead>
<tr>
<th>Year</th>
<th>Agricultural wage (TSH/day)</th>
<th>Land rental rate (TSH/ha)</th>
<th>Maize (TSH/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008/9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010/11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012/13</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Output and factor price indices, rural Malawi, 2004-2013

Sources: IHS for land and wages; FEWSNET for urea and maize
Outline

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Consequences of changing farm size distributions (+++)

1. Rising use of mechanization

2. More capital using/labor-saving forms of agricultural production

3. Medium-scale farm contributing a large share of marketed grains- Kenya, Tanzania, Zambia
   - Selling to large grain traders
   - Higher prices due to reduced transaction costs

4. Productivity differences between small and medium-scale farms – limited evidence
   - But reasons to believe that capitalized and educated MS farms will be more productive
Consequences of changing farm size distributions (---)

5. Growing land scarcity driven by middle/high income urban people seeking to acquire land – not just for land
   • Speculation, housing/properties, farming

6. Rising challenges of youth access to land → migration

7. Rising inequality of farmland distribution
   • Some displacement
   • Rising land prices → straining youth access to land
Nominal value of tractor imports to Sub-Saharan Africa (excluding South Africa), 2001-2015

Source: vanderWesthuisen, forthcoming

Source: vanderWesthuisen, forthcoming
Productivity differences between small and medium-scale farms

ZAMBIA
Productivity differences between small and medium-scale farms [cont.]

GHANA

Net value of production on area planted in Acres

Family labor productivity on area planted in Acres
Productivity differences between small and medium-scale farms [cont.]

GHANA: Cost of maize production on area planted in Acres

\[
\ln(\text{cost per metric ton of producing maize}) \text{ in Gh Cedis}
\]

\[
\text{area planted (acre)}
\]
KENYA: full sample

Figure 1(a): Value of crop production/ha planted

Figure 1(b): Total factor productivity

Figure 1(c): Gross value of output/total costs

Figure 1(d): Value of crop production/resident adult
KENYA: smallholder sample

Figure 2(a): Value of crop production/ha planted

Figure 2(b): Total factor productivity

Figure 2(c): Gross value of output/total costs

Figure 2(d): Value of crop production/resident adult
KENYA: crop production costs

Figure 4(a): Aggregate production costs/ha planted

Figure 4(b): Disaggregated production costs/ha planted

Figure d(c): Labor costs/ha planted

Figure 3(d): Disaggregated labor costs /ha planted
## GINI coefficients in farm landholding

<table>
<thead>
<tr>
<th>Country (Measurement)</th>
<th>Period</th>
<th>Movement in Gini coefficient:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ghana (cult. area) (GLSS)</td>
<td>1992 → 2013</td>
<td>0.54 → 0.70</td>
</tr>
<tr>
<td>Kenya (cult. area) (KIHBS)</td>
<td>1994 → 2006</td>
<td>0.51 → 0.55</td>
</tr>
<tr>
<td>Tanzania (landholdings) (LSMS)</td>
<td>2008 → 2012</td>
<td>0.63 → 0.69</td>
</tr>
<tr>
<td>Tanzania (area controlled) (ASCS)</td>
<td>2008</td>
<td>0.89</td>
</tr>
<tr>
<td>Zambia (landholding) (CFS)</td>
<td>2001 → 2012</td>
<td>0.42 → 0.49</td>
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Source: Jayne et al. 2014 (JIA)
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Implications for policy

1. The “transition” issue
   • How to transform African economies from current situation to more diversified and productive economies

2. Agricultural productivity growth will be the cornerstone of any comprehensive youth livelihoods strategy:
   – Ag productivity growth influences
     • Pace of labor force exit out of farming
     • Labor productivity in broader economy
3. Agricultural sector policies must anticipate and respond to:

- Rising land prices, decline of inheritance, market as increasingly important mode of acquiring land
- Resources needed for youth to succeed in farming (access to land, finance, etc.)
- Distinguish between “trying to keep youth in agriculture” vs. “giving youth viable choices”
Looming employment challenge in SSA

Age pyramid: rural SSA, 2015

62% < 25 years old
YOUTH LIVELIHOODS OPTIONS
62% < 25 years

Pulled out of agriculture
- Post-secondary education
- Invested in skills
- Will find decent jobs

Pushed out of agriculture
- Primary/secondary education
- No land; no skills
- Will find poverty jobs- hawking, etc.

Pushed into agriculture
- No access to land, finance, etc
- Poor access to markets, infrastructure, etc.
- Will be just kept in agriculture
- **People growing “crops”**

Pulled into agriculture
- Good access to land, finance, etc.
- Good access markets, infrastructure, etc.
- Will find agriculture viable option
- **“Crops” growing people**
Structural transformation pathway

YOUTH LIVELIHOODS OPTIONS
62% < 25 years

- 75% Farming
- 25% Successful farming
- 50% Struggling farm
- 20% Struggling non-farm
- 5% Successful non-farm

25% Non-farm

Policies

- Jobs creation
- Education
  - Post-secondary
  - TVET

- Land access
- Finance
- Infrastructure and investments along value chain
  - Irrigation
  - Roads
  - Electricity
  - Storage
Figure 1: Determinants of distress migration by the youth

Source: Deotti and Estruch (2016)
Major challenges/research issues for land policies: How to effectively

1. Strengthen land use planning to identify surplus agricultural land that can be allocated to investors without displacing local people

2. Encourage access to unutilized land to those who can raise agricultural productivity

3. Provide stronger land rights for women: while many African countries have new laws recognizing gender equality, implementation is weak, especially given continued dominance of customary practices, which tend to discriminate against women
Thank You