Did rapid smallholder-led agricultural growth fail to reduce rural poverty? Making sense of Malawi’s poverty puzzle

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Outline

- Introduction
- Recent evidence of growth and poverty trends
- A refined method for poverty line estimation
- Results
- Conclusion
Introduction

- Goal: Re-estimate poverty lines for Malawi using an improved methodology compared to official figures by NSO Malawi
- Data: 2 recent Living Standards Measurement Surveys.
  - Nationally representative
  - Extensive consumption expenditure modules
  - IHS2: 2004/05
  - IHS3: 2010/11
- Part of UNU-WIDER sponsored “Growth and Poverty Project”
  - Case studies in a dozen SSA countries
  - Re-estimation of national poverty lines using similar approaches where possible
Poverty trends

- Official poverty figures by National Statistics Office Malawi (NSO)
- Based on IHS and WMS
Major policy intervention in the period: The Food Input Subsidy Program (FISP)

Started: 2005

Aim: Improve poor smallholders productivity by providing

Large scale - 2008/09: 74% of agricultural budget or 16% of national budget (33b MK = 242m USD)

Potentially important implications for the poor:

- 80% employed in agriculture
- Maize: 1/4 of agricultural GDP
- Tobacco: 2/3 of export revenue
- Agricultural productivity ↑ → agricultural income ↑ → poverty
- Coinciding with introduction of FISP, maize yields approximately doubled
- Agricultural GDP grew very rapidly (15.9 percent) during the early FISP period (2005–2007)

Overall growth remained above seven percent during 2007–2011
A refined method for poverty line estimation

- We use CBN just like the NSO, five differences though:
  - regional poverty lines
  - age and gender composition, pregnancy rates
  - consumption bundle to change over time
  - iterative procedure (Ravallion, 2008)
  - Utility consistent across space and over time (Arndt and Simler, 2010)- entropy-based approach

- NSO: Inflate by 128.9% from 2004/5 to 2010/11
Utility consistency

- Changes in prices over time and space means that pricing period 1 food bundle at period 2 prices does not ensure that utility is the same (Tarp et al. 2002)
  - Same argument for different spatial domains
  - We employ four spatial domains-urban, north rural, centre rural, south rural

- Revealed preference tests: Test that estimated bundles do not reject utility consistency
  - Minimal adjustments to food shares so that the food bundle passes revealed preference tests using a maximum entropy estimation technique (Arndt & Simler 2010)
  - Final food bundles are then said to be utility consistent
<table>
<thead>
<tr>
<th></th>
<th>2004/05 (IHS2)</th>
<th>2010/11 (IHS3)</th>
<th>Implied inflation for the poor (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NSO</td>
<td>Authors' estimates</td>
<td>NSO</td>
</tr>
<tr>
<td>Food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>23.79</td>
<td>56.93</td>
<td>139.30</td>
</tr>
<tr>
<td>North rural</td>
<td>35.63</td>
<td>62.68</td>
<td>75.92</td>
</tr>
<tr>
<td>Central rural</td>
<td>23.62</td>
<td>59.50</td>
<td>151.91</td>
</tr>
<tr>
<td>South rural</td>
<td>22.82</td>
<td>49.08</td>
<td>115.07</td>
</tr>
<tr>
<td>Non-food</td>
<td>16.81</td>
<td>38.48</td>
<td>67.29</td>
</tr>
<tr>
<td>Urban</td>
<td>24.01</td>
<td>43.75</td>
<td>82.23</td>
</tr>
<tr>
<td>North rural</td>
<td>20.81</td>
<td>28.46</td>
<td>36.72</td>
</tr>
<tr>
<td>Central rural</td>
<td>17.76</td>
<td>28.19</td>
<td>58.75</td>
</tr>
<tr>
<td>South rural</td>
<td>14.80</td>
<td>24.98</td>
<td>68.77</td>
</tr>
<tr>
<td>Total</td>
<td>44.29</td>
<td>101.38</td>
<td>101.76</td>
</tr>
<tr>
<td>Urban</td>
<td>47.80</td>
<td>100.68</td>
<td>110.64</td>
</tr>
<tr>
<td>North rural</td>
<td>56.44</td>
<td>91.14</td>
<td>61.47</td>
</tr>
<tr>
<td>Central rural</td>
<td>41.38</td>
<td>87.69</td>
<td>111.93</td>
</tr>
<tr>
<td>South rural</td>
<td>37.62</td>
<td>74.06</td>
<td>96.86</td>
</tr>
</tbody>
</table>
Food poverty lines are in fairly similar to official ones for both periods
- rural north is an exception
- Generally, lower though

Nonfood poverty lines are again fairly close to official in 2004/05
Urban nonfood poverty lines are higher than the rural nonfood poverty lines
nonfood inflation is significantly lower than the rate used by NSO
Nationally, the inflation rate for the poor is 101.8 percent
- higher than the official inflation rate of 77.3 percent
- lower than the rate by which NSO adjusted their poverty line (i.e., 128.9 percent)
lower nonfood inflation than food inflation could be an artifact of the specific poverty lines estimated in this paper.

Wide range of possible poverty lines

- A systematic downward shift in non-food consumption as a share of total for 3/4 spatial domains
- does not hold for rural north for a food poverty line exceeding 150 percent of our estimated line
## Results 3-Poverty headcounts

<table>
<thead>
<tr>
<th>Area</th>
<th>2004/05 (IHS2) (%)</th>
<th>2010/11 (IHS3) (%)</th>
<th>Percentage point change 2004/05 to 2010/11 (%)</th>
<th>Fixed nonfood share</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>52.4</td>
<td>48.4</td>
<td>-1.7 ± 0.024</td>
<td>-1.2</td>
</tr>
<tr>
<td></td>
<td>NSO</td>
<td>Authors' estimates</td>
<td>NSO Authors' estimates</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>25.4</td>
<td>29.7</td>
<td>-8.1 ± 0.068</td>
<td>-6.9</td>
</tr>
<tr>
<td>Rural</td>
<td>55.9</td>
<td>50.7</td>
<td>0.7 ± 0.014</td>
<td>0.8</td>
</tr>
<tr>
<td>North</td>
<td>56.3</td>
<td>71.0</td>
<td>3.6 ± 0.065</td>
<td>-11.8</td>
</tr>
<tr>
<td>Center</td>
<td>46.7</td>
<td>41.8</td>
<td>2.0 ± 0.042</td>
<td>8.6</td>
</tr>
<tr>
<td>South</td>
<td>64.4</td>
<td>54.1</td>
<td>-1.1 ± 0.037</td>
<td>-3.7</td>
</tr>
</tbody>
</table>

Note: Beck, Mussa, Pauw (UNU-WIDER, Helsinki) 01/07 11/14
national poverty falls by 8.2 percentage points (revised), 1.7 percentage points (official)
a decline in urban by 12.1 percentage points, and 8.1 percentage points by official estimates
The important difference between our results is the decline in rural poverty
3.6 percentage point increase in the rural north (official) versus 16.6 percentage points decrease (revised)
choice between flexible and fixed nonfood shares is profoundly important for poverty results in Malawi
With fixed nonfood share results are now similar to NSO results
Results 3-Robustness of poverty headcounts

For all poverty lines greater than 42.6 percent of the chosen poverty line national poverty declines. The largest declines in poverty are for poverty lines between 100 and 200 percent of the actual estimated poverty line.
Using a refined approach to poverty estimation, we get a different result:

- Higher initial level
- Substantial decline 2004-2011

Partly driven by a systematic downward shift in the share of non-food consumption out of total consumption expenditures for households near the poverty line

Partly driven by lower estimated inflation of food prices

Has FISP been effective in poverty alleviation?