Measuring the Effects of Prime-Age Adult Mortality on Rural Households in Kenya

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Current Understanding of HIV/AIDS’ Effects on Rural Households

• Micro-level foundation
  – Remains very weak

• Macro-level studies
  – only as accurate as their underlying assumptions about household behavioral responses
Objectives

1. To Estimate Impact of Adult Death on:
   • Household Composition
   • Agricultural Production
   • Non-farm income
   • Assets
2. To identify implications for program design

Data - I

• Two-year panel (1997 and 2000)
  – 22 districts (excluded pastoral areas)
  – 1,422 / 1,500 households revisited
  – attrition rate: 5.2%
  – Kisesa study (Urassa et al) found 42% of households “dissolved” within one year after death of male head-of-hh
• Qualitative follow-up survey on households experiencing adult mortality in two districts
Data - II

• 9,177 individuals in 1997
  – Of these, 6,856 were still residing at their household in 2000
  – 145 passed away (1.6%)
• 2,357 new members between 1997→2000
  – 55 passed away (2.3%)
"Difference-in-Difference" Approach

<table>
<thead>
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<th></th>
<th>1997</th>
<th>2000</th>
<th>Difference</th>
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<tbody>
<tr>
<td>Households not afflicted</td>
<td>$x_1$</td>
<td>$x_2$</td>
<td>$\Delta x$</td>
</tr>
<tr>
<td>Afflicted households</td>
<td>$y_1$</td>
<td>$y_2$</td>
<td>$\Delta y$</td>
</tr>
<tr>
<td>difference</td>
<td></td>
<td></td>
<td>$\Delta y - \Delta x$</td>
</tr>
</tbody>
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Estimation Model

$$ Y_i = D_i^M M^M + D_i^F F^F + D_i^E E^E + V S + \epsilon_i $$
Adult Mortality Rates - Women

- Women 15-24
- Women 25-34
- Women 35-44

Expected
Kenya
Kisumu / Siaya
Finding 1: Important Gender Differences in Prevalence of Adult Death

- Afflicted Men
  - 49% were in highest income quartile
  - About half were household heads
- Afflicted Women
  - Not correlated with income
  - Likely to be daughters in households
- However, many NGOs target low-income people (e.g., ag. wage laborers)
- IMPLICATION: Campaigns Need to Also Target High-Income, High-Status Men
Finding 2: Effect on Household Composition Depends on Who Dies

- Head-of-household death → -1.5 members
  - Older daughters more likely to leave
    - In 60% of these cases: marriage
    - Major loss in adult labor
- Female head/spouse death → -2.1 members
  - Young boys and girls leave the household
- Death of other adults → hh often gained new adult member; these hhs incur less of an economic shock

Finding 3: Gender Effects of Mortality on Crop Cultivation

- Death of male head → -0.9 acre to sugarcane, horticultural crops
- Death of female head → -1.8 acre to cereals, tubers
Finding 4: Effects of Death on Farm Production Sensitive to Gender, Position in HH

- Death of Male hh-head → 68% reduction in value of crop output
- Death of Female head/spouse → less dramatic but still negative effects
- Why Effects of Male Prime Age Mortality are Greater?
  - High frequency of females leaving after male hh-head dies
  - Loss of female ag. labor to caregiving
  - Loss of higher-return crops
- Insignificant effects in case of death of other hh member

Finding 5: Greatest decline in farm assets among hhs suffering male hh-head mortality

- Mainly sell off small animals and farm equipment
- Cattle assets actually increase after male head dies (bride dowry from daughters leaving?)
Finding 6: Loss of Off-Farm Income

- Death of Female Head/Spouse: $-438 per year (not significant)
- Death of Male Head: $-193 (highly significant)

Finding 7: Little Indication that Households are Able to Recover Quickly

- Economic status of afflicted hhs is equally severe regardless of when male and female head mortality occurred between 1997 and 2000.
Implications

- Need Special Targeting Assistance to Widows and their Households
- Need to Overcome Gender Barriers to Women’s Participation in Training Programs for Cash Crops

Implication - 2

- Widow Inheritance, common in Nyanza Province, needs more public campaign attention.
- Targeting strategies aimed at widows may reduce economic need for widow inheritance and associated risky behaviors
  - e.g. Land tenure security for widows
Implication - 3

• Not Clear that Focus Should be Put on Low-Input Ag. Tech
  – Adult Mortality also depletes capital and land
  – Cultivate all available land and get low returns?
    vs.
    Maximize returns using intensive cultivation of less land, rent out the rest
• Rise of cassava in southern Africa concurrent with cuts in maize/fertilizer subsidies in 1990s

What is the appropriate allocation of limited financial resources between:
  – Investing in Long-Term Productivity (e.g. education, governance, infrastructure)
    vs.
    – Investing in responding to AIDS

Highly synergistic