HIV/AIDS and the Agricultural Sector:

What do We Know, and What do We Need to Know

T.S. Jayne and Antony Chapoto
Michigan State University

Presentation at USAID/Zambia
Lusaka, Zambia
April 26, 2005

Effective Response to HIV/AIDS Requires Knowledge of:

- How individuals, households, & communities respond to AIDS-related illness and mortality
- 20+ years after the onset of the disease, the empirical foundation for the design of programs is still weak

Major Research & Policy Questions:

- If Donors Provided an Additional $500 million to Combat AIDS, how should it be allocated:
  - To ARV treatment?
  - To improved nutrition programs?
  - To agricultural & rural development?
  - To investment in vaccines?
  - To community-driven development programs?

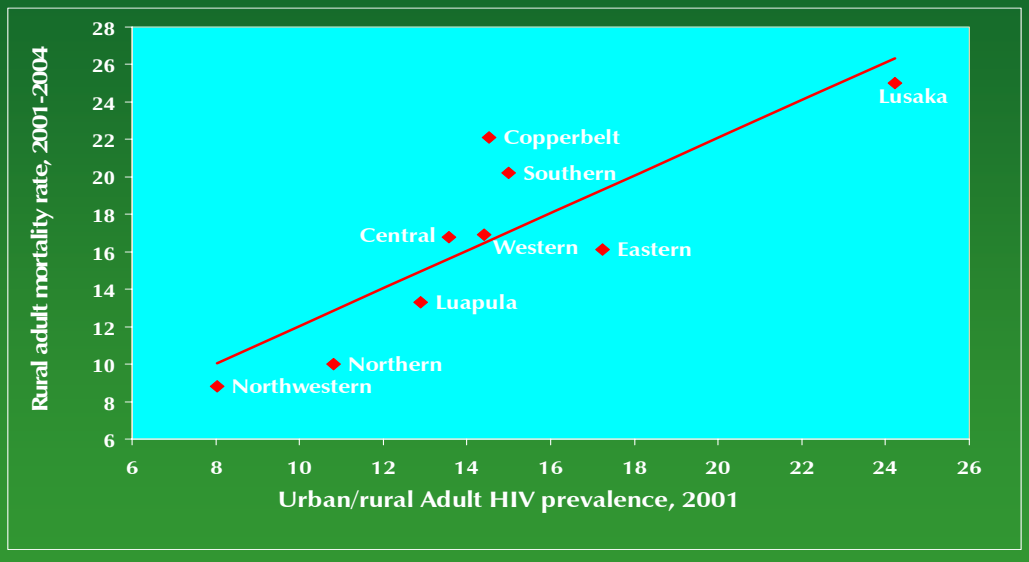
Outline

- PART I: what do we know about how households respond to prime-age death
- PART II: broader trends affecting the appropriateness of various responses to HIV/AIDS
- PART III: consideration of "response strategies" to improve resistance / resilience

Characteristics of MSU household surveys

Country	Sample size	Year(s) of surveys	Panel or cross-sectional
Kenya	n=1422 n=1266	1997, 2000, 2002	Panel
Malawi	n=420 n=372	1990, 2002	Panel
Mozambique	n=4908	2002	Cross-section
Rwanda	n=1395	2002	Cross-section
Zambia	n=6922	2001, 2004	Panel

Fig 1: Correlation between provincial rural adult mortality rates and HIV+ Prevalence rates, Zambia



Source: CSO/MACO/FSRP PHS 1999/2000 and SS, 2001 and 2004. $r^2 = 0.84$

Finding #1

Afflicted households/individuals are not random

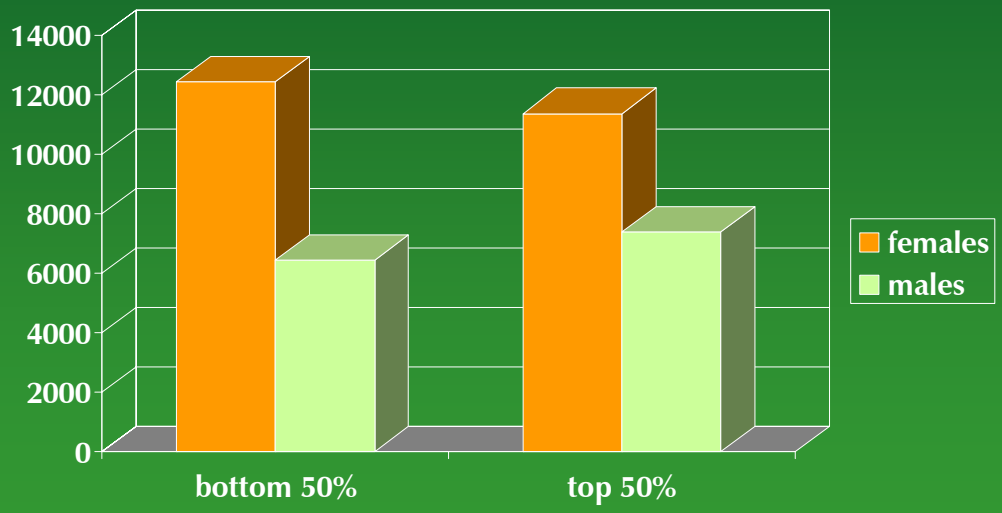
- Early 1990s: positively correlated with income, wealth, education, mobility
- Still the case in some countries (e.g., Zambia)
- Recent evidence in other countries: increasingly concentrated among the poor (e.g., Kenya, South Africa)

Income Status (2000) of Households Incurring a Prime-age Death between 2000-2003, Rural Zambia

	Deceased prime-age males	Deceased prime-age females
Poorest 25%	17.0	22.7
2nd quartile	20.9	20.4
3rd quartile	32.2	29.6
Wealthiest 25%	29.9	27.3

Finding 2: 60% of PA mortality is women

Prevalence of PA mortality, by sex and income, Zambia, 2001-2004



Finding #3

- Disproportionate share of the prime-age deaths are:
  - 15-30 year old daughters living with their parents
  - Not primarily household heads / spouses

Finding #4

- Married men and women are one-third as likely to suffer a disease-related death than single men and women

Finding #5

- Men and women who spent more than 1 months away from home were 2 and 3 times likely to die than those living at home throughout the year

Finding #6: Certain factors affect the magnitude of impacts on households

- Strong evidence that impacts depend on:
  - Initial level of household vulnerability (assets, wealth)
  - Sex of the deceased
  - Position in household of deceased
  - Ability of household to attract new members
  - Characteristics of adults remaining in household (e.g, skills, education level)

Finding 7: Effects of Death on Farm Production Sensitive to Gender, Position of Deceased in Household

- Death of Male hh-head → 48% 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?
  - Loss of female ag. labor to caregiving
  - Loss of higher-return crops
- Death of other hh member – insignificant effects on ag.

Finding 8: For afflicted households, cash constraints often become the limiting factor in crop production

- Drawing non-resident members back to the farm can sever off-farm income sources
  - Kenya: death of head or spouse associated with $120 and $260 per year reduction in off-farm income

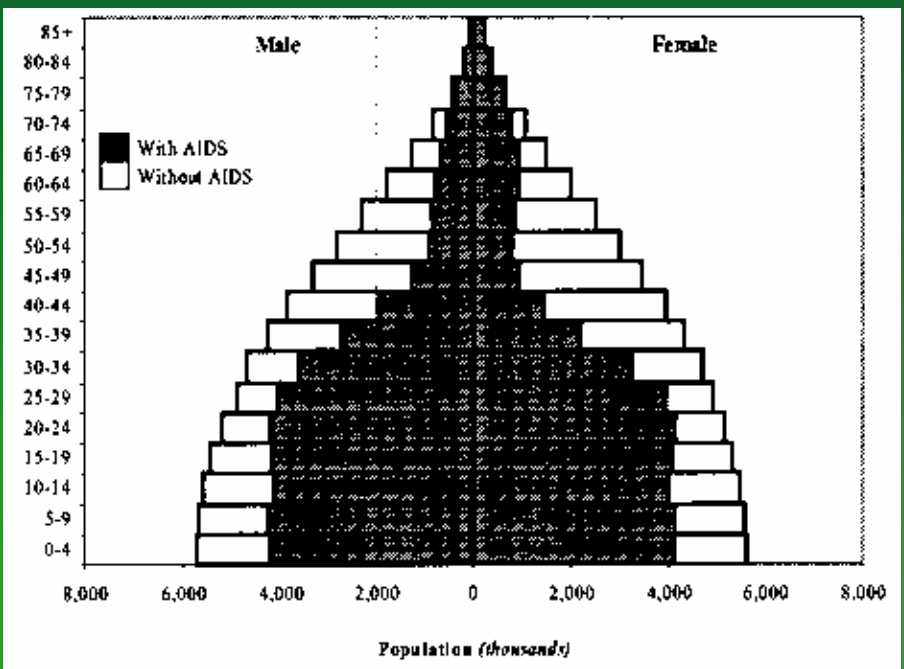
Finding 9: Effects Most Severe on the Poor

- Very few significant effects detected among households in top half of asset distribution
- Effects on ag production and non-farm income were larger and more highly significant among the poor

Part 2: Major Exogenous Trends Influencing Policy Options for AIDS Mitigation

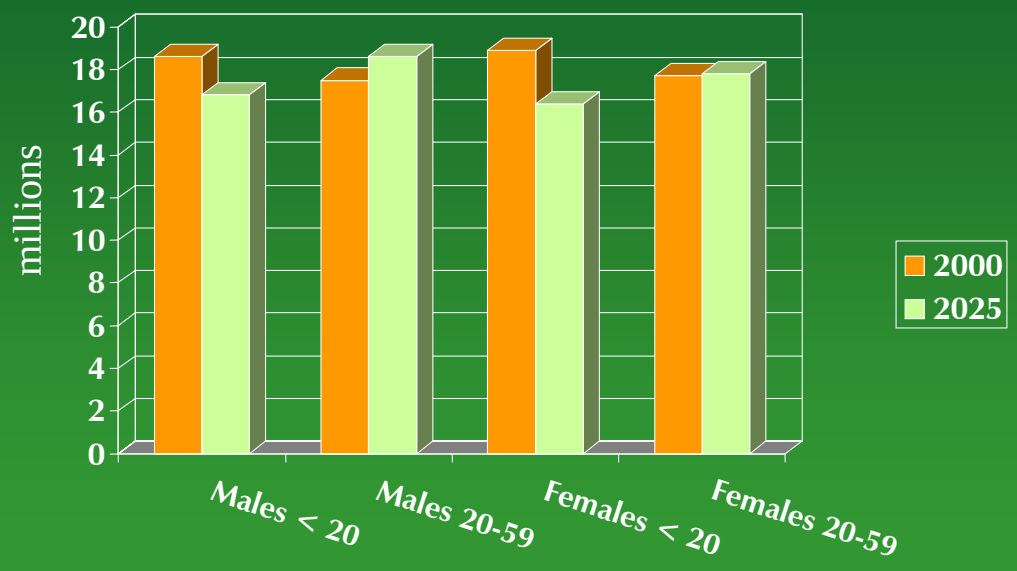
- Population growth trends
- Decreasing farm size
- Rural → urban migration ("push" effect)
  - underemployment in burgeoning informal sector
- Partial dismantling of fertilizer + maize production subsidies in E. and S. Africa

Projected Population in the 7 Most Highly Affected Countries, "With AIDS" vs. No-AIDS Scenario, by Sex and Age Group, 2025.



Population Size, 2000 vs. 2025 (projected)

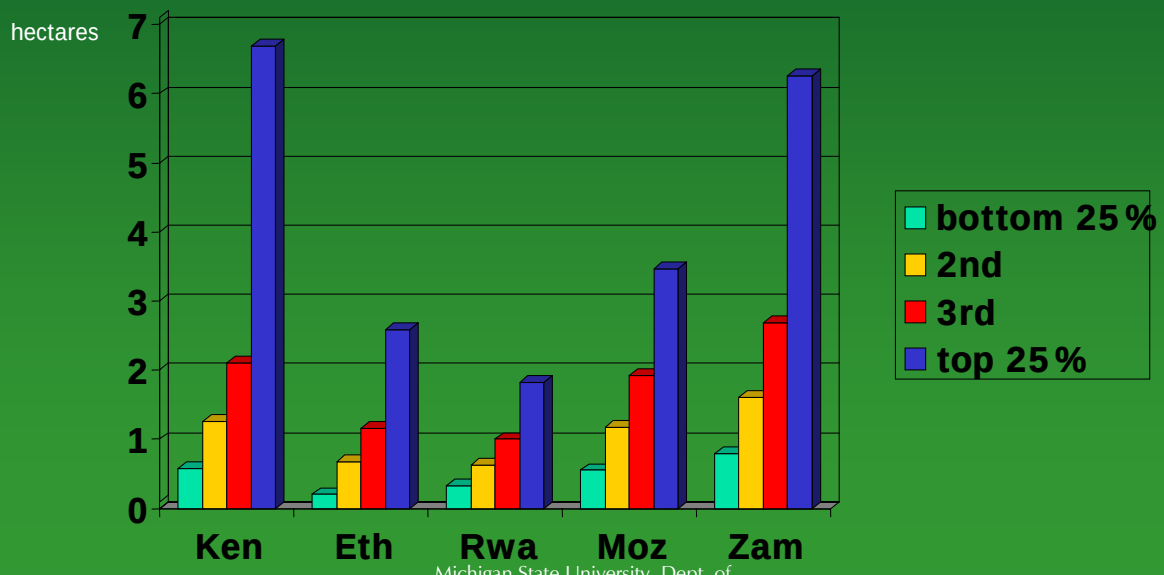
Seven Most Highly Afflicted Countries



Trend #2: Evidence of population shifting into agriculture, 1990 and 2000 Census, Zambia

	% change
Total population	+33.9
Urban pop	+18.7
Rural pop:	+43.6
agricultural	+96
non-agric.	- 47

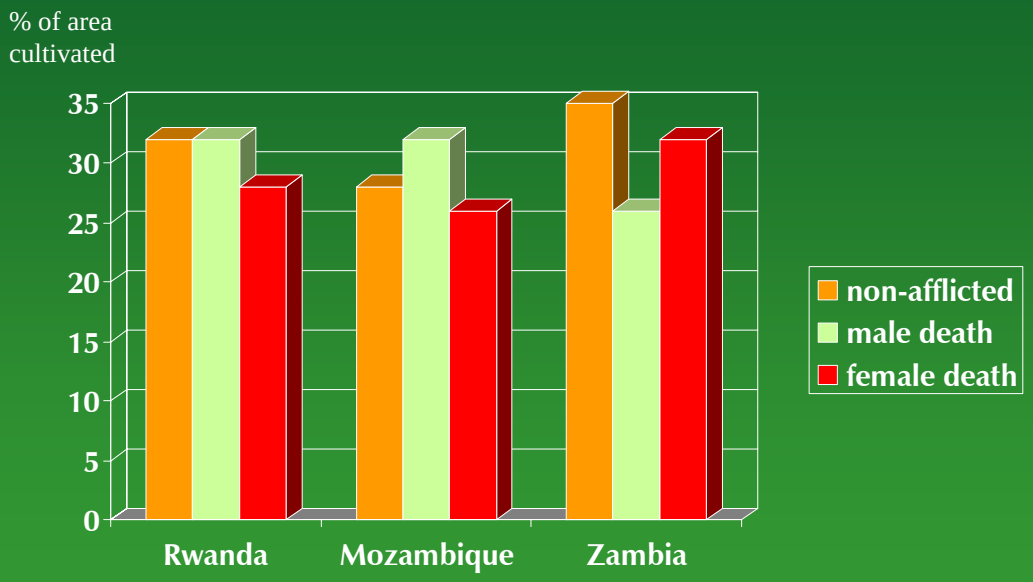
Farm Size Distribution – Smallholder Sector only



Implications - I

- Not clear that afflicted households need or should be urged to use:
  - labor-saving crops
- Why?
  - crops that reduce labor input per acre may sacrifice income and food produced per acre
  - Must take into account population density and extent of under-employed labor
  - Conventional wisdom hasn't adequately recognized the effect of underemployment in informal sector on urban → rural labor migration

Is the Cassava Boom Related to AIDS-related Labor Shortages?



PART 3: What To Do?

1. Assist in creation of *capital assets* in agricultural production
   - Loss of cash likely to be *the* greatest threat to maintenance (or improvement) in agricultural productivity

What To Do? (continued)

2. Promote *out-grower arrangements* for interlocked credit-input-crop sale, with specific arrangements for female-headed households
   - e.g., remove restriction on title deed
   - Use the cash crop scheme as mechanism for firm to recover input loans for food crops
   - Will help improve afflicted households' access to cash inputs

What To Do? (continued)

3. Need to Overcome Gender Barriers to Women's Participation in Training Programs for Cash Crops
   - Experience with master farmer training of cash crop husbandry practices for women

What to do? (continued)

4. Skill training programs targeted at young women and widows may reduce economic need for risky behaviors
   - "do you want us to die now or die later"?
   - BUT: evidence is not showing that female mortality is inversely related to income/wealth

What to do? (continued)

5. Modify rules governing women's rights and access to resources
   - e.g. work with communities to recognize that it is in the communities' interest for widows to retain access to land after husband's death
   - Will require shifts in consciousness
   - Recognition that communities' resilience to AIDS will require more equality for vulnerable groups.

Need for appropriate balance between:

- Investing in long-term productivity growth (education, infrastructure, markets)

  vs
- Targeted assistance to affected HHs
- Poverty and HIV/AIDS are mutually reinforcing → hence pro-poor productivity growth is crucial
- Resources are scarce: which investments provide greatest benefits?

Michigan State University, Dept. of Agricultural Economics