

HIV/AIDS and the Agricultural Sector:

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

T.S. Jayne
Michigan State University

Presentation at the RENEWAL Conference on
HIV/AIDS and Food and Nutrition Security
Durban, South Africa
April 14-16, 2005

Michigan State University, Dept. of
Agricultural Economics

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

Michigan State University, Dept. of
Agricultural Economics

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?
- Is the “New Variant Famine” scenario real?

Michigan State University, Dept. of
Agricultural Economics

Outline

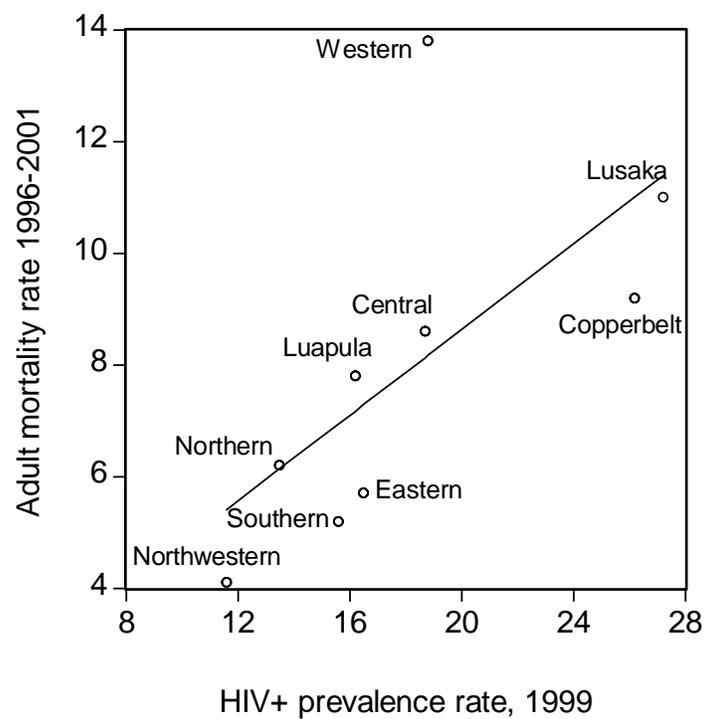
- PART I: what do we know about how households respond to prime-age death
- PART II: broader trends affecting the appropriateness of various responses to HIV/AIDS
- PART III: consideration of “response strategies” to improve resistance / resilience

Michigan State University, Dept. of
Agricultural Economics

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

Michigan State University, Dept. of
Agricultural Economics



Michigan State University, Dept. of
Agricultural Economics

What “danger signs” should we be seeing?

Expected	Evidence?
Area cultivated ↓	Mixed
Agricultural production ↓	Mixed
Child school attendance ↓	Yes
Reverse urban → rural labor migration	Yes
Agricultural labor income ↓	??

Michigan State University, Dept. of
Agricultural Economics

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)

Michigan State University, Dept. of
Agricultural Economics

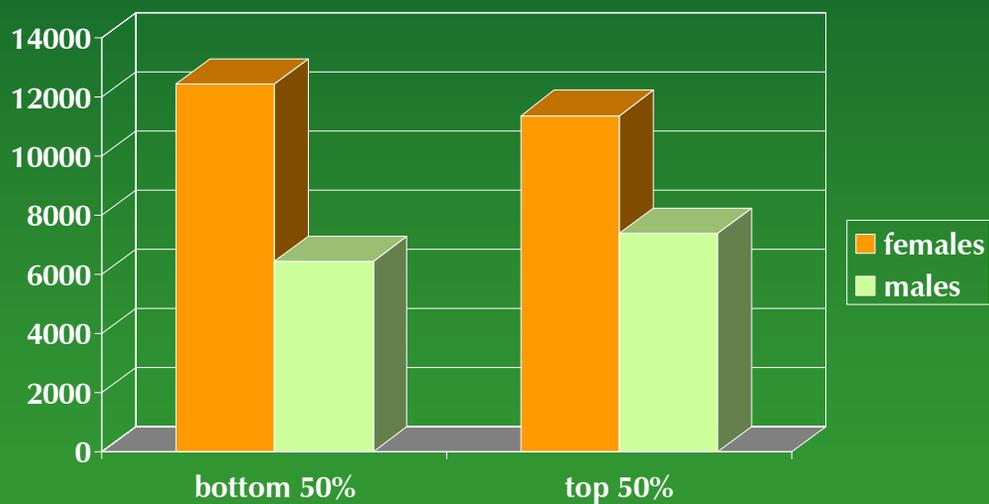
Income Status (2000) of Households Incurring a Prime-age Death between 2000-2003, rural Zambia

	Deceased prime-age males	Deceased prime-age females
Poorest 25%	21.0	24.7
2 nd quartile	20.9	20.4
3 rd quartile	32.2	27.6
Wealthiest 25%	25.9	27.3

Michigan State University, Dept. of
Agricultural Economics

Finding 2: 60% of PA mortality is women

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



Michigan State University, Dept. of
Agricultural Economics

Finding #3: 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)

Michigan State University, Dept. of
Agricultural Economics

Gender Effects of Mortality on Crop Cultivation

- In Kenya:
 - Death of male head → - 0.9 acre to cash crops (e.g., sugarcane, horticulture)
 - Death of female head → - 1.8 acre to cereals, tubers

Michigan State University, Dept. of
Agricultural Economics

Finding #4: Household Composition Responds to Mortality

- Death of adults other than head/spouse:
 - draws additional members into household
- Death of head/spouse
 - Less ability to attract additional members
 - More likely that other young members will leave household

Michigan State University, Dept. of
Agricultural Economics

Finding 5: 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

Michigan State University, Dept. of
Agricultural Economics

Finding 6: 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

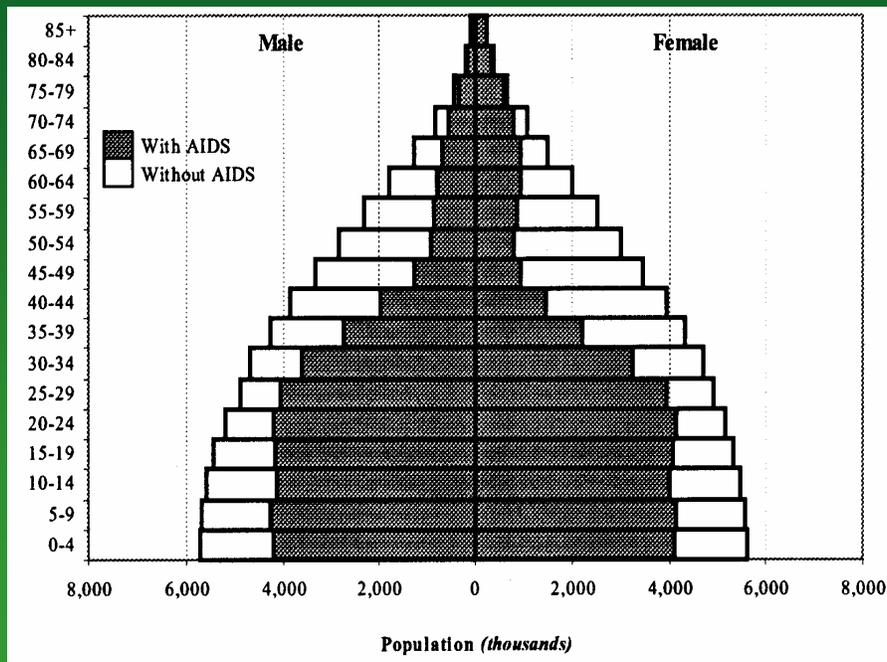
Michigan State University, Dept. of
Agricultural Economics

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

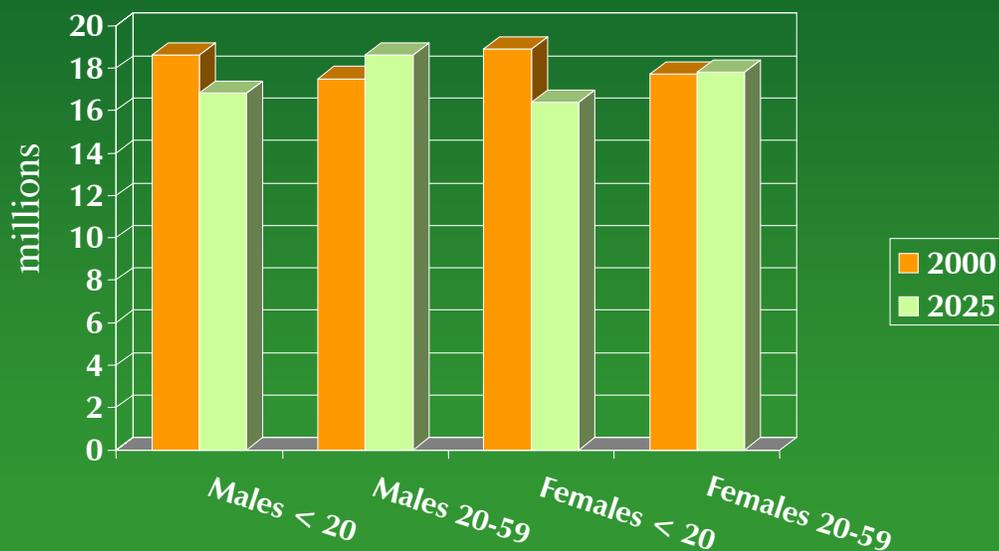
Michigan State University, Dept. of
Agricultural Economics

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



Michigan State University, Dept. of Agricultural Economics

Population Size, 2000 vs. 2025 (projected) Seven Most Highly Afflicted Countries



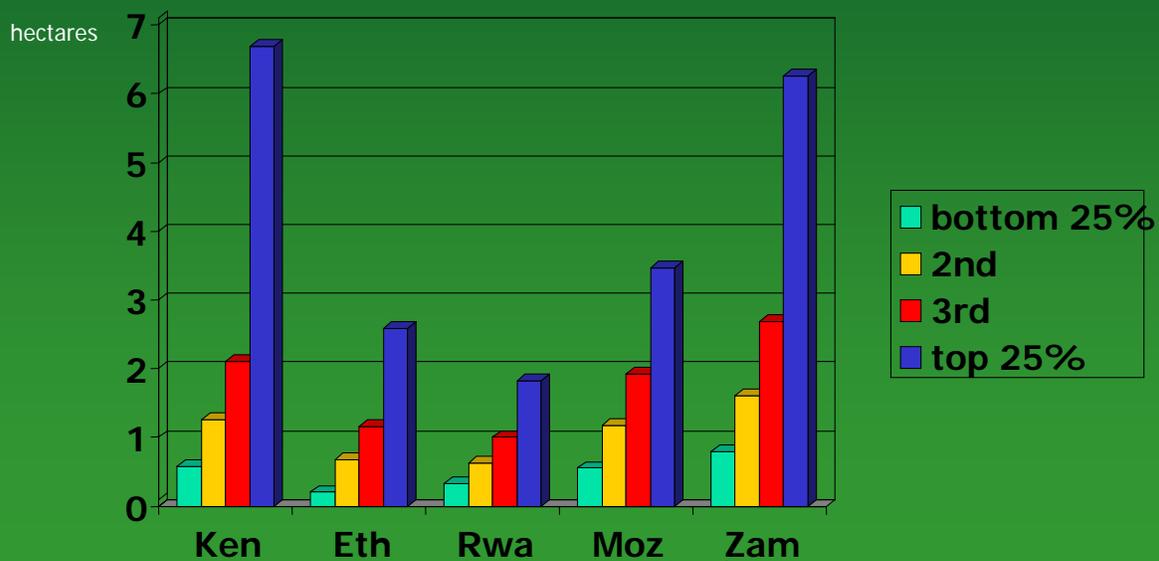
Michigan State University, Dept. of Agricultural Economics

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

Michigan State University, Dept. of
Agricultural Economics

Farm Size Distribution – Smallholder Sector only



Michigan State University, Dept. of
Agricultural Economics

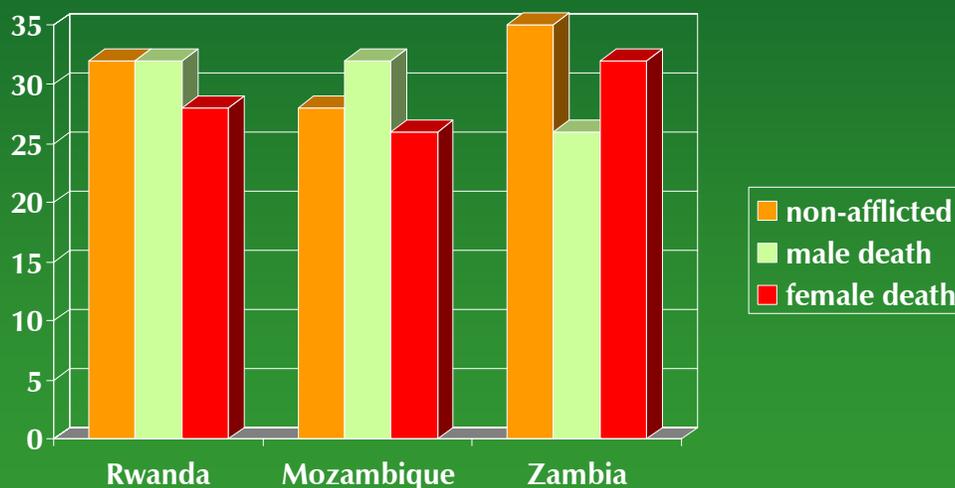
Implications - I

- 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

Michigan State University, Dept. of
Agricultural Economics

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

% of area cultivated



Michigan State University, Dept. of
Agricultural Economics

Implications - II

- Not clear that afflicted households should be urged to grow:
 - “more nutritious” foods
- Why?

Michigan State University, Dept. of
Agricultural Economics

	Nutritional units / kg produced	Kgs produced per acre	Nutritional units per acre
Crop X	10	100	1,000
Crop Y	5	250	1,250

Michigan State University, Dept. of
Agricultural Economics

- Crops that maximize nutrition / kg produced
≠
maximize nutrition / acre or income / acre
- need to take account of which crops provide greatest return to land / labor in a given area

Michigan State University, Dept. of
Agricultural Economics

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

Michigan State University, Dept. of
Agricultural Economics

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

Michigan State University, Dept. of
Agricultural Economics

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

Michigan State University, Dept. of
Agricultural Economics

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?