

Impact Analysis: AIDS and Agriculture

MSU Research in Sub-Saharan Africa

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Outline

- Hypotheses
- Methodology
- Households response
- Impacts
- Research findings
- Gaps and implications

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Methodological Challenges

- Identification of HIV/AIDS illness and death in rural areas: “Affected households/people”
 - Use of proxies
- Impacts occurring over time
 - Illness ⇒ Death
 - Process over time, changing impacts
 - Use of recall, panel data
- Heterogeneity of affected households/afflicted people
 - Importance of ex ante status
 - Composition of household

Characteristics of MSU household surveys

Country	Sample size	Year(s) of surveys	Panel or cross-sectional
Kenya	n=1266	1997, 2000, 2002, 2004	Panel
Malawi	n=420 n=372	1990, 2002	Panel
Mozambique	n=4104	2002, 2005	Panel
Rwanda	n=1395	2002	Cross-section (limited panel)
Zambia	n=6922	2001, 2004	Panel

Finding #1

Afflicted households/individuals are not random

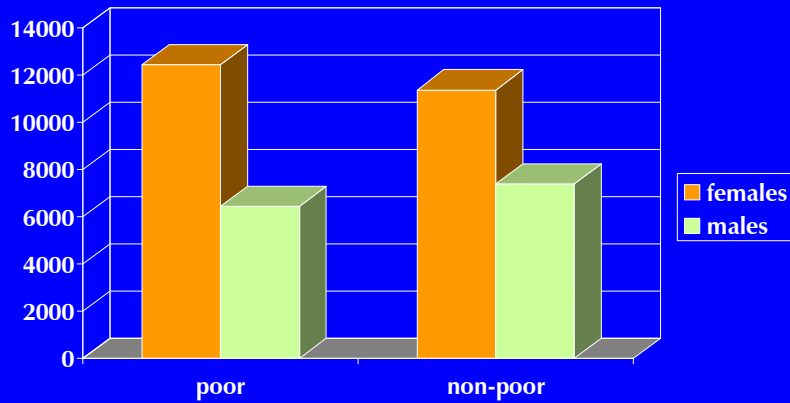
- Early 1990s: positively correlated with
 - income
 - wealth
 - education
 - mobility
- Some argue now increasingly concentrated among the poor (e.g., Malawi, South Africa)
 - Limited evidence of this
 - Women with higher prevalence rates / deaths

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
2 nd quartile	20.9	20.4
3 rd 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



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Mozambique: Income Distribution of HHs in 2002, before a death

HH Income Poverty Category, 2002*	Panel HHs without a PA death 2002- 05	Panel HHs with a PA death 2002- 05	All Panel HHs
<i>National</i>			
	----- % -----		
Extremely poor	42.3%	49.0%	42.7%
Poor	27.4%	20.1%	27.0%
Non-poor	30.3%	31.0%	30.3%
<i>North/Center</i>			
Extremely poor	40.7%	43.8%	40.8%
Poor	28.3%	23.5%	28.1%
Non-poor	31.0%	32.7%	31.1%
<i>South</i>			
Extremely poor	50.5%	60.2%	51.5%
Poor	22.9%	12.5%	21.8%
Non-poor	26.6%	27.3%	26.7%

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Finding #3: Impact on Household Size is not always -1

- Death of one adult does not always mean that the net impact on household size is always -1
 - Depends on who dies
 - Households adjust, bring in new members
 - Especially new women when a woman dies

Mozambique: Impacts of prime-age adult mortality on rural household number of adults (age 15 and over)

Covariates	Change in Household Number of Adults	
	National (A)	(B)
<i>Prime-age Adult Mortality¹</i>		
Male adult	-1.052**	
Female adult	-0.252+	
Male heads/spouse		-0.935**
Female heads/spouse		-0.362*
Other adult male		-1.284**
Other adult female		-0.102
2 or more PA deaths	-0.755**	-0.757**
<i>Elderly mortality</i>		
Elderly male	-0.864**	-0.873**
Elderly female	-1.082**	-1.078**
Chronically ill PA male adults (=1)	0.489**	0.487**
Chronically ill PA female adults (=1)	0.105	0.099
Constant	-0.057**	-0.057**
Village X time dummies	Yes	Yes
F-test on PA mortality	0.000	0.000
R-squared	0.22	0.22
Number of observations	4042	4042

Finding #4

- Magnitude of 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
 - Community characteristics:
 - Population density
 - Levels of wealth

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

Finding #5: What are we learning about “community effects”:

- What determines community “resilience”?
 - Currently very few local institutions to help
 - The load is almost fully borne by households themselves
- Local institutions/traditions influence resilience
 - Rules governing women’s rights and access to resources
 - e.g. can widows retain land and other productive assets after husband’s death?

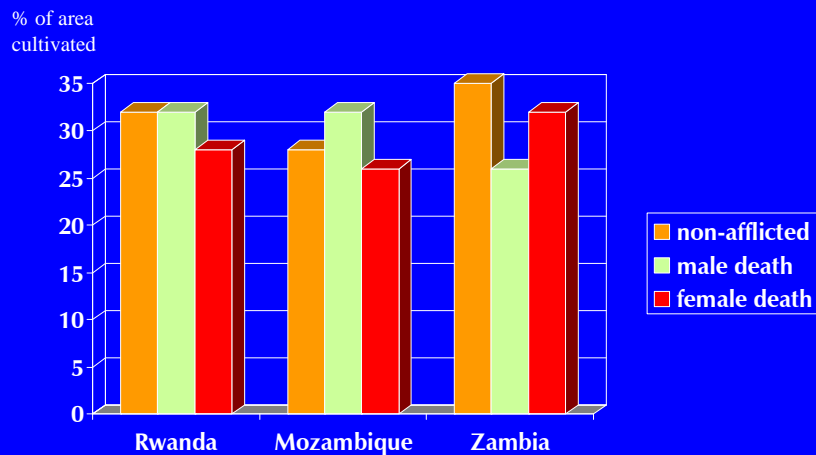
Finding #6

- Effects on agric. production and non-farm income most severe among the poor

Finding #7

- Among afflicted households, cash constraints often become the limiting factor in agric. 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

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



Implications

- Focus on Labor-Saving Ag. Tech?
 - Adult Mortality also depletes capital and land
 - Most afflicted households (Rwanda, Moz) were not making use of labor saving technologies or crops
 - Many afflicted households still have very high labor/land ratios
 - Prioritizing labor saving tech may forego potential productivity gains
 - Is the “cassava response” due to AIDS?

Major Challenges

- Focus Public Resources on:
 - Crop science for productivity of main food crops
 - Viable extension programs, including emphasis on women farmers
 - Investment in rural infrastructure
 - Irrigation, where potential exists
 - Access to land, especially land tenure security for women
- Policy Environment
 - Marketing and trade policies to catalyze smallholder productivity growth
 - WTO and food aid issues

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