

**MINISTRY OF AGRICULTURE
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Research Paper Series

**THE IMPACTS OF PRIME-AGE ADULT
MORTALITY ON RURAL HOUSEHOLD
INCOME, ASSETS, AND POVERTY IN
MOZAMBIQUE**

By

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The Impacts Of Prime-Age Adult Mortality On Rural Household Income, Assets, And Poverty In Mozambique

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EXECUTIVE SUMMARY

Using a three-year panel of 4,058 Mozambican households surveyed in 2002 and 2005, we measure how PA adult mortality due to illness affects rural household size and number of adult members, crop and non-farm income, total household income, and asset levels. First-difference estimations indicate that the effects of PA mortality vary considerably by the gender and household position of the deceased individual as well as by region. Results show that significant reductions in household size, income, and assets are more likely found in the event of a PA male death rather than a PA female death. In the North/Center of the country, a PA male head death can result in loss of 25% of crop income; in the South, such a death results in an average loss of 88% of non-farm income. In spite of these significant reductions in income, we do not find significant reductions in total income per AE among affected households, and they are not more likely to have ex post income/AE below the expenditure-based poverty line relative to non-affected households. However, due to significant asset losses and lower ex post landholding/AE relative to the non-affected population, affected households may be increasingly vulnerable to adverse income and assets shocks, especially those households that have suffered a PA male death.

TABLE OF CONTENTS

| | |
|---|------|
| ACKNOWLEDGEMENTS | iii |
| EXECUTIVE SUMMARY | vi |
| LIST OF TABLES | viii |
| LIST OF FIGURES | x |
| LIST OF ACRONYMS | xi |
| 1. INTRODUCTION | 1 |
| 2. DATA | 3 |
| 2.1. Sampling | 3 |
| 2.2. Sample Attrition | 5 |
| 2.3. Death/illness Proxy for HIV/AIDS | 6 |
| 3. ESTIMATION STRATEGIES AND VARIABLES | 8 |
| 3.1. Testing for Attrition Bias | 8 |
| 3.2. Reinterview Model | 8 |
| 3.3. First-Difference Model for Estimation of Mortality Impacts | 9 |
| 3.4. Outcome Variables | 14 |
| 4. RESULTS | 16 |
| 4.1. Tests of Attrition Bias | 16 |
| 4.2. Determinants of Reinterview | 16 |
| 4.3. Mortality Impacts on Household Labor Availability | 19 |
| 4.4. Mortality Impacts on Household Landholding | 25 |
| 4.5. Mortality Impacts on Household Livestock | 30 |
| 4.6. Household Net Crop Income | 31 |
| 4.7. Household Non-farm Income | 35 |
| 4.8. Household Total Net Income and Total Net Income/AE | 37 |
| 5. POVERTY AND PRIME-AGE ADULT MORTALITY | 41 |
| 5.1. <i>Ex Ante</i> Income and Poverty Status | 41 |
| 5.2. <i>Ex Post</i> Income and Poverty Status | 43 |
| 6. CONCLUSIONS | 47 |
| REFERENCES | 50 |
| APPENDIX TABLES | 54 |

LIST OF TABLES

| <u>TABLE</u> | <u>PAGE</u> |
|---|-------------|
| 1. TIA Sample Households and Prime-Age (15-59) Adult Mortality in Rural Mozambique, 2002-2005 | 4 |
| 2. Declared Reasons for Household Attrition between TIA 2002 and TIA 2005 | 5 |
| 3. Means of Household Outcome and Predetermined Variables by Household Attrition Status | 17 |
| 4. Probit Regression of Household Reinterview Model | 18 |
| 5. Difference-in-Differences Analysis of Rural Household Composition by Gender of Deceased Prime-age Adults, Mozambique, 2002-2005 | 21 |
| 6. Arrivals and Departures of Individuals from Rural Households with and without Prime-age Death, 2002-2005 | 22 |
| 7. The Impacts of Prime-age Adult Mortality on Rural Household Number of Adults (age 15 and over) | 23 |
| 8. The Impacts of Prime-age Adult Mortality on Rural Total Household Size (Adult Equivalents) | 24 |
| 9. The Impacts of Prime-age Adult Mortality on Total Household Land Area | 28 |
| 10. The Impacts of Prime-age Adult Mortality on Household Tropical Livestock Units | 30 |
| 11. The Impacts of Prime-age Adult Mortality on Household Total Net Crop Income | 32 |
| 12. The Impacts of Prime-age Adult Mortality on Household Total Net Crop Income from Grains, Beans, and Oilseeds | 33 |
| 13. The Impacts of Prime-age Adult Mortality on Household Total Net Crop Income from Root and Tuber Crop Income | 34 |
| 14. The Impacts of Prime-age Adult Mortality on Household Total Net Income from Cash Crops | 35 |
| 15. The Impacts of Prime-age Adult Mortality on Household Total Net Nonfarm Income | 36 |
| 16. The Impacts of Prime-age Adult Mortality on Rural Total Net Household Income | 37 |
| 17. The Impacts of Prime-age Adult Mortality on Rural Total Net Household Income Per Adult Equivalent | 39 |
| 18. Proportion of TIA Panel Households With and Without Prime-age Mortality 2002-05, by Quintiles of Total Net Household Income/AE, 2002 | 41 |
| 19. Proportion of TIA Panel Households With and Without Prime-age Mortality 2002-05, by <i>Ex Ante</i> Poverty Category, 2002 | 43 |
| 20. Proportion of TIA Panel Households With and Without Prime-age Mortality 2002-05, by Quintiles of <i>Ex Post</i> Total Net Household Income/AE, 2005 | 44 |
| 21. Rural Household Income Poverty Dynamics 2002-2005 and Prime-Age Adult Mortality, by Region | 46 |

APPENDIX TABLES

| <u>TABLE</u> | <u>PAGE</u> |
|--|--------------------|
| 1. Case Numbers of TIA Households with Prime-age Adult Mortality during the Panel Period 2002-2005, and Chronic Prime-age Illness in 2005..... | 55 |
| 2. The Impacts of Prime-age Adult Mortality on Rural Household Number of Adults (age 15 and over) (Extension of Table 7)..... | 56 |
| 3. The Impacts of Prime-age Adult Mortality on Rural Total Household Size (Adult Equivalents) (Extension of Table 8)..... | 57 |
| 4. The Impacts of Prime-age Adult Mortality on Total Household Land Area (Extension of Table 9)..... | 58 |
| 5. The Impacts of Prime-age Adult Mortality on Household Tropical Livestock Units (Extension of Table 10)..... | 59 |
| 6. The Impacts of Prime-age Adult Mortality on Household Total Net Crop Income (Extension of Table 11)..... | 60 |
| 7. The Impacts of Prime-age Adult Mortality on Household Total Net Crop Income from Grains, Beans, and Oilseeds (Extension of Table 12)..... | 61 |
| 8. The Impacts of Prime-age Adult Mortality on Household Total Net Crop Income from Root and Tuber Crop Income (Extension of Table 13)..... | 62 |
| 9. The Impacts of Prime-age Adult Mortality on Household Total Net Income from Cash Crops (extension of Table 14)..... | 63 |
| 10. The Impacts of Prime-age Adult Mortality on Household Total Net Nonfarm Income (Extension of Table 15)..... | 64 |
| 11. The Impacts Of Prime-age Adult Mortality on Rural Total Net Household Income (Extension of Table 16)..... | 65 |
| 12. The Impacts of Prime-age Adult Mortality on Rural Total Net Household Income Per Adult Equivalent (Extension of Table 17)..... | 66 |

LIST OF FIGURES

| <u>FIGURE</u> | <u>PAGE</u> |
|--|--------------------|
| 1. Cumulative Distribution Function of 2005 Total Household Landholding/AE for Households with and without Prime-age Mortality, 2002-05..... | 29 |
| 2. Cumulative Distribution Function of 2002 Total Household Landholding/AE for Households with and without Prime-age Mortality, 2002-05..... | 29 |
| 3. Cumulative Distribution Function of 2002 Total Net Household Income/AE for Households with and without Prime-age Mortality, 2002-05..... | 42 |
| 4. Cumulative Distribution Function of 2005 Total Net Household Income/AE for Households with and without Prime-age Mortality, 2002-05..... | 45 |

ACRONMYS

| | |
|--------|--|
| AE | Adult Equivalent |
| AIDS | Acquired Immune Deficiency Syndrome |
| ARVs | Anti-retroviral Treatment |
| BGLW | Beckett, Gould, Lillard, and Welch test |
| CDF | Cumulative distribution function |
| DID | Difference in Differences |
| FAO | Food and Agricultural Organization |
| FD | First Difference |
| FSRP | Food Security Research Project |
| GPS | Geographic Positioning System |
| HHs | Households |
| HIV | Human Immunodeficiency Virus. |
| IAF | Inquérito dos Agregados Familiares (Household Budget and Expenditure Surveys) |
| IIAM | Institute of Agricultural Research of Mozambique |
| INAM | National Institute of Meteorology |
| INE | National Statistics Institute |
| INGOs | International Non-governmental Organizations |
| IPW | Inverse Probability Weights |
| MINAG | Ministry of Agriculture |
| MSU | Michigan State University |
| NGOs | Non-governmental Organizations |
| PA | Prime age (15-59 years of age) |
| RIACSO | United Nations Regional Inter-Agency Coordination and Support Office |
| SIMA | Sistema de Informação de Mercados Agrícolas (Agricultural Market Information System) |
| TIA | Trabalho de Inquérito Agrícola (Agricultural Household Surveys) |
| TIA02 | TIA conducted in 2002 |
| TIA05 | TIA conducted in 2005 |
| TLUs | Tropical livestock units |
| UEM | Universidade Eduardo Mondlane |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| UPA | Unidade Primaria de Administração (Standard Enumeration Unit) |
| USAID | United States Agency for International Development |
| WHO | World Health Organization |

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1. INTRODUCTION

Estimates of adult mortality in Sub-Saharan Africa have risen considerably since the onset of the HIV/AIDS epidemic, most notably in countries with higher HIV prevalence rates (Ngom and Clark 2003). HIV/AIDS prevalence in Mozambique has increased dramatically since the mid-1990s and was estimated to be 16.2% in 2004 (Ministério de Saúde 2005). Although HIV prevalence in Mozambique varies considerably by region and rural/urban distinction, it is nevertheless continuing to rise in many regions of the country. While there is general agreement that the epidemic will have significant negative effects on agriculture and rural development in Mozambique, as throughout much of Sub-Saharan Africa, to date there has been little empirical information to identify which individuals and households living in rural areas of Mozambique are most likely to be suffer from HIV-related illness and death, and to quantify the impact of prime-age adult illness and death on rural household incomes and assets.

Theoretical and qualitative studies report a multifaceted loss to a rural household's livelihood due to HIV-related prime-age adult illness and death: the loss of on-farm labor, off-farm income from wage labor or own-business activities, technical knowledge of agricultural production and marketing, access to land, and liquidation of livestock, farm equipment or other assets to cover medical expenses during the illness period and funeral expenses after death. While some of these effects have been found by the few available empirical studies based on reasonably large and representative panel samples, these studies find that impacts vary considerably conditional on characteristics of the deceased individual (household position and gender) and the household (*ex ante* asset or poverty status) (Drimie 2002; Yamano and Jayne 2004; Chapoto 2006). More recent research has also indicated heterogeneous mortality effects across households (IFPRI 2006). In general, these studies found effects to be more severe in the case of the death of a male head of household and for households that were relatively poorer *ex ante*. Explanations for heterogeneous impacts include differences in household responses as well as differences in what assets the household lost when the individual died. An example of the first is that some affected households are better able to replace the lost farm labor either through attracting new members or through hiring part-time labor (i.e. given higher wealth). An example of the second is that male members, especially heads, tend to be the ones who cultivate the higher-value cash crops and have the educational background to access higher-wage non-farm employment.

Extant results also suggest that the magnitude and type of household effects may vary across countries (and regions within some countries). For example, Barnett et al. (1995) conclude from case study research in Uganda, Tanzania, and Zambia, that the effects of adult mortality on rural livelihoods may vary considerably across and within countries given numerous factors such as the extent of HIV infection, labor requirements of the predominant cropping system, population density, and the size of the local labor market. Given the large share of crop and livestock production in total incomes in Mozambique (Boughton et al. 2006), the limited use of animal traction and hired labor in Mozambique, and relatively high land/labor ratios, we might expect to find larger impacts on crop production and thus total household

