MEASURING THE EFFECTS OF PRIME-AGE ADULT MORTALITY IN KENYA

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BACKGROUND: The starting point for the design of effective programs to mitigate the impacts of AIDS-related adult mortality is accurate information on how households are affected by, and respond to, premature death. This note presents key findings from the study, Measuring the Effects of Prime-Age Adult Death on Rural Households in Kenya. The full report is downloadable from the web address above. While this is an initial exploration, the study is designed to help in the formulation of programs to mitigate the spread and effects of the disease.

OBJECTIVES: This paper estimates the impact of prime-age adult mortality on household composition, crop production, asset holdings, and non-farm income using nationwide household survey data in rural Kenya. Life expectancy has declined by 10 years due in Kenya due to HIV/AIDS. Linking detailed nationwide household survey data on agricultural production, off-farm incomes, assets, and mortality/morbidity, this work goes beyond village case studies that have limited earlier work on the topic.

METHODS: The study is based on a two-year panel of 1,422 households surveyed in 1997 and 2000. First, the paper uses adult mortality rates from an HIV-negative sample from neighboring Tanzania to predict the number of deaths in the Kenya sample that might have been expected in the absence of HIV, and compares this to the number of deaths actually recorded over the survey interval. Based on this procedure, only a quarter of the prime-age female deaths in the 25-34 age range and about half of the male deaths in the 35-44 year age range age range could have been predicted on the basis of the HIV-negative Tanzanian adult mortality rates. In Nyanza Province, the discrepancies were even larger. This strongly indicates that AIDS accounts for a large proportion of the recorded deaths for these age/sex categories, particularly in the Nyanza area. Next, using household fixed-effects models that control for time-varying effects, we estimate changes in outcomes between households afflicted by adult mortality vs. those not afflicted over the three-year survey period.

FINDINGS: The study highlights six major findings:
        First, there are important gender differences

in the prevalence of adult death. Half of the deceased prime-age men were in the highest per capita income quartile in the 1997 survey and they are likely to be household heads. This is consistent with findings from earlier studies showing a positive correlation between male HIV infection and socioeconomic status. Deceased prime-age women were distributed more evenly through all income quartiles and are most likely to be daughters in their households. While most NGO AIDS education campaigns are targeted toward low-income workers, such as agricultural laborers on commercial farms, these findings indicate the need to target relatively high-income men as well.

        Second, the gender and status of the deceased person affects how household size and composition adjusts. Households suffering the death of a head-of-household or spouse incurred a greater-than-one person decline in the number of household members. Male head-of-household mortality significantly increased the likelihood that older daughters would leave the household, often to get married. These households also significantly increased their cattle assets between 1997 and 2000. However, these households incur major losses in their supply of adult labor.

        Female head/spouse mortality is associated with a 60% probability in the departure from the premises of a young boy as well as a young girl. This conforms to the conventional wisdom that women are the main caregivers and that new widowers may seek to relocate their young children to the homes of relatives while they focus on earning a livelihood to support them.

        By contrast, the death of other prime-age family members is partially offset by the entry or return of other adult members. We detect few statistically significant effects on household size, crop production, off-farm income, and asset levels when the mortality incurred is a member other than the household head or spouse. However, these are very partial measures of welfare.

        Third, the effects of adult death on farm production are sensitive to the gender, position, and age of deceased members. For example, the death of a male household head between 16 and 59 years old is associated with a 47-68 percent reduction in the value of the household's crop production (net of cash input costs), with the results being sensitive to the definition

of "prime age". Effects are less dramatic for other prime-age family members. The gender of the deceased adult affects the type of crop suffering a shortfall, with grain crops being adversely affected in the case of female adult mortality and "cash crops" such as sugar and coffee being most adversely affected in the case of male prime-age mortality. Our finding that male household heads' death has the most dramatic effect on crop production, may reflect two adjustments: (a) the shift in crop output from relatively high-value to low-value crops, which may result from the fact that it is primarily men who acquire the specialized crop husbandry and marketing knowledge to grow these crops under outgrower and cooperative arrangements, and (b) the frequent loss of labor from the departure of older daughters from the household in addition to the loss of the male head.

Fourth, households seem to cope with prime-age adult death by selling particular types of assets, mainly small animals. Prime-age male head mortality is also associated with a reduction in the value of farm equipment, which contributes to the observed decline in farm production and exacerbates households' longer-term ability to restore former production levels.

Fifth, households incurring the loss of a prime-age male head-of-household suffer a significant loss of off-farm income (-$193 per year compared to un-afflicted households).

Sixth, there is little indication that households are able to recover quickly from the effects of adult mortality. The inclusion of categorical variables representing deaths occurring in 1999 or 2000 were not significant in any of the models, providing little evidence of recovery over the three-year survey interval.

IMPLICATIONS: The findings point to the need for special attention to widows (and their dependents) incurring the recent death of their prime-age spouse. The loss of income from cultivation of cash crops such as tea, sugarcane, and horticulture was a major source of hardship for these households, resulting from the loss of family labor as well as a loss in crop husbandry and marketing knowledge for such crops. By overcoming gender barriers and nurturing women farmers' participation in extension programs, cooperatives, and outgrower crop schemes, the shocks to agricultural income faced by widows' households could be mitigated. Government and outgrower companies can organize field sessions in which experienced farmers are recruited to help teach women about husbandry and marketing techniques for particular crops. However, such programs also require complementary campaigns to legitimize these activities within local communities, especially among men, many of whom feel that such training upsets traditional norms as to the gender-related division of labor activities.

NGOs providing targeted assistance to relatives of AIDS victims might prioritize households incurring the recent death of a prime-age male household head, which may reduce widows' needs to sell off productive assets or resort to dangerous activities like bartering casual sex – all activities that trade off long-run welfare in order to meet immediate survival needs.

Some longstanding traditions that formerly played a important social function, such as "widow inheritance," may spread the transmission of AIDS and appear to have become dysfunctional since the advent of HIV/AIDS. Strategies targeted to widows and their dependents may reduce the need for widow inheritance or even riskier behaviors such as the selling of sex.

How should rising prime-age mortality affect agricultural research priority setting? It has often been asserted that greater attention is now needed on labor-saving and low-input cropping systems. Yet prime-age death may affect households' access to productive assets in different ways; and their initial resource endowments also matter. In densely populated areas where many households farm less than a hectare, land and capital may be the most binding constraints even after a death in the family. Moreover, some crop technologies provide relatively high returns to land and labor in a given area but require substantial labor input per unit of land to achieve these returns. This leaves open the possibility that returns are higher from intensive cultivation of small fields rather than less intensive cultivation of larger fields. More research is needed on how crop technologies should be adapted for household afflicted by prime-age death before conclusions are reached on the need for low-labor or low-input technologies. Moreover, better-functioning labor and land rental markets will expand options for afflicted households. Market development and economic development may be the most important ways of enabling households to withstand the shocks caused by prime-age death, yet these long term growth processes will depend on minimizing the growth-retarding effects that AIDS creates through well-targeted assistance programs.