

# *The AIDS Epidemic in Malawi and its Threat to Household Food Security*

**Mike Mathambo Mtika**

AIDS is one of the factors that threaten household food security in rural Malawi. Interviews with respondents from a random sample of 65 rural Malawi households suggest that the threat of AIDS to household food security lies in its impact on social immunity, the collective resistance against problems. Social immunity is rooted in social capital endowments, the reciprocity and redistribution opportunities embedded in networks of interpersonal ties. Favorable social capital endowments engender significant sharing of labor, food, income, and time among households, and mitigate the negative effect of AIDS on the food security of any specific household. However, when the spread of AIDS reaches an epidemic threshold, it makes illness and death so extensive that ties in the extended family networks get fractured, social capital endowments become unfavorable, reciprocity and redistribution are undermined, social immunity is weakened, and food security gets compromised. Results of this research suggest that, as of 1996, there were signs that the epidemic was approaching threshold levels in rural Malawi. The results also suggest that the analysis of the impact of AIDS and initiatives aimed at controlling that impact should not just be undertaken at the household level but, more importantly, at the extended family level.

**Key words:** household food security, social immunity, social capital endowments, reciprocity, AIDS, Malawi

The incidence of acquired immune deficiency syndrome (AIDS) in Malawi, a country with 10.385 million people (PRB 2000), is among the highest in the world. From the time the first AIDS case was diagnosed in 1985 to the end of 1999, about 70,000 people in Malawi have died from the disease, and an estimated 760,000 people aged 15 to 49 years (15.96 % of prime age adults) are living with it (UNAIDS 2000). The epidemic is depleting the most productive labor, both at the national and household levels.

Increase in the cost of living begins as soon as a household member starts to suffer from AIDS-related illness and continues long after the member dies, at which time the household has not only permanently lost the labor of the deceased member but has incurred heavy medical and funeral costs (Bollinger, Stover, and Palamuleni 2000; Danziger 2000; Tibaijuka 1997). Households that grow labor-intensive crops, those using little labor-saving technology, those whose size is small, and those whose members are malnourished are most vulnerable to AIDS (Gillespie 1989; Barnett and Blaikie 1992).

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*The author is in the Department of Sociology, University of Alaska, Anchorage, 3211 Providence Drive, Anchorage, AK 99508-8198; email: afmmm@uaa.alaska.edu. I am very grateful to Kerry Feldman, Amy Kaler, Susan Watkins, Melissa Toffolon-Weiss, and anonymous reviewers of Human Organization for helpful comments that aided in improving this paper. The views expressed in the paper are mine.*

Several studies on the impact of illness on economic productivity, on the other hand, revealed contradicting effects of illness on household economic concerns in developing countries and suggested that this was due to people's collective coping mechanisms (Over et al. 1992). We shed more light on the impact of AIDS at the household level when we explore the effect of the epidemic on people's coping mechanisms. These mechanisms are the springboard of social immunity—defined here as the ability of a collective of people, specifically the extended family, to mitigate the impact of an affliction. I contend that AIDS has the dual effect of activating social immunity and weakening it when the epidemic reaches threshold levels.

This paper explores social immunity in rural Malawi, how AIDS weakens it, and in the process, how the weakening of social immunity is a threat to household economic concerns, specifically food security. In the next section, the central role of ties, reciprocity, and redistribution in social immunity is discussed. I then describe how the data were collected. Thereafter, I discuss the relationship between AIDS and household food security and end with a proposition that AIDS first activates social immunity in that its rise animates sharing of labor, food, and income among households within extended family networks. When the epidemic reaches threshold levels, however, people are overwhelmed with the burden of caring for one another. Their social immunity weakens and household economic concerns like food security get disrupted. In conclusion, I suggest that the social immunity hypothesis raises an important research agenda on the impact of AIDS at the household level.

## Ties, Reciprocity, and Redistribution in Social Immunity

Social immunity is rooted in networks of interpersonal ties. Its bedrock is social capital, defined as the abundance of information, trust, and help, that diffuses across networks of interaction among people, and through which individuals are obligated to exchange their resources, goods, and services to deal with problems or respond to opportunities (Bourdieu 1986; Coleman 1988; Flora 1998; Hofferth and Iceland 1998; Wall, Ferrazi, and Schryer 1998). Social immunity is rooted in social capital endowments,<sup>1</sup> defined here as the responsive resource ownership and transaction opportunities that facilitate the diffusion of help across households involved in reciprocity and redistribution activities. Social immunity enables a collective of people, organized around the extended family, to share their labor, food, income, and time, thereby mitigating the impact of AIDS on food security in any individual household in the extended family.

In sub-Saharan Africa, the family is an "extensive social network with a diversity of assured contacts" (Ankrah 1993:24). Individuals find their strength in relationships in a group much larger than their immediate family and engage in important support functions. Members of the extended family are culturally bonded through ties that facilitate the sharing of resources, goods, and services. These interpersonal ties are conduits for social capital. When the quality of ties is high, social capital endowments are favorable, reciprocity and redistribution activities are substantial, and households in the extended family collectively share the burdens.

Reciprocity refers to the movement of resources, goods, and services between correlative points of symmetrical groupings (Polanyi 1968:149). Gouldner (1960) defines reciprocity as the exchange of resources, goods, and services that takes place among people in response to obligations they feel they owe one another. Reciprocal actions are repayments for benefits received. As Gouldner (*ibid.*:173) puts it, "reciprocity holds that people should help those who help them and, therefore, those whom you have helped have an obligation to help you." To the extent that people are obligated both to give and to receive, reciprocity is reproduced and boundaries of interpersonal ties are defined (Mauss 1990).

The structure of ties between extended family households facilitates reciprocity. Redistribution, on the other hand, is a process facilitated by some central authority (Polanyi 1968:149); extended family leaders provide that central authority in rural Malawi (Mitchell 1956). Like reciprocity, redistribution moves resources, goods, and services, but toward a center and out of it.

Reciprocity and redistribution are activated by the need for assistance. They are contingent, however, upon social capital endowments and the collective adequacy of resources among households in an extended family network. A household short of food can get help from other households so long as social capital endowments are favorable and other households have some food. Similarly, a household

experiencing illness can get help from other households under favorable social capital endowments, contingent upon the health status in the other households. Afflictions should activate social immunity if relations among the households involved are favorable and resources within the extended family network are adequate. It is likely, therefore, that this collective defense against an affliction gets compromised if the affliction reaches a threshold that makes it difficult for members of the collective to share their resources.

I explore this conjecture by examining how households in three rural villages of Balaka, Malawi, met their food needs amidst the AIDS epidemic. The three villages, with an estimated population of 3,250, are inhabited mainly by the Yao, a matrilineal and matrilocal ethnic group (Mitchell 1956). They arrived in Malawi in the mid-1800s from the East Coast of Africa and were intermediaries in the Arab slave trade. Perhaps because of the Arab influence, most Yao are Muslims. They have historically been ardent in business ventures, but like all other ethnic groups in Malawi, they depend on agriculture as a main source of livelihood.

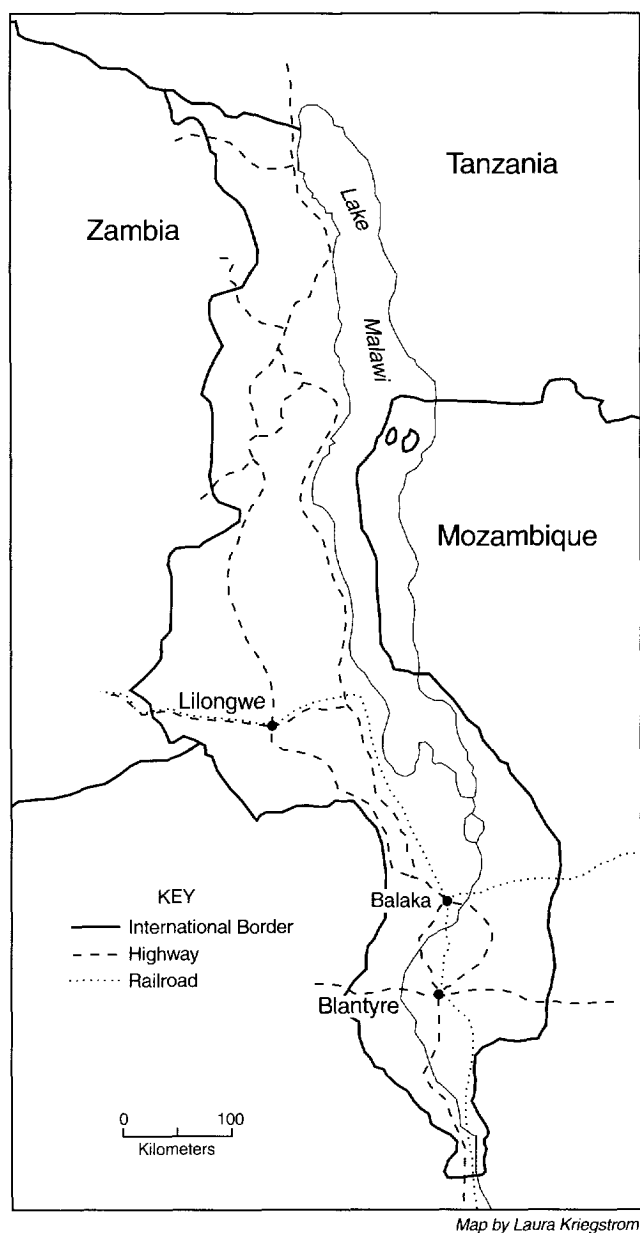
Balaka is located in southern Malawi, where most of the Yao live. Balaka has a town center with important transportation routes passing through it (see Figure 1). Highways run north to south through Balaka, and a railroad from Lilongwe, the capital of Malawi, to Blantyre, the commercial city in the south, passes through Balaka; another runs east to Nacala on the Indian Ocean in neighboring Mozambique. Because of its transportation networks, Balaka is a significant trading center; it also has one of the highest incidence levels of AIDS in Malawi. In 1995, for example, out of 182 people who were tested for HIV/AIDS at the Balaka Rural Hospital, 79 of them (43.4%) satisfied the Malawi AIDS case definition (MNACP 1995).<sup>2</sup> We do not know the prevalence rate of HIV/AIDS in Balaka, as these tests are done only on individuals who come to the hospital for the test or patients who agree to be tested. Sampling of the population has not been done. The statistics nevertheless are high for HIV/AIDS and the likelihood of finding households inflicted with AIDS is high. Hence, this rural town was chosen for this research from a number of other urbanizing centers in rural Malawi.

### Research Methodology

The data were collected mainly through interviews with household guardians (parents or grandparents) in 65 randomly selected households, consisting of 328 persons, in three villages. In each village, about 10 percent of the households were sampled. Household guardians (male or female) provided information about their households in weekly interviews for 10 consecutive weeks from December 1995 to February 1996.

December to February is the peak of the rainy season in Malawi. Timeliness of crop husbandry is critical if a household is to maximize crop yields and achieve some food security. Agricultural labor demand is high and food shortage is acute; hence sharing of labor and food was anticipated to be

**Figure 1. Malawi Showing Location of Balaka**



high. This is also a time of much illness and death; hence, sharing of help in the care of the ill and attendance of funerals was expected to be substantial as well.

The variables I examined are listed and defined in Table 1. Household food security is the dependent variable. Food security has conventionally been computed as a *food gap* or *food insecurity* probability (Salih 1995; Valdés 1981). There is a food gap in a population when the probability that per capita consumption in a given future period falls below its trend in a given previous period. There is food insecurity

when the probability that actual food consumption in a given period falls below a minimum daily requirement level, employing nutritional criteria. Food security—the access to enough food for a healthy and active life (World Bank 1986; von Braun et al. 1992; Salih 1995)—synthesizes food gap and food-insecurity indicators.<sup>3</sup> In Sen's (1981) language, a food-secure population commands adequate food bundles to meet its needs, whether through trade, production, sale of own-labor power, or inheritance and transfers.

I used a household's command over maize for assessing household food security. Maize is a staple food for rural Malawians, providing 73 percent of required calories (Chimwaza 1982). Household food security was computed as the difference between the amount of maize available in a household and the amount of maize needed for a household to adequately meet the nutritional needs of its members. The amount of maize available to a household was the sum of the maize produced by the household<sup>4</sup> and the potential amount of maize the household could buy with its cash income. The food composition tables for east, central, and southern Africa compiled by West and Maletnema (1987) were used to compute calories required by the household, from which maize needed by the household was calculated. People mostly consume maize flour, and so the food-security index was computed in terms of surplus or inadequacy of maize flour for a household to meet its calorie requirement. The extraction rate of maize flour ranges from 60 to 80 percent for the white maize produced and consumed in rural areas of east, central, and southern Africa (Maletnema and West 1987). I used an extraction rate of 75 percent in converting a household's maize supply into flour.<sup>5</sup> According to West and Maletnema, 100 grams of white maize flour yields 334 calories. The household food-security measure was computed as an index of the surplus or lack of maize flour for a household to meet 73 percent of calories required in the household. A positive figure meant the household had surplus maize flour above what it required to meet its calorie needs. A negative figure showed the amount of maize flour a household lacked to satisfy its daily calorie requirement.

The independent variables I regress on household food security include frequency of illness of household guardians, number of deaths in the household during 1990-95, frequency of funeral attendance by guardians, caring for the ill by female and male guardians, and providing and using casual labor (*ganyu*) in exchange for food or cash. Guardians were asked whether they were ill, cared for the ill, attended funerals, and whether they provided or used *ganyu* in food production the previous week. Frequencies of illness and caring for the ill, attending funerals, and using or providing *ganyu* over the 10-week period were computed and used in ordinary least squares regression to assess the effect of illness, death, and labor use on household food security. The other independent variables in the model are total land cultivated by the household and maize yield.<sup>6</sup>

To measure AIDS victimization in each household, we noted the chronically ill members of households during the

**Table 1. Illness, Death, and Food Security Variables and How They Were Measured**

<b>Variables</b>	<b>Definition</b>	<b>Measurement</b>
Household size	Number of people (all ages) in a household.	Listed all people the household guardian indicated to be members of the household.
Household food-security index	Difference between the maize (staple food) flour a household had and what it needed to meet household calorie requirement.	Computed 1) the amount of maize flour a household would need based on number and sex of household members; and 2) the maize flour a household had (from maize produced plus maize the household could buy with its income). The difference was the food-security index.
Food-insecure households	Number of households with inadequate maize flour to meet their daily calorie need	Households whose food-security index was negative were categorized as food insecure.
AIDS-afflicted households	Number of households with adult members ill from AIDS-related complications.	Listed households with chronically ill adults aged mostly 20 to 49 years who exhibited AIDS symptoms as stipulated by the Malawi National AIDS Control Program.
Land cultivated	Total land cultivated by a household in hectares (ha.).	Measured area of all plots cultivated by a household and totaled the land under cultivation during 1995-96 growing season.
Maize yield	Maize produced during 1995-96 season in kg. by a household per hectare of land put to maize.	Weighed maize in a subplot for each separate plot of maize and calculated yield per hectare from all the subplot weights.
Maize produced	Amount of maize in kg. produced during 1995-96 season by the household on all land put to maize.	Calculated from maize yield figures and the total area household put to maize.
Cash income (Malawi Kwacha)	Amount of money in Malawi currency earned by a household during the 10-week research period.	Asked household guardians how much money the household made the previous week and added all money made during the research period.
Use of ganyu	Number of weeks a household used ganyu labor at least once per week during the 10-week research period.	Asked if household used ganyu labor the previous week and averaged the number of times the household used ganyu during the research period.
Provision of ganyu	Number of weeks a household provided ganyu labor at least once per week during the 10-week research period.	Asked if household provided ganyu labor the previous week and averaged the number of times the household provided ganyu.
Illness of female guardians	Number of weeks a female guardian was ill at least once per week during the 10-week research period.	Asked if female guardian was unable to do farm work the previous week due to illness and averaged the number of times the female guardian was ill at least once a week.
Illness of male guardians	Number of weeks a male household guardian was ill at least once per week during the 10-week research period.	Asked if male guardian was unable to do farm work the previous week due to illness and averaged the number of times the male guardian was ill at least once a week.
Deaths in the households	Number of household members who died during 1990-95.	Asked how many household members have died since 1990.

**Table 1. Illness, Death, and Food Security Variables and How They Were Measured (Cont'd)**

<b>Variables</b>	<b>Definition</b>	<b>Measurement</b>
Female guardians funeral attendance	Number of weeks female guardians attended funerals at least once per week during the 10-week research period.	Asked if female guardian attended a funeral the previous week and averaged the number of times the female guardian attended a funeral at least once per week.
Male guardians funeral attendance	Number of weeks male guardians attended funerals at least once per week during the 10-week research period.	Asked if male guardian attended a funeral the previous week and averaged the number of times the male guardian attended a funeral at least once per week.
Female guardian caring for ill	Number of weeks a female household guardian cared for the ill at least once per week during the 10-week research period.	Asked whether the female guardian cared for the ill such that she was unable to do farm work the previous week and averaged the number of times the female guardian cared for the ill at least once per week.
Male guardian caring for ill	Number of weeks a male household guardian cared for the ill at least once per week during the 10-week research period.	Asked whether the male guardian cared for the ill such that he was unable to do farm work the previous week and averaged the number of times the male guardian cared for the ill at least once per week.

weekly visits and carefully documented symptoms they exhibited. Symptoms of deceased members of study households, if any, were also carefully documented. If symptoms of the ill or deceased members of households paralleled the MNACP definition of an AIDS case (see note 2), the household was defined as having been inflicted with AIDS.

Social immunity processes were documented mainly through two-stage qualitative interviews, beginning in January 1996. Household guardians were asked to explain how they cared for their ill members, how they found food when they ran short, how they were assisted if a household member died, and who they helped with food, care of the ill, and funeral arrangements. They were also asked to explain whether help from relatives and their support to their relatives have declined since 1990, and, if so, why? The second qualitative interview was conducted in May 1996, when maize had just been harvested. Respondents were asked to describe their experiences with illness, food shortage, and deaths during the rainy season, and to explain how they dealt with these problems. Both qualitative interviews were tape-recorded. Three of the 65 households dissolved by May—parents died and the children were either also dead or distributed among relatives. The leaders of the extended family network to which a dissolved household belonged were interviewed to shed light on these extinct households.

Case stories of each household's experiences with illness, death, food shortage, and how the household dealt with these problems were developed from these interviews. These stories shed light on collective coping mechanisms and how AIDS affected them. Qualitative data also reveal how ties

among extended family members allow help to diffuse across households and how the diffusion of help can reduce the burden from these afflictions on individual households.

### **Quantitative Data Findings**

Table 2 gives means and standard errors of the means of illness, death, and food security variables. The average food-security index was 1.815, showing that households on average had a surplus of 1.815 kilograms of maize flour above what they required to meet their daily calorie needs and indicating that the food-security status across the households was satisfactory. Nonetheless, 24 (37%) of the 65 households had negative food-security indexes; that is, they did not have enough maize flour to meet their daily calorie requirements. The household that registered the worst food supply situation had a food-security index of -4.619. This household required 7.635 kilograms of maize flour daily to meet the calorie needs of its 13 members. It only had 3.016 kilograms of flour available, giving a shortfall of 4.619 kilograms. This household was only able to meet about 40 percent of its calorie needs on a daily basis. On the other hand, 41 households had surplus maize flour, with the most food-secure household registering a food-security index of 27.96. This household had a daily surplus of 27.96 kilograms of maize flour over and above what it required to meet the calorie needs of its members.

The satisfactory average food-security index of 1.82 existed despite the fact that 23 (35%) households had adult members who were ill or deceased from AIDS-related complications; 17 of these households also had inadequate

**Table 2. Means and Standard Errors of Means for Illness, Death, and Food-Security Variables**

Variables	Mean	Std. Error
Household size	5.05	0.27
Household food-security index	1.82	0.71
Food-insecure households	24.00	-
AIDS-afflicted households	23.00	-
Land cultivated in hectares (ha.)	0.91	0.01
Maize yield (kg/ha.)	1,198.00	74.81
Maize produced (kg.)	1,063.00	133.78
Cash income (Malawi Kwacha)*	444.00	87.47
Use of ganyu	1.40	0.30
Provision of ganyu	3.18	0.41
Illness of female guardians	1.58	0.25
Illness of male guardians	3.32	0.53
Deaths in the households	0.69	0.12
Female guardians funeral attendance	5.26	0.28
Male guardians funeral attendance	2.88	0.20
Female guardian caring for ill	5.64	0.14
Male guardian caring for ill	3.87	0.49
n	65	-

\* MK16 = U.S. \$1.00 at time of research. Exchange rates are volatile and currently MK80 = U.S. \$1.00.

supply of maize flour to meet their calorie needs. The provision of ganyu by households (3.18 times during the 10-week period) occurred much more often than the use of ganyu (an average of 1.40). Higher provision of ganyu should compromise a household's food security. Incidences of illness and death were fairly high. Female household guardians on average attended funerals at least once every other week, compared to only once every three weeks for male household guardians. In most cases, each funeral took a whole day. Thus, female household guardians at a minimum lost a whole day of farm work every other week, compared to every three weeks for male household guardians. The figures on caring for the ill are similar to those on funerals.

Women have higher involvement than men in illness and deaths because they traditionally provide most of the nurturing services, and men travel for employment and trade purposes more often than women. For example, 46 of the 65 households had male and female guardians (husband and wife). We did not meet the male guardians in 11 of the 46 households during the research period because they were at work or on business trips. These traveling husbands rarely attended funerals or took care of the ill. In addition, male household guardians were reported ill more often than female household guardians: once per week for 1.58 weeks during the 10-week period for females, compared to 3.32 weeks for the male household guardians.

**Table 3. Ordinary Least Squares Estimates of the Effect of Agricultural Production, Illness, and Death Variables on Household Food Security**

Independent Variables	Unstandardized Coefficients	Std. Error
Constant	-3.23	3.24
Land cultivated	3.29**	0.84
Maize yield	0.003**	0.001
Use ganyu	0.74**	0.25
Provide ganyu	-0.22	0.15
Illness of female guardian	0.31	0.24
Deaths in household	-0.42	0.47
Female guardian caring for ill	-0.10	0.44
Male guardian attending funeral <sup>†</sup>	-0.08	0.32
Female guardian attending funeral	-0.40	0.24
R <sup>2</sup>	0.66	

Note: n = 65 households, \*\* p < 0.01, \* p < 0.05.  
<sup>†</sup> Male illness and death were operationalized as male guardians being ill, male guardians caring for the ill, and male guardians attending funerals. There was high collinearity between these three variables. Of the three, I chose the male guardians attending funerals for the model because it performed better than the other two.

Illness and death are at levels that should compromise household food security. The ordinary least square regression estimates in Table 3 revealed no such relationship, however. First, the model confirms the conventional wisdom that production variables (amount of land households cultivate, maize yield, and increases in labor input into farming) improve household food security. Second, the model shows that provision of ganyu by a household does not have any significant effect on food security when other variables are controlled. Households that cultivated less than a hectare of land generally provided ganyu. These are usually the food-insecure households (UNM and MG 1993). Households that cultivated more than a hectare of land used the most ganyu. They are the food-secure households in rural Malawi. What these findings suggest is that the food-insecure households, whose sizes are not significantly different from the food secure ones, have surplus labor that they can and do offer to food-secure households, without affecting their household production activities because they have little land for their available labor.

Third, the model shows that illness and death variables had insignificant influence on household food security. Even the high frequency of women's attendance at funerals and caring for the ill do not seem to have a negative effect on household food security unless we stretch the test of significance to p < 0.10. Why is it that illness and death—high as

they are in this era of the AIDS epidemic—do not reveal adverse effects on household food security? We need to examine interhousehold sharing of help to see what may be going on. Case stories of how households dealt with illness, food shortage, and death (from qualitative interviews) help us explore this interhousehold sharing of help.

### Case Stories

Chiundiza, with a household food-security index of -4.619, is an extreme example of a food-insecure household. Chiundiza is a 63-year-old widow who cares for 12 grandchildren from her three deceased daughters who are suspected to have died from AIDS-related illness. Chiundiza is in poor health, not from old age but from malnutrition. After the death of her husband, Chiundiza's needs were provided by her three now-deceased daughters, the only surviving children of the seven to whom she gave birth. She muses about the days when her three daughters were alive: "I lacked nothing; I was somebody those days." Her daughters constructed the iron-roofed house with a cement floor that she lived in, and they provided food, clothing, and other items Chiundiza needed. Now that they are dead, she has removed the iron sheets from her house and sold them, opting to live in a grass-thatched dirt-floored hut; she has also sold a number of household items her daughters gave her and used the income to buy food. She now relies more heavily on her brother, "the son of my younger mother [mother's younger sister]", she explained when asked what kind of brother she was referring to.<sup>7</sup> But he has his own family of seven to take care of. Asked why he was doing this, his first response was that the question was moronic. He then went on to say: "I have no choice, she is my sister; the world would laugh at me if I did not take care of her.... What would you do if your sister was in such a situation?"

Chiundiza depends mostly on cousins, in-laws, nephews, and nieces. Of course, her grandchildren, who range from one and a half to 23 years of age, assist her as well. They provide ganyu to other households, using what they earn to buy some food and other items for themselves and their grandmother. Nonetheless, assistance from relatives is dwindling. As Chiundiza remarked: "It is just too much for my relatives to meet all my needs, especially because they are experiencing similar problems in their households." The brother she depends on the most, for example, was reported to be suffering from frequent fevers.

Some of the villagers laugh at Chiundiza. They say she did not stop her daughters from indiscriminate sexual behavior. Her daughters got money through such shameful activities, and this is the money they used to buy the things they gave their mother. They contracted AIDS and Chiundiza is reaping "the wrath of the disease," as one villager put it.

\* \* \*

Mbawa's husband left her for another woman. Her household's food-security index was -2.30. As a result, Mbawa provides a lot of ganyu to supplement her usually meager maize harvest. Her uncle, brothers, and cousins help her regularly. When there is illness in the house, these relatives help either by obtaining medicine or by taking Mbawa's ill children to a hospital or herbalist. Mbawa herself gets ill frequently—symptoms suggest her illness is AIDS-related. Many times, especially when the illness requires a day's visit to a hospital, her maternal uncle has taken Mbawa and her children on his bicycle the long distance to the government hospital, which does not charge for its services. Sometimes the uncle gives Mbawa some money to visit the nearby private dispensary, which does charge for its services. Without her relatives, Mbawa said she would have had terrible difficulties meeting her needs and those of her children. But he says she is not receiving as much help from her relatives as she used to. They are busy helping their own households since "illness these days is too much," as she put it.

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Milida runs a grocery shop in the village with her husband. They have five children of their own and are keeping four others from their deceased relatives. Their household, which registered a food-security index of 12.39, has enough food to take care of its members. Milida spends most of her time running the grocery shop while her husband frequently travels to Blantyre and Lilongwe (see Figure 1). He sells tomatoes, some the household grows and some he buys from tomato farmers in the area, then buys goods for their grocery shop. The household receives substantial income from these activities but also produces adequate maize.

Milida and her husband have had to help their relatives with food and when these relatives have been afflicted with illness and death. For example, Milida's sister, Evellet, suffered from AIDS-related complications for three months. During that time, Evellet was admitted to the hospital several times, and Milida had to nurse her sister there.<sup>8</sup> When Evellet passed away, Milida and her husband paid the funeral expenses. They now take care of three children Evellet left behind in addition to one child whose parents (related to Milida's husband) passed away in 1994.

At Evellet's funeral, Milida and her husband were openly praised for taking good care of Evellet when she was ill and sending her to rest in peace in a respectable coffin. The village headman, speaking at the funeral, encouraged members of his village to follow this example. But Milida remarked during an interview that she and her husband wasted a lot of time and money taking care of her ill sister. She felt she had no choice but to take care of the three children Evellet left behind. She remarked that they are stretching their resources to help their relatives, but the burden is overwhelming. As she put it, "my sister's illness and death have been burdens to us...but not only my sister for we have had to help a lot of other relatives; it is becoming too much."

Of the 65 households, 59 (91%) reported receiving help from relatives with food and in taking care of ill members at some point during the 10-week research period. However, 38 of the 59 households (64%) reported receiving less help from their relatives than previously. The tendency for relatives to help one another was said to be declining because relatives are overwhelmed with so many problems. This reason may have been given to avoid punitive reactions from the giving relatives in case what the respondents were telling us reached their benefactors. Illness and death, however, seem to be extensive. One village headman, for example, indicated that funerals were becoming so common that he had to compromise on the rule that when death occurs all adults in the village should attend. He split the village into two parts so that when there is a funeral on one side of the village, villagers on the other part do not have to attend. This way, he said, "people have some time to spend on farming instead of spending most of their time attending funerals." It is worth noting that about 19 percent (11 of the 59 households) thought that relatives help each other less because of selfishness. As one put it, "life nowadays depends on money and people are not willing to share their money...it seems easier to share such things like food than money." This respondent remarked that the rich are generally more selfish and blamed the rise of the cash economy for their selfish behavior.

The rich had a different view. They thought they were helping their relatives very much. Six households that did not report receiving help were generally richer by village standards and had food-security indexes over 10. Husbands in these households traveled to cities extensively, buying and selling agricultural produce like tomatoes, trading in second-hand clothing, or engaging in some other business venture apart from farming. These people reported they were helping their relatives very much, but generally complained that taking care of their relatives is becoming quite a liability.

### **The Threat of AIDS to Household Food Security**

So what do the quantitative and qualitative data suggest about the worsening illness and people's collective coping mechanisms? How does AIDS affect these coping mechanisms, and with what impact on household economic concerns like food security?

The ordinary least squares estimates (see Table 3) suggest that households heavily affected by illness and death are not worse off than their neighbors in that they did not have significantly less food than their neighbors. We can conclude from this analysis that the prevalence and incidence of illness and death have not reached a level to adversely affect household food security in rural Malawi. The question is why not, given the high level of HIV/AIDS.

The case stories shed some light on what may be going on in many of the 65 households. They reveal interesting social transactions among extended family members as they help each other deal with common problems. Indeed, the

significance of the family unit is not only in its members being related by blood, marriage, or adoption, but in the rights, duties, obligations, and expectations embedded in their shared identity and social transactions (Ben-Porath 1980). Through these transactions among extended family households involving reciprocity and redistribution, household members shared their food, labor, and income. In doing so, these households collectively minimized the impact of afflictions on individual households. Chiundiza's cousin and other relatives provided help to her. Mbawa's and Evellet's relatives assisted them in times of need. The high incidence of death led the village headman to split the village into two so each side could take care of its own funerals; thereby allowing people more time to work in their farm plots.

This response to afflictions, which seem to have the effect of mitigating the impact of AIDS, as social immunity. Indeed, as Tibajuka (1997) has suggested, while the impact of AIDS may be catastrophic at the household level, it may not have similar effect at the village level when coping mechanisms (social immunity) adequately mitigate the burden of the epidemic.

Social immunity is anchored in social capital endowments, which animate households—guided by collective rules, values, expectations, and beliefs that encourage reciprocity and redistribution—to share their resources with other households experiencing problems, especially those within the same extended family. The rise of these problems activates social immunity in that they lead to the sharing of labor, food, income, and even time among households, diffusing suffering and minimizing the impact of the affliction on individual households. Such sharing is substantial when resources both at individual household and extended family levels are adequate and when the cultural milieu encourages reciprocity and redistribution. It is not surprising that social capital endowments are favorable and social immunity effectively mitigates the impact of afflictions when resources are available and the cultural milieu encourages sharing.

On the other hand, practical circumstances change when problems are overwhelming. A worsening affliction makes social capital endowments unfavorable and weakens social immunity. Chiundiza, Mbawa, and another 36 households reported receiving less help from their relatives than they used to and suggested that this was because illness and death had become overwhelming. Also, Milida complained that taking care of her sister Evellet and other relatives was a liability. Most of the well-to-do households had similar complaints. I suggest these as signs that social capital endowments may be becoming unfavorable and social immunity is being weakened. To the extent that this conjecture holds, the threat of AIDS to household food security in rural Malawi lies not only in weakening and killing off prime adults but also in making social capital endowments unfavorable by worsening illness and death to a threshold that makes it difficult for households to help each other. In brief, the threat of AIDS to household food security lies in weakening social immunity.

Social immunity can be activated and weakened by disasters and afflictions other than epidemic diseases. Vaughan (1985a, 1985b, 1987) reports that in the early stages of the 1949 famine in the Lunzu and Lirangwe areas of Blantyre district in Malawi, household-to-household food transfers abated starvation in households that had harvested very little grain. However, the famine reached a threshold where the sharing of food was difficult. Vaughan (1985a:191) reports of increasing *umbombo* behavior, a situation in which the sharing of food among households declined as the 1949 famine worsened, such that over the course of the famine “increasingly each family, and then each individual, paid attention only to its own food supply.” The continuing famine made social capital endowments unfavorable and brought about *umbombo*, an indicator of a weakened social immunity. This suggests that afflictions and disasters have the effect of weakening people’s coping mechanisms when they reach threshold levels.

To sum up, I have suggested that social capital endowments—the interpersonal ties that provide opportunities for reciprocity and redistribution of labor, food, and income among households in extended family networks—are the springboard of social immunity, which cushions the effect of AIDS on household food security. It follows that when the AIDS epidemic is overwhelming, when more extended family members are victimized by AIDS, interpersonal ties get fractured, and social capital endowments become unfavorable, making it difficult for households to assist each other. The AIDS epidemic weakens and kills prime adults, depriving households of the most productive labor and plunging them into serious production inefficiencies. I contend, however, that it is when the epidemic fractures social immunity that it creates serious production problems in rural subsistence economies. Analysis of the impact of the epidemic should be done at both the individual household and extended family levels if we are to control its devastating impact.

## Conclusion

AIDS affects households individually, leading to production inefficiencies and acute poverty (Danziger 2000; Tibaijuka 1997; Bollinger, Stover, and Palamuleni 2000). Insofar as social and economic action is embedded in social and cultural relations (Granovetter 1985; DiMaggio 1990; Mtika 2000), the impact of AIDS on household economic concerns would be captured best when we analyze its effect at both the individual household and extended family levels, since households, contingent upon their resource base and a cultural milieu that promotes resource sharing, help each other deal with AIDS. I have suggested that the epidemic can activate the sharing of resources among households belonging to the same extended family network. AIDS can also fracture the ability of households to collectively deal with it when the epidemic reaches a threshold at which people are unable to help each other adequately. The threat of the epidemic lies in its potential to fracture people’s coping mechanisms, or

what I have termed social immunity. As of 1996, there were signs in rural Balaka that the epidemic was approaching threshold levels. It would be worthwhile to find out if threshold levels have by now been reached, not only in Balaka but other rural areas, and whether people have been overwhelmed by the epidemic.

People draw upon their collective resources to cope with different problems, disasters, afflictions, or social change. Social immunity can thus be activated and weakened by multiple forces. The penetration of capitalism into rural subsistence economies, for example, fractures interpersonal ties and disrupts the ability of rural households to collectively cope with crises. In the process, rural households become more vulnerable to other disasters and afflictions (Devereux 1993:121-124). It may be that the penetration of capitalism into rural Malawi started weakening interpersonal ties and making social capital endowments unfavorable at the time cash cropping was introduced. Also, it could be that people have been exposed to other cultural practices that may lead to the weakening of their interpersonal ties as they adopt new lifestyles. Whatever the case, AIDS may only be making the ties more vulnerable; thus, only worsening the vulnerability of the social immune system. It would be worthwhile to investigate other factors and social processes that work in tandem with AIDS to fracture the extended family network of interpersonal ties.

The social immunity hypothesis proposed here engenders an interesting research approach to the impact of AIDS on rural households in subsistence economies. Instead of focusing on individuals and households as the sole units of analysis, we need to explore how extended family support networks are fractured by the epidemic. Such an approach is important for developing societies, where governments do not have adequate resources to deal with epidemics and so family support systems are the main sources of social insurance. In these societies, research needs to be participatory and should focus not only on determining causal relationships but engaging rural communities to find solutions to their problems.

## Notes

<sup>1</sup>I borrow the term endowment from Sen (1981, 1984) who uses it to refer to ownership and exchange opportunities over commodity bundles that enable a person to attain food security. I apply the term to social capital to refer to individual and collective ownership of resources and opportunities for the transfer of help, opportunities that are embedded in interpersonal ties between people.

<sup>2</sup>According to the Malawi National AIDS Control Program (MNACP), persons tested for HIV/AIDS qualified as AIDS cases when they: a) exhibited major signs such as chronic weight loss, diarrhea, and fevers for over a month; b) showed some minor signs such as oral thrush, herpes zoster, and chronic coughing; c) had some specific symptoms such as aggressive Kaposi’s sarcoma; and d) tested HIV-positive on an antibody check.

<sup>3</sup>Fundamental in this view of food security are entitlement systems and relations that govern the production, possession, and use of food.

Entitlement systems comprise rules, obligations, expectations, and beliefs that govern the distribution of resources, goods, and services that affect production and use of commodities (Richards 1983, 1986).

<sup>4</sup>The amount of maize produced by a household was measured in May 1996. I measured the amount of land in hectares put to maize by the household, estimated maize yield by weighing the quantity of subplot(s) of the maize plot(s), and computed the total maize production for the household from the whole area. Note that households generally have one harvest per year and use the maize over the whole year. In computing food security, I spread the maize produced over the 365 days of a year.

<sup>5</sup>Hybrid maize varieties have lower extraction rates than local varieties. Most rural farmers in Malawi grow local varieties that have flour extraction rates ranging from 75 to 80 percent. I chose the lower end of this range.

<sup>6</sup>Household cash income, household composition details, and total maize produced were included in the computation of a household's food-security index. Household composition details (number of people in the household, their age and sex) were used in calculating the calories a household needed. How much maize the household would potentially buy with its cash income and the amount of maize produced were used in assessing the amount of maize potentially available to a household.

<sup>7</sup>Brothers in Malawi are sons of one's fathers and mothers. Likewise, sisters are daughters of one's fathers and mothers. Fathers include one's biological father and all those who are brothers to the biological father; mothers include the biological one and all those who are sisters to the biological mother. Uncles are the mothers' brothers and aunts are the fathers' sisters; children of the uncles and aunts are cousins. The sisters' sons and daughters are nephews and nieces respectively, but the brothers' sons and daughters are sons and daughters. To get an English translation, we asked respondents to indicate how exactly one was a brother, sister, uncle, cousin, etc.

<sup>8</sup>The magnitude of illness in Malawi is such that nursing services in hospitals are inadequate. Work such as feeding and giving the patient a bath are mostly undertaken by relatives of the patients, usually women.

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