

The Economic Impact of HIV/AIDS on Rural Households in Limpopo Province

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Although HIV/AIDS infection is a global problem, the epicentre of the disease lies in Africa. In fact, about 70 per cent of the global HIV/AIDS infected population can be found in sub-Saharan Africa (UNAIDS, 2000). The reported HIV/AIDS sero-prevalence rate for South Africa was estimated at 23.5 per cent in 2000 (Department of Health, 2000). This high rate of HIV/AIDS infection poses enormous problems and challenges to the economic development of the country, more so because HIV/AIDS affects the most economically productive sector of the population. The high rate of HIV/AIDS infection also calls for an urgent need to assess the socio-economic impact of the pandemic in the country. This paper focuses on the impact of HIV/AIDS on rural households in Limpopo province. The high level of poverty in this province (i.e. 59 per cent) makes this assessment even more pertinent, given the fact that poverty stands to increase people's vulnerability to HIV/AIDS, while HIV/AIDS-related morbidity and mortality may cause affected households to be forced into poverty. The specific objectives of this paper are as follows

- (i) To assess the economic impact of HIV/AIDS on rural households in Limpopo Province (e.g. the impact of HIV/AIDS on household size, household income, household expenditures, household savings, household assets, and household borrowings).*
- (ii) To identify rural households' coping strategies for mitigating the adverse economic impact of HIV/AIDS.*
- (iii) To put forward appropriate policy recommendations to mitigate the economic impact of HIV/AIDS on rural households in Limpopo Province.*

1. Definition of Affected and Unaffected Households

The conceptual framework of this study defined households and their economic functions, distinguished between HIV/AIDS "affected households" and "unaffected households", and identified some "*a-priori*" expectations regarding the economic impact of HIV/AIDS on rural households.

The logical starting point of any assessment of the economic impact of HIV/AIDS on households is to truly understand the concept of households. An appropriate definition of the household must focus on the household as an economic unit. Mutangadura and Webb (1999) in their study of the socio-economic impact of HIV/AIDS on households in Zambia defined a household as " an economic unit consisting of a group of persons who live in the same dwelling, and dine together for at least 3 of the 12 months in a year". This definition perceives a household only as a unit of consumption. Rugalema (1998) defined a household as an "economic unit consisting of either a single person, or a group of persons who live together, depend on a common income, and within the limits of that income, exercise choices in meeting specific objectives". This study adopted the latter definition, defining a household as an economic unit consisting of a group of persons who live in the same dwelling, and dine together for at least 3 of 12 months (prior to our survey).

Accordingly, affected households are those households that have suffered premature adult death and/or chronic illness associated with HIV/AIDS related conditions. A premature adult death was defined as deaths amongst household members under the age of 70 that could be linked to obvious HIV/AIDS-related symptoms. Chronic illness defined in terms of a person being chronically ill for at least the past 30 days prior to the survey, and an adult was defined as an individual aged 18 years or above. Since most rural households in sub-Saharan Africa behave as economic units, the impact of HIV/AIDS on rural households affects household consumption and production decisions; these, in turn, would affect the households' well-being and livelihoods.

Considerable literature exists on the socio-economic impact of HIV/AIDS in Sub-Saharan Africa. Of

recent, a very comprehensive review of this literature was undertaken by Parker, *et al.* (2000). This review indicates that the majority of these studies were conducted in East African and other SADC countries, with very few of them focusing on South Africa (Broomberg *et al.* 1991; Doyle, 1991; Mutangadura and Webb, 1999).

The main criticisms of these studies are that they are mostly specific case studies that provide empirical data for specific locations within particular countries; as such, their findings cannot be generalized neither for the particular country of focus nor for other countries within SADC. Regardless of the above limitations, we can independently establish from these studies some common characteristics of rural households that have suffered from the HIV/AIDS pandemic in sub-Saharan Africa.

These characteristics were summarised by Stover and Bollinger (1999), as follows:

- (i) loss of income (originating from reduced labour supply within the household or from lower remittances of the person with HIV/AIDS, who is frequently the main bread winner);
- (ii) increase in household expenditures for medical expenses; decrease in household savings;
- (iii) permanent loss of income, as a result of death or loss of a job;
- (iv) increase in funeral costs;
- (v) the removal of children from school in order to circumvent educational expenses; and
- (vi) other members of the household, usually daughters and wives, may miss school or work in order to take care of the sick.

Some of the available work on household impact is qualitative in nature, with studies consisting of fairly small samples of households. However, there is also a growing body of literature dealing with the quantitative (and economic) aspects of impact (Rugalema, 1998; Mutangadura and Webb, 1999; Booysen and Arntz, 2002). For example, Mutangadura and Webb (1999) focused on the socio-economic impact of HIV/AIDS in Zambia and showed a decline in the annual income of affected households. The Tanzanian study by Rugalema (1998) revealed that HIV/AIDS affected households sold off their productive assets to generate cash to pay hospital bills. Our study provides some quantitative assessment of the impact of the epidemic on rural households in the Limpopo Province of South Africa. The paper focuses on several economic parameters, notably household income, household expenditures, household savings and borrowings.

2. Research Methodology

As a result of the social stigma attached to the HIV/AIDS pandemic, identifying HIV/AIDS affected household members is a very difficult task in most South African communities. This is because the relevant health authorities and members of affected households are very sensitive and often unwilling to discuss or give HIV/AIDS related information about family members. Even health officials, who are aware of the HIV status of some household members, would refuse to give out such information because of the ethical issues involved and the need to maintain the confidentiality of their patients' health status.

A cross-sectional rural household survey was carried out using a pre-tested, structured questionnaire, which covered both quantitative and qualitative aspects of household characteristics and behaviour. The interviews were conducted by trained postgraduate students, who were recruited for this purpose. The survey was conducted between July and September 2001. Throughout the study, efforts were made to observe all legal and ethical requirements, and maintain the confidentiality and anonymity of information collected from respondents. Data from the survey were supplemented by secondary data from the Department of Health and Tribal chiefs. The sample was stratified according to the five agro-ecological zones of the province. The sample sites selected from the five agro-ecological zones are Musina, Warmbath, Giyani, Seshego and Venda. **Musina** area represents the northernmost part of Limpopo Province and is located around the Limpopo valley. It is the main entry point into South Africa from the north. In this area, Matswale and Harper villages were selected for our survey. **Warmbath** area was selected

to represent the Bushveld region in the Province. Warmbath is an important tourist centre and holiday resort, which is expected to have a high incidence of HI V/AIDS. Bela-Bela village was selected as the study site in the Warmbath area. *Giyani* area was selected to represent the lowveld or Olifant region. Giyani is close to the Olifant river, which stretches from Giyani through the Kruger National Park. Two villages, Ngobe and Sikhuyani, were selected from Giyani area as study sites. *Seshego* area was selected to represent the Capricon region or the central region of the Limpopo Province. Moletsi village was chosen as the site for the survey. *Venda* area represents the Far North Region. Tshakhuma village was selected to represent the Venda area. This area is known for agricultural trade and has a rich African culture and tradition. Preliminary visits were made to each of the selected villages by members of the Research Team. During these visits, the objectives of the study were discussed with village authorities and their permissions and approval were obtained before visiting and selecting the households for the survey. A randomised sample of households was selected for each village, using the 1996 census data for each of these areas as sampling frame. Table 1 reports on the distribution of these sub-samples across the various study sites and regions, including the number of government health clinics in each site.

Table 1. Sample Distribution by Areas and Regions

Area/Region	Villages	No of Respondents Selected	% of Total Sample Size	Number of Government Clinics
Musina Area (Northern Region)	Matswale	120	17.65	0
	Harper	45	6.61	0
Giyani Area (Low Veld Region)	Ngobe	100	14.71	1
	Sikhuyani	30	4.41	0
Seshego Area (Central Region)	Moletsi	120	17.65	1
Venda Area (Northern Region)	Tshakhuma	130	19.12	1
Warmbath Area (Bushveld Region)	Bela-Bela	135	19.85	1
Total	7 villages	680	100.00	4

In addition to household surveys, focus group discussions were conducted in selected villages between August and September 2001. Each focus group panel consisted of 8 to 10 adults selected from the village. The group also included the village head, the civic leader, the local councillor, select members of interviewed households, the village-based professional nurse, and youth leader. A trained facilitator conducted the focus groups, using a tape recorder to record the discussions. The focus of each discussion was on HIV/AIDS and the community's perception of its prevention, awareness, control and of coping strategies.

Two major problems were encountered during the study. These are the social sensitivity to and the stigma attached to HIV/AIDS and problems with access to rural areas during the data collection phase of the project. As a result of social stigma attached to HIV/AIDS at community and government levels, the research team encountered considerable difficulties in obtaining required or solicited information. The poor road conditions in rural Limpopo Province limited the access to some of the rural households. The statistical method employed in the analysis reported in these pages is mostly descriptive, using means, standard errors, standard deviations and the ranges of the relevant indicators. Statistical tests of significance were carried out, using Z-scores and t-tests at 5 per cent level of significance.

3. Empirical Results

(a) Demographic Characteristics of the Households

Table 2 summarises the gender and age distribution of the heads of rural households for the five selected areas of Limpopo Province. About two out of every three of the households are headed by females, indicating that females are mainly responsible for the well being of these households. The larger percentage of female-headed households in rural areas could be explained by the fact that during the apartheid regime most males migrated from the rural areas to work in the mines, while their wives stayed behind to care for their families. This trend has been sustained even after 1994. It is also important to point out that the proportion of households headed by widowed, divorced or separated women, is relatively large (*i.e.* 9 per cent). Approximately 15 per cent of the households are headed by people who were over 60 years of age. Table 2 also indicates that about 2.2 per cent of these households are headed by children. These children are probably orphans who may have lost their parents to the HIV/AIDS pandemic. These findings are indicative of the impact of HIV/AIDS in these communities. However, the majority of households are headed by middle-aged individuals with an average age of 38 years.

Table 2. Gender and Age of Household Heads in the Study Area (2001)

Age Bracket	Gender		Total	% of Respondents
	Male	Female		
Below 18	5	10	15	2.22
18-30	46	108	154	22.75
31-40	69	134	203	29.98
41-50	44	94	138	20.38
51-60	21	45	66	9.75
61-70	24	32	56	9.75
71-80	9	25	34	8.27
Over 80	3	8	11	5.02
Total	220	457	677	1.63
Percentage	32.50	67.50		100.00

Source: Authors own calculations based on survey data.

It should be noted that child-headed households, and households headed by people who are over 60 years old, do constitute special areas of social intervention problems for government in terms of welfare support for these vulnerable groups. This is because they are largely dependent on pensions and child support grants.

(b) Separating Affected Households from Unaffected Households

Table 3 shows that about 24.3 per cent of the rural households can be classified as "affected households". There are however regional differences in the distribution of "affected households" with Seshego area having the highest percentage of about 34 per cent; followed by Giyani with 33 per cent; and Warmbath (Bela-Bela) with approximately 28 per cent. The relative low percentage obtained for Tshakhuma village (11.11 per cent) could be due to underreporting attributable to relatively higher level of sensitivity and social stigma attached to the HIV/AIDS

pandemic.

Table 3. Classification of Households into "Affected" and "Unaffected" Categories (2001)

Area/Region	Affected Households (Yes)	Unaffected Households (No)	Numbers who did not answer the question	Total No of Respondents	% of Affected Household
Musina	23	112	30	165	17.03
Tshakhuma	13	104	13	130	11.11
Giyani	38	76	16	130	33.33
Seshego	40	76	4	120	34.48
Warmbath	26	67	42	135	27.96
Total	140	435	105	680	24.35

Source: Authors own calculations based on survey data.

Note: Percentage of affected households calculated across sample of yes/no responses.

There was an observable difference in the size of "affected households" compared to that of unaffected households. The mean household size was 5.2 for the unaffected households and 4.9 for the "affected household".

Table 4. Household sizes for Affected and Unaffected Households (2001)

Item	Affected household			Unaffected households		
	Male Headed	Female Headed	Total	Male Headed	Female Headed	Total
Household mean size	4.88	5.10	4.90	4.96	5.40	5.20
Standard Deviation	2.31	2.05	2.24	2.44	2.20	2.32
Household size range	1 to 15	1 to 13	1 to 15	1 to 10	2 to 13	1 to 13

Source: Authors' own calculations based on survey data.

Three major reasons were cited by respondents for the observed changes in household size over the past 3 years. The reasons included new births and deaths from chronic illness and HIV/AIDS. About 47 per cent of the respondents reported new births as the main reason for their change in household size.

Approximately 27 per cent of the respondents cited death from chronic illness as the main cause for changes in their household size. About, 22 per cent of the respondents indicated that migration for employment was the main cause for changes in household size.

(c) The Impact on Household Income

The three sources of household income identified were agricultural incomes, non-agricultural income, and other incomes such as remittances and gifts received by household members. Non-agricultural income constitutes the largest source of income for rural households in Limpopo Province and includes employment incomes and government pensions. Table 5 indicates that "affected households" had an average annual income of about R13 314 while "unaffected households" had an average annual income of about R20 606. The aggregate annual income for affected households was approximately 35 per cent lower than that received

by unaffected households. These differences in annual household income are statistically significant (Appendix I).

Table 5. Annual Household Income (2001)

Income Type	Affected Households			Unaffected Households		
	Freq N	Mean Income (R)	Std Dev (R)	Freq N	Mean Income (R)	Std Dev (R)
Agricultural Income	27	2984.11	2340.36	49	3532.12	2656.20
None-agricultural Income*(2)	71	11842.02	9235.04	153	17108.60	13650.40
Other Income*(3)	18	7203.88	4265.75	23	9856.08	8120.60
Aggregate Income from all sources	116	13314.51	9655.26	225	20606.13	14825.40

Source: Authors' own calculations based on survey data. Affected households suffered a direct loss of income when members became too ill to work (morbidity); or died from HIV/AIDS related causes (mortality). Affected household members also suffered a direct income loss when members had to leave their jobs to cater for the sick members of the household. Thus, forgone household income includes direct loss of annual income of the infected members; as well as the forgone income or earnings of the care-givers when these care givers are also members of households.

Table 6. Monthly Household Income and per capita income for Affected households and Unaffected Households (2001)

Item	Affected Household (R)	Unaffected Household (R)	Difference Income (R)	% Differences
Aggregate Mean Annual Income	13314.51	20606.13	7291.62	35.38
Estimated Household size	4.90	5.20		
Mean Annual per capita income	2717.25	3962.23	1245.47	31.42
Mean Monthly per capita Income	226.44	330.23	103.79	31.42

Source: Authors own calculations based on survey data.

Because most rural households in Limpopo Province are regarded as very poor and poverty stands to increase people's vulnerability to HIV/AIDS, while HIV/AIDS may also cause poverty to deepen, it was necessary to compare the per capita income of these households to the national poverty income level currently pegged at R250 per capita per month. Table 6 indicates that the per capita monthly income for affected household was estimated at R226, while that of unaffected household was 32 per cent higher at approximately R330. The per capita monthly income of unaffected households was below the poverty line of R250 per month. This indicates that most of these households were living below the poverty line, while the affected households were on the average, living slightly above the poverty line. The level of poverty of rural households may very well have been exacerbated by the impact of HIV/AIDS, which has reduced the per capita monthly income of affected households (as explained earlier), thus pushing them below the poverty line.

(d) Impact on Household Expenditure

Table 7 indicates that affected households spent more on transportation, medical care, and funeral expenses; but less on education and other cost of living items when compared with

unaffected households. The amount the households spent on medical care was estimated at approximately R212 per month for the affected and R206 per month for the unaffected. More specifically, health care expenditure by HIV/AIDS affected households was slightly higher than those by unaffected households. However, these differences are not statistically significant (Appendix 1)

Table 7. Monthly Household Expenditures for Affected and Unaffected Households (2001)

Expenditure Item	Affected Households				Unaffected Households			
	N freq	Mean Exp (in R)	% of Total Exp(%)	Std Dev (in R)	N	Mean Exp (in R)	% of Total Exp (%)	SD
1. Monthly cost of housing	17	635.29	21.4	216.75	60	1331.51	32.56	777.08
2. Clothing cost	64	631.73	21.29	341.45	254	427.66	10.46	609.93
3. Cost of electricity	105	59.30	1.99	53.73	300	103.78	2.53	313.16
4. Education cost	72	259.95	8.76	214.20	230	639.58	15.64	272.00
5. Medical expenses	37	212.21	7.15	154.52	78	206.56	5.04	186.00
6. Transportation cost	32	321.31	10.83	147.70	104	252.23	6.16	221.20
7. Cost of food	120	240.55	8.11	180.84	382	267.86	6.56	259.10
8. Cost of drinks	61	87.08	2.93	72.38	206	88.33	2.16	108.00
9. Cost of Funerals	63	91.61	3.08	82.63	211	69.45	1.69	65.40
10. Coast of soap	103	72.33	2.43	54.32	308	80.73	1.97	61.30
11. Cost of paraffin	63	50.70	1.71	46.53	169	97.46	2.38	82.00
12. Remittance out-going	7	304.14	10.25	271.71	13	526.15	12.86	525.10
Total		2966.20	100			4091.30	100.00	

Source: Authors calculations based on survey data.

The "a-prior" expectation that the differences in medical care expenses should be significantly different because households with HIV/AIDS are expected to visit health clinics or traditional healers much more often than households that are unaffected therefore does not hold statistically. However, the differences between households in the amount of money spent on funerals are statistically significant (Appendix 1), thus highlighting the burden that funeral costs place on affected households.

The amount spent on education by affected household was estimated as R259 per month, while unaffected household spent about R640 per month on education. These differences are statistically significant (Appendix I). Affected households withdrew their children from schools to help care for sick members of the households. This was particularly the case with female children who are normally in terms of cultural norms given the role of care providers when their parents are sick or incapacitated.

Table 8. Differences in Expenditure Patterns for Affected and Unaffected Households (2001)

Expenditure Item	Unaffected Households (%) of total Expenditure	Affected Households (%) of total Expenditure	Difference
Medical Expenses (Health Cost)	5.04	7.15	1.68
Transportation	1.16	10.83	4.74
Funeral Expenses	1.69	3.08	0.68
Housing	32.54	21.40	-11.05
Education	15.63	8.76	-7.32
Remittances going out	12.86	10.25	-2.45

Source: Authors calculations based on survey data.

A comparison of the monetary values of household expenditures may not truly reflect the magnitude of proportional changes in household spending profile. Therefore the study compared the proportions of the various categories of expenditure. These observed patterns of household expenditures are critical to the formulation of appropriate mitigation strategy for HIV/AIDS affected households. Table 8 shows that affected households spend a larger proportion of their resources on medical care, transportation and funeral expenses. Also affected households spend less on education, housing and outgoing remittances compared to unaffected households.

(e) Impact on Household Savings and Borrowings

HIV/AIDS stands to increase household borrowings and reduce household savings in the face of declining household income and rising expenditure resulting from HIV/AIDS-related morbidity and mortality. Hence, this paper also explores differences between affected and unaffected households in levels of savings and borrowings.

Table 9. Household Savings by Type (2001)

Types of Savings	Affected Households			Unaffected Households		
	Mean Amount Saved (R)	N	Standard Deviation (R)	Mean Amount Saved (R)	N	Standard Deviation (R)
Bank Savings	397.93	32	360.55	500.51	154	382.55
Insurance Policies	146.99	8	104.94	335.27	59	232.11
Stokvel	154.09	22	151.10	164.35	73	90.12
Others	645.00	6	456.77	725.83	6	621.18
Total	367.20	68	262.50	575.21	292	357.22

Source: Authors calculations based on survey data.

Bank accounts and *Stokvels* are the two most popular savings instruments among the households. There were significant differences between the mean household savings of affected and unaffected households. Table 9 indicates that unaffected households had a mean household savings of R575.21 compared to household savings of R367.20 for affected household. Affected households therefore saved approximately 36 per cent less than did unaffected households. This difference in household savings can be attributed to the fact that these households had encountered reduced household income or loss of earnings as a consequence of medical incapacitation or morbidity, or as a result of the death of a household member. The attendant increases in household expenditures on health care, funerals and transportation can also account for the lower savings amongst HIV/AIDS affected households.

Table 10 indicates that relatives constituted the most predominant source of loans. The mean

amount borrowed by affected households from relatives was estimated at R923, while the mean amount borrowed from relatives by unaffected households was estimated at only R268. These differences are statistically significant (Appendix 1).

Table 10. Borrowings Amongst Households (2001)

Types of Borrowings	Affected Households			Unaffected Households		
	Mean Amount Saved (R)	Frequency N	Std Dev (R)	Mean Amount Saved (R)	N	Std Dev (R)
Relatives	926.85	9	418.65	268.00	15	212.07
Bank	2516.20	1	-	3650.00	8	2104.28
Burial Services Agencies	498.57	7	404.10	517.00	10	387.64

Source: Author's calculations based on survey data.

The amount borrowed by the affected households from relatives was over 300 per cent larger than that borrowed by unaffected households. This substantial difference in the relative amount of money borrowed may be attributed to the social and cultural value that rural people attach to the provision of financial and moral supports to their relatives during periods of disaster or affliction, as is the case with HIV/AIDS pandemic.

4. Household Coping Strategies

The impact of HIV/AIDS on various households had prompted many households to adopt specific survival strategies to cope with some of the HIV/AIDS related problems. Identification of these coping strategies is useful for providing the framework for policy on mitigation strategies. The coping strategies identified therein were derived from the focus group discussions. Since a major impact of HIV/AIDS is in form of reduced household income, many affected households tried to supplement their household income in various ways. Some households engaged in diversification of their income sources, for example, some household members started petty trading in agricultural products such as fruit and vegetables, while other households started selling second-hand clothes.

Many households adopted borrowing as their survival strategy. Loans or credit were obtained from relatives, friends and funeral agencies to cope with the HIV/AIDS engendered problems of medical treatment, increased transportation and funeral costs. Some households adopted sale of their household assets such as cattle, goats and chicken to generate additional income to meet up with household's cash requirements. This was a popular coping strategy adopted by smallholder farming households.

A major coping strategy adopted by some households involves the withdrawal of their children from schools. This was particularly adopted as a strategy to allow the households to stop paying school fees, and simultaneously provide the opportunity for the children to provide some care for the sick members of households.

Another coping strategy used by some households involves sending their children away to live with distant relatives. This strategy reduces the family size and therefore the household living expenses. It also allows the relatives to provide some support to the affected households through paying the school fees of these children, and providing for the basic needs of the children. Other coping strategies identified include reducing household farm activities and farm sizes, and joining church support groups in the villages.

5. Policy Recommendations and Conclusion

This study revealed that the major economic impact of HIV/AIDS on rural households is the loss of household income, due to death of household members and/or loss of job due to

chronic illness of household members. There is therefore an absolute necessity to strengthen and expand the income base of rural households. This can be done through a variety of strategies, some of which are identified below:

Firstly, there is a need to diversify rural household income by encouraging rural households members to be involved in other jobs to supplement their income. For instance, household members who have informal employment can start raising livestock such as poultry for sale to supplement their monthly income.

As a means of strengthening the income base of rural households there is a need for the government to set up micro-credit schemes for rural people, to kick-start the development of small-scale enterprises among the rural population. Such policy can be implemented by Provincial and National governments working in close collaboration with those community-based organizations (CBOs) and NGOs that are experienced in managing income generation projects in the rural areas. Rural household incomes can also be enhanced if government sets up poverty eradication projects in rural areas. Such poverty eradication projects can provide jobs and incomes to a large number of rural household members who are currently unemployed. Such poverty eradication projects should also be aimed at eradicating structural poverty by constructing rural infrastructures, such as rural roads, primary health clinics and other community facilities. This will generate income for rural households and at the same time enhance the quality of life of the rural people.

In conclusion, the study has shown that the economic impact of HIV/AIDS on rural households can be quite devastating. The death of household members stands to reduce the household labour supply available for productive purposes. In addition, the evidence suggests that HIV/AIDS affected households have lower household incomes compared to non-affected households. These differences in income may exacerbate rural poverty as the AIDS epidemic continues to take its course, which may further accentuate the spread of HIV/AIDS in the community. Affected households also spend more on health and medical care, transportation, and funerals compared to unaffected households, and less on education, housing and outgoing remittances.

Another major economic impact of HIV/AIDS on rural households was the lower levels of savings and higher levels of borrowing in affected households, which can be attributed to higher household expenditure on medical care and funerals. Rural households' coping strategies included withdrawing children from schools to reduce or minimize expenditure on school fees and selling household assets to meet up with increased household expenses engendered by the HIV/AIDS pandemic. The role of government in mitigating the economic impact of HIV/AIDS on rural households is crucial and depends on the necessary political will and absolute commitment on the part of government.

Appendix I

Statistical Tests of Significance for some Selected Economic Variables

Selected Variables	Affected Households			Unaffected Households		
	Mean Values	Freq N	Std Dev	Mean Values	Freq N	Std Dev
Annual Income (R)	13314.51	116	9235.04	20606.13	225	14825.40
Annual Savings (R)	367.20	68	262.50	575.21	292	357.22

Annual Borrowings (R)	926.85	9	418.65	268.00	15	212.07
Size of Households	4.90	140	2.24	5.20	435	2.32
Monthly Expenditures on Funerals (R)	91.61	63	82.63	69.45	211	65.40
Monthly Expenditures on Health Care (R)	212.21	37	154.52	206.56	78	186.00
Monthly Expenditures on Transportation (R)	321.31	32	147.70	252.23	104	221.20
Monthly Expenditures on Education (R)	259.95	72	214.20	639.58	230	272.00

Appendix I

Statistical Tests of Significance for some Selected Economic Variables (continued)

Selected Variables	Analysis of Z/'t' statistics (at 5% level)			Conclusion	
	Std Dev	Calc Values	Tabulated Values	Decision	
Annual Income (R)	14825.40	5.30	1.96	Reject HO	Significant Difference
Annual Savings (R)	357.22	5.45	1.96	Reject HO	Significant Difference
Annual Borrowings (R)	212.07	3.90	1.94	Reject HO	Significant Difference
Size of Households	2.32	3.04	1.96	Reject HO	Significant Difference
Monthly Expenditures on Funerals (R)	65.40	2.01	1.96	Reject HO	Significant Difference
Monthly Expenditures on Health Care (R)	186.00	0.17	1.96	Accept HO	No Significant Difference
Monthly Expenditures on Transportation (R)	221.20	2.78	1.96	Reject HO	Significant Difference
Monthly Expenditures on Education (R)	272.00	12.30	1.96	Reject HO	Significant Difference

* ($H_0 : U_A = U_{A'} Z = XA - XuAv Sa^2 + Su_2Na NuA$)

Source: Authors calculations based on survey data.

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