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CSSR Working Paper No. 87

SALDRU

Published by the Centre for Social Science Research
University of Cape Town
2004

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Price in Southern Africa (incl. VAT and postage): R 15.00

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ISBN 1-77011-018-6

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Southern Africa Labour and Development Research Unit

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November 2004

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Determinants of the Choice of Health Care Facility utilised by Individuals in HIV/AIDS-affected Households in the Free State Province of South Africa

Abstract

This paper analyses differences in the choice of health care facility by individuals in HIV/AIDS-affected households in the Free State province of South Africa. Illness is more prevalent and severe amongst poorer affected households. The probability that individuals seek private versus public health care conditional on individual and household specific socio-economic variables is investigated. Significant determinants of choice of health care facility are income, severity of illness, the burden of illness and death in the household, the number of people in the household with access to medical aid, and secondary education. The demand for private health care over public health care is sensitive to income, with those from the lowest income quintile on average being less likely to switch to private health care than those in the highest income quintile. The planned roll-out of anti-retroviral treatment in public health care facilities in South Africa therefore will be crucial in enabling infected persons from poor households access to treatment. The provision of free treatment at public facilities may also see health care shift from private to public providers in the longer term.

1. Introduction

The HIV/AIDS epidemic represents one of the most important development challenges facing South Africa. Not only are the poor particularly susceptible to HIV infection, but HIV/AIDS also stands to lock affected households into a vicious cycle of disease and poverty. Thus, the factors that drive infected individuals' decision-making in choosing specific types of health care are important to clarify, with a view to informing policies around the provision of treatment. We examine here the determinants of health care facility choice, and in particular the role of income, by analysing data of ill individuals in

HIV/AIDS-affected households. The analysis is based on a household panel investigating the socio-economic impact of the epidemic; estimation on the pooled data set is completed, as well as for the panel using a random effects model. A distinction is made between visits to public health care providers and private health care provides. Section 2 sketches the background to the paper, while section 3 presents an overview of the data. Section 4 reports the model specification and estimation, while section 5 reports and discusses the results of these analyses. Section 6 concludes.

2. Background

South Africa has a well-developed health system. Expenditure on health care is on par with that of many developed countries. In the late 1990s, total per capita health care expenditure amounted to PPP US$663, with public and private expenditure representing 3.7 and 5.1% of GDP respectively (UNDP, 2003: 256). The availability of health care personnel is relatively good compared to most other developing countries, with a ratio of 443 physicians per 100 000 population (*ibid*). Public health care is funded mainly from general taxation (94%), with user fees representing only 1% of public funding (Thomas *et al*., 2000) in a system where primary health care is free. Private health care in turn is financed predominantly via medical schemes (73%) and out-of-pocket expenditure (23%) (Goudge *et al*., 2001). Yet, the public/private divide in access to health care remains in this system where public health care for the most part is provided free and private health care is costly. While people from more affluent households access private care, the poor rely mainly on public health delivery and are also more likely to opt for self-treatment (Makinen *et al*., 2000; Booysen, 2003b; Havemann and Van der Berg, 2003). Ratios of trained medical staff (GPs) per 100 000 population ranges from 380 (34) to 4,453 (2,050) in the public and private health care sector respectively (Thomas *et al*., 2000). Although public spending is regressive, the poor benefit less than proportionally from this subsidy (Castro-Leal, 2000).

South Africa currently faces one of the highest HIV prevalence rates in the world. The estimated adult prevalence of HIV amongst 15-49 year olds in 2001 was 20.1% (UNAIDS, 2002), while the ASSA2000 model put adult prevalence amongst 20-65 year olds at 24.1% (ASSA, 2003). A recent national household survey in turn has put the 2002 estimate of adult prevalence amongst those older than 25 years at 15.5% (Sishana and Simbayi, 2002).

Issues pertaining to access of the poor to health care services are particularly important, given the close relationship between poverty and HIV/AIDS. On the

one hand, poverty enhances the vulnerability of people to HIV infection. Poverty, apart from being associated with poor nutrition and a breakdown of immune systems, also translates into unsafe sexual practices as a result of lack of knowledge and lack of access to means of protection (due to poor women's inability to negotiate about condom use with sexual partners, which is in turn a result of entrenched gender roles and power relations) (Whiteside, 2002). Desmond (2001) and Whiteside (2002) in turn emphasise how labour migration induced by rural poverty can contribute to the spread of the disease and how poor, single mothers may be forced to become occasional sex workers in order to survive (Desmond, 2001; Poku, 2001). Gillies *et al*. (1996) and Nyamathi *et al*. (1996) highlight the importance of homelessness, urban/rural migration patterns, migrant labour practices and the breakdown of social support networks in poor communities with limited access to social services in increasing the vulnerability of poor people to HIV/AIDS.

On the other hand, the socio-economic impact of HIV/AIDS combines to create a vicious cycle of poverty and disease. As adult members of the household become ill and are forced to give up their jobs, household income will fall. To cope with the change in income and the need to spend more on health care, children are often taken from school to assist in caring for the sick or to work so as to contribute to household income. Because expenditure on food comes under pressures, malnutrition often results, while access to other basic needs such as health care, housing and sanitation may also come under threat. This acts to further reduce the resistance of infected adults and children to opportunistic infections, given lower levels of immunity and knowledge, which in turn leads to increased mortality (World Bank, 1998; Gaffeo, 2003). Therefore, HIV/AIDS and the associated burden of morbidity and mortality expose already vulnerable households to further shocks (Desmond, 2001; Poku, 2001; Whiteside, 2002; Jütting, 2004), locking those poor households already infected and affected by the epidemic in a vicious cycle of underdevelopment. Yamano and Jane (2002), Bachmann and Booysen (2003), Booysen (2003a), Cogneau and Grimm (2003) and Bachmann and Booysen (2004) report empirical evidence on this link between poverty and HIV/AIDS. A recent national household survey in turn reports HIV prevalence to be higher amongst households of lower socio-economic status. HIV prevalence amongst persons aged 15 years and older that lived in households that did not have enough money or were often short of money to afford basics was 14%, compared to between 5 and 6% in households with enough money to afford the most important things or extras (Sishana and Simbayi, 2002: 54).

Therefore, knowledge on health care utilisation amongst ill individuals in HIV/AIDS-affected households is crucial in advancing our knowledge about health care provision to populations affected by the epidemic, especially insofar

as the poor face the brunt of the impact of the epidemic. One also needs to understand how infected individuals choose between public and private health care facilities in accessing treatment, given the changing landscape in the provision of anti-retroviral treatment (ART) in South Africa. ART remains expensive and the majority of those affected by HIV/AIDS are unlikely to afford such treatment, given that only some employers[1] would be able afford these costs, that only a relatively small proportion of the population have access to medical aid that covers such treatment, and the government will simply not be in a position to afford a national roll-out of ARV treatment (Geffen, 2002).[2] Currently, almost three quarters of options offered by private medical schemes in South Africa provides access to anti-retroviral therapy, which covers 92% of beneficiaries of medical schemes (Stein *et al*., 2002). Yet, only 16% of the population have access to medical aid (Goudge *et al*., 2001), which implies that the majority of infected persons currently have no access to ART. (A number of large companies have implemented ART programmes, but these cover only employees and/or their direct family members.) Government has, since 2000, as part of the HIV/AIDS and STD Strategic Plan for South Africa (2000-2005) rolled out an integrated response to the epidemic that includes PMTCT, VCT and CHBC programmes and focuses on improved STD management and condom use in an attempt to address the impacts of the epidemic (Department of Health, 2000). However, the South African government, in late 2003, made official its decision to implement an ART programme in the public health sector that will provide ART free to patients at public health care facilities. This programme envisages to roll out ART to 1.5 million infected persons over the next five years (*ibid*).

3. Data

The household impact of HIV/AIDS was assessed by means of a cohort study of households affected by the disease. The survey was conducted in two local communities in the Free State province, one urban (Welkom) and one rural (QwaQwa), in which the HIV/AIDS epidemic is particularly rife. Households were defined in terms of the standard definition employed by Statistics South Africa in the October Household Survey (OHS), i.e. 'a person or a group of persons who live together at least four nights a week at the same address, eat

[1] Recent company surveys all indicate that large proportions of employees are in fact NOT responding to HIV/AIDS.

[2] The cheapest triple-combination HAART regimen available in South Africa, which is not always a medically appropriate prescription for patients, costs around R684 per month (approximately US$100 at the current exchange rate), representing almost half of the median income of the average South African (Geffen, 2002).

together and share resources'. A survey of the quality of life and household economics was conducted. Interviews were conducted with one key respondent only, namely the 'person responsible for the daily organization of the household, including household finances'. The four waves of data collection were respectively completed in May/June and November/December of 2001 and in July/August and November/December of 2002.[3] The results reported in this paper are based on an analysis of data for ill individuals from affected households. Affected households were sampled purposively via NGOs and other organisations involved in AIDS counselling and care and at baseline included at least one person known to be HIV-positive or known to have died from AIDS in the past six months. Informed consent was obtained from the infected individual(s) or their caregivers (in the case of minors). The incidence of morbidity and mortality are high in affected households. The morbidity and mortality experienced by affected households exhibit a classic HIV/AIDS pattern, with large numbers of adults (i.e. those aged 15-49 years) having experienced illness or having died. Between 70 and 80% of morbidity and mortality in affected households can be attributed to HIV/AIDS or related infectious diseases and opportunistic infections (Bachmann and Booysen, 2003; Booysen *et al*., 2003).

Table 1: Sub-sample of ill individuals from panel of affected households

Status	*Sample (n)*	*Percentage (%)*
Visited health care facility	571	44.7
Not ill	434	34.0
Recruited in subsequent waves	104	8.2
Left household in previous wave	96	7.5
Died in previous wave	71	5.6
Total	*1276*	*100.0*

The sub-sample employed in this paper includes the health care utilisation information for all those individuals from affected households that were reported as ill in at least one wave of the panel (Table 1). (Given that HIV testing was not conducted during the survey, one cannot be sure that all ill individuals are indeed HIV-positive. The fact that HIV infection is often clustered in households and that the characteristics of morbidity and mortality reflect a clear

[3] This household panel will ultimately consist of six waves. The inclusion of data from two additional waves will enable us to extend our analysis to an investigation of the determinants of switches from one kind of health care facility to another by using duration analysis. These additional data should also allow us to proceed with the Fixed Effects estimation, given the larger number of observations of changes over time in choice of health care facility.

HIV/AIDS pattern implies however that the probability is high that most of these ill persons are indeed infected.) In total, we have health care use information for 571 observations. Of these observations, 263 or 46% are from urban Welkom and 308 or 54% from rural Qwaqwa. The number of observations per period respectively is 204 (wave 1), 151 (wave 2), 106 (wave 3), and 110 (wave 4). This data only provides us with information of one visit per wave, namely the last visit prior to the interview or prior to the person's death. The panel is an unbalanced panel, given that health care utilisation information for the 319 observed individuals were missing in certain periods due to ill individuals having died, ill individuals joining households in the sample at a later stage, ill individuals having left their respective households in subsequent periods, or ill individuals not being ill in earlier or subsequent periods, as reported in Table 1. Due to the purposive sampling design and small sample size, the findings from this study cannot be generalised to South Africa as a whole. Thus, the research is indicative only rather than representative of health care utilisation amongst ill individuals from HIV/AIDS-affected households.

4. Model Specification and Estimation

The analytical framework employed here to investigate choice of health care facility is based on the work of Lindelow (2002) and Asfaw (2004). When considering models for describing individuals' decisions about health care utilisation, health is perhaps best treated as one of a range of commodities over which individuals have well-defined personal preferences. Determinants of demand can therefore be explored by using traditional consumer theory. Placing the problem in a standard utility maximising framework, we assume individuals use available funds to attain a desired level of health. Alternative uses of income are presented as a composite good c, and the level of health is expressed as H. The individual utility function $U(c,H)$ is then maximised subject to a health production function (with quality of health care, individual-, household- and community specific variables as inputs) and the budget constraint.

Given that individual utility (U_i) can not be directly observed, the indirect utility (y^*_{itj}) associated with heath care alternative, j (j=1,2), is expressed as $y^*_{itj} = U(\mathbf{X},\boldsymbol{\beta}_j)$, where $\mathbf{X}$ is the matrix of independent attribute specific, individual-, household- and community specific variables for the entire sample (i=1,…n individuals, t=1,…n_i) and $\boldsymbol{\beta}$ is a vector of coefficients. Sample selection bias may arise due to self–selection of individuals in the study used or via decisions about the sampling methods used (Heckman, 1979). Potential selection problems arise given that y^*_{itj} is observed conditional on an individual seeking

health care when ill. In our study, the choice of households to include in the study has been specifically based on prior information about the health status of the members of these households.

4.1 Empirical Model

We may argue that individuals have specific preferences for health and indirectly for health care inasmuch as it improves health. Demand for health care is however much easier to observe and quantify, and serves as a useful proxy for health if we follow a reduced form estimation of health care choices by individuals in our sample. Demand for medical care is reflected in the intensity of health care utilisation but also by the type of health care chosen. The decision of which type of health care facility to use is typically modeled as a two-stage decision wherein the individual first choose whether or not to seek medical treatment, and thereafter decides on the type of health care facility to use. A selection equation and usage equation is therefore jointly estimated, allowing for correlation in the errors. This information is subsequently used in the usage equation as a control for selection (Greene, 2000; Chang and Trivedi, 2001; Collier *et al*., 2002; Trivedi, 2002).

The hurdle model (Mullahy, 1997) approach, which has been more prevalent in the intensity of health care utilisation literature, assumes that once a patient has decided to seek health care, a hurdle is crossed. In the second stage, the number of visitations to the specific care professional is decided (Sarma, 2003)[4]. Popular alternatives for type of health care chosen also include nested multinomial logit models (Akin *et al*., 1995; Havemann & Van der Berg, 2003; Asfaw, 2004), which nests the choice of providers within the initial choice of whether to seek health care or not. The polychotomous dependent variable is random and takes a different value 0,1,2…j given j alternatives.

According to data from a nationally representative household survey conducted in 1993, 18% of ill household members opted for self-treatment (Havemann and Van der Berg, 2003: 10). In this survey, however, only 4.4% (25/571) of individuals who fell ill chose not to seek health care (Table 2). This is most likely the result of the purposive sampling design. Given that the sampling frame consist of individuals with access to home-based care from NGOs, the low proportion of households who did not seek treatment is not surprising. (The severe illness experienced by HIV-infected persons, particularly when AIDS-

[4] This could alternatively be modeled as the type of health care facility, as is the case in our model.

symptomic, may also explain the fact that a large proportion of ill persons actually seek treatment.) Thus, the application of a nested multinomial logit model, which nests the choice of providers within the initial choice of whether to seek health care or not, was not feasible. Given that the proportion of individuals that did not seek treatment is not a significant proportion of our sample, omitting these observations should not introduce significant selection bias to our estimations. As a precautionary measure, we verified the absence of a sample selection problem by estimating a multinomial logit model with three categories (no treatment sought, public health care sought, private health care sought), as well as a Heckman two stage selection model (with joint maximum likelihood estimation). There may however still be unobserved self-selection problems, given that illness reported here is subjective. Depending on the tolerance level to illness, some individuals may not classify themselves as being ill whereas others may. The poor typically have a higher tolerance level than the rich (Chang and Trivedi, 2001; Lindelow, 2002; Trivedi, 2002).

Table 2: Choice of health care of ill individuals from affected households

Choice of health care	*Sample (n)*	*Percentage (%)*
No/self treatment	25	4.4
Public facility	438	76.7
Private facility	104	18.2
Traditional/naturalist	4	0.7
Total	*571*	*100.0*

The empirical framework generally used to model demand for health care assumes a linear specification of the indirect utility function (Lindelow, 2002):

$$y^{*}_{itj} = \boldsymbol{\beta}_j' \mathbf{X} + \varepsilon_{itj}$$

More recent literature in the area argues for an indirect utility function that is linear in health but quadratic in consumption (Gertler and van Gaag, 1990; Asfaw, 2004) to account for the responsiveness of prices to income. The opportunity cost of time also enters into the model specification used by a number of authors (Lindelow, 2002; Sarma, 2003). Lastly, flexible behavioural models that allow parameters obtained for price and price/income variables to vary across alternatives have been proposed by various authors (Akin *et al*., 1995; Lindelow, 2002).

Due to data limitations discussed further on in this text, we chose a simplified version of this model that is linear in all arguments, given that price of

alternative j is not included in the specification. Individual and household specific variables are included in the formulation, but we do not include attribute specific variables that change over alternatives, such as quality and cost associated with different health care facilities. The subscript j has therefore been dropped for explanatory variables in this formulation.

Our analysis involves a simple binary-logit modeling approach for our pooled data set, as well as for the panel estimation. We estimate the probability of visiting private over public health care facilities as a function of a host of individual and household specific variables. Choice of health care facility has been aggregated into public and private health care facilities given the sparseness of the data. Public facilities include government clinics and hospitals. Private health care facilities include GPs, private hospitals, health care services provided by employers, and pharmacies.[5] The choice of traditional health care often included separately in analysis of this nature was excluded from this analysis due to the fact that only 1% (4/571) of ill individuals consulted a traditional healer, traditional faith healer, sangoma or herbalist.

In developing countries, under-utilisation of health care clinics and services is often prevalent due to the existence of significant non-pecuniary costs of consuming medical services, and poor quality of health care. It is therefore popular to include attribute specific measures such as travel costs, travel time and quality of health care in models where demand for health care is being estimated. Our use of such measures in this model is limited due to data constraints.

Treatment costs (attribute specific information) have not been included given that for each individual only the treatment costs associated with the chosen facility is available. In order to satisfy the data requirements of the multinomial choice model or conditional logit model, the alternatives of the attribute specific variables should be known. In attempting to estimate the marginal effects of travel cost on health care demand, we are faced with a similar problem. Information for alternative travel cost for each individual upon making the choice to visit either a private or a public health care facility is not known.

In a study of health care demand in Ethiopia, Asfaw (2004) uses average costs and average distance as proxies for the alternatives in each case. While this may be viable for the travel cost approximation, there are significant differences between treatment costs for different illness spells, depending on the nature of the medication required. We therefore do not pursue this route here.

[5] Three types of health care facilities account for 91% of choice, namely government clinics (48%), government hospitals (29%), and private GPs (14%).

Furthermore, demand for health care is directly affected by such factors as income and education. These variables are also important determinants of health, which subsequently affect demand for health care. In addition, the number of visits to a health care facility by an individual in a given period may differ for individuals when confronted by the same state of health due to differences in the subjective valuation of costs and benefits of treatment (Sarma, 2003). It is therefore necessary to include a measure of health in the model if one wants to estimate the direct effects of income and education (Windemeijer and Santo Silva, 1997). Unfortunately, the focus of this study was the socio-economic impacts of HIV/AIDS on households and the survey did not include a quality-of-health index to be used to approximate health status.

4.2 Pooled Logit Model

A Logit model has been estimated for the pooled sample, including all four waves for which observations were available. The logit estimations were obtained for heteroscedastic robust standard errors.

A dichotomous variable, y_{it} is defined such that $y_{it} = 0 \; if \; (y^*_{it1} > y^*_{it2})$ and $y_{it} = 1 \; if \; (y^*_{it1} < y^*_{it2})$. Here y^*_{it1} is the indirect utility attained from utilizing public health care and y^*_{it2} the indirect utility from private health care visitation. The probability of an individual choosing to visit a private health care facility (y_{it}=1) over a public facility (y_{it}=0) is defined as

$$\mathbf{Pr}(y_{it} = 1 \mid \mathbf{x}_{it}; \boldsymbol{\beta}) = \frac{\exp(\boldsymbol{\beta}\mathbf{x}_{it})}{1 + \exp(\boldsymbol{\beta}\mathbf{x}_{it})} = \Lambda(\boldsymbol{\beta}\,\mathbf{x}_{it})$$

for the logit model (Long, 1997). $\mathbf{x}$ represents a vector of individual and household specific variables and $\Lambda(\boldsymbol{\beta}\,\mathbf{x}_{it})$ is the continuous density function associated with the logistic distribution. Using maximum likelihood estimation, p is defined as the probability of observing an individual making the choice of visiting a private or a public health care facility, such that

$$p_{it} = \begin{cases} \mathbf{Pr}(y_{it} = 1 \mid \mathbf{x}_{it}) & if \; y_{it} = 1 \; is \; observed \\ 1 - \mathbf{Pr}(y_{it} = 1 \mid \mathbf{x}_{it}) & if \; y_{it} = 0 \; is \; observed. \end{cases}$$

The likelihood function used in estimation is

$$L(\boldsymbol{\beta} \mid \mathbf{y}_{it}, \mathbf{X}) = \prod_{y=1} \mathbf{Pr}(y_{it} = 1 \mid \mathbf{x}_{it}; \boldsymbol{\beta}) \prod_{y=0} [1 - \mathbf{Pr}(y_{it} = 1 \mid \mathbf{x}_{it}; \boldsymbol{\beta})].$$

where **X** is the matrix of independent variables for the entire sample (i=1,…n individuals, t=1,…n_i) (Wooldridge, 2002:404).

4.3 Panel Random Effects Logit Model

Random effects probit and logit estimations were performed on the panel of data consisting of four waves and 382 individuals from HIV/AIDS affected households. The random effects logit model is specified as: $y^*_{itj} = \boldsymbol{\beta}_j \mathbf{x}_{it} + u_i + \varepsilon_{it}$,

where $u_i \sim IID(0, \sigma_u^2)$ normally distributed and $\varepsilon_{it} \sim IID(0, \sigma_\varepsilon^2)$ logistically distributed such that ε_{it} has mean zero and variance $\sigma_\varepsilon^2 = \pi^2 / 3$ independently of u_i.[6] The logit model uses maximum-likelihood estimation to fit the random effects specification assuming that

$\mathbf{Pr}(y_{it} = 1 \mid \mathbf{x}_{it}, u_i; \boldsymbol{\beta}) = P(\mathbf{z}) = P(\mathbf{x}_{it} \boldsymbol{\beta} + u_i)$ for i=1,…n individuals, t=1,…,n_i , $u_i \sim IID(0, \sigma_u^2)$ and $P(\mathbf{z}) = \{1 + \mathbf{exp}(-\mathbf{z})\}^{-1} = \Lambda(\mathbf{z})$.

Another standard assumption is that $y_{i1}, \ldots y_{iT}$ are independent conditional on $(\mathbf{x}_i, u_i)$. As a result of u_i being present the y_{it}'s are dependant across t conditional only on the observables, , allowing for inter-personal correlation. Given both the above-mentioned assumptions, the RE logit model yields a consistent estimate of $\vec{\boldsymbol{\beta}}$ without making assumptions about the relation between u_i and $\mathbf{x}_i$ (*ibid*).

Based on these assumptions the density of ($y_{i1}, \ldots y_{iT}$) conditional on $(\mathbf{x}_i, u_i)$ is:

$$f(y_1, \ldots y_T \mid \mathbf{x}_i, u_i; \boldsymbol{\beta}) = \prod_{t=1}^{T} f\left(y_t \mid \mathbf{x}_{it}, u_i; \boldsymbol{\beta}\right)$$

where $f(y_t \mid \mathbf{x}_t, u_i; \boldsymbol{\beta}) = \Lambda(\boldsymbol{\beta} \mathbf{x}_t + u)^{y_t} [1 - \Lambda(\boldsymbol{\beta} \mathbf{x}_t + u)]^{1 - y_t}$ (*ibid*).

[6] As before subscript j is dropped from the formulation given that variables that vary across attributes were not included.

The log –likelihood L is calculated using quadrature:

$$L = \sum_{i=1}^{N} \mathbf{log\{Pr(}y_{it} = 1 \mid \mathbf{x}_{it}, u_i; \boldsymbol{\beta})\} \approx \sum_{i=1}^{n} \mathbf{log}[\frac{1}{\sqrt{\pi}} \sum_{m=1}^{M} w_m^* \prod_{t=1}^{n_i} F\{y_{it,}, \boldsymbol{\beta}\, \mathbf{x}_{it} + a_m^* \left(\frac{2\tau}{1-\tau}\right)^{1/2} \}]$$

where w_i =1, M is the number of quadrature points and $\tau = \frac{\sigma_u^2}{(\sigma_u^2 + 1)}$ (Butler and Moffit, 1982).

The FE model loses a degree of freedom for each N which typically is a problem given the small sample size we are dealing with. This loss of degrees of freedom is avoided when we assume u_i to be random (Baltagi 2001:15).

We were unable to estimate the fixed effect due to this loss in degrees of freedom, as well as, the lack of variation in the dependant variable over the four waves. In total, 405 observations where dropped from the model, resulting in too few remaining observation with which to fit the model. This also implied that we were unable to execute the Hausman specification test to verify that the underlying assumption of the random effects model, namely that u_i and X_{it} are uncorrelated across the sample, holds. The Hausman test involves a comparison of the RE and FE model parameters.

While the population averaged (pa) probit and logit models for panel data allows for heteroscedasticity corrected standard errors (using the robust option), the RE model does not. The pooled and panel models were estimated by adjusting for household clustering and geographical stratification to increase overall efficiency and prevent numbering bias. We corrected for geographical stratification to account for the distinctly rural and urban groups in our sample. The clustering and stratification treatment however does not affect the resulting standard errors significantly.

4.4 Modeling income effects

The specification for calculating income effects (marginal effects) on the probability of seeking private health care over public health care is defined as:

$\frac{\partial p(\mathbf{x})}{\partial x_k} = g(\boldsymbol{\beta}\mathbf{x})\beta_j \quad where \quad g(z) = \frac{\partial \Lambda(z)}{\partial z}$ and x_k is continuous. The marginal effect is evaluated at the means (Wooldridge, 2002:459). Marginal effects are reported in order to assess the effect on income on the probability of seeking private health care over public health care on average and specifically for households in the lower and upper quintiles of our sample. Here x_k is the log of real adult equivalent income calculated for individuals from estimates of the total household income. The predicted marginal effect of a change in income for the RE logit model is calculated at $u_i = 0$.[7]

4.5 Modeling the impoverishing impact of health care expenditure

The one question posed in this paper is whether the increased burden of morbidity and mortality exerted on households by HIV/AIDS will cause households to become impoverished or to move deeper into poverty. Income share of medical care expenditure or proportion of individual's income (s_i) spent on medical care can be expressed as

$$s_i = \frac{p_i x_i(p,m)}{m} \qquad s_i \geq 0 \qquad \sum_{l=1}^{n} s_{li} = 1 \ni l = 1,...n \text{ components of expenditure}$$

where s_i denotes income share spent on medical care by individual i. $x_i(p,m)$ is therefore the individual's Marshallian demand for medical care (which in this study equals one considering that only one visitation was recorded per interview) and p_i the cost of healthcare (Jehle and Reny, 2000: 59). The cost of health care can be disaggregated in terms of consultation fees, medication costs and travel costs. In our estimations, consultation fees and medication costs were aggregated as treatment costs and were calculated for each of the income quintiles to explore the impoverishing effect of health care expenditure in HIV/AIDS-affected households.

[7] Income estimates were converted into real values using the most recent CPI estimates (2000=100) published by Statistics South Africa (2003). Measures of equivalent income were employed to allow for differences in standard of living related to household characteristics (Lipton and Ravallion, 1995; Burkhauser, Frick & Schwarze, 1997). Household income was adjusted for differences in household size by dividing real monthly income by n^{α}, where n represents the number of household members and α an adjustment for household economies of scale (Filmer and Pritchett, 1998: 13).

5. Results and Discussion

5.1 Descriptive Analysis

This section explores the association between gender, age, education and income and the incidence and severity of illness and decisions about health care use. These results are reported in Table 3. The incidence of illness exhibits a statistically significant association with gender and age ($P<0.05$). Women are more likely than men to have been ill, while the incidence of illness as expected increases with age for both men and women. Asfaw (2004) reports similar results. In terms of the severity of illness, older persons and older men are less likely to have recovered from their illness ($P<0.05$). Older men are also more likely to not be able to perform daily tasks on their own ($P<0.05$). In terms of health care seeking behaviour, younger persons are somewhat more likely to seek treatment compared to older persons ($P<0.10$). Adults in general and adult women in particular are more (less) likely to have visited public (private) health care facilities compared to children and the elderly ($P<0.10$).

The relationship between incidence of illness and education was statistically weak ($P<0.10$) and show persons with no education and persons with secondary and tertiary education to be more likely to have been ill compared to persons with primary education. Health care facility choice is also significantly associated with education. However, the association again is not linear. Persons with no education and with tertiary education were most likely to visit private health care facilities compared to persons with primary or secondary education ($P<0.10$). (These peculiar associations and the absence of a statistically significant relationship between education and severity of illness may be the result of including here persons of all ages, thus complicating the a priori negative relationship between education, standard of living and illness.)

The incidence of illness is not significantly higher amongst poorer households. However, the mean duration of illness is significantly longer for persons from poorer households ($P<0.01$). Furthermore, fewer persons from poor households had recovered from their illness compared to persons from more affluent households ($P<0.01$). Asfaw (2004) also reports poverty to be significantly and positively associated with severity of illness (measured in this case by the number of days the person was not able to work), given that members of wealthier households are more likely to access treatment before their illness gets worse. Most importantly, there is a statistically significant association between income and choice of health care facility ($P<0.01$). The proportion of ill persons that visited private (public) health care facilities increases (declines) with

Table 3: Incidence of illness, characteristics of illness and choice of health care facility by socio-demographic characteristics

	Incidence of illness (%)	*Disability (%)*	*Mean duration of illness (days)*	*Has not recovered from illness (%)*	*Sought treatment (%)*	*Visited public health care facility (%)*	*Visited private health care facility (%)*
Gender:							
Male	11.0	37.2	23.0	79.7	96.0	80.4	19.6
Female	14.6	35.2	23.0	82.4	95.4	80.9	19.1
Gender and age:							
Male							
< 15 years	8.3	22.6	22.8	65.4	100.0	77.6	22.4
15-49 years	12.4	40.7	22.8	84.3	94.1	83.0	17.0
50+ years	14.1	57.1	24.7	90.5	95.8	73.9	26.1
Female							
< 15 years	7.7	33.9	21.5	76.8	96.6	69.6	30.4
15-49 years	16.4	38.2	23.1	82.8	96.8	84.2	15.8
50+ years	23.5	27.3	23.9	84.4	91.6	73.9	26.1
Total							
< 15 years	7.9	28.4	22.1	71.3	98.3	73.7	26.3
15-49 years	14.6	39.1	23.0	83.3	95.9	83.8	16.2
50+ years	20.6	33.7	24.1	85.7	92.5	78.8	21.2
Education:							
No education	16.5	35.0	22.6	79.2	96.7	69.8	30.2

Table 3 - continued

	Incidence of illness (%)	*Disability (%)*	*Mean duration of illness (days)*	*Has not recovered from illness (%)*	*Sought treatment (%)*	*Visited public health care facility (%)*	*Visited private health care facility (%)*
Primary education	9.9	26.2	23.2	79.8	96.9	82.4	17.6
Secondary education	13.7	40.4	23.6	84.5	96.0	87.0	13.0
Tertiary education	14.9	40.0	18.6	70.8	88.0	52.4	47.6
Income quintile:							
1	14.0	34.5	25.0	95.2	96.8	91.1	8.9
2	14.1	43.4	23.8	79.5	96.8	84.8	15.2
3	11.5	38.8	25.0	85.9	95.7	84.3	15.7
4	13.4	28.2	24.9	80.8	98.9	72.1	27.9
5	10.2	41.3	20.3	69.7	91.4	68.1	31.9
Total	13.0	36.1	23.1	81.3	95.6	80.8	19.2

Note: Incidence of illness refers to percentage of persons who were continuously ill in the month preceding the interview. Disability represents the percentage of ill persons that were not able to perform daily tasks by themselves. Mean duration of illness represents the mean number of days for which the person was ill in the past month. Incidence of illness, disability, mean duration of illness and recovery from illness are only available for persons that were ill and not for those persons that died in the six month preceding the interview (these persons were not recorded on the household roster in the interview following their death), but for which information on choice of health care facility is recorded. The percentage of ill persons that visited public and private health care facilities was calculated exclusive of the use of traditional healers. Income is measured in real adult equivalent per capita terms.

income. Hence, ill persons from poorer HIV/AIDS-affected households rely mainly on public health care, while ill persons from more affluent households are more likely to visit private health care facilities. Similarly, Asfaw (2004) reports higher use of public (private) health care facilities amongst the poor (affluent).

5.2 Logit models of demand for public versus private health care

Table 4: Results of Pooled and Random Effects Panel logit models

Variable name	*Pooled Logit*		*Random Effects Panel Logit*	
	β	Robust SE	β	Robust SE
Individual characteristics:				
Secondary Education	-0.910***	0.320	-1.017**	0.445
Tertiary Education	-0.505	0.668	-0.452	0.965
Perform daily tasks	-0.664**	0.290	-0.766**	0.405
Access to medical aid	0.558	0.769	0.637	1.089
Household characteristics:				
Log of Real Adult Equivalent Income	0.664***	0.193	0.875***	0.293
Number of HH members	-0.147**	0.064	-0.185**	0.086
Number of ill in HH	0.403**	0.161	0.528**	0.238
Deaths in HH	1.043**	0.481	1.201*	0.669
Number of medical aid holders in HH	0.368**	0.174	0.476*	0.271
Foster care grant	1.094**	0.543	1.394**	0.787
Social Networks	-0.574	0.398	-0.722	0.498
Constant	-4.550***	1.190	-6.082***	1.909
Number of observations	382		382	
Wald chi2	50.06 (P<0.01)		26.80 (P<0.01)	

Dependent variable: choice of health care facility (public=0, private=1).
*** significant at the 1% level.
** significant at the 5% level.
* significant at the 10% level.

We estimated the choice of health care facility by ill persons in our sample for the pooled as well as panel data. The probability of visiting either a private or a public health care facility is modeled on a number of explanatory variables. The descriptive statistics of those variables included in the models are listed in Appendix 1. Results obtained from the logit estimation for both the pooled and

the panel data are presented in Table 4.[8] Both models perform well in terms of overall statistical significance.

5.2.1 Individual characteristics

Individuals with secondary school educational attainment are less likely to visit private health care facilities than those with no education or only primary level education. This finding is somewhat surprising, as one would have expected to observe a correlation between education, income and the choice of private health care facilities (access to facilities providing better quality services). There is definitely a strong tendency amongst individuals with low educational attainment to visit private GP's (48/241 visits). Tertiary education did not have a significant effect on the likelihood to visit primary health care facilities, but this is specifically due to the small number of individuals (26) in our sample with tertiary education.

Access to medical aid also does not influence an individual's choice of health care facility significantly. This may be largely due to the fact that only 2-10% of people at any stage had direct access to medical aid. There should exist a strong relationship between private health care visitations and access to medical aid, given that in South Africa it is unlikely that you visit a private hospital unless you are insured by medical aid. In some cases, depending on the policy option chosen by the member of the scheme, private medical aid funds may exclude visits to GPs and cover only hospitalisation costs. It is therefore possible that an individual with access to medical aid may still choose to visit a public clinic when seeking treatment for less severe symptoms of illness.

Whether an ill individual was able to perform daily tasks has a significant negative impact on the probability that they will visit a private health care facility. Thus, persons who suffer more severe illness (those who are not able to perform daily tasks on their own) are more likely to opt for private as opposed to

[8] A large number of individual and household specific variables were included in our preliminary analysis. Few of these were significant and due to the limited size of our sample, we only selected a small number of explanatory variables to include in our final model. While this is a disadvantage in lowering the overall explanatory power of the model, it has improved the overall reliability of our estimates significantly. Variables omitted in the final analysis included a host of government grants, place of residence, gender, age, gender and age of the head of household, assets, number of employed persons in the household, number of years of schooling of the household, and number of days ill in the last month. The estimates obtained for the probit estimation are generally similar to those observed for the logit estimation and have not been reported here.

public health care. Havemann and Van der Berg (2003: 17-18) also report preference for private health care to be higher for more severe or serious illness.

5.2.2 Household Characteristics

The coefficient associated with the logarithm of real monthly adult equivalent income is positive, and highly significant in influencing the individual's choice to visit private health care facilities. This is the result of the higher direct and indirect costs of accessing private as opposed to public care. Mean transports costs incurred to visit health care facilities are R13 and R34 for visits to public and private health care facilities respectively (P>0.001). Mean treatment costs in turn are R40 and R458 for visits to public and private health care facilities respectively (P>0.001). Havemann and Van der Berg (2003: 12) likewise report that preferences for private care increase as income increases while demand for public care is low amongst persons from poor households, although some of the poor like here show a preference for private care.

The number of ill persons within the household (Ill Members) has a positive and highly significant effect on the likelihood that private health care will be sought. The number of household members (HH Members) consistently seems to reduce the likelihood that any one individual will visit a private health care facility. The number of deaths in the household (Deaths) has a positive effect on the likelihood of private health care visitations.

The number of persons within the household with access to medical aid has a significant positive impact on the probability of private health care utilisation. Havemann and Van der Berg (2003) report similar findings based on nationally representative data. It would therefore seem that household members benefit through indirect access to medical aid of other members in the household. There may, in the case of certain health care treatment facilities, be a direct relationship between the consultation fees and quality of health care usage, such that increased fees may enhance usage (Collier *et al*., 2002). Given that access to public health care here is free, it is likely that access to medical aid makes private health care accessible and is in itself reflective of demand for a higher quality of health care. The latter argument is substantiated by differences in the main reason for visiting public as opposed to private health care facilities. The majority of persons that used public care did so because treatment was free (53%), whereas persons who used private care cited more effective treatment (43%) and the ineffective of earlier treatment in affecting cure (35%) as the main reasons (P<0.001). Palmer (1999) and Havemann and Van der Berg (2003)

report similar reasons for the preference of private over public health care facilities.

Of specific interest to an investigation in the utilisation of health care facilities is the role that security nets such as social grants and medical insurance play in affecting people's behaviour. South Africa has a well-developed system of social security compared to most other developing countries and is on par with systems in many developed countries (Guthrie, 2002; Seekings, 2002). The old age pension, child support, disability, care dependency, and foster care grants in particular are likely to play an important part in mitigating the socio-economic impact of the HIV/AIDS epidemic, given the associated increase in morbidity and mortality, the orphan crisis and the resulting impacts on household composition and formation (Guthrie, 2002; Seekings, 2002; Van der Berg and Bredenkamp, 2002). Access to an old age pension, child support grant, and disability grant does not influence individuals' choice of health care facility significantly, thus suggesting that households do not use this money to pay to access health care facilities, but rather spend the money in other ways. Only in the case of access to a foster care grant do ill persons opt to access private versus public health care facilities, thus implying that some of this income may be allocated directly or indirectly to pay for health care. Considering the small proportion of individuals with access to social grants, however, this is perhaps not surprising. In this sample, only 27% of individuals lived in a household with access to an old age pension, 18% had access to a child support grant, and 16% had access to a disability grant. Only 5% and 1% of households had access to a foster care or care dependency grant respectively. The large standard errors associated with these parameter estimates indicates that not a sufficient proportion of individuals in the data set receive such social grants in order to obtain efficient estimates.

Lastly, it is interesting that membership to social support groups decreases the likelihood of consulting private health care facilities compared to those without access to such membership. The estimate obtained is however not quite significant at the 10% level. A correlation between those with access to membership and different income quintiles shows that while in total fewer individuals in the richest quintile have memberships in social support groups, in relative terms 31% of individuals in this group have access to social support, whereas only 23.5% of individuals in the poorest quintile have access to social support networks. The link between social capital and health has been found to be stronger amongst the poor and in unequal societies. Burdens on social networks in poor communities grow as the burden of disease increases (Kawachi *et al*., 1997; Kawachi *et al*., 1999; Kunitz, 2001). Social networks also play an important role in enabling ill persons from poor households to pay the user fees required to access health care services (Ayé *et al*., 2002).

The random effects model typically controls for constant individual-specific effects that are randomly distributed across the population. This allows for intra-person serial correlation of errors over different periods in the panel. The Likelihood ratio test, where rho (ρ) reflects the ratio of the total variance that is due to the panel level variance component, is used to compare the pooled estimator with that of the panel estimator. From this test, we infer that the panel estimator is significantly different from the pooled estimator. The variables important in affecting the probability that individuals visit private or public health care facilities are however similar to that observed for the pooled estimation. Overall comparison of the random effects model with the pooled model indicates that the latter somewhat under-estimates the effects of individual and household specific variables in determining the probability of seeking private healthcare over public health care. The results obtained from the Wald-type test indicates that the overall model is significant in describing the choice of health care facility type. A quadrature check of the model indicates the numeric technique for estimating the model is in fact stable.

5.3 Income Effects

A more detailed look at the effect of income on choice of health care facility visited (Table 5), reveals that the marginal effect of income on demand for private health care over public health care varies depending on the level of income. When evaluated at the mean income for each quintile in our sample, the probability of choosing private health care over public health care becomes pronouncedly more inelastic the lower the income quintile.

Table 5: Marginal effect of income by income quintile

Quintile	*Mean Adult Equivalent Income*	*Pooled Logit Model*	*Random Effects Panel Model*
1	107.07	0.046	0.0331
2	233.85	0.077	0.0697
3	345.94	0.092	0.0909
4	574.00	0.114	0.1256
5	1257.50	0.143	0.1769
Mean	*383.8*	*0.084*	*0.0786*

For the logit estimation from the pooled sample, the change in probability of choosing private health care over public health care varies from 0.046 for a 1%

increase in income evaluated at the mean of the poorest quintile to 0.143 for a 1% increase in income evaluated at the mean of the wealthiest quintile. For the RE logit estimation, the difference in marginal effect of income is even more pronounced. Here, a 1% increase in income for the poorest quintile only increases the probability of using private health care over public health care by 0.033, whereas a 1% increase in income for the richest quintile translates to an increase in the probability of using private of public healthcare by 0.178. The chronically poor (those that remained in the bottom quintile in each period of the survey), therefore, are likely to remain dependent on public health care compared to the more affluent.

5.4 Modeling the impoverishing impact of Health Care Expenditure

Estimation of the price elasticity of demand for different health care types is another popular technique for evaluating the effects of changes in the cost of treatment on demand for health care. This in itself is useful in indicating both the income and substitution effects associated with a change in overall treatment costs. Methods such as multinomial probit and conditional logit estimation and the nested multinomial logit (Akin *et al*., 1995; Collier, 2002; Sarma, 2003; Asfaw, 2004) allows for such analysis. Due to the lack of data on alternative treatment and travel costs, we estimate here the share in total expenditure on medical care (consultation, treatment and travel costs) as a proportion of an individual's real adult equivalent income.

Table 6: The share of total health care expenditure in real adult equivalent income by income quintile

Income	*Total Health Care Expenditure (Rand)*			*Share of Total Expenditure*		
Quintile	*Public*	*Private*	*Total*	*Public*	*Private*	*Total*
1	45	156	62	0.51	1.50	0.667
2	74	587	154	0.30	3.00	0.726
3	67	205	100	0.20	0.53	0.268
4	54	181	79	0.11	0.30	0.148
5	55	343	165	0.03	0.36	0.165
Mean	*53*	*493*	*133*	*0.29*	*1.14*	*0.459*

Total expenditure on health care for those individuals who visit a health care facility on average consumes 46% of income (Table 6). For the poorest quintile, this percentage increase to a staggering 67% and for those in the second quintile

total expenditure as a share of income is even higher at 73% of total earnings. For those in the richest quintile, overall expenditure on health care visitations only constitutes 16.5% of overall health care expenditure. The findings for type of health care visit exhibit a similar pattern, although higher private care costs are more impoverishing and represent larger shares of income in each quintile compared to costs for public care. The higher burden of health care costs in the second quintile for private care and for the total sample is largely due to the fact that relatively more individuals in the second lowest quintile visit private health care facilities than those in the poorest quintile. The latter predominantly uses public health care facilities. Thus, health care costs associated with an increased burden of illness, decrease welfare and push HIV/AIDS-affected households deeper into poverty.

Conclusions

The incidence of illness and severity of illness are generally more pronounced amongst persons in poorer households affected by HIV/AIDS. Evidence on the burden of health care expenditure by income quintile furthermore suggests that the epidemic will push poor households deeper into poverty as the burden of illness increases. Similar to Asfaw (2004), we found income to be the most important determinant explaining differences in demand for health care amongst ill persons from HIV/AIDS-affected households, with the poor being more likely to opt for public care while the more affluent opt for private health care. Given, therefore, that poorer households are more likely to be affected by HIV/AIDS, and that HIV/AIDS is likely to push households deeper into poverty, the fact that low socio-economic status is the main predictor of choice of public over private health care implies that those affected by HIV/AIDS will remain largely dependent on the public heath care system. The demand for public care in South Africa can therefore be expected to rise as the HIV/AIDS epidemic takes its toll. There is also evidence that demand has shifted from public to private services due to lower quality of care in public facilities.

However, the roll-out of anti-retroviral treatment (ART) to South Africans over the next five years may see the role of socio-economic status in explaining differences in health care choice change, given that all HIV-positive persons will have free access to such treatment. In particular, this may see demand shift from private to public health care facilities. It is as yet unclear as to whether government has taken full cognisance of this problem, given that the majority of people in South Africa are not aware of their HIV status and that current estimates of the uptake of treatment may therefore be underestimated, which could result in serious problems in ensuring access to treatment for all. Given

consequent problems in financing treatment from general taxation, government would perhaps need to explore alternative financing options. One such option is social health insurance, which the current government has proposed to implement to pay for hospitalisation (Taylor, 2001). Given the burden that HIV/AIDS in particular exerts on hospital care, this seems a feasible option. Yet, the international evidence on social health insurance suggests that these financing schemes generally have low coverage in middle- and low-income countries and provide little additional revenue to finance health care compared to general taxation (Witter *et al*, 2000). Community health insurance schemes represent another option for health care financing, particularly for the poor, although the literature also suggests that the poorest of the poor is often excluded from these schemes (Jütting, 2004; Osei-Akoto, 2004). Given evidence from the larger literature on health care demand that the poor are often less likely to access treatment (Asfaw, 2004), vigilance is required in ensuring that the poor have equitable access to anti-retroviral treatment provided via public health care facilities, be it financed via general taxation, the proposed social health insurance scheme, or complementary community insurance schemes.

Appendix

Appendix 1: Descriptive statistics of variables included in econometric models

Variable	*Sample (n)*	*Mean*	*Standard error*	*Confidence interval 95%*	
Individual characteristics:					
Age	568	1.644	0.020	1.605	1.684
Gender (1=male, 0=female)	568	0.356	0.020	0.316	0.395
No formal education (1=yes, 0=no)	571	0.210	0.017	0.176	0.243
Primary education (1=yes, 0=no)	571	0.228	0.017	0.193	0.262
Secondary education (1=yes, 0=no)	571	0.398	0.020	0.357	0.437
Tertiary education (1=yes, 0=no)	571	0.044	0.008	0.026	0.060
Number of days ill in past month	512	23.094	0.437	22.235	23.953
Able to perform daily tasks (1=yes, 0=no)	510	0.639	0.021	0.597	0.681
Treatment costs related to illness (Rand)	571	116.287	31.797	53.833	178.741
Transport costs related to illness (Rand)	571	16.988	2.093	12.878	21.098
Household characteristics:					
Female head of household head	571	0.557	0.021	0.516	0.598
Age of head of household	571	50.608	0.671	49.291	51.925
Total years of schooling of HH members	571	32.137	0.740	30.683	33.590
Access to medical aid (1=yes, 0=no)	571	0.075	0.011	0.054	0.097
# HH members with access to medical aid	571	0.284	0.051	0.184	0.383
Real adult equivalent income (Rand)	451	383.808	17.352	349.707	417.909

Appendix 1 Table - continued

Variable	*Sample (n)*	*Mean*	*Standard error*	*Confidence interval 95%*	
Poverty status (income<R250)	451	0.412	0.023	0.367	0.458
HH size	571	5.282	0.117	5.052	5.512
Number of employed HH members	571	0.660	0.034	0.593	0.728
Number of ill persons in HH	571	1.357	0.036	1.286	1.429
Number of deaths in HH	571	0.191	0.018	0.156	0.226
Access to old age pension (1=yes, 0=no)	571	0.268	0.019	0.232	0.304
Access to child support grant (1=yes, 0=no)	571	0.180	0.016	0.149	0.212
Access to disability grant (1=yes, 0=no)	571	0.156	0.015	0.126	0.186
Access to foster care grant (1=yes, 0=no)	571	0.047	0.009	0.030	0.065
Access to care dependency grant (1=yes, 0=no)	571	0.014	0.005	0.004	0.024
Access to social support network (1=yes, 0=no)	571	0.257	0.018	0.221	0.293
Place of residence (1=urban, 0=rural)	571	0.461	0.021	0.420	0.502

Note: 'Access to social support' refers to whether any member of the household had benefited from a savings club/stokvel (although the benefits are monetary, these are social institutions), a women's group, church-based support, NAPWA, Hospice, ATTIC, a support group, or from family or friends.

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The Data First Resource Unit ('Data First') provides training and resources for research. Its main functions are: 1) to provide access to digital data resources and specialised published material; 2) to facilitate the collection, exchange and use of data–sets on a collaborative basis; 3) to provide basic and advanced training in data analysis; 4) the ongoing development of a web site to disseminate data and research output.

The Democracy in Africa Research Unit (DARU) supports students and scholars who conduct systematic research in the following three areas: 1) public opinion and political culture in Africa and its role in democratisation and consolidation; 2) elections and voting in Africa; and 3) the impact of the HIV/AIDS pandemic on democratisation in Southern Africa. DARU has developed close working relationships with projects such as the Afrobarometer (a cross national survey of public opinion in fifteen African countries), the Comparative National Elections Project, and the Health Economics and AIDS Research Unit at the University of Natal.

The Social Surveys Unit (SSU) promotes critical analysis of the methodology, ethics and results of South African social science research. One core activity is the Cape Area Panel Study of young adults in Cape Town. This study follows 4800 young people as they move from school into the labour market and adulthood. The SSU is also planning a survey for 2004 on aspects of social capital, crime, and attitudes toward inequality.

The Southern Africa Labour and Development Research Unit (SALDRU) was established in 1975 as part of the School of Economics and joined the CSSR in 2002. SALDRU conducted the first national household survey in 1993 (the Project for Statistics on Living Standards and Development). More recently, SALDRU ran the Langeberg Integrated Family survey (1999) and the Khayelitsha/Mitchell's Plain Survey (2000). Current projects include research on public works programmes, poverty and inequality.