Household Structure, Social Protection and Health Seeking Behaviour in South Africa

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Abstract

Social protection and related initiatives have been targeted at reducing poverty, providing assistance for families with children and providing people with healthcare and housing. Healthcare provision, particularly, constitutes an essential component of a minimum package of goods and services for the development and advancement of individuals within the household system. This paper utilizes the 2004 South Africa General Household Survey, which contains detailed information on household structure and health-seeking behaviour. So far, the results suggest that differences in family structure strongly influence the decision to attend various healthcare facilities.

1. INTRODUCTION

Transfers in various forms have been an important component of social protection and welfare in South Africa since 1994. Expansion of the public welfare and social protection programs in the country has had significant and diverse impacts at different levels in the society, especially at the household level. Welfare, social protection and related initiatives have been targeted at reducing poverty, providing assistance for families with children and providing people with healthcare and housing. Healthcare provision, particularly, constitutes an essential component of a minimum package of goods and services for the development and advancement of individuals within the household system.

The household and systems surrounding the household are strategic institutions and they play a fundamental role in enabling survival, as well as fraternity and intermediation between the state and individuals. Since many decisions are taken at the household level, the effect of government policies and the utilization of public services (especially, health services, which forms the basis of analysis in this paper) depend on household factors, including relations to other household members and general household characteristics. Most of the research on utilization of health care and health care behaviour has concentrated on the individual as the consumer of health, (Havemann and Berg, 2003, Visser and Booysen, 2004). According to Jacobson (1999) and Bolin *et al* (1999), the family can be viewed as the producer of health rather than the individual. Given that the household is the main producer of health, and those individuals in the household are the consumers of health care and a major influence on individual decision making, the household institution is a logical basis for understanding the dynamics of decisions in regards to health care and health-seeking behaviours. Specifically, the diverse nature and characteristics of the household structure pose specific questions and challenges to policymakers when they embarking upon health related social protection programs.

The first question: is there a linkage between household structure and social protection programs? The second question is: what are the household characteristics that enable, or otherwise, the use of various

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social protection programs, and, finally, should social protection be targeted towards this vulnerable groups with various characteristics? The objective of the research reported in this paper is to provide preliminary answers to the preceding questions. Initially, we consider the basic components of household structure, based upon the household head: marital status, married, divorced, widowed, or never married; and the gender of the head. The initial analysis composes of quantitative and qualitative methods. The remainder of the paper is organized as follows: Section 2 gives a background to the various social protection programmes in South Africa, as well as the structure of health care financing in the country. Section 3 contains a brief, but relevant, review of the literature, while Section 4 considers the methodology and the data used in the analysis. Section 5 includes the results from the descriptive and empirical analyses, while the final section contains a preliminary conclusion, which mostly points towards further work that ought to be considered.

2. BACKGROUND

2.1 Social Protection Programmes and Health Services in South Africa

In general, social protection embodies societal responses to the risks faced by the populace; those risks include various natural, health, social, economic, political and environmental risks to which human beings are commonly exposed (Holzmann and Jorgensen 1999, Holzmann and Jorgensen, 2001). As far back as 1944, an integral part of the constitution of the International Labour Organization (ILO) recognized social security as a basic human right, as implied in the declaration of Philadelphia, 1944.

The primary goal of any social protection policy is to guarantee access to health and social services, to provide income security and prevent or alleviate poverty. Following the end of apartheid regime in South Africa in 1994, the democratic government was confronted with the challenges to reform the inherited social protection system which was anchored on inequity and racism, to an integrated one based on equity, accessibility and people oriented. Despite various difficulties, South Africa has put into place various systems of social grants, including: the old-age pension grant, the disability grant, the foster care grant and child support grants. The old-age pension, although directed at the elderly, has often provided a safety net for non-target groups, particularly for the well-being of children in the pension-receiving households (Haddad and Zeller, 1997).

The connection between health services and social responsibility/relationship is of historical importance. Given this, governments at various levels strive to put in place basic facilities to care for its people by reducing out-of-pocket expenses associated with health risks; according to a WHO (2003) report, out-of-pocket risks account for up to 1/3 of total health care spending in 2/3 of all low-income countries. Drechsler and Jütting (2005) argue that in most African countries, out-of-pocket expenses are well above the WHO average. It is not, therefore, surprising to know that public health facilities provide the bulk of care, serving between 75% and 80% of the South African population, while private service providers render services to the remaining part of the population. Although also not surprising, it is disheartening to realize that only about 16.2% of the population of the country enjoys medical schemes. As suggested in the literature by Dixon (1987), Fultz & Pieris (1999), Taylor (2001) and Xu, Evans, and Kawabata *et al* (2003), social welfare schemes in Africa exclude more people than they should actually cover.

2.2 Health Care financing and the Household in South Africa

There are three guiding principles associated with financing health needs; they are: insurance, solidarity and responsibility. The first is associated with naturally occurring diseases, and, for which, the insurance mechanism is the most appropriate financing option. The second relates to diseases with statistical certainties, varying by age, gender and economic status. The financing of care in statistical certainties rest upon principles of solidarity, as others in or out of the households need to respond to finance care, although a life-cycle insurance option might also be reasonable. The last often results from risk consciousness relating to employment type, environment or lifestyle, for which financing rests on the principles of responsibility.

Available data reveals that health care in South Africa is mainly financed by the government and the households. The data further indicate that employers also make significant contributions to health care financing in South Africa. The picture from Doherty (2002) reveals that the South African government provides about 44% of finance for health care in South Africa, while the contribution by the households is about 39% and the mark-up is mainly sourced from the schemes by the employers.

Table 2.1 : Sources of finance in the South African health care sector (1998/99).

Sources of finance	Rand billion (1999/2000) prices	% of total sources
Government	31.1	44.2
Households	27.4	39.0
Employers	11.7	16.6
Donors plus NGO's	0.1	0.1
Total	70.2	100.0

Source: Doherty et al (2002)

2.3 Medical Schemes in South Africa

Medical schemes are a complementary scheme to the unconditional funding by the governments and the households, which account for the bulk of financing for health in South Africa. Medical schemes have been the traditional source of funding for the private health sector and cover approximately 16% of the population, a proportion which has remained stable since 1996 (source?). In many instances, the employer and the employee usually share contributions to medical schemes.

Medical schemes are characterized as:

- Open: this is a medical scheme that is open to any member of the public.
- Restricted: this is a medical scheme whose membership is restricted to a certain category of persons such as an employee.
- Bargaining council: this is a sickness fund established and regulated in terms of labour relations legislation, typically under the auspices of a bargaining council

Actively involved in the Medical Scheme projects in South Africa are: insurance outfits, employers, donors, private individuals and the government. The total number of beneficiaries of various schemes

operating in the system was about 6.96 million in 2002, with a total financial commitment of about R35.7 billion (Harrison, 2004).

3. LITERATURE REVIEW

There is a growing body of literature relating to health-seeking behaviours and health facility choice in developing economies. Factors that the determine choice of health facility include demography, socioeconomic, environment, accessibility and types of diseases, where the actors are individual, households and community. While the public health facilities remain the most accessible to the poor, private health care providers have flourished over the years, and have been widely explored by both the poor and the rich.

Evidence has shown an increasing trend in the use of private health facilities by the poor, contrary to the traditional belief that only the affluent can afford them (Shaikh and Hatcher, 2004). Choice between public and private systems also depends on individual and household perceptions of quality of care. Ample evidence suggests that quality of care in most public health facilities is often sub-standard and poor, thus attracting natural priority preferences to private care contingent upon ability to pay. In many health care systems, including the South African, there is natural tension between the public and the private health sector, due to changing preferences over the years (Havemann and Van der Berg, 2003). Among other studies, Gupta and Dasgupta (2002), using nested and non-nested multinomial logistic regression, concluded that private health care seems to be preferred to public health, given the significance of quality indicator in the model

Studies by Mwenesi *et al* (1995), Alaba and Alaba (2004) and Kazembe *et al* (2007), which apply different qualitative and quantitative methodologies, have underscored various factors influencing health care decisions. The results suggest that family structure and household membership are keys to facility choice decisions and implementation. Research by Uzochukwu and Onwujekwe (2004) and Kazembe (2007) suggest that the household resource base and availability of funds at the time of illness are important determinants of health-seeking behaviour. In addition, Lindelow (2005), using multinomial logistic regressions, find that education and physical access to facilities are very important factors affecting health care decision making.

A more recent study by Swanepoel and Stuart (2006) on the demand for health care choice in South Africa used two surveys, the General household Survey and the Labor Force Survey, in its empirical analysis. Factors that could influence health care behaviors were divided into six categories. The first relates to the income available to the households. The second captures some household characteristics like household size and dependents; the third category is the geographical variables, the fourth has to do with the characteristics of household head while the last two were the family's private assets and community resources. In general, income, education, age and the number of adults employed in the households were found to be significant in health facility utilization.

Kouzis and Eaton (1998), based on Addy and Andersen (1978) and Andersen (1995) expanded the model of health care choice and services to include stress-buffering effects of social networks and social supports. The behavioural model indicated in their work suggests three main types of variables predicting the use of health care services. These include predisposing, enabling and need variables. "Predisposing" variables describe the propensity of individuals to use services and exist prior to the on-set of illness. They include socio-demographic variables such as age and gender. "Enabling" variables provide the means to use available health care facilities for members of the society. In this category are;

income, health insurance, pay back scheme or third party payments (public or private); and the health facilities available. Finally, the "Need" factors are typically considered as the most pressing predictor of health care use, and include such variables as; symptoms, disability or the nature of incidence, chronic or otherwise.

Economic polarization within the society and the lack of widespread social security systems, which covers private care make society's poor more vulnerable to the previously discussed societal risks. Shaikh and Hatcher (2004) examine the impact of poverty and show that it also affects the choice of health care providers. However, debates about health services are not just about health care. The term includes a range of measures that could also be included within the realm of social protection, including the formal institutional arrangements and the informal solidaristic provision of health services (Cohen, 2004). Social support also plays a role in reducing the stress (risks) of illness and general health (Cohen, 1992; Townsend et al, 1990, Klein, 1995), either by intervention to prevent occurrence of stress or eliminating the illness related stress upon occurrence (Kouzis and Eaton, 1998).

4. DATA AND METHODOLOGY

4.1. Methodology

Two complementary methods were considered in this study. The first is the analysis of survey outcomes through descriptive analysis, and the second uses the econometric framework related to choice, and used by many others, including: Maceira (1998), Chen and Guilkey (2002), Lindelow (2002) Visser and Booysen (2004) Alaba (2005) Kazembe *et al* (2007) and Whittington *et al* (1990).

The methodology takes into account various factors, which affect choice decisions in sourcing for health care. A complete model of households' health decision posit that the utility a household derives from a facility is a function of at least two sets of explanatory variables: (i) source attributes which affect household's utility, taking into consideration enabling factors in the form of social protection which may either be private or public; and (ii) households characteristics which reflect differences in tastes and preferences among households. Let's start by making *X*, a vector of source characteristics, and *Z,* a vector of household characteristics. The indirect utility function of household *h* may therefore be written as:

$$\text{Max.} U_{ih} = U_{ih}\,(X_{ih}\,, Z_{ih,}) \qquad \text{.....1.}$$

Subject to

$$\sum_{i=1}^{n} w_i T_l^i + \sum_{i=1}^{n} y_i \geq C^i$$

In equation (1), *i* is health facilities and *h* denotes households. Since utility U_{ih} is not directly measurable, researchers attempt to estimate the utility U_{ih} from the observed independent variables X_{ih} and Z_{ih}. Such an approximation of U_{ih} will, however, be subject to error, and, as a result, some inconsistencies in observed behaviour are inevitable. According to random utility theory, such unobservable or unmeasurable influences are assumed to be captured in a random term, which, for operational purpose is usually assumed to be added to the observed (or systematic) term in the household's random utility function (Manski, 1973; Ben-

Akiva and Lerman, 1985; and Whittington, Mu and Roche, 1990). In our example, the random utility function is stated as:

$$U_{ih} = V_{ih} + e_{ih} \qquad \text{.....2.}$$

Where V is the observed term and e is the random term. Let the variable y_{jh} stand for the household h's choice decision on facility j such that:

$$y_{jh} = 1, \text{ if } V_{jh} + e_{jh} > V_{ih} + e_{ih} \qquad \text{….3.}$$

The expected value of y_{jh} is thus:

$$E(y_{jh}) = P(y_{jh} = 1) \qquad \text{....…4.}$$

$$= P(U_{jh} > U_{ih}) \qquad \text{.....5}$$

$$= P(V_{jh} + e_{jh} > V_{ih} + e_{ih}) \qquad \text{…..6}$$

In other words, the probability that household h chooses alternative care j equals the probability that the utility derived from using j is greater than that of any other alternative (Amemiya,1981; McFadden, 1973, 1982), where we assumed the above equation is additive, and given as 7 below:

$$V_{ih} = \beta X_{ih} + a_t Z_h \qquad \text{.....7.}$$

The βs are the parameter values of the indirect utility functions, representing the household preferences. Therefore, in the event of sickness within the household system, the household chooses a care provider from among j alternative types of providers. The influences of covariates are accounted for by using a multinomial logistic regression, with one of the choices assigned as a reference category.

4.2 The Data

Though complete health care behaviour data is elusive in South Africa, as in many other countries, the household surveys available are still very useful in making informed conclusions. This study uses the 2004 General Household Survey, which has good quality information on health service utilization and social protection grants available to the individuals. Household income in the survey is restricted to salary income. Though, this has its shortcomings (Swanepoel and Stuart, 2006), it is however still very useful in determining the household's financial capacity to consume both private and public goods (Rubinfield, 1977)

The GHS data provide information at two levels: the household level and the individual level. The analysis carried out in this study is done mainly at the household level, although individual information was used to create household level data. Also, analysis was separately undertaken based on the number of people who reported illnesses in the households during the period considered in the survey.

For a meaningful econometric analysis,[3] health facilities were combined to come up with three outcomes. They are listed as follows:

GROUP 1:
Public Facility comprising of public clinics, hospital and public others

GROUP 2:
Private Facilities comprises of private hospitals, clinics, and private doctors

GROUP 3

Others. This is left in the category of its own and it is used for identification purposes. It consists of traditional healers, pharmacy, health facility provided by the employer, alternative medicine and self treatment.

Analysis is reported for the four household structures as well as for the number of people who reported illnesses in the households. This is divided into two: households with only one reported sick person and households with two or more reported sick people.

5. DESCRIPTIVE ANALYSIS AND EMPIRICAL ANALYSIS

In this section of the study, we present findings on a number of issues associated with household structure, different socio-economic household characteristics, social support programs and health care decisions under the four household structures: the household head is married, the head is a widow (widower), the head is divorced, or the head has never been married. The first category is considered as the most secure group, while the others may be circumstantial or part of a more vulnerable group.

The General Household Survey 2004 consists of 26 139 households with 97 197 individuals. The total number of households that had at least one individual reporting an illness is 8 378, or 32.01% of all households surveyed. The survey contains data on 11 348 sick individuals, 75% of this sample is made up of households with only one individual who reported an illness while the rest had two or more individuals.

5.1 Households Structure

Figure 1 shows the analysis of family structure by marital status and the sex of household heads. The figure suggests that more than 50% of the household heads are married. Close to a quarter of the household heads are never married, while the rest are distributed between divorce and widowhood. The figure further suggests that the secured group, which is the married group, is mostly headed by males, while the vulnerable groups (widowed and divorced) are mainly headed by females. The difference here is expected, given the traditional nature of household descriptions, i.e., the male is the household head.

[3] Although further breakdowns were considered, the results were not particularly strong. Therefore, in this analysis, greater aggregation of the categories was considered.

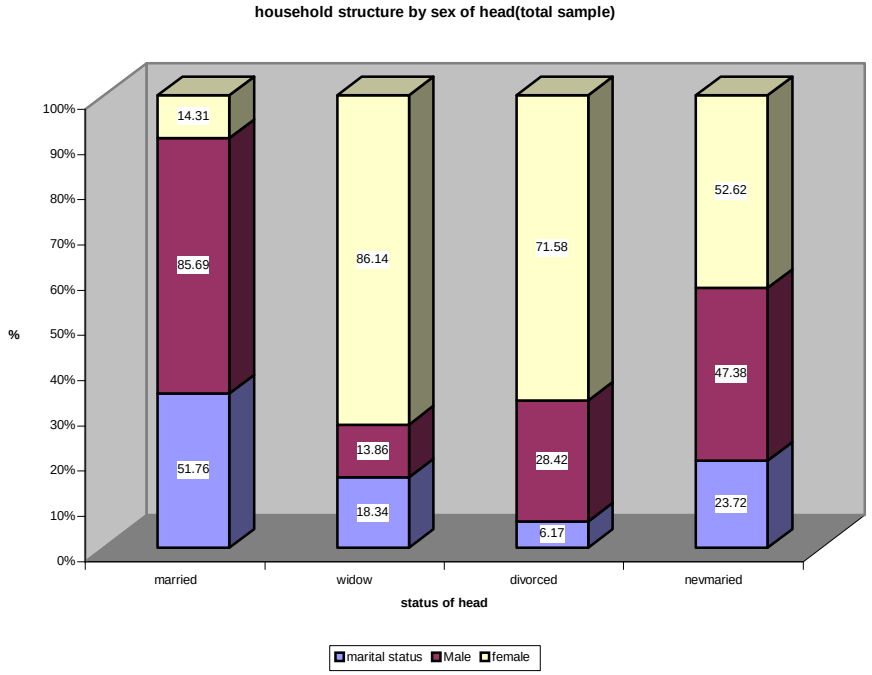

Fig.1

5.2 Sickness and Facility Choice

Analysis of health facility use and the tendency to shift preferences shows that the disposition of households towards the utilization of public facilities tends to decline when household members are sick, compared to when there are no illnesses reported in the household. The result is clear given the mass of survey respondents preferring public hospitals and private clinics as seen in Figure 2. The figure further shows a significant movement towards private facilities once an illness has been registered.

It is particularly obvious that there is a very significant shift to private doctors during illness, while increase in the use of private pharmacy is also noticed. However, overall observations from that descriptive analysis reconfirm the fact that public facility remains the mostly used facility (see Swanepoel and Stuart, 2006). The relevance of household impact on decisions can also be observed from the above table, confirming the fact that individual health decision making is highly influenced by the household.

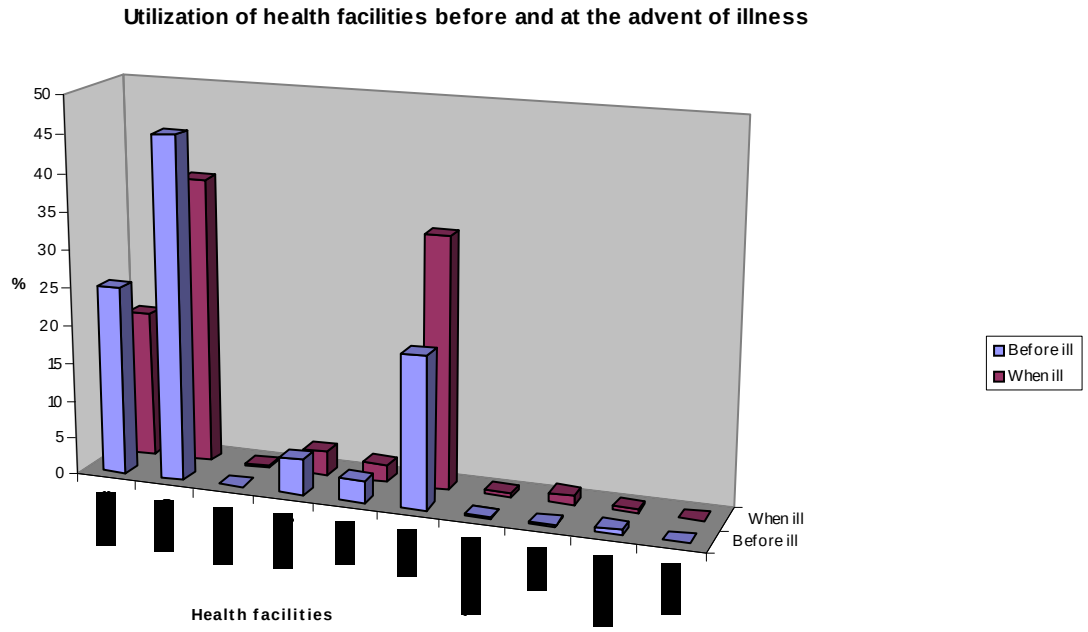

Fig.2

5.3 Household Structure and Institutional Support

This section considers various institutional buffers available to the households in South Africa. In general majority of South Africa households have no access to institutional support systems. In specific over 61% of the households in South Africa, irrespective of status, have no access to institutional welfare programme. Table 5.1 shows that institutional social support is more visible among the widowed, probably due to the specific vulnerability of this group. The households with unmarried head have the least access to institutional social facilities

Table 5.1 Institutional Social Protections by Household Structure

	Household Structure				
Welfare grants	Married	Widow	Divorced	Nevermarried	Total
None	64.95	31.29	64.79	76.67	61.54
Old-age pension	7.16	32.08	8.87	3.74	11.03
Disability grant	5.70	8.46	6.76	4.71	6.04
Child support grant	21.16	26.39	18.23	13.87	20.21
Care-dependency grant	0.32	0.54	0.56	0.45	0.41
Foster care grant	0.47	0.85	0.43	0.29	0.49
Grant in aid	0.13	0.19	0.31	0.10	0.15
Social relief	0.12	0.19	0.06	0.18	0.14

For the widowed, the old-age pension is the most significant source of support; this may be determined by the fact that entitlements accrue to the deceased head during the deceased's working years. For all households, child support grants seem to be the most available irrespective of the status of the household head. Disability grants also appear to be generally available to households in South Africa.

5.4 Empirical Analysis

The outcome of our analysis shows that, in general, social supports in various forms are important in explaining health facility choice behaviour at the household level. Household income gives an indicator of the level of welfare within the household system, and has a negative relationship with choice of public care in our analysis. This agrees with expectation; people tend to move to private and more personalized sources of care at higher levels of income. The marginal effects reveal an increase in income would lead to an increase in demand for private clinics and decrease for public facilities. The analysis of the determinants of public facility choice reveals that medical aids (many times medical-aids inbuilt in the facility-social-programme) to the households with sick individuals is positive and significant in our analysis, suggesting that the availability of medical-insurance to households, where there is an illness, is an important welfare package to buffer the financial stresses associated with the illness in the household system.

The public facilities are not absolutely a public good – they also charge fees – as was observed by Burger *et al* (2006), "due to private supplier's frustration with late or no payment of by medical aid schemes, they started to demand that their clients pay them directly and the claim expenses back from their medical aid company later" (Burger et al, 2006). The results suggest that the households are more disposed to the public facilities, only when the prices are low, an increase in price or introduction of payment implied by the results will lead to a shift away from public facilities. The latter implies that people have preference for alternative sources of care, if they have to make more significant financial commitments, which may be a reflection of the expected quality of services. It is, however, surprising to note that when public facilities are free, people tend to move away from them to seek alternatives, perhaps for reasons of perceived quality of services. The results further show that various institutional support systems available in South Africa highly predictive of public facility use. In other words, the same people in need of these support systems are also in need of public health services, and, therefore, social protection cannot just be monetary – it must include non-monetary benefits such as accessible public health facilities.

In the case of private facilities, analysis of data for all households shows that payment for services is an important determinant of the facility used. This is not surprising, because private providers will only be prepared to attend to patients that are ready to pay. The availability of social support affects the use of private facilities positively, while the availability of specific medical insurance seems to shift people away from private facilities to other means of care in South Africa. No payment for services is also very significant, but negative in the analysis. This may mean the household will not have to pay for the service immediately. Also important in explaining the significance of "no pay" is the significance of social supports in the private facility engagement.

For households, where heads are divorced, medical insurance seems the most important determinant of facility choice. Analysis of private facility choice, for this group, shows that the ability to pay is important. The availability of medical aid in the system has a negative impact on private facility use for households with divorced heads.

For widowed households, income is significant and negative for public facilities, but significant and positive for private facilities. The above suggests that there is a tendency for increases in public facility choice with age. Institutional support is significant and positive in determining private facility choice. Payment conditions and the availability of specific medical insurance are also very important determinants regarding the choice of public facility. Institutional supports for widowed household heads increase the likelihood of choosing a private facility. In the widowed household structure, on the other hand, the number of dependants in the household is also very important determinant of private health care choice; the negative sign indicates a movement away from private facilities with increases in the household size.

For heads that are never married, income, dependency, payment conditions and the availability of medical aids are the main determinants of public facility choice. Income is significant and negative suggesting that at higher levels of income, household heads in this category are unlikely to utilize a public facility. The positive sign for dependency indicates that increasing the number of dependants in the household raises the likelihood of the household using public services. Medical insurance is also important for unmarried heads. Paying for service is positive and significant, giving the impression of greater quality at higher pay; in this case, health to the household may be a luxury good.

For households with more than one sick person within the period considered, the main determinants of public facility choice are income, payment conditions and medical insurance to the household. Income and payments are significant and negative in conformity with expectation, while the availability of medical aid is positive as well as significant. Payment conditions for services rendered and living conditions, specifically, the sources of water and roof type are significant and are important consideration in health care behaviour, although living conditions are likely to be a general indication of need for social protection.

6. CONCLUSION

The paper investigates the main determinants of health facility choice decisions at the household level in South Africa. It attempts to examine the impact of social support mechanisms in determining health-seeking behaviour by various household types. The analyses were conducted at both aggregated and disaggregated levels. Our disaggregation considers married heads, divorced heads, widowed heads and heads that were never married. Another demarcation was made according to the number of persons in the household reporting an illness.

Social supports show varied importance in the households considered. It is noted that public facility remains the most commonly consulted of all available facilities in South Africa. It is generally shown that the availability of medical aids expands the use of public facilities by many households. Furthermore, increased income is found to lead to a reduction in the probability of the household choosing to use public facilities, suggesting a shift to privately provided services with increased levels of prosperity. The need for payments and payment conditions are also important determinants of household health care behaviour. In private facilities, the choice is determined by ability to pay, while social supports are found to be very important in determining the choice of private facilities. Further revealed by our analysis is the fact that about two-third of South Africa households do not have access to any form of institutional social protection. Also of interest is the shift from private facility by household during the incidence of illness, which suggests poor service delivery in the public facilities available. More generally, this last observation shows that willingness to use facilities and the ability to

use the facilities are not the same within the household, and, therefore, it is better to undertake analysis based on actual responses compared to preferred responses.

Given that public provision is assumed to target the poor, it is important for the government to ensure improved service quality and service delivery at the public facilities (Swanepoel and Stuart,2006). Also, more is needed in terms of provisions for the most vulnerable (widowed and divorced households). Available evidence based on the data presented here shows that the primary institutional support mechanism for the widowed head is the pension grant, probably, accrued to the deceased head or other member of the household.

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Table A1 Summary Statistics for independent variables used in regression model

Variable	Obs	Mean	Std. Dev.	Min	Max
Facilities	8012	1.61	.71	1	3
Household Income	26162	31082.97	74339.87	0	2508000
Age	26150	47.62	15.78	11	108
# Adults	26138	2.56	.55	10	22
Proportion of working adults	26138	.69	.29	0	1
#of U14 children	26138	1.14	1.43	0	13
Dependency ratio	26138	.19	.39	0	1
distance to clinic	26138	.33	.47	0	1
dependents	26119	1.66	1.60	0	22
Sick that paid for service	26213	.147	.35	0	1
Sick that didn't pay for service	26213	.186	.39	0	1
Sick without medaid	26213	.27	.44	0	1
Houses with brickwalls	26214	.62	.48	0	1
Houses with brickroof	26214	.59	.49	0	1
Source of Water	26214	.39	.49	0	1
Ins. Social protection	26138	.20	.40	0	1
Onesick in the household	26213	.24	.43	0	1
Two or more sick	26213	.055	.23	0	1

Table A2. Determinants of Health facility Choice

Variables	All Households	
	Public facility	**Private facility**
Inst_support	0.219(0.109)**	0.39(2.91)*
Income	-0.0001(-5.41)*	-0.0001(-1.26)
Age_Head	0.06(1.64)	0.012(2.69)*
No_adults	0.056(1.12)	0.07(1.11)
Working_adults	0.20(0.93)	0.09(0.34)
Dependency	-0.025(-0.15)	-0.24(-1.19)
Sick_pay	-1.43(-8.71)*	2.19(17.3)*
Sick_no pay	-1.89(-10.3)*	-1.71(10.6)
Sick_aid	1.71(12.04)	-0.88(-6.38)*
Brick-wall	0.08(1.00)	-0.027(-0.26)
Brick-roof	-0.04(-0.44)	-0.26(-0.25)
Water_source	-0.08(-0.85)	-0.15(-1.30)
Dist_facility	0.03(0.35)	-0.029(-0.30)
Children_U14	-0.04(-0.90)	-0.06(-1.08)
Intercept	1,29(3.84)*	
R2	0.35	
Prob> chi2	0.0000	
LR- Chi2(30)	5356.5	
Log. likelihood	-4983.5	
No of obs	7944	

*significant (1%) **significant(5%) ***significant (10%).

Table A3. Determinants of Health facility Choice

Variables	Married Head	
	Public facility	**Private facility**
Inst_support	0.09(0.57)	0.2391.25)*
Income	-0.0001(-2.63)*	-0.001(-0.59)
Age_Head	0.001(0.33)	-0.002(-0.23)
No_adults	0.016(0.23)	0.033(0.4)
Working_adults	0.53(1.62)	0.18(0.45)
Dependency	0.026(0.10)	-0.08(-0.25)
Sick_pay	-1.33(-5.52)*	2,79(11.49)*
Sick_no pay	-1.90(-7.06)*	-1.18(-7.47)*
Sick_aid	1.86(9.75)*	-0.55(-2.83)*
Brick-wall	0.14(1.20)	0.01(0.06)
Brick-roof	-0.05(-0.40)	0.021(0.14)
Water_source	-0.035(-0.26)	-0.11(-0.65)
Dist_facility	-0.065(-0.58)	-0.19(-1.40)
Children_U14	0.026(0.43)	-0.02(-0.30)
Intercept	1.11(2.22)**	0.502(0.90)
R2	0.34	
Prob> chi2	0.0000	
LR- Chi2(30)	2531.9	
Log. likelihood	3894	
No of obs	-2466.4	

*significant (1%) **significant(5%) ***significant (10%).

Table A4. Determinants of Health facility Choice

	Divorced Head	
Variables	**Public facility**	**Private facility**
Inst_support	0.14(0.27)	0.62(0.93)
Income	-0.0001(-0.95)	-0.001(-0.02)
Age_Head	-0.01(-0.45)	0.02(0.85)
No_adults	-0.01(-0.04)	-0.004(-0.01)
Working_adults	-0.56(-0.54)	-0.81(-0.60)
Dependency	0.26(0.28)	0.78(0.70)
Sick_pay	-1.01(-1.05)	1.93(2.21)*
Sick_no pay	-3.97(-2.86)*	-4.29(-3.30)*
Sick_aid	1.81(2.49)**	-1.78(-2.94)*
Brick-wall	0.43(1.20)	0.33(0.71)
Brick-roof	-0.21(-0.54)	-0.46(-0.86)
Water_source	0.19(0.47)	-0.33(-0.61)
Dist_facility	0.33(0.96)	0.41(0.90)
Children_U14	-0.16(-0.58)	0.11(0.33)
Intercept	3.45(1.73)	2.46(1.10)
R2	0.38	
Prob> chi2	0.0000	
LR- Chi2(30)	275.2	
Log. likelihood	-225.39	
No of obs	351	

*significant (1%) **significant(5%) ***significant (10%).

Table A5. Determinants of Health facility Choice

	Widowed	
Variables	**Public facility**	**Private facility**
Inst_support	0.32(1.35)	0.69(2.34)**
Income	-0.0001(-2.90)*	0.001(0.04)
Age_Head	0.0028(2.47)**	0.04(2.85)*
No_adults	0.07(0.56)	0.057(0.36)
Working_adults	0.22(0.44)	0.09(0.15)
Dependency	-0.36(-0.98)	-0.83(-1.85)***
Sick_pay	-1.53(-4.04)*	3.39(7.86)*
Sick_no pay	-2.11(-4.84)*	-2.10(-5.47)*
Sick_aid	1.62(4.77)*	-0.91(-2.68)*
Brick-wall	-0.34(-1.63)	-0.53(-1.99)**
Brick-roof	-0.06(-0.28)	-0.25(-0.97)
Water_source	0.025(0.12)	-0.18(-0.67)
Dist_facility	0.01(0.05)	-0.027(-0.11)
Children_U14	-0.004(-0.06)	-0.12(-1.25)
Intercept	0.88(1.33)	-1.00(-1.01)
R2	0.42	
Prob> chi2	0.0000	
LR- Chi2(30)	1215.4	
Log. likelihood	-848.9	
No of obs	1528	

*significant (1%) **significant(5%) ***significant (10%).

Table A6. Determinants of Health facility Choice

Variables	Never married	
	Public facility	**Private facility**
Inst_support	0.54(2.15)**	0.41(1.29)
Income	-0.001(-3.59)*	-0.001(-1.47)
Age_Head	0.006(0.94)	0.014(1.58)
No_adults	0.11(0.97)	0.15(1.000
Working_adults	-0.20(-0.43)	0.24(0.38)
Dependency	0.27(2.53)**	-0.10(-0.67)
Sick_pay	-1.61(-5.35)*	3.18(9.57)*
Sick_no pay	-1.65(-5.03)*	-1.25(-4.45)*
Sick_aid	1.51(4.70)*	-1.23(-4.21)*
Brick-wall	0.18(1.18)	0.14(0.75)
Brick-roof	0.03(0.22)	0.09(0.49)
Water_source	-0.24(-1.45)	-0.13(-0.68)
Dist_facility	0.10(0.71)	0.12(0.63)
Children_U14		
Intercept	1.55	-0.86(-1.07)
R2	0.34	
Prob> chi2	0.0000	
LR- Chi2(30)	1405.4	
Log. likelihood	-1377.8	
No of obs	2171	

*significant (1%) **significant(5%) ***significant (10%).

Table A7. Determinants of Health facility Choice

Variables	Household with 1 sick	
	Public facility	**Private facility**
Inst_support	0.42(2.07)**	1.30(5.04)*
Income	-0.001(-1.27)	-0.001(0.44)
Age_Head	0.011(1.56)	0.02(2.56)*
No_adults	0.017(0.18)	0.011(0.92)
Working_adults	0.14(0.35)	0.82(1.60)
Dependency	-0.29(-0.96)	-0.26(-0.68)
Sick_pay	-1.22(-3.59)*	3.06(8.75)*
Sick_no pay	-1.65(-4.39)*	-1.51(-4.49)*
Sick_aid	1.58(5.91)*	-0.78(-2.95)*
Brick-wall	0.08(0.51)	0.18(0.91)
Brick-roof	0.03(0.16)	0.09(0.42)
Water_source	0.11(0.60)	-0.03(-0.13)
Dist_facility	0.13(0.80)	-0.03(-0.14)
Children_U14	-0.06(-0.77)	-0.14(-1.45)
Intercept	0.83(1.28)	-1.53(-2.08)
R2	0.35	
Prob> chi2	0.0000	
LR- Chi2(30)	1307.8	
Log. likelihood	1231.5	
No of obs	1954	

*significant (1%) **significant(5%) ***significant (10%).

Table A8. Determinants of Health facility Choice

Variables	Household with 2or more sick	
	Public facility	**Private facility**
Inst_support	0.32(0.71)	0.65(1.24)
Income	-0.0001(-1.82)**	-0.0001(-0.79)
Age_Head	0.01(0.38)	-0.005(-0.22)
No_adults	-0.22(-0.86)	-0.31(-1.08)
Working_adults	1.17(1.04)	0.89(0.64)
Dependency	0.75(1.00)	0.73(0.85)
Sick_pay	-3.13(-3.49)*	1.96(2.61)*
Sick_no pay	-3.27(-3.46)*	-2.68(-3.88)*
Sick_aid	1.66(2.48**	-0.34(-0.55)
Brick-wall	-0.34(-0.89)	-0.12(-0.25)
Brick-roof	0.57(1.40)	1.15(2.35)**
Water_source	1.44(2.84)**	1.60(2.72)
Dist_facility	0.22(0.56)	0.17(0.35)
Children_U14	0.38(2.08)**	0.12(0.56)
Intercept	1.77(1.09)	0.094(0.05)
R2	0.39	
Prob> chi2	0.0000	
LR- Chi2(30)	315.6	
Log. likelihood	-244.41	
No of obs	422	

*significant (1%) **significant(5%) ***significant (10%).

Table A9 . Determinants of Health facility Choice(Marginal Effects)

Variables	All Households	
	Public facility	**Private facility**
Inst_support	-0.004(-0.20)	0.037(202)
Income	-0.0007(-4.35)*	0.0003(2.11)
Age_Head	-0.00002(-0.34)	0.0012(0.035)
No_adults	0.004(0.45)	0.0038(0.49)
Working_adults	0.034(0.89)	-0.01(-0.33)
Dependency	-0.0014(-0.16)	-0.0043(-0.55)
Sick_pay+	-0.64(-32.26)*	0.64(37.97)*
Sick_no pay+	-0.20(-6.73)*	-0.03(-1.46)
Sick_maid+	0.51(23.93)	-0.43(-13.96)*
Brick-wall+	0.02(1.52)	-0.015(-1.14)
Brick-roof+	-0.005(-0.34)	-0.0005(0.04)
Water_source+	-0.015(-0.10)	-0.014(-0.99)
Dist_facility+	0.010(0.72)	-0.008(-0.68)
Children_U14	-0.00012(-0.17)	-0.004(-0.65)
Dy/dx	0.63	

*significant (1%) **significant(5%) ***significant (10%).

(+) dy/dx is for discrete change of dummy variable from 0 to 1