

# **The effect of the Land Restitution Programme on Poverty Reduction among the Khomani San**

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## **Abstract**

The Khomani San made their land claim in 1995. They were awarded land and resource rights including inside the Kgalagadi Transfrontier Park. The aim of this paper is to assess whether using the land and resource rights awarded through the land restitution programme are contributing towards their well-being compared to those not using the land. Multi-topic surveys are used to assess the impact of these rights on poverty reduction in the Kgalagadi area. This paper uses the OLS regression model to assess the contribution of 'using the restituted land' on household income and consumption, while the Probit model is applied with regard to access to nature. Our results suggest that using restored land by the claimants' has no influence on income and consumption, and thereby does not reduce poverty in the Kgalagadi as far as the monetary indicators of poverty are concerned. Nonetheless, a positive link that has been established with regard to greater access to nature is as important, particularly in the context of the land beneficiaries.

**Key Words:** Land Restitution Programme, Rural Poverty, Indigenous People.

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## **Introduction**

The first democratic elections in South Africa took place in 1994, and carried with it the obligation to redress the injustices of the past. The land reform programme comprises land restitution, land redistribution and land tenure. Land restitution seeks to restore land ownership or compensate those forced off land prior to 1994. Under the restitution laws, all people who were forcefully removed or evicted are eligible to reclaim their ancestral land.

Land restitution can potentially increase average household income, improve income distribution, consumption levels, better infrastructure and result in more access to natural resources, and as a result reduce poverty and inequality. Information with regard to income, consumption and access to nature is collected from households. In this paper we use both spatial explicit and socioeconomic characteristics data to address the question of what has been the impact of the use of land and resource rights awarded through the land restitution programme on poverty alleviation in South Africa. The findings of this study will give insight into the relationship between land restitution and poverty reduction in the area.

This paper is organized into 10 sections in the following order: Section 1+2+3+4 discusses the structure of the land restitution, land claimant's historical background, eligibility requirements to be part of the Khomani San land claim and the Kgalagadi economy. Section 5+7+8+9+10 reviews international land reform experiences; methodology used in the study and presents the analysis from the gathered data, as well as the overall findings.

### **1. Structure of the Land Restitution Programme in South Africa**

Land restitution is considered critical for political stability, economic growth and the protection of property rights in South Africa. According to Roux (2006), the 19<sup>th</sup> June 1913 cut-off date was agreed upon as it was the date by which the Natives (later 'Black') Land Act was promulgated. This particular act ratified the colonial land grab of the previous two and a half centuries by dividing South Africa's land surface into racial areas. The cut-off date therefore prohibited claim of land lost after the main period of the colonial conquest was already over. This compromise was acceptable to the main negotiating parties, the National Party and the African National Congress (ANC)<sup>1</sup>.

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<sup>1</sup> The compromise was acceptable to the National Party because it insulated most of the white minority group's ownership from the restitution process. On the part of the ANC, this was acceptable because it promised to stabilise the property rights order during the democracy period in the interest of the market-driven development, the economic model that was then beginning to be popular in the ANC's policy-making structures.

The official explanation of the cut-off date was due to the absence of adequate written documentation prior to 1913 and that allowing the process to reach further back could potentially result in conflicting ethnic claims on the part of dispossessed tribes (Roux, 2006). The later explanation is relevant to the subject of this study – the Khomani San. They have not only lost their land to white colonial powers but also to other black ethnic groups, including the Mier community (who also put a land claim in the same area as the Khomani San people).

However, the cut-off date of 1913 meant that most Khoen descendants were left behind because they lost land before that period (Smith, 2002). A re-assurance was made during the structuring process that land redistribution unlike the land restitution, would be used to address the land needs of those whose claims were constrained by the cut-off date (Roux, 2006).

The structure of the land restitution process was influenced by the international context in which the transition to democracy took place, during a time when socialism in Eastern Europe collapsed and the ascendancy of neo-liberal approaches to economic development. This, combined with the relative strength of the main negotiating parties, resulted in the land restitution programme agreed upon in South Africa being legally and conceptually subordinated to the protection of the private property rights (Roux, 2006). The South African land restitution programme was designed with the help of the World Bank. According to the restitution legislation, the government has an option to award the successful claimants either alternative land or cash compensation in a case where it is not possible to award them their ancestral land.

The question that should be asked in the context of the land restitution programme is perhaps whether the initiative is contributing in any way in poverty reduction? The ineffectiveness of the restitution programme has been attributed on the lack or inadequate post-settlement support provided after the land has been restored. This study aims to contribute towards this important debate by shedding some light on whether there is a positive correlation between land restitution and poverty reduction.

## **2. Historical Background**

### *a) Indigenous People of Southern Africa*

The indigenous people such as the “bushmen” are unique all over the world as they have a unique way of living with much emphasis on their culture, tradition and access to

nature. The San had occupied the subcontinent in virtual isolation for thousands of years until the Khoekhoe arrived from the north in search of grazing land for their livestock in 500 AD (Mtyala, 2008). The San and Khoekhoe (commonly known as Bakgalagadi by Tswana's) were the first inhabitants of the Cape and are widely considered to be the same; hence, they are commonly referred to collectively as the Khoisan.

Bantu tribe's expansion into Bushman's land around AD 1, 000 is the main reason they occupied the harsh environments such as the Kgalagadi desert. They were and are traditionally hunter and gathers, are part of the Khoisan group, and are related to the traditionally pastoral Khoekhoe (Zanzibar Tribal Art, 2008).

Anthropologists from the West adopted the term 'San' extensively in the 1970's, where it remains preferred in academic circles up to now. Although indigenous people are not officially recognized as such, and Statistics South Africa does not reflect their presence, the 1996 constitution makes a reference to Khoi and San people. The South African government has as of November 2004 promised to amend the laws so that they can officially be recognized as "vulnerable indigenous communities". They are six groups that identify themselves as indigenous in South Africa. The six ethnic groups comprise of the three main San peoples (!Xun, Khwe and Khomani) and the various Nama communities (Griqua, Khoekhoe and Koranna) (United Nations Economic and Social Council Report, 2005).

#### *b) The Khomani San*

Chennells (2002) states that the then known as the 'Southern Kgalagadi San' were forcefully removed from the then named Kalahari Gemsbok National Park following its formation in 1931, and spread over the Southern Kgalagadi in a wide diaspora into South Africa, Botswana and Namibia.

The Southern Kgalagadi San were made-up of disparate groups known as the =Khomani, /Auni, and N/amani speaking San. Most San of this bloodline now speak KhoeKhoegowap and/or Afrikaans as their first language (Crawhall, 2001). In seeking out the members of the different clans and families that originated from the claimed land, anthropologist working on behalf of the South African San Institute (SASI) found that approximately twenty old San community members still spoke the Old San language that had been confidently being declared 'extinct' in the early 1970's (Chennells, 2002). They constitute the minority of the few surviving aboriginal South African San (Crawhall, 2001).

The descendants of various San families came together and later decided to call themselves the Khomani San (Bosch, 2002). The Khomani were originally the largest of the

Southern Kgalagadi San groupings, hence the descendants of various San families adoption of the name (Chennells, 2002). There are spread all over an area of more than 1 000km in the Northern Cape Province. Most of them still live in the northern of Gordonias, at Witdraai, Ashkam, Welkom and Rietfontein and the surrounding settlements. Others still live in Upington, Olifantshoek and their surrounding areas (Crawhall, 2001).

### *c) The land claim*

The lodging of the land claim by the Khomani San led to many other communities following suit in South Africa. Their claim overlapped with that of the Mier community (another community in the area). According to the Khomani San Project Report, the overlapping claim by the Mier towards the settlement of the claim complicated the negotiations. However, mediation facilitated by Chris Spies brought together the three negotiating parties, namely – the San, the Mier and South African National Parks (SANParks). The Khomani land claim was settled through negotiations.

The expansion of the claim group resulted in more than 600 people being registered on their land claim. It is estimated that around one thousand direct descendants are still to be found (Crawhall, 2001).

The area the San requested rights in was symbolic as it was where their past generations (ancestors) had practiced a nomadic way of life. Their claim was unique because they did not want to own the land but rather the rights to use it. In contrast to the San, the Mier community are mainly interested in the economic benefits (job creation and business venture opportunities) that come about because of owning the land. Most jobs that have been created for locals inside the park have gone to the Mier community members. This is evidence that the two groups have contrasting views on what the land inside the park can offer them.

## **3. The Kgalagadi Economy**

Historically, the San economy was a gift economy, based on giving each other gifts on a regular basis rather than on markets (buying and selling of goods and services) Zanzibar Tribal Art (2008). However, this profile is not true of all the San people as they have now changed and have taken a more complex structure. The Khomani San community are no different in this regard, as they are complex as there are elements of a survivalist system, characterized by a heavy dependence on the natural environment and resources with no cash economy, as well as elements of a dual economy.

Over time, some San people have acquired formal education and are therefore participating in the cash economy. Although the educated group accounts for the minority of the total Khomani San population, there is evidence of San people trading crafts and curios, and dressing up and posing for their photos to be taken in exchange for money. The implication thereof is that the Khomani San people cannot entirely ignore the cash economy although there are still those who are more traditional, hunters and gatherers. This community is not homogeneous and their value systems, resource use, and cultural preferences are likely to have changed, influenced by external factors. Younger generations have lost some of the traditional knowledge and have been more heavily influenced by western value systems.

#### **4. Impact of Land Reform/Restitution Programmes Internationally**

According to Binswanger and Elgin (1992), the land restitution programme is deemed a success if it increases the beneficiaries income, consumption and wealth. Blanchflower and Oswald (1998) and Hoff (1996) state that asset ownership has an impact on the subsequent economic success at a household level. Empirical studies in different countries have identified a positive link between access to land and income (Jayne, et al., 2002; Carter and May, 1999; Bouis and Haddad, 1990).

India is a vital case study of land reform due to been home to a significant proportion of the poor in the third world. In addition, it was subjected to the largest land reform programme ever to have been implemented in such a short period in any country post the independence period (Thorner, 1976). A study in India found that land reforms had an impact on growth and rural poverty reduction (Besley and Burgess, 1998), as well as some major improvements on productivity in the Indian state of West Bengal (Banerjee et al. 1998).

According to the World Development Report (2006), successful land reforms such as in Japan, Korea and Taiwan are considered rare and often linked to exceptional events, such as wars or political upheaval, supporting the argument that indeed 'success' was limited. The report went further to state that indeed, the history of land reforms was mixed with some partial successes and failures.

Evidence for a direct positive correlation between a land reform and poverty alleviation is particularly limited. Most successfully known cases such as the examples mentioned above used the land reform as part of a much wider economic change, particularly rapid urbanisation and industrialization – creating a sustainable demand for labour and commodities (Lahiff, 2007).

In contrast, land reform in Southern Africa has been driven mostly by political considerations and based on untested assumptions about the positive correlation between land reform and poverty reduction. A land reform based on this possible misconception can potentially result in more poverty than it was the case before (Chimhowu, 2006).

In the context of this study, the poor have been identified and the land restitution programme is one attempt to reduce poverty. Thus, the objective of this study is to better understand the factors that influence poverty in the study area. This study is an attempt to test whether such a positive correlation assumption between the land restitution and poverty reduction among the active beneficiaries holds in the Kgalagadi area, in South Africa.

## **5. Methodology**

### *a) Programme assessment*

Empirical studies concerning the impact of land restitution are rare because a reliable estimate requires data from pre- and post- restitution periods. One way would be to run a regression model with ‘using restituted land’ as one of the explanatory variables. This approach is applied in this paper to determine the impact on the well-being by the Khomani San living in the acquired land. In the context of this approach, “treatment” refers to active Khomani-San - those living in the restituted land” and “control or non-active participants” to the other Khomani-San group not using the rights.

Quantitative modelling studies involving land use changes assist in policy analysis bridging the gap between pure economic theory, which is inadequate in dealing with these issues in a holistic manner, and the real world. In an attempt to improve the policy debate for pragmatic answers to the complex problems of optimal and sustainable resource use, quantifications of various variables stated in the underlying theories are needed. Hence, the use of only qualitative insight as well as conceptual models as is mostly the case is not sufficient. Thus the use of quantitative modelling can assist reveal important direct and indirect effects of a policy, which are likely to be lost when only discussing the policy issues. Quantitative analysis enables running sensitivity tests to clarify the role of key behavioural assumptions and other important parameters (Sadoulet and de Janvry, 1995).

### *b) Empirical analysis*

An analytical technique is to be employed to gauge the influence of aggregate factors as well as micro-level attributes of households. An econometric analysis of the determinants of



income and non-income poverty measures in the Kgalagadi area is undertaken. The survey data is used to determine factors that influence income, food consumption expenditure and access to natural resources. The ‘restituted land’ variable will be captured via a dummy variable (1 indicating active beneficiaries and 0 for non-active beneficiaries). A linear regression analysis in the form of an OLS model is to be employed to determine which factors are significant determinants of household income and food consumption, while the Probit model will be used to analyse access to nature of land restitution active beneficiaries relative to non-active beneficiaries.

Most importantly, the focus of the regression analysis is to investigate whether being an active land resituate beneficiary is a significant determinant of poverty measures. Thus, this study is an attempt to estimate the impact or gains made by those land beneficiaries who utilize the land rights relative to those who do not. As already mentioned, the OLS model is employed to determine how a claimant using the land rights affected income and food consumption expenditure as well as access to natural resources such as medicinal plants and wild fruits. The OLS model has been used successfully by Besley and Burgess (1998) and Adhikari and Bjørndal (2009) to determine the link between improved access to land and alleviation of poverty.

### *c) Ordinary Least Squares (OLS)*

The OLS model minimizes the sum of squared distances between the observed responses from the collected household data, as well as the fitted responses from the regression model. The procedure that is adopted in this study is to assume that there is heteroscedasticity, hence the OLS regression that we run has robust standard errors, and this is a common procedure. Income is notorious for causing heteroscedasticity.

The OLS model in this paper was drawn from Adhikari and Bjørndal (2009) paper. This paper incorporates relevant assumptions about the way land restitution programme was implemented into the OLS analysis. Our equation for household income, food consumption expenditure and access to nature is specified in terms of a linear regression with control variables alongside ‘active restituted’ land as the independent variables is as follows (Adhikari and Bjørndal, 2009):

$$y = \alpha + x\beta + g(z) + \epsilon \tag{1}$$

Where

Y is a measure of household welfare (income, food consumption expenditure and access to nature),

$x$  is a vector of control variables,  
 $z$  is the household's land endowed,  
 $\alpha$  is a constant term,  
 $\beta$  is a vector of parameters of interest,  
 $\epsilon$  is the error term distributed normally.

Some of the collected household data, such as household income and food consumption expenditure were found to be skewed; hence, they are log-transformed so as to fit the data better. As a result of this, the model is re-written as:

$$\ln(y) = \alpha + x\beta + g(z) + \epsilon \quad (2)$$

In this form, the marginal values are no longer expected to increase in income, food consumption expenditure or access to nature for every single additional unit of land as this now is dependent on the value of  $z$ , but rather as the expected percentage increase for 's' percentage rise in land.

#### Variables in the model

Only the variables that are unaffected by participation or the anticipation of it should be the ones to be included in the model. This can be achieved if one ensures that variables are either fixed over time or measured before participation. Heckman et al., (1999) emphasizes this point by stressing that the data for participants and nonparticipants should stem from the same source such as the use of the same questionnaire. According to Heckman et al., (1998b) some randomness is required to ensure that the individuals with identical characteristics can be observed in both states.

#### *d) Robustness*

While the results from the model mentioned-above may be clean, they are validity concerns that land restitution may be a proxy for other policies that may be correlated with poverty alleviation. Another valid concern is that land restitution may be endogenous and respond to the same factors that influence poverty (Besley and Burgess, 1998). This study will adopt a similar approach as Besley and Burgess in addressing these concerns by including additional controls.

In the context of this study, these controls include job status, government grants and asset ownership. These variables are considered to be proxy for other anti-poverty programmes such as road works that may have been launched after the finalization of the land restitution and the period the data was collected. There is no long lived shock that we are

aware of that took place in the study area from the time the land was restored and the time this study was undertaken; hence the second issue raised is considered not to be concern. This implies that coefficients would not necessarily be biased by the land restitution variable.

The dependent variable for the different OLS models run in this study are income and food consumption, and the independent variables includes land claim utilization status and socio-demographic characteristics of the household head.

### Dependent Variable

In the context of third world countries, particularly in rural areas, food consumption expenditure is preferred to measure poverty, rather than income (Deaton, 1997). Nonetheless, income is still useful as it can still provide vital information concerning our understanding of welfare in terms of monetary sources (CBS, 2004b).

It is for this reason that in this study, both measures (income and food consumption expenditure) are used to estimate the contribution towards reducing poverty by the land restitution programme in the study area. Furthermore, non-monetary measure is also used in this analysis as this study involves indigenous communities (vulnerable indigenous communities as they are officially referred to in South Africa). Access to medicinal plants, firewood, wild fruits, hunting and accessing ancestral sites within the restored land is proxy to access to nature. Access to nature is one of the main reasons behind claiming of the ancestral land, so it is only logical that this be recognized as crucial for the well-being of the land claimants.

### Independent Variable

Through the use of a wide range of methodologies, extensive research has been conducted in many third world countries. Despite this, only a few of these studies have explored factors that determine the cause of poverty (Adhikari and Bjørndal, 2009). This study is a contribution towards the limited literature on studies that attempt to shed some light on factors that influence well-being (poverty) in rural areas particularly on indigenous people.

It should be noted that the explanatory variables concerned are similar to those in many studies of this nature. The variables in question include age, gender, household-size, education, infrastructure as well as regional variables. However, the regional variables are different as the study area is unique, with unique physical attributes as well as the people concerned.

The key explanatory variables in the modelling analysis estimate various aspects of the socio-economic factors to determine whether ‘restituted land’ contributed towards improving livelihoods. The focus here is whether having access to land is positively correlated with improvements in living standards.

The aim is to see the differential contribution of the intervention on the different subgroups within the claimant community. This will give a spatial comparison of the Khoimani-San subgroups and can re-enforce the findings from the study looking at the role of resource use in livelihoods (by Thondhlana). The findings from this study, together with the one analyzing resource use in livelihoods will make it possible to compare the effect of the land restitution along historical lines and along spatial lines. The next section below shows the descriptive analysis from the collected data.

## **6. Data and Descriptive Statistics**

### *6.1 Data*

According to the department of Land Affairs estimates, about 330 households are registered as beneficiaries of the Khomani San land claim. However, due to a wide variety of reasons, about 120 households were living at the restored land “six farms” at the time of the survey (2009 -2011). The “farms” are located between the Kgalagadi Transfontier Park and a settlement called Askam. The area falls under the Mier Municipality, which forms part of the Siyanda District Municipality in the Northern Cape Province, South Africa.

The non-active Khomani San - comparison subgroup is located in a small town called Upinton, which falls under the ! Kheis Municipality and is located approximately 180km from the Khomani San restituted land. This Municipality is also under the jurisdiction of the Siyanda District Municipality.

Our study makes use of two household’s surveys. One is of the San currently using the land “Active Khomani San” and of those not using the land “Non-Active Khomani San”. Both survey’s were carried out by the Environmental-Economics Policy Research Unit (EPRU) of the University of Cape Town and Rhodes University’s department of Environmental Science, using the same questionnaire - through face-to-face interviews, with the same interviewing teams, and at approximately the same period. The survey was conducted between August - October in 2009, and March – April 2011. Only a post-settlement survey was undertaken, as it was not possible to do a baseline (prior to the

restoration of the land) survey. Data was collected at the household level, including detailed information on household health, income, consumption, housing, farming and resource use.

Since the survey can distinguish between subgroups, the collected data is used to compare the well-being of the two subgroups. Ten years after the finalization and implementation of the land restitution in the Kgalagadi area, perhaps it was time to undertake this kind of study – analyze and document the contribution of the land restitution programme on poverty alleviation.

Our paper compares household’s beneficiary status of the head, as they are the ones who registered their names in the land claim and most importantly because they are decision makers. Therefore, household’s heads of the two Khomani San subgroups are compared. Our analyses of beneficiaries are limited to households that were actually registered as Khomani San.

## 6.2 Descriptive Statistics

Now that the comparison groups have been defined, this section provides an overview of the differences between the two subgroups. This is done in the sub-sections below, which illustrates the mean values and frequencies of various outcome measures, as well as household characteristics.

**Please Note:** Any monetary units shown in tables 1-9 are in Rands, 2011 prices. Standard deviations are reported in the parentheses.

### Household Roster

This section reports the raw data from the household. It can be seen from a comparison of those who are using the land from the programme with those not, that the former group sample has a slightly higher average family size, are older and have a lower level of education. There are no high schools in the “restituted land” areas where the former group live; hence, they send their children to boarding schools outside their settlements. In contrast, the area where the latter group live has high schools. Moreover, both areas have primary schools.

**Table 1: Household characteristics of Active-Beneficiaries and Non-Active Beneficiaries Subgroups**

|  | Active Khomani Sample | Non-Active Khomani Sample |
|--|-----------------------|---------------------------|
|--|-----------------------|---------------------------|

|   |               |               |
|---|---------------|---------------|
| Household size                                | 4.85 (2.42)   | 4.03 (1.64)   |
| Households with children attending school (%) | 77.03 (0.42)  | 95.95 (0.19)  |
| Age of household head                         | 52.26 (15.32) | 51.28 (15.15) |
| Male headed households (%)                    | 80 (0.40)     | 59 (0.49)     |
| Married household heads (%)                   | 61 (0.49)     | 67 (0.47)     |
| Years of education of household head          | 3.84 (4.04)   | 4.48 (4.81)   |
| Years staying at current residence            | 10.29 (5.95)  | 12.69 (16.69) |

### Migration

The Khomani San households living in the acquired land have a higher number of migrants per household. The active beneficiary's households have a higher incidence of family members migrating to other areas in search of income generating opportunities relative to the non-active beneficiaries. The former group received slightly more remittances from family members.

**Table 2: Migration of Active Beneficiaries and Non-Active Beneficiaries Groups**

|  | Active Khomani Sample | Non-Active Khomani Sample |
|--|-----------------------|---------------------------|
| Households where members have migrated (%)         | 36 (0.48)             | 21.21 (0.41)              |
| Remittances from family members (Rands/ Per Month) | 877.86 (869.89)       | 847.22 (466.68)           |

### Health

Both household groups are much closer in terms of the lost number of a member of their households who usually lived with them for at least four days a week in the 12 months prior to the period the survey was carried out. Moreover, both subgroups have a high likelihood of having some household member with a sudden illness.

**Table 3: Health Status of Active Beneficiaries and Non- Active Beneficiaries Groups**

|  | Active Khomani | Non-Active |
|--|----------------|------------|
|  |                |            |

|   | Sample    | Khomani Sample |
|---|-----------|----------------|
| Household members who have illness (%)    | 47 (0.50) | 56 (0.50)      |
| Households where a member passed away (%) | 4 (0.19)  | 3 (0.17)       |

#### Income and Employment Status

Interestingly, both San groups are much closer in terms of total household income despite the non-active Khomani San group having substantially higher monthly wages. The San living on “restituted land” have a higher unemployment rate, and receive less both in self employment and social grants. However, those who make use of the land make substantial more from stock farming and selling crafts.

**Table 4: Income and Employment Status of Active Beneficiaries and Non- Active Beneficiaries Groups**

|  | Active Khomani Sample | Non-Active Khomani Sample |
|--|-----------------------|---------------------------|
| Employed household heads (%)                 | 29 (0.46)             | 36.36 (0.48)              |
| Monthly Salaries Income (Rands)              | 1252.81 (643.17)      | 3551.83<br>(4911.02)      |
| Duration Since Last Job (Years)              | 11.39 (17.8)          | 14.04 (12.39)             |
| Monthly Minimum Wage to Accept a Job (Rands) | 1529.17 (813.20)      | 2013.16<br>(1774.81)      |
| Monthly Income from Self Employment (Rands)  | 1087.50 (1901.18)     | 1800 (529.15)             |
| Social Grants (Rands/Per Month)              | 1002.57 (609.61)      | 1391.63<br>(1302.89)      |
| Monthly Total Household Income (Rands)       | 3678.76 (9282.25)     | 3783.71<br>(4691.74)      |

#### Household Consumption

The differences in food consumption expenditure levels between the two-subgroups are negligible. The fact that both subgroups perceived food expenditure are similar, reinforces our argument that these sub-groups are indeed similar and as a result a reasonable comparison. Both groups purchased their food in their respective areas. However, the active

Khomani group purchased most of their non-food items (cloths and household goods) from where the non-active group live, namely Upington.

**Table 5: Household Consumption Patterns of Active Beneficiaries and Non- Active Beneficiaries Groups**

|  | Active Khomani Sample | Non-Active Khomani Sample |
|--|-----------------------|---------------------------|
| Frequency Adult goes to Bed without Food (%) | 20 (0.40)             | 11 (0.31)                 |
| Monthly Food expenditure (Rands)             | 761.60 (416.98)       | 747.86 (517)              |
| Minimum Cost of Basic Food (Rands/Per Month) | 1303 (590.92)         | 593.14 (427.05)           |
| Non-food expenses (Rands/Per Month)          | 306.60 (192.10)       | 261.20 (134.14)           |
| Monthly expenses ((Rands/Per Month)          | 443.99 (682.32)       | 635.64 (476.76)           |

Household Services

Active-Khomani San households are more likely to live in a house or brick structure, as these structures are common in private farms that they ended up owning as part of the land restitution programme. However, in terms of basic infrastructure, they are lagging behind with regard to among other things; refuse collection and access to electricity. Therefore the non-active Khomani households generally live in a better environment, as they are more likely to have access to electricity, public transport and toilets. Having access to electricity suggests that on average the non-active group have better quality household durable goods that use electricity than their active counterparts. Access to electricity enables the latter subgroup to benefit from the ‘free 50kw’ that the government gives every month to each South African household. The former subgroup cannot benefit from such government services due to not having electricity.

**Table 6: Household Services of Active Beneficiaries and Non- Active Beneficiaries Groups**

|                                      | Active Khomani Sample | Non-Active Khomani Sample |
|--------------------------------------|-----------------------|---------------------------|
| Brick Structures (%)                 | 44 (0.50)             | 34 (0.48)                 |
| Number of bedrooms                   | 1.63 (0.93)           | 2.16 (1.68)               |
| Households without running water (%) | 36 (0.48)             | 85 (0.36)                 |



|                                  |                    |                       |
|----------------------------------|--------------------|-----------------------|
| Households without toilets (%)   | 65 (0.48)          | 39 (0.49)             |
| Households with electricity (%)  | 22 (0.42)          | 49 (0.50)             |
| Cost of Energy (Rands/Per Month) | 112.65 (145.40)    | 178.93 (126.87)       |
| Homes with households goods (%)  | 83 (0.38)          | 89 (0.31)             |
| Value of Household goods (Rands) | 6640.13 (14025.30) | 8617.71<br>(23031.23) |

### Infrastructure

Although both subgroups have basic infrastructure, the active Khomani San on average are worse-off. Perhaps this is not surprising considering that they are living ‘deep in the Kgalagadi desert’ relative to the non-active group. The table below suggests that the latter community is better structured. This is indeed the case considering that the former group live in farms that are far from each other with the presence of sand dunes. However, there are better-off when it comes to proximity to tourists. They are actually part of an attraction feature as to why some tourists visit their area, along with the Kgalagadi Transfrontier Park. It is not surprising that they are involved in eco-tourism ventures, may it be formally or informally.

**Table 7: Availability of Infrastructure in the Active Beneficiaries and Non- Active Beneficiaries Areas**

|  | Active Khomani Sample | Non-Active Khomani Sample |
|--|-----------------------|---------------------------|
| Clinic (km)  | 10 (0)                | 2.28 (2.13)               |
| Primary School (km)                                    | 8 (0)                 | 2.28 (2.13)               |
| Community Centre (km)                                  | 1 (0)                 | 2.28 (2.13)               |
| Tourist Attraction (km) – Kgalagadi Transfrontier Park | 60 (0)                | 250 (0.31)                |
| Main Road (km)   | 1.13 (0.68)           | 2.038 (1.80)              |
| Public Transport (km)                                  | 10 (0)                | 0.99 (0.10)               |

### Agriculture

Although a minority of households in both subgroups indicated that they were not involved in growing of food, the San group living in the farms had a significantly higher

involvement in agriculture. The growing of food in question is at a very small scale, with households having small gardens in their homes. The non-active restitution beneficiaries are less equipped for livestock farming, as they do not have more land available. This is reflected by the 11% involvement in livestock farming by this group.

**Table 8: Agricultural Activities by Active Beneficiaries and Non- Active Beneficiaries Groups**

|   | Active Khomani Sample | Non-Active Khomani Sample |
|---|-----------------------|---------------------------|
| Households growing food (%)               | 22 (0.42)             | 14 (0.35)                 |
| Households with livestock (%)             | 56 (0.50)             | 11 (0.31)                 |
| Revenue from livestock (Rands/ Per Annum) | 12951.43 (22746.13)   | 2371.1 (2381.45)          |

Natural Resource Use

Seeing that both subgroups are part of the registered Khomani San indigenous people, a comparison of non-monetary outcome variables is essential. So in terms of access to nature, the group living on “restituted land” have a higher wellbeing in most categories. The “active restituted land” Khomani San residents have much more access to natural resources (medicinal plants, wild plants and hunting) as they know live on the land. Therefore, these households are more likely to collect medicinal plants, wild fruits and hunt, with the exception of firewood collection, which seems to be a common activity in South Africa particularly in rural and poorer households.

**Table 9: Access to Nature of Active Beneficiaries and Non- Active Beneficiaries Groups**

|   | Active Khomani Sample | Non-Active Khomani Sample |
|---|-----------------------|---------------------------|
| Households that collect firewood (%)              | 90 (0.30)             | 47.47 (0.50)              |
| Households that collect wild fruits/bush food (%) | 33 (0.47)             | 10.10 (0.30)              |
| Households that hunt (%)                          | 23 (0.42)             | 8 (0.27)                  |
| Households that use medicinal plants (%)          | 79 (0.41)             | 21 (0.41)                 |
| Households selling crafts (%)                     | 32 (0.47)             | 6 (0.24)                  |

|   |                 |                 |
|---|-----------------|-----------------|
| Revenue generated from selling crafts (Rands/<br>Per Month) | 670.92 (562.36) | 370 (345.43)    |
| Cultural Values (%)   | 92 (0.27)       | 59.60 (0.49)    |
| Willing-to-Pay to Preserve Culture (Rands/<br>Annually)     | 142.41 (336.02) | 139.49 (126.88) |

### Concluding Remarks on Raw Data

The findings from this section suggests that the subgroup that uses the land are better-off and confirms economic theory that if implemented appropriately and targeting the subgroup that is most likely to use the land, land programmes can have a positive effect on poverty levels (relative to the comparison subgroup that is unlikely to use the land).

Moreover, we performed two-tailed t-tests assuming unequal variances and a 5 percent significance level pertaining to the summary statistics (tables 1 to 9) to investigate if there are statistically significant differences between active-and-non-active beneficiaries. The fact that our study distinguishes between the two subgroup samples and that their elements are not paired, implies that the independent sample t-tests compares the means of the two samples. We conclude from these tests that there are statistically significant differences only in the following variables: size of household, gender, children attending school, migration by any member, salaries, income from grants, cost of minimal food, monthly expenses, sell possessions, cost of minimum non-food, no of bedrooms, duration at the property, fetch water, type of toilet, connection to electricity, cost of energy, public transport, refuse collection, livestock production, collect firewood, collect wild plants, hunt, use medicinal plants, selling crafts, cultural values and preserve culture. The significant statistically differences reported above represents 55% of the total number of variables that were assessed.

Based on these statistical tests, the difference in terms of income generating activities and food consumption expenditure are negligible. However, when one looks at access to nature, a different picture emerges; with the active beneficiaries having greater access. The overall trend that emerges from the descriptive statistics between the two Khomani subgroups is that there are no systematic differences which could potentially drive the welfare indicators being considered.

While the information in the tables above gives valuable insight into the differences between the active-and-non-active beneficiaries, it does not account for differences in initial conditions.

An alternative method is to compare between active land restitution households and the control group, while controlling for differences in initial conditions. This can be done by making use of the regression analysis and relating active land-restitution households to non-active beneficiaries with the same pre-intervention profile.

## **8. Regression Results**

As mentioned earlier, our data does not have information on any variable prior to the introduction of the land restitution programme. However, we have substantial information on the socio-economic characteristics of households (with approximately 77 potential variables that could possibly be considered as exogenous to participation). So, through the regression model, households are compared with regard to assessing the contribution of ‘using restituted land rights’. For this purpose, the OLS model is used to assess the contributions in outcome levels that can partially be attributed to the use of land and resource rights.

It would be surprising if land restitution that affects poverty did not impact on other aspects of the rural economy (Besley and Burgess, 1998). Control variables are male (1 if male and 0 if female), size of household, age of the household head, number of years household head attended school (educational attainment).

Other potential endogenous outcome variables are as follows: employment status of the household head (1 if household head was employed and 0 otherwise) and go without food. Both groups each have 100 observations, with the aggregate number of observations been 200. Our OLS regression analyses are sub-divided into two categories namely income, and consumption, while Probit is applied with regard to access to nature.

There is need for formal testing – Hausman test to support our assumption that including additional controls cures the problem of endogeneity of land restitution in the estimation. Hausman tests are a means to assess if a regressor is indeed endogenous. In the case of endogeneity, OLS is likely to result in biased and inconsistent parameter estimates. There are two main approaches that can be used to address the endogeneity problem in the data, namely Ad hoc approaches and Instrumental variables estimation. Due to various constraints that are encountered due to use of the former approach, the latter approach is preferred in our study.

In a case where there are slight differences between OLS and IV estimators, this implies that it is not necessary to instrument, and on that basis conclude that the regressor was exogenous. However, should there be significant differences, then it would suggest that the regressor is endogenous. In a nutshell, the Hausman test can be used to assess for the endogeneity of a variable by means of comparing the coefficients of the IV estimates to those of the OLS. It is on this basis that we wish to estimate the following model:

$$\ln \text{per capita income} = \beta_0 + \beta_1 \text{treatcontrol} + \beta_2 \text{maritalstatus} + \epsilon \quad (3)$$

Where  $\text{Cov}(\text{treatcontrol}, \epsilon) \neq 0$  (i.e. **treatcontrol** is endogenous) and  $\text{Cov}(\text{maritalstatus}, \epsilon) = 0$ . An ideal instrumental (say  $Z$ ) variable is conditional on the two conditions below:

- 1) It is not correlated with the error term:  $\text{Cov}(\mathbf{z}, \epsilon) = 0$ .
- 2) It is not correlated with the endogenous variable:  $\text{Cov}(\text{treatcontrol}, z) \neq 0$ .

In a case where the explanatory variables are exogenous, then the 2SLS estimator is less efficient (i.e. larger variance) than OLS. It is on this basis that it is vital to test for endogeneity first, so an IV estimator is avoided. Instrumental variables for **treatcontrol** are: **hemployed**, **receivegrant** and **ownhouseholdgoods**. To test the endogeneity of **treatcontrol**, we firstly run the reduced model, using all the exogenous variables:

```
. regress treatcontrol hemployed receivegrant ownhouseholdgoods maritalstatus
```

| Source   | SS         | df  | MS         | Number of obs = 199 |   |        |
|----------|------------|-----|------------|---------------------|---|--------|
| Model    | 1.30924438 | 4   | .327311094 | F( 4, 194)          | = | 1.31   |
| Residual | 48.4394993 | 194 | .249688141 | Prob > F            | = | 0.2673 |
| Total    | 49.7487437 | 198 | .251256281 | R-squared           | = | 0.0263 |
|          |            |     |            | Adj R-squared       | = | 0.0062 |
|          |            |     |            | Root MSE            | = | .49969 |

  

| treatcontrol | Coef.     | Std. Err. | t     | P> t  | [95% Conf. Interval] |          |
|--------------|-----------|-----------|-------|-------|----------------------|----------|
| hemployed    | -.0912477 | .0780458  | -1.17 | 0.244 | -.2451749            | .0626796 |
| receivegrant | -.106956  | .0858393  | -1.25 | 0.214 | -.276254             | .0623421 |
| ownhouseho~s | -.1392136 | .1037213  | -1.34 | 0.181 | -.3437797            | .0653525 |
| maritalsta~s | -.0567995 | .0751279  | -0.76 | 0.451 | -.2049718            | .0913728 |
| _cons        | .7714092  | .1282692  | 6.01  | 0.000 | .5184281             | 1.02439  |

The next stage of the test is to save the residual from the regression above, which in our case we call “treatcontrol\_res”. Thereafter, the saved residual is included in the main equation. Then the main OLS equation is estimated.

```
. predict treatcontrol_res, res
(1 missing value generated)

. regress x1_per capita income treatcontrol maritalstatus treatcontrol_res
```

| Source   | SS         | df  | MS         |                 |         |  |
|----------|------------|-----|------------|-----------------|---------|--|
| Model    | 14707842.8 | 3   | 4902614.26 | Number of obs = | 199     |  |
| Residual | 1.1273e+09 | 195 | 5780994.13 | F( 3, 195) =    | 0.85    |  |
| Total    | 1.1420e+09 | 198 | 5767685.34 | Prob > F =      | 0.4691  |  |
|          |            |     |            | R-squared =     | 0.0129  |  |
|          |            |     |            | Adj R-squared = | -0.0023 |  |
|          |            |     |            | Root MSE =      | 2404.4  |  |

  

| x1_per capita income | Coef.     | Std. Err. | t     | P> t  | [95% Conf. Interval] |          |
|----------------------|-----------|-----------|-------|-------|----------------------|----------|
| treatcontrol         | 232.5031  | 2326.946  | 0.10  | 0.921 | -4356.708            | 4821.715 |
| maritalstatus        | -549.3358 | 393.9934  | -1.39 | 0.165 | -1326.371            | 227.6996 |
| treatcontrol_res     | -244.742  | 2352.45   | -0.10 | 0.917 | -4884.253            | 4394.769 |
| _cons                | 1257.033  | 1309.645  | 0.96  | 0.338 | -1325.854            | 3839.921 |

The final step involves testing the significance of the coefficient of the added residual:

```
. test treatcontrol_res

(1) treatcontrol_res = 0

F( 1, 195) = 0.01
Prob > F = 0.9172
```

This test shows that the instrumental variable estimator is a consistent estimator for the “Per Capita Income” model (i.e. we reject the null hypothesis). A similar finding was reached with regard to the “Per-Capita Food Consumption Expenditure” OLS model. Our Probit (ivprobit) test also clearly indicates consistency in the “Access to Nature” model.

```
. ivreg x1_per capitaincome maritalstatus ( treatcontrol= hemployed receivegrant ownhouseholdgoods)
```

Instrumental variables (2SLS) regression

| Source   | SS         | df  | MS         | Number of obs = | 199    |
|----------|------------|-----|------------|-----------------|--------|
| Model    | 11806381.2 | 2   | 5903190.6  | F( 2, 196) =    | 1.27   |
| Residual | 1.1302e+09 | 196 | 5766302.63 | Prob > F =      | 0.2818 |
|          |            |     |            | R-squared =     | 0.0103 |
|          |            |     |            | Adj R-squared = | 0.0002 |
| Total    | 1.1420e+09 | 198 | 5767685.34 | Root MSE =      | 2401.3 |

| x1_percapi~e | Coef.     | Std. Err. | t     | P> t  | [95% Conf. Interval] |
|--------------|-----------|-----------|-------|-------|----------------------|
| treatcontrol | 232.5032  | 2323.987  | 0.10  | 0.920 | -4350.727 4815.733   |
| maritalsta~s | -549.3358 | 393.4924  | -1.40 | 0.164 | -1325.358 226.6869   |
| _cons        | 1257.033  | 1307.98   | 0.96  | 0.338 | -1322.487 3836.554   |

Instrumented: treatcontrol  
 Instruments: maritalstatus hemployed receivegrant ownhouseholdgoods

Note that the OLS and IV coefficients are the same; however, the standard errors are slightly different. Based on these analyses, we conclude that the regressor is exogenous. The same findings were found with regard to the “Per-Capita Food Expenditure” given that there were only slight differences pertaining to the OLS and IV estimators. Given these findings, we now precede with the regression analyses for these outcome variables as follows:

### Per Capita Income

Per capita income allocates income by taking into consideration the individual well-being of all household members. Per capita income is a robust indicator of the welfare of the landless people, who account for a significant proportion of the rural poor in South Africa.

As mentioned earlier, the dependent variable is transformed due to being skew (*see appendix for illustration of per capita income distribution*). A log transformation is used as a dependent variable because it yields a superior fit. This implies that our dependent variable is the logarithm of household per capita. The use of a log natural form suggests that the estimated regression coefficients of the independent variables define the percentage change in household per capita income for an increase in the explanatory variable, *ceteris paribus*. This means that we work with household per capita income and the logarithm of these values.

The positive sign of the parameter estimates is a reflection of an increase in per capita income if they are of the desired characteristics. The OLS regression output is shown in the table below.

**Table 10: An OLS model fit of the Per Capita Income function**

|  |  |  |             |     |
|--|--|--|-------------|-----|
|  |  |  | No. of obs= | 179 |
|--|--|--|-------------|-----|

|                                  |        |           |               |       |
|----------------------------------|--------|-----------|---------------|-------|
|                                  |        |           | R-squared     | 0.45  |
|                                  |        |           | Adj R-squared | 0.39  |
| In-per-capita income             | Coef.  | Std. Err. | t             | P> t  |
| Active-Restituted land           | -0.322 | 0.198     | 1.63          | 0.106 |
| Marital status                   | -0.210 | 0.149     | -1.41         | 0.160 |
| Household size                   | 0.158  | 0.030     | 5.24          | 0.000 |
| Age of HH Head                   | 0.0129 | 0.005     | 2.56          | 0.011 |
| Whether HH Head is Male          | 0.239  | 0.154     | 1.56          | 0.122 |
| Education attainment of HH Head  | 0.030  | 0.017     | 1.80          | 0.074 |
| Migration by any family member   | -0.029 | 0.139     | -0.21         | 0.836 |
| Any illness                      | 0.218  | 0.123     | 1.77          | 0.079 |
| Household head employment status | 0.483  | 0.133     | 3.64          | 0.000 |
| Receive government grant         | 0.102  | 0.158     | 0.65          | 0.519 |
| Go without food                  | 0.044  | 0.187     | 0.24          | 0.812 |
| Sell household possessions       | 0.097  | 0.247     | 0.39          | 0.695 |
| Structure of the House           | 0.446  | 0.161     | 2.78          | 0.006 |
| Duration at the property         | 0.003  | 0.005     | 0.60          | 0.552 |
| Fetch-water (portable water)     | 0.097  | 0.161     | 0.60          | 0.547 |
| Access to electricity            | 0.364  | 0.177     | 2.06          | 0.041 |
| Own household goods              | 0.312  | 0.183     | 1.70          | 0.090 |
| Livestock production             | 0.345  | 0.153     | 2.26          | 0.025 |
| Main road (infrastructure)       | 0.003  | 0.027     | 0.12          | 0.903 |
| _Cons                            | 5.433  | 0.433     | 12.55         | 0.000 |

The negative coefficient of the active-restituted land estimate imply that households do not gain much in terms of per capita income and are therefore not better-off compared to the non-active beneficiaries. Moreover, this suggests that households who are using the land do not necessarily earn higher income. However, the result is not statistically significant. This means that having greater access to land is not significant in terms of contributing towards household per capita income generating potential of the restored land.

Our result suggests that restored land in the Kgalagadi does not seem to play an important role in determining the per capita income of active land restitution beneficiaries' households in the Kgalagadi region. However, we observe that household characteristics such



as household size, age of the household head, employment of the household head, type of the house, connection to electricity and some socio environmental aspects such as livestock production greatly contributes towards the income generating potential of land.

The coefficient for household size is negative, implying that for every additional member of the household, per capita income will decline by 1.58 percent. This means that the bigger the household size, the more likely it is that a household will be poorer. In addition, per capita income increases as household heads become older. This implies that older household heads are perhaps more likely to be involved in various income generating activities compared to younger household heads.

### Per capita Food Consumption Expenditure

Table 11 shows the parameter estimates for the marginal value of consumption. The analyses in this subsection are similar to those in the per capita income subsection, the only difference being that food consumption expenditure is the dependent variable. The similar results (coefficients) of these monetary measures suggest that our model is robust. Due to being skewed, the natural log form was also applied to the food consumption expenditure variable (see appendix on the transformation of the food consumption variable). As a result, the dependent variable is the per capita food consumption expenditure.

**Table 11: An OLS model fit of the Food Consumption function**

|  |          |           |               |       |
|--|----------|-----------|---------------|-------|
|  |          |           | No. of obs=   | 176   |
|  |          |           | R-squared     | 0.299 |
|  |          |           | Adj R-squared | 0.214 |
| In-per-capita food consumption expenditure | Coef.    | Std. Err. | t             | P> t  |
| Active-Restituted land                     | -8.420   | 34.657    | -0.24         | 0.808 |
| Marital status                             | -24.877  | 26.326    | -0.94         | 0.346 |
| Household size                             | -29.000  | 5.289     | -5.48         | 0.000 |
| Age of HH Head                             | 0.817    | 0.888     | 0.92          | 0.359 |
| Whether HH Head is Male                    | 55.373   | 27.40377  | 2.02          | 0.045 |
| Education attainment of HH Head            | 1.619    | 2.959     | 0.55          | 0.585 |
| Migration by any family member             | 0.640    | 24.293    | 0.03          | 0.979 |
| Any illness                                | 27.558   | 21.751    | 1.27          | 0.207 |
| Household head employment status           | 28.17363 | 23.345    | 1.21          | 0.229 |

|                              |         |        |       |       |
|------------------------------|---------|--------|-------|-------|
| Receive government grant     | -39.206 | 27.822 | -1.41 | 0.161 |
| Go without food              | 23.748  | 33.302 | 0.71  | 0.477 |
| Sell household possessions   | -17.561 | 43.288 | -0.41 | 0.686 |
| Structure of the House       | 41.386  | 28.292 | 1.46  | 0.146 |
| Duration at the property     | 1.167   | 0.900  | 1.30  | 0.197 |
| Fetch-water (portable water) | -12.688 | 28.119 | -0.45 | 0.652 |
| Access to electricity        | -17.137 | 31.128 | -0.55 | 0.583 |
| Own household goods          | 81.7114 | 32.086 | 2.55  | 0.012 |
| Livestock production         | -8.918  | 26.835 | -0.33 | 0.740 |
| Main road (infrastructure)   | 2.814   | 4.799  | 0.59  | 0.559 |
| _Cons                        | 180.233 | 75.878 | 2.38  | 0.019 |

Access to more land following the land restitution programme (restituted land) is not significant in terms of influencing food consumption expenditure. This result is not statistically significant, and is similar to our findings on restored land's contribution to income. Just as was the case in our income analysis, household size is also a significant determinate of food consumption expenditure. The other significant factors that did not influence income but were determinants of food consumption expenditure are gender of household head and ownership of household goods.

Consumption expenditure significantly increases when a household owns complementary assets. Having household goods increases consumption by 81.71 percent. Households headed by males consume more relative to those headed by females. The Kgalagadi environment is harsh so it is not entirely surprising that the gender of the household head mattered, as they are certain things that physically women are unable to perform, such as tracking and hunting.

Our result suggests that the larger the household size does not necessarily imply the greater the expenditure on food. This is perhaps not surprising given the low income levels of these two subgroups. Hence, the larger the households size, the more likelihood of having less food for each household member.

### Access to Nature

Having access to nature is as important if not the most important component of the Khomani San's well-being. Having access to natural resources is captured via a dummy for having access to at least one of the resources listed in Table 9. In other words, being able to use ancestral land for traditional purposes is a sign that indigenous people have access to nature.

The Probit model is used in this analysis since the Access to Nature variable is binary (i.e. coded 0 and 1). However the same independent variables that were used in the income and food consumption analysis are used.

**Table 12: Probit model fit of the Access to Nature function**

|                                  |        |           |              |       |
|----------------------------------|--------|-----------|--------------|-------|
|                                  |        |           | No. of obs=  | 179   |
|                                  |        |           | Prob > chi2= | 0.000 |
|                                  |        |           | Pseudo R2    | 0.379 |
| Access to Nature                 | Coef.  | Std. Err. | t            | P> t  |
| Active-Restituted land           | 2.069  | 0.485     | 4.27         | 0.000 |
| Marital status                   | 0.004  | 0.270     | 0.01         | 0.989 |
| Household size                   | 0.092  | 0.066     | 1.40         | 0.161 |
| Age of HH Head                   | 0.002  | 0.020     | 0.16         | 0.876 |
| Whether HH Head is Male          | -0.089 | 0.282     | -0.31        | 0.753 |
| Education attainment of HH Head  | -0.023 | .030972   | -0.73        | 0.463 |
| Migration by any family member   | 0.043  | 0.319     | 0.13         | 0.893 |
| Any illness                      | 0.334  | 0.246     | 1.36         | 0.174 |
| Household head employment status | 0.584  | 0.272     | 2.15         | 0.032 |
| Receive government grant         | 0.304  | 0.335     | 0.91         | 0.364 |
| Go without food                  | 0.403  | 0.379     | 1.06         | 0.288 |
| Sell household possessions       | -0.831 | 0.521     | -1.60        | 0.111 |
| Structure of the House           | -0.542 | 0.326     | -1.66        | 0.097 |
| Duration at the property         | 0.002  | 0.009     | 0.27         | 0.784 |
| Fetch-water (portable water)     | 0.038  | 0.416     | 0.09         | 0.928 |
| Access to electricity            | -0.137 | 0.357     | -0.38        | 0.701 |
| Own household goods              | -0.553 | 0.404     | -1.37        | 0.172 |
| Livestock production             | 0.297  | 0.308     | 0.97         | 0.334 |
| Main road (infrastructure)       | -0.042 | 0.048     | -0.87        | 0.384 |

|       |        |       |       |       |
|-------|--------|-------|-------|-------|
| _Cons | -0.632 | 0.947 | -0.67 | 0.504 |
|-------|--------|-------|-------|-------|

The results above imply that being an active land restitution beneficiary enables one to access nature more compared to those who are not using the land. This finding is significant, as having access to ancestral land ensures that traditional activities can be performed. Being able to undertake such activities is one of the main reasons why the San wanted access to their ancestral land (put a land claim). Having access to ancestral land has symbolic and cultural importance to this ethnic group as a whole. The subgroup using the land does not have access to electricity, so they depend heavily on firewood; the only restriction is that harvesting for commercial purposes is prohibited.

## 8. Discussion of Results

The weak link between use of land from the restitution programme on income and consumption may be explained by lack of basic infrastructure such as housing, electricity and general support towards the active-beneficiaries. The San generally do not have the technical knowledge of how to maximize their land and resource rights in a manner that will allow them to generate higher income, which there can then use for food expenditure among other things. This can be expected of indigenous communities as there were historically not involved in the modern economy.

Nevertheless, our results suggest that restoring land to indigenous people contributes towards their non-monetary well-being, namely having greater access to natural resources and the environment. Land restitution plays a part in altering the non-monetary indicators of households living in the restored land. This suggests that having access to land significantly increases the chances of having more access to nature for indigenous communities in the Kgalagadi.

While our results suggest that restored land plays an important role in the anti-poverty strategy (in terms of greater access to nature), we also found that socio-economic characteristics, complementary assets, and contextual circumstances influence the income, consumption and access to nature generating potential of land. The size of the household is a determinant of both monetary (income and consumption) and non-monetary (access to nature) indicators of poverty.

The fact that the land rights are awarded to the community rather than individuals is perhaps the reason the land potential on poverty is not significant, particularly where the institutional arrangements are weak as is the case in the Khomani San community. Land restitution was never meant to target individuals or certain sections of the community but the entire community that is eligible irrespective of their individual circumstances. Perhaps this limits the potential impact of land in terms of reducing poverty.

## **9. Conclusion**

Our results suggest that using restored land by the claimants' has no influence on income and consumption, and thereby does not reduce poverty in the Kgalagadi as far as the monetary indicators of poverty are concerned. Having being an active land restitution beneficiary has not contributed significantly towards income and food consumption. This implies that those beneficiaries who live in the acquired land did not necessarily gain much in terms of higher income and food consumption expenditure, and as a result are not better off relative to non-active beneficiaries.

The implementation of the land restitution in its current form seems to be a constraint with regard to its effectiveness. However, the fact that we have failed to establish a link between use of acquired land from the restitution programme, and income and consumption does not mean that it is not a good strategy to alleviate poverty. A positive link that has been established with regard to greater access to nature is as important, particularly in the context of the land beneficiaries. The importance of access to nature to indigenous people is corroborated by the findings of a study by Dikgang and Muchapondwa (forthcoming) that suggests that most Khomani San households were significantly WTP for biodiversity which reflects their value for biodiversity conservation, implying that most households would gain significantly from conservation on their 'restituted land'.

A positive link to greater access should not be undermined because rural people especially indigenous people are heavily dependent on natural resources for their livelihoods. Greater access to nature that is attributed to the use of land is important because natural resources such as wild fruits and hunting off-sets the low income and consumption levels. The findings of this study is that land restitution can be more effective if it is included as part of a broader, carefully crafted rural developmental strategy.

Although land restitution has not made a positive contribution to the land restitution active beneficiaries with regard to the monetary-indicators of well-being under consideration

compared to non-active beneficiaries, it has achieved some important results. Land restitution did not contribute positively to higher per capita income and consumption. It did so with another indicator of well-being, those beneficiaries that utilized the land tend to fare better in terms of having greater access to nature. Most importantly for the Khomani San people, land is crucial for the promotion of their culture and traditions, and plays a crucial role as a source of food security.

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