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The effect of land restitution on poverty reduction among the Khomani San “bushmen” in South Africa

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Abstract

This paper looks at the impact of land restitution involving the Khomani San “bushmen” in the Kgalagadi area of South Africa. It seeks to test whether there is a positive correlation between land restitution and poverty reduction among the beneficiaries. We run instrumental variable probit models on poverty and access to nature. Our results suggest that using restituted land by the claimants’ has no positive effect on poverty alleviation. However, a positive link with greater access to nature is established. Therefore, land restitution should become part of a broader, carefully crafted rural developmental strategy for it to be effective. Otherwise land restitution risks enabling indigenous communities to continue with their “traditional” way of life and, in fact, keep them poor.

Keywords: access to nature, instrumental variable, Khomani San, land restitution, poverty

1 Introduction

Land is a key instrument with which to empower and disempower people for a wide variety of reasons. For example, during apartheid in South Africa, land was used to disempower black people to achieve racial discrimination. No wonder why the country’s first democratic election, which took place in 1994, carried with it the obligation to address the injustices of the past. The key injustice that the new government sought to tackle was land dispossession of blacks by the apartheid regime. This was to be addressed through a land reform programme comprising of land restitution, land redistribution and land tenure.¹

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¹Land restitution seeks to restore land ownership or compensate those forced off land prior to 1994; land redistribution, of mainly agricultural land, seeks to redress the discriminatory

According to Deininger and Binswanger (1999) these kinds of initiatives are pursued globally mainly because of inequality in land distribution. Justification for land reform is based on the assumption that there is a strong and positive correlation between access to land and welfare-generating potential for beneficiaries (Finan et al., 2005). The conventional measures of a household's economic well-being are money income and wealth, both of which reflect the financial resources available to the household. An alternative measure, reflecting the current standard of living prevailing in a household, is the household's food and services consumption expenditure (Jones et al., 2010).

Poverty is one of the main challenges faced by the South African government. The national poverty rate stood at 54% while the rural poverty rate stood at 77% in 2010 (Leibbrandt et al., 2010). Poverty is associated with both monetary and non-monetary dimensions. However, most poverty studies mainly focus on the monetary dimensions of well-being, income and consumption; hence, the literature on non-monetary measures is limited. The assessment of both measures of poverty is required to ensure that there is a wider understanding and acceptance of findings, and most importantly that poverty analyses resonate with social norms in areas where physical environmental resource dependence is high.

A vast literature dealing with land reform shows that land is a source of income (see Grootaert et al., 1997; Gunning et al., 2000; Scott, 2000). Among a wide variety of policies discussed to reduce poverty, there is a growing body of literature that strongly recommends improved access to land for the rural poor (Carter, 2003; Deininger, 2003; de Janvry et al., 2001). Empirically, this can be seen in the increasing number of land reform programmes that have taken place in numerous countries around the world (de Janvry, 1981), and particularly in Africa.

This paper looks at the land reform programme in South Africa particularly the land restitution component. The land restitution programme in South Africa attempts to restore land rights lost after the 19th of June in 1913. According to Roux (2006), the 19th June 1913 cut-off date was agreed upon as it was the date when the Native Land Act, which allowed for systematic land dispossession by the apartheid state, was promulgated.² 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.³ The official explanation of the cut-off date was

policies by providing the disadvantaged and poor with access to land; while land tenure reform, seeks to secure tenure for all South Africans, especially the more vulnerable, such as farm labourer tenants (Department of Land Affairs, 1997).

²“The Native Land Act of 1913 apportioned 8% of the land area of South Africa as reserves for the Africans and excluded them from the rest of the country, which was made available to the white minority population. Land available for use by Africans was increased by 5% in 1936 bringing the total to 13% of the total area of South Africa, although much of the land remained in the ownership of the state through the South African Development Trust supposedly held in trust for the African people. Thus 80% of the population was confined to 13% of the land while less than 20% owned over 80% of the land. Black people were prohibited from buying land in areas outside the reserves. This apportionment of land remained until the end of apartheid in early 1990s and remains virtually unchanged” (Rugege, 2004:1).

³The cut-off date therefore prohibited claim of land lost after the main period of the

that the absence of adequate written documentation prior to 1913 and allowing the process to reach further back could potentially result in conflicting ethnic claims on the part of dispossessed tribes.⁴

A re-assurance was made that land redistribution, instead of land restitution, would be used to address the needs of those whose land claims were constrained by the cut-off date. 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 in South Africa being legally and conceptually subordinated to the protection of the private property rights (Roux, 2006).

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. Most urban claims were settled financially. The Land Claims Commission is of the view that although this solves immediate survival problems, it ultimately widens the poverty gap in the long term hence the Commission's preference to restore or provide the land (Land Claims Commission, 2009).

The specific focus of this paper is on land restitution and its impact on poverty alleviation in the Kgalagadi area of South Africa. In this area, the Kruiper family – a part of the Khomani San community in the area – lodged a land claim with the Commission for the Restitution of Land Rights in 1995 (Crawhall, 2001). According to Chennells (2001) the challenge facing the Khomani San activists was to establish the rights of the San to their ancestral land in a manner that could prove beyond doubt that there was a link between the living San individuals of the claimant culture and origin, to the land.

The declaration of the claim as valid in 1996 was a catalyst for the complicated negotiations process that followed (Crawhall, 2001).⁵ Given that the members of the San people were dispersed, a simultaneous process of recapturing and recording the culture in a manner that bind and defined the community was required (Chennells, 2001). The Khomani San was initially thought to comprise of 50 adults of one ethnic origin (i.e. the Kruiper family) (Crawhall,

colonial conquest was already over. This compromise was acceptable to the main negotiating parties, the National Party and the African National Congress (ANC). 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 (Roux, 2006).

⁴This explanation is relevant to our specific study area as the Khomani San not only lost their land in the Kgalagadi area to colonial powers but also to other ethnic groups, including the Mier community (another community in the area).

⁵The lodging of the land claim by the Khomani San led to many other communities in the country following suit. In fact, the Khomani San's land claim overlapped with that of the Mier community (Crawhall, 2001) who historically had occupied the Khomani San's land but eventually evicted by the colonial government to pave way for the creation of the current Kgalagadi Transfrontier Park.

2001). However, further community research and outreach during negotiations with the Department of Land Affairs in 1998 led to the original claimants agreeing to allow for the claimants group to be expanded. They agreed to form a Communal Property Association (CPA) and it had 297 registered members⁶ at the time the first agreement was concluded (SANParks, 2006).⁷ The Khomani San people who were displaced from the park were awarded land.

The first agreement saw the Khomani San being awarded 40 000 hectares on six farms adjacent to the Kgalagadi Transfrontier Park in 1999 (SANParks, 2006). The second agreement saw the Khomani San being granted 28 000 hectares of land inside the Kgalagadi Transfrontier Park and special user rights on another part of the park in May 2002 (SANParks, 2006).⁸ The area in which the Khomani San got special user rights was symbolic as it was where their ancestors had practiced a nomadic way of life. SANParks was tasked with co-managing the acquired land inside the park on behalf of the local communities as contractual parks.

We contemplate that land restitution can potentially increase average household income, improve income distribution, consumption levels and result in more access to natural resources, and as a result reduce poverty and inequality. It is on this basis that land restitution is expected to contribute towards relieving rural poverty and in promoting broad-based sustainable development. This paper addresses the question of what has been the impact of the use of restituted land awarded to the Khomani San on poverty alleviation in the Kgalagadi area. This is done by using survey data collected from 200 Khomani San households in the Kgalagadi area. Instrumental variable probit models are estimated to investigate the impact of use of restituted land on “being poor” and “having access to nature”. The approach adopted in this paper gives a broader view of the contribution of land restitution on the welfare indicators considered relevant to the local communities in South Africa.

Although some studies (see Lahiff, 2007; Lovo, 2011) have been carried out on how land reform/restitution affects the livelihoods of the beneficiaries, to the best of our knowledge no such study has been carried out with regard to the so-called “vulnerable indigenous communities” in South Africa. Thus, this study is the first study of its kind undertaken on the Khomani San in South Africa, which suggests that this study could potentially fill an important research gap.

This paper is organized into five sections. Section 2 briefly reviews literature on land reform. Section 3 presents the methodology used in the study while Section 4 presents the results and discussion. Section 5 concludes the paper.

⁶However, according to the Department of Land Affairs, about 320 households are registered as beneficiaries of the Khomani San land claim.

⁷An overlapping land claim was made by the Mier community just before the settlement of the Khomani San claim thereby re-opening the negotiations. Therefore, mediation later brought together three negotiating parties, namely the Khomani San, the Mier and the park agency, SANParks. The land claim was subsequently divided into two parts.

⁸Under this agreement, the Mier community also got awarded 30 000 hectares of land inside Kgalagadi Transfrontier Park. The Mier community subsequently gave the Khomani San two farms adjacent to the park as a goodwill gesture for crowding out some land which the Khomani San might have won in the absence of their land claim.

2 Literature Review

The land reform programme is deemed a success if it increases the beneficiaries' income, consumption and wealth (Binswanger and Elgin, 1992). According to Deininger and van den Brick (2000) despite many land reform programmes being implemented in a manner that reduced their potential impact on equity and efficiency, there is growing evidence worldwide that redistributive land reforms have assisted in reducing poverty and increasing efficiency, and that it will lead to sustainable growth.

According to the World Development Report (2006), the history of land reforms has been mixed with some partial successes and failures. The prospects for land and resource rights restoration to indigenous people are positive in some parts of the world. For example, countries like Australia, Canada and New Zealand are making remarkable progress in this regard (Hitchcock et al., 2003). Elsewhere, empirical evidence and theoretical reasoning suggests that a land reform programme may provide equity and efficiency benefits (Binswanger et al., 1995). 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 being home to a significant proportion of the poor in the third world (Thorner, 1976). A study in India found that land reforms had an impact on growth, rural poverty reduction and other aspects of the rural economy. Land reform was found to push up agricultural wages; this is an additional mechanism through which these reforms can reduce poverty (Besley and Burgess, 1998), as well as some major improvements on productivity in the Indian state of West Bengal (Banerjee et al., 1998).

The Philippines land redistribution program indicates that there are significant benefits for beneficiaries which include higher gains in productivity and incomes and propensity to invest in physical and human capital. Specifically, The land reform beneficiaries in the Philippines shows that they had invested more in their children's education than non-beneficiaries and that they increased their assets at about three times the levels of non-beneficiaries (Deininger et al., 1999).

In Brazil land redistribution has private intermediaries who carry a real credit risk, greater involvement of civil society which ensures that the program is not driven by landlords, as well as a stronger focus on capacity building at community level, seems adequate to ensure that the program will be sustainable in the long term. The assessment of the land reform programme in Brazil found that it was economically viable and had a scope of increasing the beneficiaries' income by up to five times (Buainain et al., 1998).

A consensus reached about land reform in Japan, Korea and Taiwan was that it significantly contributed to overcoming the legacy of colonial development (King, 1977). In these countries, land reform led to improvements in productivity and set the stage for an impressive rise in non-agricultural development (Jeon and Kim, 2000).

Most known successful 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). Many developing countries have considered land reform as a tool of increasing agricultural production and alleviating poverty in rural areas. In addition, policy makers often expect that improved conditions in rural areas will stem the large number of immigrants into urban slums. However, empirical evidence with regard to land reform reveals that the impact of land redistribution in rural areas is highly variable (see Habib, 1989 for a detailed overview of case studies) (Moene, 1992). Justification for land reform programmes are based on the assumption that land has a strong welfare generating potential for beneficiaries. Yet, land reform programmes have often met with limited success in alleviating poverty, and a number of recent studies has called into question the importance of land as a poverty-reducing tool (López and Valdés, 2000a).

Land reform initiatives come with key challenges; the programmes are controversial for a wide range of reasons. Some economists argue that the abolition of poverty can only come from development, not from redistribution (Boulding, 1968; Okun, 1975). The argument here is that reform amounts to inefficiency as the very same resources that are scarce are redistributed instead of increasing everyone's wealth. This argument may be true in some third world countries, but not necessarily so in the case of countries such as South Africa given the country's historical background.

Some argue that land tenure reforms in lieu of redistribution land restitution. The counter argument is that land tenure reform makes no significant contribution. The case in favour of redistributive reform is that it is not based on the existence of defective tenure agreements (contracts) but rather on the concentration of land ownership rights and the inefficiency, inequality and principle of land restitution is thus a redistribution of property rights in productive land (Adhikari and Bjørndal, 2009).

Some land reforms in Latin America failed to meet their objectives, hence they remain incomplete in many respects (de Janvry and Sadoulet, 1989). One of the main reasons for their minimal impact was that reforms were often motivated by short-term political considerations. Moreover, "agrarian" emphasis on full-time farming increased their cost while reducing the number of potential beneficiaries and the reforms' impact on poverty (Deininger, 2003).

Although there is little doubt that land is a source of income (see Scott, 2000; Gunning et al., 2000; Grootaert et al., 1997; Carter and May, 1999), in many studies, this positive correlation actually translates into marginal income gains for the range of land endowments provided by land reform programmes (Finan et al., 2005). For example, McCulloch and Baulch (2000) simulated the effects of a policy giving two hectares of land to households in rural Pakistan with less than this amount to find that it has virtually no impact on income poverty.

A study by López and Valdés (2000b) and their co-authors found in previous studies for eight Latin American countries that the income generating potential of land is also quite marginal. For instance, their estimates of income to land

elasticities imply that landholdings in rural areas of Colombia would have to quadruple in order for the poorest 40% of farm households to reach just the poverty line. This led them to recommend looking into approaches other than access to land in order to attack rural poverty.

In Southern Africa (SADC), some land reform has been driven 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 was the case before (Chimhowu, 2006). For example, Zimbabwe’s “fast track” land reform programme led to adverse consequences to the beneficiaries and the economy as a whole.

This study attempts to test whether there is a positive correlation between the land restitution and poverty reduction among the active beneficiaries in the Kgalagadi area of South Africa. Indeed, greater access to land in South Africa has the potential to increase household resources. As a result, it has the potential to contribute directly and indirectly towards poverty alleviation efforts and addressing South Africa’s heavily skewed distribution of income. Of course, the extent to which greater access to land impacts poverty alleviation is dependent on a variety of factors which includes post-settlement support, institutional arrangements and capacity building. In a poor rural economy like the Kgalagadi, this implies improving the terms on which the poor have access to land.

3 Methodology

3.1 Programme background and assessment

Even though about 320 households are registered as beneficiaries of the Khomani San land claim, only less than half of them actually use the restituted land. By awarding land, it was hoped that this would be a catalyst for economic development. We reckon that the effect of the Khomani San land restitution on welfare can crudely be measured by comparing the levels of welfare between those who use restituted land and those who do not. Of course, we realise that this is only a crude measure as a proper evaluation of the effect of land restitution on welfare would require that the split between people who make use of restituted land and those who do not was purely random. A number of methods can help discern the required impact under the current situation. For example, the propensity score matching method would be an option. However, such a method requires a large sample which our circumstances cannot raise given the small pool of registered beneficiaries. Furthermore, we suspect that the problem with our circumstances is not about lack of randomness in the decision to use restituted land but rather about the simultaneity between use of restituted land and welfare. Thus, we reason that use of restituted land affects welfare but, in turn, welfare affects whether or not one uses restituted land.

Therefore, the method that we prefer is instrumental variable (IV) regression.⁹ The basic empirical model is:

$$Y = \beta_0 + \beta_1 T_i + x_i' y + \varepsilon_i \quad (1)$$

where Y represents a welfare measure (i.e. per capita income or per capita consumption or access to nature), T is an endogenous variable (i.e. use of restituted land), x are exogenous regressors (i.e. socioeconomic variables that are expected to impact on household welfare).

A question of whether or not to include too many rather than few variables may arise during a case of uncertainty of the right specification. One of the possible reasons why over-parameterized models should be avoided is that although the inclusion of non-significant variables does not necessarily bias the estimates, it has the potential to increase their variance (Bryson et al., 2002). Heckman et al. (1997a), Dehejia, and Wahba (1999) show evidence that omission of vital variables can lead to an increase in the bias of the resulting estimates. Thus, only variables that influence the outcome variable should be included.

On the other hand, it is highly recommended that ‘trimming’ models in the name of parsimony should be avoided. It is argued that a variable should only be excluded from the analysis if there is an agreement that, that particular variable is either not linked to the outcome or not a proper covariate. In a case of any doubt concerning these two points, it is explicitly advised that the variable in question should be included in the estimation (Rubin and Thomas, 1996). The arguments raised so far suggest that the choice of variables should be based on economic theory and previous empirical findings in addition to some formal statistical tests.

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., (1998b) emphasizes this point by stressing that the data for participants and non-participants should stem from the same source such as the use of the same questionnaire. Some randomness is required to ensure that the individuals with identical characteristics can be observed in both states.

The socioeconomic variables expected to influence welfare include gender, age, education, marital status and employment status of the household head. Additional controls suitable for our study area include having migrants in the household, having food deficits, easy access to potable water, involvement in livestock farming, access to electricity and ownership of household goods. Given that South Africa is a welfare state, we also control for the presence of both child

⁹Although IV techniques are commonly applied to estimate systems of simultaneous equations and to counteract bias from measurement error, there is an ever-increasing number of studies for application to omitted variables bias in estimates of causal relationships. Studies of this nature are mainly concerned with estimating a narrowly defined causal relationship, such as the effect of schooling or training on income, or impact of smoking on health. An IV allows for the estimation of the coefficient of interest consistently and free from asymptotic bias from omitted variables, without actually having the data on the omitted variables (Angrist and Krueger, 2001).

support and old-age pension grants. An appropriate instrumental variable z for use of restituted land is one that directly influences use of restituted land but not the welfare measure except indirectly through its impact on use of restituted land (Maddala, 1997).

3.2 Empirical strategy

The main objective of this study is to provide empirical evidence of the effects of land restitution on the welfare of those who use restituted land. The land endowment is captured by a dummy variable which takes the value 1 when a household uses restituted land. Our approach is similar to that of Lovo (2011). The IV probit models are applied to estimate the impact of use of restituted land on “being poor” and “having access to nature”.

Since a household decision to “use restituted land” is likely endogenous, we use proximity of the household’s dwelling to the Kgalagadi Transfrontier Park as an instrument. The instrument seems appropriate because it is correlated with use of restituted land but not with welfare variables. Those living closer to the park are naturally closer to the restituted land which is adjacent to it. The restituted land consists of 40 000 hectares on six farms and is 60 km away from Kgalagadi Transfrontier Park. Our sample is restricted to the Khomani San spread in an area of 1 000km. Given that the Khomani San are in the same political or economic zone with low population density, proximity to the Kgalagadi Transfrontier Park is not expected to have large effects on welfare measures other than through use of restituted land.

3.3 Data

According to the department of Land Affairs estimates, about 320 households are registered as beneficiaries of the Khomani San land claim. However, only 120 households were using the restituted land at the time of the survey. We conducted a face-to-face survey in the Kgalagadi area with 100 Khomani San households who used restituted land and another 100 households who did not. However, the total sample of 200 households comes from the 320 registered beneficiaries of the Khomani San land claim. Thus, we restricted the sample to the Khomani San who could plausibly have taken up the offer to use restituted land. The survey was conducted between March and April 2011. The collected data included detailed information on household income,¹⁰ consumption expen-

¹⁰The challenge with income is that households at times do not reveal their true income. In a predominantly rural economy such as in the Kgalagadi area, much of the income comes from agriculture and informal activities such as selling of firewood and crafts. Therefore, determining actual household income may be complex. Moreover, income is vulnerable to shocks and is potentially volatile. Nonetheless, income is seen as a potential welfare measure.

diture,¹¹ access to nature,¹² housing services, farming activities, land-use and migration patterns.

3.4 Descriptive statistics

Table 1 provides an overview of the descriptive statistics of the main variables of interest.

It can be seen from a comparison of those who are using the land with those who are not, that the former group has a slightly higher average family size, are older, have a lower level of education and greater incidence of male heads. Given that those living in the acquired land only moved after the first stage of the land claim were agreed in 1999, it came as no surprise that they had lived in their current residence for a significantly shorter period relative to those who live in other areas. Those with access to the land have a higher number of migrants per household. Interestingly, about 86% of household's members without access to the land who migrated sent some money back to their households on a monthly basis compared to 39% who did so among the group using the land.

The methods of generating income between those using the land and the control group are similar. Interestingly, both Khomani San subgroups are much closer in terms of total household income despite the control group having substantially higher monthly wages. The treatment group have a higher unemployment rate, and receive less both in self-employment and social grants. However, they make substantially more income from livestock farming and selling crafts. Half of the employed land beneficiaries using the land were employed 'full-time', while the other half is part time workers.

Around 17 percent of Khomani San households using land indicated that they are self-employed. Of those who are self-employed, an overwhelming majority (71%) are selling crafts. Only 12% of the self-employed said that they are selling firewood.¹³ The only source of firewood 'Camel thorn tree' is considered an endangered tree, hence harvesting for commercial purposes is prohibited. This is perhaps the reason for the reluctance of many households to declare their involvement. Given the nature of self-employment in this area, it generally does not lead to any job creation, as family members tend to assist. A majority of this group (74%) are receiving government grants, mainly old-age and child support grants.

In contrast, an overwhelming majority of 87% of the control group are employed 'full-time'. Despite the lower unemployment rate, this group seem to

¹¹Consumption expenditure is considered a more reliable estimate of well-being as it better reflects a household's long-term welfare even though it actually measures a household's welfare in terms of meeting the current basic necessities. Thus, household food consumption can be deemed as realised welfare (Finan et al., 2005). In the context of third world countries, particularly in rural areas, food consumption expenditure rather than income is preferred in poverty studies (Deaton, 1997).

¹²Collection of medicinal plants, firewood, wild fruits; hunting; and accessing ancestral sites within the restituted land is used as a proxy for access to nature.

¹³We expected this number to have been significantly higher than the reported figure.

take longer to find a job. Similarly, they have a higher number of households (80%) that are receiving government grants.

The differences in food consumption expenditure levels between the two-subgroups are negligible. Both sub-groups purchased their food in their respective areas. About 14% of those using the land indicated that they are sometimes forced to sell their household possessions to generate income. In contrast, none of the other group's households indicated that they ever found themselves in that situation.

Those with access to land 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 those who are not using restituted land generally live in a better environment, as they are more likely to have access to electricity and toilets. Having access to electricity suggests that on average the control group have better quality household durable goods that use electricity than their treatment group counterparts. Access to electricity enables the latter subgroup to benefit from the 'free 50Kwh' 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.

The Khomani San households who are not using restituted land 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. Approximately 25% of the households using the restituted land and have livestock indicated that they sold some of their livestock 12 months prior to the period that we collected the data. In contrast, almost all the farmers not using restituted land (92%) involved in livestock farming sold their livestock during the same period. This further demonstrates that if implemented appropriately and targeting the individuals that are likely to use the land, the land restitution programme can contribute to poverty reduction. However, given that those living on the restituted land represent a minority of the Khomani San population as a whole, suggests that there are distributional problems involved – skewed distribution of income.

A comparison of the income poverty between the San using restituted land and those not using the land reveal that the former group's poverty rates are significantly higher than the latter group's poverty rates.

In terms of access to nature, the group living on restituted land have a higher wellbeing in most categories. They have much more access to natural resources as they now live on the restituted land, with the exception of firewood collection, which seems to be a common activity in South Africa particularly in rural and poorer households. The greater access to resources by those with access to restituted land is mainly as a result of using the land.

A significant number of those using restituted land have residential houses located in Andriesvale (31 percent), which is not surprising given that this particular farm was set aside specifically for housing development. Distance from Andriesvale (which is 60 km from the Kgalagadi Transfrontier Park) is

used as a proxy for distance from the Khomani San restituted land because of its central location, and the fact that it was earmarked for community development. The distance from restituted land shows that Khomani San using the land are on average 15.91 km from Andriesvale.

The difference in income-generating activities and food consumption expenditure between those households using restituted land and those who do not are negligible. However, when one looks at access to nature, a different picture emerges; with the beneficiaries using restituted land having greater access.

The differences between the family size, greater incidence of male heads, years staying at current residence, number of migrants per household, migrants who send remittances, receiving of social grants, access to electricity, livestock farming, selling crafts, poverty rates and access to nature (firewood, wild plants, hunting, medicinal plants) are statistically significant. These differences were validated by t-tests.

4 Results and discussion

We start by estimating an OLS model on use of restituted land (i.e. binary variable) on proximity to the Kgalagadi Transfrontier Park. A point to note is that the land dummy shows whether one uses restituted land or not. The results from this model are reported in Table 2.

The negative coefficient of the proximity to the park implies that proximity to the Kgalagadi Transfrontier Park is negatively correlated with whether a household uses restituted land or not. This means that those households located further away from the park tend not to use restituted land. The significance of the whole regression means that proximity to the park is a good instrument for use of restituted land.

In Table 3, we run a regression of the poverty dummy variable on explanatory variables that we believe influence whether a household is poor or not in our context. The explanatory variables in this study 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 findings from this study, together with the one analysing resource use in livelihoods (by Thondhlana et al., 2012) will make it possible to compare the effect of the land restitution along historical lines and along spatial lines.

The regression also includes the predicted values of the land dummy in Table 2 above. In running the current regression we use the probit model. Thus we are effectively running an instrumental variable probit model. We also run a similar regression but using “having access to nature” as a dependent variable.

The results show that use of restituted land has a statistically significant effect on poverty and access to nature. However, use of restituted land does not reduce poverty even though it increases access to nature. Therefore, the land restitution involving the Khomani San has only achieved one of its objectives i.e.

providing them with access to nature. There is a need for the land restitution to do more on the developmental side in order to reduce poverty among the Khomani San. Greater involvement of the Khomani San in conservation in the Kgalagadi Transfrontier Park could be the panacea. However, there needs to be an assessment of whether the Khomani San can be good environmental stewards and what mechanisms could be implemented to help reduce their poverty.

We observe that household characteristics such as marital status, age of household head, gender of household head, household size and ownership of household goods greatly impact towards the poverty level of a household.

The coefficient for marital status is positive, implying that those who are married are most likely to be poor. This result is logical given that married couples share resources, which has an effect of lowering the per capita income when one party has no income. A similar explanation holds for household size. Poverty levels are lower for households who reported owning assets.

Government grants are not significant in determining the poverty level despite most household's indication that they received some sort of grant. In addition, education is not a significant determinant of poverty levels. This may be due to the general low education levels in the study area. An overwhelming majority of the respondents in this area spent just over 4 years in school, on average.

Households headed by females are most likely to be poor. The Kgalagadi environment is harsh and it is not surprising that there is a negative relationship between female heads and poverty levels as there are certain things that women are physically unable to perform, such as tracking and hunting. Households with younger heads tend to be poor. Involvement in livestock production seems to have positive effects on access to nature only. The result that having access to electricity is a determinant of access to nature is surprising, as there is not much collection activities that we know of that involves having access to electricity that can possibly be linked to access to nature.

5 Conclusion

This study attempts to test whether there is a positive correlation between land restitution and poverty reduction among the Khomani San active beneficiaries in the Kgalagadi area of South Africa. We run instrumental variable probit models of “being poor” and “having access to nature” using proximity to the Kgalagadi Transfrontier Park as an instrument. Our results suggest that using restituted land by the claimants’ has no positive effect on poverty alleviation. However, a positive link with greater access to nature is established.¹⁴ The policy implication of the results from this study is that land restitution should

¹⁴The importance of access to nature to indigenous people is corroborated by the findings of a study by Dikgang and Muchapondwa (2012) that suggests that most Khomani San households are significantly willing-to-pay (WTP) for biodiversity which reflects their value for biodiversity conservation, implying that most households would gain significantly from conservation on their ‘restituted land’.

become part of a broader, carefully crafted rural developmental strategy for it to be effective. Otherwise land restitution risks enabling indigenous communities to continue with their “traditional” way of life and, in fact, keep them poor.

References

- [1] Adhikari, C. B., Bjørndal, T., 2009. Can Land Reform Be An Effective Approach to Alleviate Poverty and Inequality in Nepal? Working Paper No. 30/09. Bergen: Institute for Research in Economics and Business Administration.
- [2] Angrist, J.D., 2001. Estimation of limited dependent variable models with dummy endogenous regressors: simple strategies for empirical practice. *Journal of Business and Economic Statistics* 19 (1): 2 - 16.
- [3] Angrist, J.D., Krueger, A.B., 2001. Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments. *The Journal of Economic Perspectives* 15(4): 69-85.
- [4] Banerjee, A., Gentler, P., M. Ghatak., 1998. Empowerment and Efficiency: The Economics of Agrarian Reform, mimeo, Department of Economics, MIT.
- [5] Besley, T., Burgess, R., 1998. Land Reform, Poverty Reduction, and Growth: Evidence from India. London. London School of Economics STICERD Discussion Paper No DEDPS 13.
- [6] Binswanger, H.P., Elgin, M., 1992. What are the Prospects for Land Reform? In Eicher and Staatz (eds). *Agricultural Development in third World* (2nd ed). London: 342 – 344.
- [7] Binswanger, H. P., Deininger, K., Feder, G., 1995. Power, Distortions, Revolt and Reform in Agricultural Land Relations. In: J. Behrman and T. N. Srinivasan (Eds.), *Handbook of Development Economics*, Volume III, Elsevier, Amsterdam.
- [8] Bosch, D., 2002. Land conflict management in South Africa: lessons learned from a land rights approach. <http://www.fao.org/html/>. (3 March 2009).
- [9] Bouis, H., Haddad, L., 1990. Effects of Agricultural Commercialisation on Land Tenure, Household Resource Allocation, and Nutrition in Philippines. International Food Policy Research Institute, Washington DC.
- [10] Boulding, E. K., 1968. *Beyond Economics: Essays on Society, Religion, and Ethics*. The University of Michigan Press, Ann Arbor.
- [11] Bryson, A., Dorsett, R., Purdon, S., 2002. The use of propensity score matching in the evaluation of labour market policies. Working Paper No. 4, Department for Work and Pensions.

- [12] Buainain, A. M., J. M. Da Silveira., H. M. Souza., and M. M. Magalhaes. Community-based Land Reform Implementation in Brazil: A new way of Reaching Out to the Marginalized? Paper Presented at the GDN Launch Workshop Bonn, 1998.
- [13] Carter, M.R., 2003. Designing Land and Property Rights Reform for Poverty Alleviation and Food Security. Land Reform, Land Settlement and Cooperatives, FAO, Rome.
- [14] Carter, M., May, J., 1999. Poverty, Livelihood and Class in Rural South Africa. *World Development* 27: 1-20.
- [15] Central Bureau of Statistics (CBS). 2004b. Nepal Living Standards Survey 2003/04 Statistical Report (in two Volumes). CBS, Kathmandu.
- [16] Chennells, R., 2001. Case Study 9 – South Africa: The Khomani San of South Africa. http://www.forestpeoples.org/documents/africa/s_africa_eng.pdf/. (Accessed March 3, 2009).
- [17] Chimhowu, A.O., 2006. Tinkering on the Fringes? Redistributive Land Reforms and Chronic Poverty in Southern Africa. Working Paper 58. University of Manchester: Chronic Poverty Research Centre.
- [18] Crawhall, N., 2001. *Written in the Sand: Cultural Resources Auditing and Management with Displaced Indigenous People*. Cape Town, The South African San Institute (SASI) and UNESCO.
- [19] Deaton, A., 1997. The Analysis of Household Surveys: A Microeconomic Approach to Development Policy. The Johns Hopkins University Press, Baltimore.
- [20] Dehejia, R.H., Wahba, S., 1999. Causal effects in nonexperimental studies: reevaluating the evaluation of training programs. *Journal of the American Statistical Association* 94(448): 1053–1062.
- [21] Deininger, K., 2003. Land policies for growth and poverty reduction, World Bank Policy Research Report series. World Bank, New York.
- [22] Deininger, K., Binswanger, H.P. 1999. The Evolution of the World Bank’s Land Policy: Principles, Experience, and Future Challenges. *World Bank Research Observer* 14 (2): 247 - 76.
- [23] Deininger, K., van den Brick, R., How land reform can contribute to economic growth and poverty reduction: Empirical evidence from international and Zimbabwean experience. World Bank; Hans Hoogeveen (Free University, Amsterdam): and Sam Moyo, SARIPS, April 26, 2000.
- [24] de Janvry, A., 1981. *The Agrarian Question and Reformism in Latin America*. Baltimore: The Johns Hopkins University Press.

- [25] de Janvry, A., Cordillo, G., Platteau, J., Sadoulets, E., 2001. Access to Land, Rural Poverty, and Public Action. Oxford University Press, Oxford.
- [26] de Janvry, A., Sadoulet, E., 1989. "A Study in Resistance to Institutional Change: The Lost Game of Latin American Land Reform." *World Development* 17 (9): 1397-407.
- [27] Department of Land Affairs. 1997. White paper on South African land policy. http://www.polity.org.za/polity/govdocs/white_papers/landwp.html (07 February 2013).
- [28] Dikgang, J., Muchapondwa, E., 2012. The valuation of biodiversity conservation by the South African Khomani San "bushmen" community. *Ecological Economics* 84: 7 – 14.
- [29] Elbourne, E. 2000. 'Race', Warfare, and Religion in Mid-Nineteenth-Century Southern Africa: The Khoikhoi Rebellion against the Cape Colony and Its Uses, 1850-58. *Journal of African Cultural Studies* 13 (1): 17-42.
- [30] Habib, A., 1989. Land Reforms and Their Effects. Case Studies, Centre for Applied Research. Working Paper No. 44. Department of Economics, University of Oslo.
- [31] Heckman, J., Ichimura, H., Todd, P., 1997a. Matching as an econometric evaluation estimator: evidence from evaluating a job training programme. *Review of Economic Studies* 64(4): 605–654.
- [32] Heckman, J., Ichimura, H., Todd, P., 1998b Matching as an econometric evaluation estimator. *Review of Economic Studies* 65(2): 261–294.
- [33] Hitchcock, R. K., Biesele, M., Lee, R.B. The San of Southern Africa: A Status Report, 2003.
- [34] Finan, F., Sadoulet, E., de Janvry, A., 2005. Measuring the Poverty Reduction Potential of Land in Rural Mexico. *Journal of Development Economics* 77: 27-51.
- [35] Grootaert, C., Ravi, K., Gi-taik, O., 1997. The Dynamic of Welfare Gains and Losses: An African Case Study. *Journal of Development Studies* 33 (5): 635–57.
- [36] Gunning, J.W., Hoddinott, J., Kinsey, B., Owens, T., 2000. Revisiting Forever Gained: Income Dynamics in the Resettlement Areas of Zimbabwe, 1983-96." *Journal of Development Studies* 36 (6): 131–54.
- [37] Jayne, T.S., Yamano, T., Weber, T., Tschirley, M.T., Benfica, D., Chapoto, R., Zulu, A., Neven, B.D., 2002. Small Holder Income and Land Distribution in Africa: Implications for Poverty Reduction Strategies. MSU International Development.

- [38] Jeon, Y. D., Kim, Y.Y. 2000. Land Reform, Income Redistribution, and Agricultural Production in Korea. *Economic Development and Cultural Change* 48 (2): 253-68.
- [39] Jones, C.A., Milkove, D., Paszkiewics, L., 2010. Farm Household Well-Being: Comparing Consumption- and Income-Based Measures. Economic Research Report No 91. KTPed States Department of Agriculture.
- [40] Kalahari Peoples Fund. 2009. The San Peoples. <http://www.kalaharipeoples.org/Download1.html>. (19 February 2009).
- [41] Kane, T. J., Rouse, C.E., 1995. Labor-market returns to two- and four-year college. *American Economic Review* 85 (3): 600–614.
- [42] Khomani San Project Report. <http://www.ruraldevelopment.gov.za/documents&publications/> (12 January 2010).
- [43] King, R., 1977. Land Reform: A World Survey. G. Bell and Sons: London.
- [44] Kleibergen, F., Paap, R., 2006. “Generalized reduced rank tests using the singular value decomposition.” *Journal of Econometrics* 133(1): 97–126.
- [45] Lahiff, E., 2007. Redistributive Land Reform and Poverty Reduction in South Africa. Working Paper for the Research Project on ‘Livelihoods after Land Reform’. Programme for Land and Agrarian Studies, University of the Western Cape.
- [46] Land Claims Commission. 2008. Land claims in South Africa. http://www.kruger_realestate.co.za/landclaims. (1 June 2009).
- [47] Leibbrandt, M., Finn, A., Argent, J., Woolard, I. 2010. Changes in Income Poverty over the Post-Apartheid Period: An Analysis Based on Data from the 1993 Project for Statistics on Living Standards and Development and the 2008 Base Wave of the National Income Dynamics Study. *Journal of Studies in Economics & Econometrics* 34(3): 25 - 43
- [48] López, R., Valdés, A., 2000a. “Fighting Rural Poverty in Latin America: New Evidence of the Effects of Education, Demographics, and Access to Land”. *Economic and Development and Cultural Change* 49(1): 197-211.
- [49] López, R., Valdés, A., Eds. 2000b. *Rural Poverty in Latin America*. New York: St. Martin’s Press.
- [50] Lovo, S., 2011. Analysing the welfare-improving potential of land in the former homelands of South Africa. Unpublished manuscript. Department of Economics, University of Sussex. UK.
- [51] Maddala, G.S., 1977. *Econometrics*. New York: McGraw-Hill.

- [52] Mallar, C.D., 1979. "Alternative econometric procedures for program evaluations: illustrations from an evaluation of jobs corps." 1979 proceedings of the business and economic statistics section, American Statistical Association. Washington DC: American Statistics Association, pp. 317 – 321.
- [53] Maluccio, J., 1998. Endogeneity of schooling in the wage function: Evidence from the rural Philippines. FCND discussion paper no. 54.
- [54] McCulloch, N., Baulch, B., 2000. Simulating the impact of policy upon chronic and transitory poverty in rural Pakistan. *Journal of Development Studies* 36 (6): 100–130.
- [55] Moene, K.O., 1992. Poverty and Landownership. *The American Economic Review* 82 (1): 52-64.
- [56] Nelson, G.C., 2002. Introduction to the special issue on spatial analysis for agricultural economists. *Agricultural Economics* 27: 197– 200.
- [57] Nelson, G.C., Geoghegan, J., 2002. Deforestation and land use change: sparse data environment. *Agricultural Economics* 27: 201– 216.
- [58] Newton-King, S. 1999. Masters and Servants on the Cape Eastern Frontier. Cambridge: Cambridge University Press.
- [59] Nogue, M., Siscart, M., 2005. Trade raises income: A precise and robust result. *Journal of International Economics* 65 (2): 447 -460.
- [60] Okun, A.M., 1975. Equality and Efficiency: The Big Tradeoff. Brookings Institution, Washington DC.
- [61] Ravallion, M., 1996. Issues in Measuring and Modeling Poverty. *Economic Journal* 106: 1328-1343.
- [62] Roux, T., 2006. Land Restitution and Reconciliation in South Africa. Cambridge: Cambridge UP.
- [63] Rubin, D.B., Thomas, N., 1996. Matching using estimated propensity scores: relating theory to practice. *Biometrics* 52(1): 249–264.
- [64] Rugege, S. 2004. Land Reform in South Africa: An overview. 32 Int'l J. Legal Info. 283.
- [65] SANParks. 2006. Developing a system for sustainable resource use by the Khomani San in Kgalagadi Transfrontier Park and environs: potential project themes. South African National Parks.
- [66] Scott, C.D., 2000. Mixed Fortunes: A Study of Poverty Mobility among Small Farm Households in Chile, 1968-86. *Journal of Development Studies* 36(6): 155 – 80.

- [67] Stock, J., Yugo, M., 2004. Testing for weak instruments in linear IV regression. Unpublished, Department of Economics, Harvard University.
- [68] Tatwabgire, A., Holden, S.T., 2011. Welfare effects of Market Friendly Land Reform in Uganda. Centre for Land Tenure Studies Working Paper 02/11.
- [69] Thondhlana, G., Vedeld, P., Shackleton, S., 2012. Natural resource use, income and dependence among San and Mier communities bordering Kgalagadi Transfrontier Park, southern Kalahari, South Africa. *International Journal of Sustainable Development & World Ecology* 19 (5): 460 – 470.
- [70] Thorner, D., 1976. Agrarian Prospect in India. New Delhi: Allied Publishers.
- [71] UNESCHR (United Nations Economic and Social Council on Human Rights), *Report of the Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people, Rodolfo Stavenhagen*, December 2005.
- [72] World Development Report. 2006. Equity and Development. Washington DC: The World Bank.

Table 1: Descriptive statistics of variables used in the analysis

	Khomani San - with Access to Land (n=100)		Khomani San – No Access to Land (n=100)	
Household size	4.85	(2.42)	4.03	(1.64)
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	8.28	(5.94)	12.69	(16.69)
Households where members have migrated (%)	36	(0.48)	21.21	(0.41)
Migrants who send remittances (%)	51.85	(50.92)	90	(30.78)
Employed household heads (%)	29	(0.46)	36.36	(0.48)
Social Grants (Rands/Per Month)	1002.57	(609.61)	1391.63	(1302.89)
Monthly Total Household Income (Rands)	3678.76	(9282.25)	3783.71	(4691.74)
Frequency Adult goes to Bed without Food (%)	20	(0.40)	11	(0.31)
Monthly Food expenditure (Rands)	761.60	(416.98)	747.86	(517)
Brick Structures (%)	44	(0.50)	34	(0.48)
Households with electricity (%)	22	(0.42)	49	(0.50)
Households with livestock (%)	56	(0.50)	11	(0.31)
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)
Number of poor people % – (Poverty line R515 per capita per month) ¹	67	(47.26)	36	(48.24)

Note: Any monetary KTPs shown in tables 1 are in South African Rands, 2011 prices. Standard deviations are reported in the parentheses.

¹ We created a poverty dummy variable showing whether a household is poor or not. The income threshold for poverty was obtained from Leibbrandt et al. (2010).

Table 2: Ordinary Least Squares estimates of the effect of proximity to Kgalagadi Transfrontier Park on use of restituted land²

OLS Model	
<i>Dependent Variable:</i> Use of restituted land	
Proximity to Kgalagadi Transfrontier Park	-0.005*** (-78.13)
Cons	1.344*** (79.10)
Sample size	200
Adjusted R ² / Pseudo R ²	0.956

t statistics in parentheses

legend: * p<0.1; ** p<0.05; *** p<0.01

Table 3: IV Probit estimates of the determinants of poverty and access to nature

<i>Dependent Variable:</i>	<i>Poverty Dummy - Model 1</i>	<i>Access to Nature - Model 2</i>
Marital status (1=Married)	0.843*** (2.93)	-0.058 (-0.22)
Household size	0.317*** (4.80)	0.113 (1.83)
Age of HH Head	-0.030*** (-3.23)	0.006 (0.74)
Whether HH Head is Male	-0.742** (-2.54)	0.053 (0.19)
Education attainment of HH Head	-0.054 (-1.67)	-0.009 (-0.32)
Migration by any member	0.191 (0.78)	-0.256 (-0.98)
Wage Income	-0.396 (-1.62)	0.322 (1.35)
Receive government grant	-0.425 (-1.39)	0.269 (0.92)
Go without food	0.229 (0.75)	0.245 (0.80)
Sell household possessions	0.164 (0.36)	-0.315 (-0.66)
Fetch-water (portable water)	0.277 (0.95)	-0.012 (-0.04)
Livestock production	-0.433 (-1.54)	0.727** (2.52)
Access to electricity	-0.516 (-1.91)	-0.640**(-2.34)
Own household goods	-0.924** (-2.55)	-0.771**(-2.03)
Use of restituted land	1.268*** (3.48)	1.281***(3.41)
Cons	1.066 (1.32)	-0.429 (-0.52)
Sample size	198	198
Pseudo	0.358	0.320

Note: Absolute value of t-statistics in parentheses.

legend: * p<0.1; ** p<0.05; *** p<0.01

² Proximity to the Kgalagadi Transfrontier Park is correlated with “use of restituted land” but not with “being poor”, hence we only use one instrument.