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Household Returns to Land Transfers in South Africa: A Q-squared analysis

by

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Abstract

The South African land reform programme has been widely criticised for its slow pace as well as its apparent lack of contribution to poverty reduction. However, there is little systematic evidence of the impact of land transfers on their beneficiaries due to data scarcity. This paper combines econometric evidence based on official household surveys with qualitative data collected specifically to triangulate and complement the econometric analysis.

The qualitative data analysis confirms the plausibility of the econometric finding that, on average, beneficiaries do not gain from participation, and suggests that the main reason for the disappointing impact of participation is the incompatibility of consultant-led land use plans to land grantees' skills.

Centre for Research in Economic Development and International Trade, University of Nottingham

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Christine Valente

Outline

The Authors: Dr Christine Valente, School of Economics, The University of Nottingham,
University Park, Nottingham, NG7 2RD, UK, +44 (0)1158466393,
christine.valente@nottingham.ac.uk

1.   Introduction

Much of the research carried out in the field of Development Economics is concerned with identifying causes of- and remedies for persistent poverty, either at the micro- or macroeconomic level. One of the most robust findings of the recent literature on poverty traps is that lack of productive assets plays a key role (*Journal of Development Studies* special issue 42(2), including South African evidence in Adato et al., 2006). Given the importance of agriculture in the livelihoods of the world's poor, the development of the literature on poverty traps has led to renewed interest for one of the most ubiquitous of development policies, namely land reform. But despite the recent waves of land reforms in South Africa, Brazil, Colombia and the Philippines, data availability remains a major constraint in estimating the welfare impact of land transfers at the household level.

Black South Africans experienced a long history of land deprivation, so that the economic and political case for land reform appeared particularly strong at the collapse of the *apartheid* regime (Lipton and Lipton, 1993; Binswanger and Deininger, 1993; Eastwood et al., 2006). An ambitious three tiers land reform policy was devised with the aim of redistributing 30 per cent of the country's agricultural land from white landowners to black people. The largest component, the so called land redistribution component, on which this paper focuses, enables black land grant applicants to buy land from white willing-sellers. But 14 years after the emergence of the 'new South Africa', less than 5 per cent of South Africa's land has been redistributed (Lahiff, 2007), as opposed to the initial overall target of redistributing 30 per cent of the country's agricultural land by 1999. Based on existing analyses, most of which are case studies, land redistribution does not seem to be improving the livelihoods of its beneficiaries. There is therefore a pressing need for a systematic evaluation of the impact of land redistribution in this country.

Combined quantitative and qualitative `Q-squared' studies are a growing phenomenon in Development Economics (Rao and Ibáñez, 2005; *Journal of Development Studies* special issue 42(2); *World Development* special issue 35(2)) which has developed in part, as before it Rapid Rural Appraisal techniques, as a result of the often severe data limitations faced by researchers in the discipline. Although the main motivation behind these studies is usually a willingness to understand complex phenomena such as poverty more in depth, and according to standards that resonate amongst the individuals concerned, lack of satisfactory survey data is arguably behind several of the reasons for 'squaring the Q' put forward by Kanbur and Shaffer (2007, pp. 183-184), such as `[interpret] counterintuitive findings from

household surveys', `probe motivations underlying observed behaviour', `suggest the direction of causality' and `assess the validity of quantitative results'. Indeed, if sufficiently detailed and reliable data existed for the purpose of a given study, then these, but not all, motivations for 'squaring the Q' would disappear.

This paper combines a quantitative analysis based on a national South African household survey, which allows identifying land grant recipients but does not contain any more detail regarding participation in land reform, and a qualitative analysis based on primary data collected specifically to triangulate and complement the quantitative investigation.[1] This study contributes to the literature on the impact of land transfers through a cost-benefit analysis of participation in South African land reform projects at the household level, and by investigating the correlates of participation gains using qualitative data. In addition, it contributes a methodological innovation to the emerging `Q-squared' (or quantitative ×qualitative) literature. More specifically, it exploits the cross-province heterogeneity of the econometrically estimated impact of participation to guide the case study sampling strategy, in order to improve the generalisability of the qualitative findings.

The rest of the paper is organised as follows. Section II reviews key features of the South African land reform and the existing evidence on the impact of the land redistribution programme on the livelihoods of its beneficiaries, Section III presents econometric evidence based on Statistics South Africa's Labour Force Survey and motivates the qualitative analysis, Section IV introduces the methodological approach used for the combined analysis, Sections V and VI present the qualitative findings, and Section VII concludes.

2. Specifications of the South African Land Reform Programme and Existing Evidence

Specificities of the South African Land Reform Programme

The South African context differs from a typical `land to the tiller' land reform on several grounds, including the lack of farming human capital among the targeted group (Cross et al., 1996; Bradstock, 2005).[2] Furthermore, often long distances separate the beneficiaries' current place of residence and the land of which they acquire ownership. Moreover, until at least May 2008, when the value of these grants was revised significantly upwards, beneficiaries had to pool their grants and acquire farms as an entity of anything up to several hundreds of households. Although commercial farms have evolved to be generally quite

large due to past agricultural policies, up to mid-2001, beneficiaries were given a grant of only R16,000 per household. Despite a policy change in 2001 giving birth to LRAD (Land Redistribution for Agricultural Development) and through which R20,000 or larger grants could be obtained when matched with own equity, pooling remained the rule over the period considered in this paper as most applicants brought no or very little financial contribution.[3] Finally, collective forms of ownership have been favoured by authorities, even under LRAD, and although it does not follow directly from this that land is operated by the beneficiaries as a group, business plans drawn by consultants as part of the land grant application process usually promote the use of the redistributed farms as a single, capital-intensive commercial entity, in line with the organisation of production under the previous owner (van den Brink et al., 2006).

Existing Evidence

As would be expected given the overwhelmingly negative record of agricultural collectives (Deininger, 1995), land transfers do not seem to be contributing to the livelihoods of a substantial share of the households involved. Only 8.1 per cent of the beneficiary households surveyed in Ahmed et al. (2003, p.189) report achieving a higher income and only 11.1 per cent achieving a more secure income as a consequence of participation in land redistribution. In his case studies of land reform projects in the Northern Cape, Bradstock (2005) finds that, while household incomes have increased during the period of observation (2001-2003), agricultural income from land redistribution is not the cause of this increase. In his study of communal land redistribution projects (Communal Property Associations) carried out between 1999 and 2001 in Limpopo, McCusker (2002, p.113) finds that `change in livelihoods as a result of land reform [is] minimal largely due to general disorganisation, farm size problems, lack of capital, lack of skills and labour, gender bias, and skewed age distribution'. More specifically, he reports that only 21.1 per cent feel that their income has increased, whereas 55.8 per cent of respondents say that their income has stayed the same, and, more worryingly, 23.1 per cent say that it has dropped (McCusker, 2002, p. 117). Deininger and May (2000) find that, for 84 per cent of land reform projects in their sample, the median gross annual revenue per beneficiary is slightly negative at -R9. The impression that benefits are generally small or non-existent is confirmed by van Zyl et al. (2001), Lodge (2003), Aliber (2003), Borras (2005), Walker (2005), and van den Brink et al. (2006).

However, there is a dearth of systematic evidence of the impact of participation and determinants of participation gains. In particular, no study documents the costs and benefits

of participation in land reform projects at the household level, and only one analysis offers indirect econometric estimates of the income effect of land redistribution at the household level, namely Valente (2009). Using Statistics South Africa's Labour Force Survey and General Household Survey, this previous study finds that beneficiary households are *more* food insecure than non-beneficiaries after controlling for a number of socio-economic, cultural, demographic, and regional characteristics. These results are obtained from propensity score matching and are thus robust to observed variable bias. However, as acknowledged in this previous study, data limitations imply that the robustness check proposed in Valente (2009) to test the sensitivity of these results to *unobserved* variable bias relies on distributional assumptions, and thus deserve further scrutiny. Here we confront these quantitative, survey-based, results to data obtained through more intensive data collection methods, and investigate correlates of participation outcomes.

3.   Quantitative Findings Based on Secondary Data

Data Description

The Labour Force Survey (LFS) has been conducted by Statistics South Africa every six months since February 2000.[4] This data is not specifically designed to analyse the impact of the land redistribution policy, which limits estimation possibilities. As a consequence of the cross-sectional nature of the data, it is not possible to estimate the impact of receiving a land grant by comparing beneficiary welfare before and after participation, which warrants attention to the usual estimation biases. In addition, since the issue of land redistribution is only peripheral in the LFS, one is confronted with several difficulties when trying to estimate the impact on welfare of benefiting from the land redistribution policy. Firstly, the sampling of observations is based on the population census and income strata and not on the number of beneficiaries per geographical unit or/and type of land acquisition scheme, so that the sample of beneficiaries in the LFS is not necessarily representative of the land grant beneficiary population. However, there is no reason why it should be regarded as non-randomly biased towards a certain type of beneficiaries (see Appendix A1 for further discussion). Moreover, there is no land-reform specific module, so that we do not have information regarding land use and characteristics, access to complementary factors and extension services, participation-related costs and benefits, or the date at which the land grant has been received. As a consequence, the data do not allow a close investigation of the different channels through which participation in land reform impacts on household welfare, so the LFS data analysis focuses instead on the global effect on food security status.

Nonetheless, the use of LFS data allows deriving useful insights on an important aspect of the welfare impact of land redistribution, namely food security. In four of the available waves (September 2001, 2002, 2003, and 2004), the survey questionnaire asks respondents whether they received `a land grant to obtain a plot of land for residence or for farming?', as well as `In the past 12 months, how often, if ever, did this household have problems satisfying their food needs? Never/Seldom/Sometimes/Often/Always'. From the latter, one can derive an indicator equal to one if the respondent reports problems in satisfying the household's food needs `sometimes' to `always', and zero otherwise. In the following, households are considered to be food insecure when this variable is equal to one. Households are counted as `beneficiaries', `participants', or `treated' if they report receiving a land grant.

The method used here is nearest neighbour propensity score matching (PSM). PSM involves estimating the probability for a household to receive a land grant as a function of a set of relevant characteristics, or `propensity score', and then matching treated and non-treated observations with comparable propensity scores to obtain the average difference in the food insecurity indicator between treated and control households, or `average treatment effect on the treated'. The main drawback is that these estimates can only be interpreted as the effect of receiving a land grant if, once the observed characteristics included in the propensity score are controlled for, there is no remaining unobserved variable bias (see Valente (2009) for further details).

Econometric Results

As could be expected from the nationwide, round-by-round, analysis in Valente (2009), estimates from the four pooled LFS rounds (2001-2004) indicate that, on average, participants in the land grant scheme are *more* food insecure than non-participants with similar socioeconomic, demographic, and cultural characteristics listed in the column headers of Table 1 and detailed in Appendix Table A2.

However, there are nine provinces in South Africa, and these vary substantially in terms of development levels, macroeconomic, geographical, and institutional characteristics. In particular, land reform implementation is largely decentralised, so that land reform practices and performance are likely to vary across provinces. This has been noted in Deininger and May (2000), and is apparent in other studies such as Ahmed et al. (2003).

When carrying out the PSM procedure separately for each province, it appears that regional variation in the correlation between land reform participation and household food insecurity is also visible in the LFS. In particular, it appears that the finding that land

reform beneficiaries are more food insecure than comparable non-beneficiaries is least robust for the province of Limpopo. Interestingly, Deininger and May (2000) also find that project incomes are highest in Limpopo (and the Western Cape – which does not show here). On the other hand, the quantitative finding that beneficiaries are at a food security disadvantage seems to hold systematically in other provinces, such as Mpumalanga (Limpopo's neighbour) where the correlation is of `average' magnitude and based on a comparatively large number of beneficiaries. It is interesting to remark that the figures reported in Deininger and May (2000) also indicate that project performance in Mpumalanga was close to the national average at that early stage of the reform.

As explained in Section IV below, this hierarchy is exploited to improve the generalisability of our case studies of land reform projects.

Table 1: Regional Variation in the Effect of Land Grants – Propensity Score Matching Estimates

Set of regressors entering the propensity score	(1) education dummies, whether female head, whether receiving benefits, whether single parent, household size, age of head and its square[a]	(2) All regressors in column (1) plus a set of ethnic dummies[a]	Number of beneficiaries in sub-sample
Dependent variable	Food insecurity	Food insecurity	
Western Cape	.120** (.050)	.030 (.055)	170
Eastern Cape	.044 (.031)	.049 (.039)	396
Northern Cape	.171*** (.054)	.152*** (.046)	211
Free State	0 (.12)	.053 (.11)	38
Kwazulu-Natal	.057 (.048)	0 (.049)	192
North West	.108** (.046)	.125*** (.042)	241
Gauteng	.073 (.050)	-.005 (.043)	215
Mpumalanga	.054* (.033)	.066** (.029)	688
Limpopo	-.0124 (.048)	-.031 (.049)	168
All	.038*** (.012)	.046*** (.016)	2,319[b]

Source: sample of households headed by a black individual in Statistics South Africa's Labour Force Survey. Provincial samples are obtained by stacking the four LFS surveys for which the relevant information is available, namely the September 2001, 2002, 2003 and 2004 rounds. Nearest neighbour matching algorithm by Leuven and Sianesi (2003). Bootstrapped standard errors (in brackets) partially correct for the fact that some observations may be sampled in more than one round, but cannot be identified between rounds. The balancing property is satisfied for all estimates. Namely, individual t-tests cannot reject the equality of means for beneficiaries and non-beneficiaries for each regressor included in the propensity score equation. [a]see Appendix Table A2 for further details. [b] of these 2,319 households, 2,279 could be matched. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

4. Qualitative Analysis: Methodological Approach

Sampling Strategy Based on Econometric Findings

As noted in the previous section, there is important inter-provincial variation in the estimated effect of receiving a land grant, with Limpopo showing the most encouraging results, contrary to neighbouring Mpumalanga, where we find that land grantees are significantly more food insecure than comparable non-grantees. In order to exploit this

provincial variation, we asked the `monitoring and evaluation' land reform official in Limpopo to draw a list of (six) land reform projects particularly successful and (six) particularly unsuccessful in `improving the economic situation of their members', from which we sampled three successful and two unsuccessful instances, after cross-checking their classification with project officers from the Provincial Land Reform Office (PLRO) and local officials from the Department of Agriculture (DoA).[5]

According to the DoA's extension officer interviewed in this province, out of the 32 group projects known to him and on which he felt it was not too early to make a judgement, only 6 were `showing a little light of development' rather than blatantly failing at the start of data collection, namely January 2007.[6] This suggests that successful projects, which constitute (purposefully) three out of five projects, are very probably over-sampled in our Limpopo sample. The three particularly successful projects can be seen as what is known in the social sciences literature as `critical cases' (Flyvbjerg, 2004), in the sense that, if even particularly successful projects in the best-performing province (Limpopo) are found not to improve the livelihoods of their beneficiaries, then it gives support to the idea that most beneficiaries in the country are not truly `benefiting' from participation. On the other hand, sampling two particularly unsuccessful projects in Limpopo helps identifying causes for success/failure holding constant common province-specific factors.

Four more projects were sampled, all in the Ehlanzeni district of Mpumalanga, for which we could obtain a list of all existing projects from the authorities. Whilst three were sampled randomly from the PLRO's listing, a fourth one was purposefully sampled (MP4). The decision to sample this additional project was motivated by the fact that, amongst the other three, there was an instance of a particular type of project which was likely to be quite different from the other types of redistribution projects, namely a labour tenant project (MP3). Such projects refer to a land transfer from the previous owner to households who used to live on this or another nearby farm under very insecure tenancy rights in exchange of their labour. An additional labour tenant project (MP4) was thus added to the sample to prevent misinterpretation of idiosyncratic characteristics of MP3 as general traits of labour tenant projects.

Details of the sampling of households to be interviewed within projects can be found in Appendix B1. Data collection took place in January 2007 in Limpopo and in February and March 2007 in Mpumalanga.

Instruments for Data Collection

The four core instruments used for the field work were: focus group discussions in each project (except LP5, a small family project which had disintegrated by the time of data collection), household interviews using structured questionnaires (two interviews per sampled household, times four to six households per project except LP5), interviews of the project leaders using semi-structured questionnaires, and interviews with key informants (project officers, other officials at the PLROs, extension officers, land rights NGO activists).[7]

Table 2: Key Characteristics of Sampled Projects

	LP1	LP2	LP3	LP4	LP5	MP1	MP2	MP3	MP4
Type of project	SLAG	SLAG	LRAD	LRAD	LRAD	SLAG	SLAG	Labour Tenant LRAD	Labour Tenant LRAD
Date of land transfer	1997	1998	2005	2003	2003	1997	1997	2004	2006
Formal beneficiaries[a]	398	126	97	30	9	26	200	33	38
Active beneficiaries[b]	110	46	8	6	1	10	20	33	38
Land area (hectares)	2240	1655	177	24	9	28	265	214	188
Activities:									
Collective livestock	√	√	√		√				
Collective crops	√	√	√	√		√	√		
Individual livestock	√							√	√
Individual crops	√					√		√	√
Functioning at the time of study:	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes
Province	Limpopo	Limpopo	Limpopo	Limpopo	Limpopo	Mpumalanga	Mpumalanga	Mpumalanga	Mpumalanga
Basis for sampling[c]	+	+	+	-	-	random	random	random	labour tenant

SLAG = Settlement and Land Acquisition Grant. LRAD = Land Redistribution for Agricultural Development. [a] Number of land grants, namely, for SLAG projects, number of beneficiary households and, for LRAD, number of individual beneficiaries. [b] at the time of data collection. [c] a `+' stands for `purposefully sampled as successful' and a `-' for `purposefully sampled as unsuccessful'.

5. Cost and Benefit Analysis

For brevity's sake, no narrative summary of the projects sampled is included in the body of the paper but an overview can be found in Appendix C. The main conclusion of the analysis detailed below can be summarised in a synthetic proposition:

A small number of beneficiaries experience, at some stage, net material benefits as a consequence of their participation in land redistribution projects. However, the majority of beneficiaries incur small net losses in terms of financial costs (transport, seeds and other small production costs, cash contributions to the farm's collective activity) which are reciprocated neither with monetary gains nor in kind. In addition, this phenomenon does not appear to be transitory.

To ease the reading of this analysis, the names of projects sampled purposefully as successful are in bold (**LP1**, **LP2**, **LP3**), those of projects sampled purposefully as unsuccessful are in italic (*LP5*, *LP4*), and those of labour tenants' projects underlined (MP3, MP4) from here onwards. A discussion of data quality and details of how non-trivial household variables mentioned in the analysis were built can be found in the Appendix (in Appendix B2 and Appendix Table B2, respectively).

Costs and Benefits of Participation at the Household Level

Except for the labour tenants projects (MP3 and MP4), gross gains in kind are directed only to the small number of beneficiaries who manage to use productively their *individual* plot (**LP1**, MP1), to those who participate in a collective activity involving a subset of project members and where part of the production is distributed between participants (20 beneficiaries out of 126 in **LP2** two years before data collection, and six in the previous year) or, in the case of *LP4* and *LP5,* to those who bend the rules to their advantage. Indeed, in *LP4* and *LP5,* one or two members in each project have managed to get a significant gain out of the enterprise by stealing money and/or assets. As for monetary gains, except in the case of **LP2** where dividends are now being distributed to all active members, money transfers are only received by the few beneficiaries who are employed fulltime by the project (two out of 398 in **LP1**, eight out of 97 members in **LP3**; three out of 200 households in MP2, in 1998 and 1999 only).

In total, if we exclude the two labour tenant projects, only a small proportion (between one or two person in MP1 and *LP5*, to just over a third in **LP2**) has received anything at all from the project, and benefits in kind or cash have only been received for a short period of time.

Gross benefits by project, as reported by the households interviewed individually, are summarised in columns (10) and (11) of Table 3. One may want to be cautious with the crop production reported by the two larger producers out of the five households interviewed in MP4, whose reported harvest seems rather unrealistic (over R40,000). Still, the average value of production for the three other households in this project is nearly R5,200 for the year preceding data collection (about US$745), so that excluding this outlier does not affect much the overall conclusion regarding benefits to participation in this project.

Benefits were thus only obtained by a few beneficiaries, and not throughout the whole life of the project, at least for non-labour tenants' projects. On the contrary, costs (for instance: time, labour, effort, telephone and transport costs, and other production costs) are borne by most beneficiaries and for longer periods of time.

Household-level data was collected about financial costs incurred (see Table 3), but no attempt was made at valuing the opportunity costs induced by participation in terms of labour and capital invested in the project both because financial costs are subject to less recall bias and because it is hard to find a reliable shadow price for these factors of production in the context of this study. The financial costs reported here should therefore be seen as a lower bound of the true economic costs entailed.

In total, *net* benefits appear positive for all the households surveyed within a given project only for **LP3** and MP3. On the other hand, all households interviewed in LP1, LP4, and MP1, and at least one household in **LP2**, MP4, and MP2 have experienced net losses so far. In addition, in *LP5*, the collapsed project in which household interviews could not be carried out and is thus not mentioned in Table 3, project members worked for no salary for two years and only the two corrupt leaders obtained any reward from participation. Within each project, net benefits are quite heterogeneous, which motivates the analysis of determinants of success and failure at the household level as well as the project level. Furthermore, these net benefits might convey an overly optimistic picture of the individual

gains in a given project as, despite our best efforts to contact members who have deserted the projects, we could, in nearly all cases, only interview members who are still involved, and who may well be those benefiting most from participation.

In all projects, a consequent number of people are reported to have left at an early post-transfer stage either very rapidly, as they realised that the objectives of the majority were not compatible with theirs (**LP2**, **LP1**), or, as most formal beneficiaries did, after a few years due to disappointing results. In both cases, it implies that non-negligible costs were incurred before any gains were obtained. The following extract summarises what was said in focus groups about project desertion.

`when [they] started, [they] were hoping they would take all [their] produce home, so everybody was active, but then people started withdrawing their participation because there was nothing being produced. [They] tell me: you are always talking about this farm that does not produce anything (…) You know, they always complain to say that they don't have money to buy manure, don't have money to buy seedlings, you see that's why they withdrew, because they were spending their money to plant as we said before, planting using their best efforts, but at the end of the day, the cattle would just come in and destroy everything, that's why they withdrew, because they were just losing everything' (A focus group participant at MP1).

Table 3: Costs and Benefits of Participation for Interviewed Households

	Costs						Costs			Gross Benefits		Net Benefits
	Total overheads since application						**Preceding 12 months**			**Preceding 12 months**	**Last 12 months of operation**[b]	
								contributions to collective activities				
Project	(1) Transport costs to move to project	(2) Commuting costs	(3) Start-up costs	(4) Application costs	(5) Other costs	(6) Total (1) to (5)	(7) Individual farming costs	(8) In cash	(9) In kind (except labour)	(10) Individual farming benefits	(11) Payments from project enterprise (cash + in kind)	**(12) Total net benefit per year**[c]
MP4 (6/5)[a]	0 (0-0)	0 (0-0)	1,850 (0-7000)	7,200 (0-19,200)	0 (0-0)	9,050 (0-26,200)	2,774 (0-6,995)	n/a	n/a	27,116 (2,840-75,421)	n/a	**24,361 (-2,866 to 73,238)**
LP3 (3/4)[a]	0 (0-0)	598 (300-1,450)	0 (0-0)	1,000 (0-4,000)	0 (0-0)	1,598 (300-5,450)	n/a	0 (0-0)	0 (0-0)	n/a	12,733 (10,000-18,000)	**12,226 (9,925 to 16,638)**
MP3 (6/5)[a]	625 (0-3,000)	0 (0-0)	660 (0-1,960)	1,587 (0-5,000)	0 (0-0)	2,872 (100-8,000)	968 (0-2,150)	n/a	n/a	11,546 (2,015-26,193)	n/a	**10,380 (874 to 24,580)**
LP2 (6/5)[a]	0 (0-0)	896 (0-5,376)	300 (0-1,800)	102 (0-400)	5 (0-30)	1,303 (0-7,206)	n/a	180 (0-300)	0 (0-0)	n/a	940 (0-2,800)	**671 (-7.8 to 2,491)**
MP2 (4)	0 (0-0)	1,080 (0-4,320)	0 (0-0)	50 (0-150)	50 (0-200)	1,180 (0-4,320)	n/a	0 (0-0)	0 (0-0)	n/a	225 (0-900)	**107 (-25 to 468)**
LP4 (4)	0 (0-0)	402 (0-648)	17 (0-60)	5 (0-20)	75 (0-150)	499 (80-656)	n/a	50 (0-200)	50 (0-200)	n/a	0 (0-0)	**-192.3 (-496 to -16)**
MP1 (4)	50 (0-200)	90 (0-360)	505 (0-1,250)	150 (0-600)	0 (0-0)	795 (0-2,050)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)	**-197 (-619 to 0)**
LP1 (5/4)[a]	0 (0-0)	1,651 (192-3,888)	1020 (0-3,700)	39 (0-105)	0 (0-0)	2,710 (1,042-5,228)	4,277 (0-18,400)	0 (0-0)	400 (0-1,800)	3,769 (0-12,945)	121 (0-295)	**-1,728 (-5,694 to -95)**

Each cell contains the relevant project mean, in Rand, with min-max values in parentheses. A category is `n/a' when no such activity is carried out on project land. Below project names is the number of households on which the figures are based. [a] the larger sample size applies to columns (1) to (6) and the smaller to the other columns because we were unable to carry out the second household interview with one of the project's household. [b]This corresponds to the 12 months preceding the interview for all projects except MP2, for which production stopped in 1999. [c] Define n = years since land grant application. Net benefits are obtained as follows: (12) = (10) + (11) − [(6)/n + (7) + (8) + (9)], where [(6)/n + (7) + (8) + (9)] is the average total yearly cost of participation.

Evolution of Benefits over Time

In all projects except the labour tenants', benefits, when they exist, are received for a short period of time only. This period of time sometimes comes after initially difficult years (**LP1**, **LP2**), but, at least as often, the project is only functioning for the first one or two year(s) as in MP2, *LP4,* and *LP5,* and stops subsequently. In addition, for *LP4* and *LP5*, only their corrupt leaders got any benefit from the functioning of the project. There is therefore no apparent reason to think that the lack of profitability of participation in land reform projects is only transitory and that higher gains should be expected in the longer run. This is in line with the econometric finding in Valente (2009) that the estimate of the participation effect based on the 2004 round of the LFS is no more encouraging than that based on the 2001 round.

Generalisability of Findings

In both the focus group discussions and the interviews with the project authorities, beneficiaries were not only asked about the economic impact of participation on their project's households, but also on the impact for households in other land redistribution projects that they know of. Beneficiaries in labour tenants' projects reported positive impressions of the economic impact of land transfers on their recipients. In all other projects, the image depicted was negative (`some are able to feed themselves and some are not. Members are generally dissatisfied economically' (informant in **LP2**)) to very negative (`Many of the people in these projects are unemployed, and they still have to pop out their own money out of their own pockets to run the projects, money which was supposed to feed their families, and at the end of the day, nothing comes and they are not reaping any benefits, so they end up losing interest and leave the projects' (informant in *LP4*)).

The overall negative impression of land reform beneficiaries on the economic impact of participation at large is confirmed by the perceptions of key informants. Out of seven key informants asked about the impact of participation on the economic situation of the beneficiaries, the two most positive answers were that things were difficult for beneficiaries at the beginning but that after some time, they `developed strategies' to obtain some benefits from the projects (informant at PLRO Limpopo) and that `generally what [they] can say is that in most of [their] projects, to be honest, you do find passive beneficiaries, where you'll find that though a project is bought for 10, only one or two are really benefiting economically' (informant at PLRO Mpumalanga). The other key informants to whom the question was put all suggested that most beneficiaries were actually made economically worse-off by participation.

Both the voices of the beneficiaries consulted and those of key informants suggest that the findings regarding net benefits from participation based on the nine projects sampled can be generalised to other projects. But the most important point in the exploration of the generalisability of these findings to projects outside the sample rests on the sampling strategy adopted.

Recall that Limpopo is the province in which the econometric finding that land grant recipients were more food insecure than non-beneficiaries is least robust, and for which mean revenue per beneficiary was highest in 1998/1999 according to Deininger and May (2000). In this 'best performing province', only a small minority of projects were judged to be bringing about some benefits to their participants according to the province's extension officer interviewed (6 out of 32 projects under his supervision). In the three purposefully sampled 'best performing projects in the best performing province', only a handful of beneficiaries appear to derive net gains from their participation, whilst a remaining majority of their formal beneficiaries, most of them having now deserted the projects, incur small to moderate losses. This suggests that, in the country at large, the average beneficiary is unlikely to derive any net financial benefit (in cash or kind) from participation.

In Mpumalanga, PSM estimates indicate that the food insecurity effect of receiving a land grant is robust and of roughly average magnitude, and mean revenue per beneficiary was closest to the national average in 1998/1999 according to figures in Deininger and May (2000). Three out of the four projects sampled in this province were sampled randomly from the pool of projects in the Ehlanzeni district. It is unclear whether this district has a higher or lower rate of success in land reform participation than the rest of the province, although interviews with key informants suggest that there is no noticeable difference. One important exception, however, is that there are fewer of the projects that seem most beneficial to their participants (namely, labour tenant projects) in this district compared to other districts in Mpumalanga. This potential bias is tackled by over-sampling these projects (so that they represent half of the Mpumalanga sample). In the two non-labour tenant projects, which were sampled randomly, only one of the eight households interviewed had positive net participation gains. Again, since labour tenant projects are only found in Mpumalanga and Kwazulu-Natal, these findings give support to the econometric result that the average beneficiary is not likely to be truly benefiting from participation in land redistribution projects.

6.   Causes of Failure and Success

Credit Constraints

Whilst Deininger and May (2000) find that the proportion of poor beneficiaries is higher in better projects, other studies suggest that benefits of project participation may be captured by an `élite' (Hall et al. 2003; Bradstock, 2005; Lebert and Rhode, 2007). One could think that many of the problems faced by land reform beneficiaries would be less widespread amongst better-off people, such as the lack of management skills, risk management, and of course, capital. On the other hand, the advantages of richer individuals regarding their access to complementary production factors, and to capital in particular, are not very likely to translate into more positive participation outcomes if they are involved in a project where there is no individual use of the land, as is the case in five out of the nine projects sampled (**LP2**, **LP3**, *LP5, LP4,* MP2), where the farm is used solely for production by the collective enterprise.

Better-off households may also incur higher costs from participation, as they are over-represented among project leaders. Indeed, data collected in households' structured interviews show a positive (but not significant) correlation between financial costs of participation and initial wealth when measured by the initial ownership of livestock, capital goods, and durable goods. But the correlation between initial wealth and gross or net gains is more ambiguous: there is a positive correlation between gains and initial livestock ownership, but negative correlations between gains and both capital and durable goods ownership (see Figures 1 and 2 and definitions in Appendix Table B2). In the case of livestock ownership, these correlations are all significant at the five per cent level, but driven by labour tenants (see Figure 1 below). For ownership of capital and durable goods, all correlations are insignificant at usual levels. It is thus unclear whether capital constraints at the household level play an important role in the individual benefits derived by project members. This is consistent with the finding in Valente (2009) of only limited evidence of wealth-dependent participation outcomes, as the effect of receiving a land grant does not appear to significantly vary with wealth, except for one out of the six datasets analysed in this previous paper.
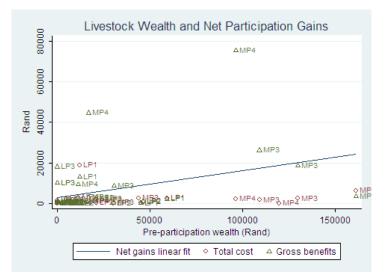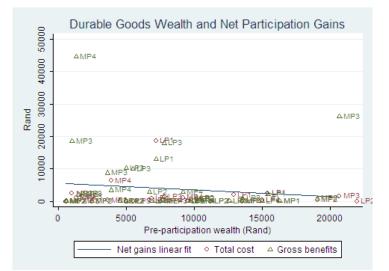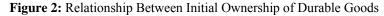
Figure 1: Relationship Between Initial Livestock Ownership and Costs
and Benefits of Participation

Source: Primary household data. Average yearly costs and benefits calculated as detailed in Table 3.

Figure 2: Relationship Between Initial Ownership of Durable Goods
and Costs and Benefits of Participation.

Source: Primary household data. Average yearly costs and benefits calculated as detailed in Table 3. The graph excludes one MP4 wealth outlier.

At the project level, the data collected does not point to capital constraints as an important cause of failure, although lack of funds was often mentioned by project members. In six of the nine projects visited (all except **LP2**, <u>MP3</u>, and *LP5*), the lack of funds/capital/money was mentioned as a hindrance to the success of the project. But suggesting that these projects lack working capital does not mean that with more capital they would necessarily bring about more benefits to their beneficiaries since other complementary factors are not present among beneficiaries, as discussed below, and embezzlement of project money is very common amongst project members (e.g., in *LP4, LP5,* **LP1**). Participants identified a

lack of capital in *all* projects, so that the mere existence of an identified lack of capital does not seem to discriminate comparatively successful from unsuccessful projects. In addition, (1) no project applied for a loan and did not obtain it, (2) the two projects that obtained a loan (*LP5*, MP2) are both virtually bankrupt, and (3) among the seven projects where no loan was applied for, the reasons invoked by project leaders for not having applied for a loan do not suggest credit rationing.[8] This echoes the findings of McCusker (2002, p.120), who argues that, despite an obvious lack of capital, `This is not to suggest that the government had never capitalised these farms. All the CPAs benefited from some sort of investment, however, in many cases the capital was either not maintained or had been destroyed in some way.'

Availability of (Experienced) Labour

We have seen in Section II that several authors have noted the lack of farming human capital among land reform beneficiaries in South Africa. At the household level, there is a positive correlation between family labour measured in adult-equivalent and gains from participation in labour tenant projects (40 per cent), as could be expected from the international literature on small family farms (see Kinsey and Binswanger, 1993). However, in the rest of the sample, where people do not live on project land and do not use family labour much, the correlation is strong too but in the opposite direction (-45 per cent).

In addition, amongst households who report having some previous farming experience (27 out of the 34 who answered this question), net gains are higher. The experienced group indeed received R6,285 on average, for a median of R0, whereas the inexperienced group received R5,144 on average for a median of –R16. The advantage of *relevant* farming experience seems much more discriminating however. The 24 households with an *experience in the techniques used in the project* received an average of R7,431 (median: R374) whereas the 10 households who did not have any farming experience or any experience with the particular techniques used received R2,735 on average for a median of -R60.

On the contrary, due to labour tenants both having no or little education and deriving the largest gains from participation, the correlation between net gains and educational attainment is negative (see Figure 3).
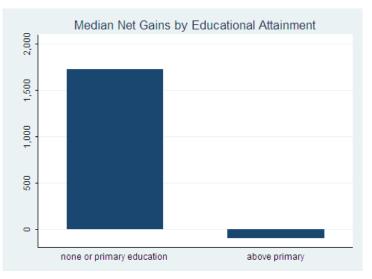
Figure 3: Median Net Gains by Educational Achievement of the Household Head

Source: Primary household data. Average yearly costs and benefits calculated as detailed in Table 3. `None or primary education' category is based on 19 households and `above primary' category on 15 households.

At the project level, the lack of relevant farming and managerial skills is striking in all projects except the labour tenants'.

Lack of farming skills is apparent in the case of **LP1** and **LP2**, where cattle were reported to have been lost to disease without the beneficiaries knowing how to treat them. In **LP3**, the chairperson reported that the chicken rearing activity was not being very productive, with the animals `dying in large numbers'. In MP2, members `were not aware that [the service providers] were putting in the wrong pipes, and [they] did not know there was something called chloride you had to put in the water to purify it', which subsequently created disastrous problems in their irrigation system.[9]

Managerial skills are also in short supply: in **LP2**, cattle sales were not based on the observation of market prices before a specific training was received six years after the start of operations, and a general lack of understanding of what is profitable seems prevalent, witness the remark of a focus group participant in **LP1** that `though we all have two Mogans,[10] […] others may yield more but without realising that they have also spent more. There is no monitoring, people do not weigh cost against the yields', statement confirmed by the figures obtained at the household level which show that all households interviewed in **LP1** have net losses from their individual agricultural activity on project land (see Table 3).

In all successful projects except the least successful within this group (**LP1**), leaders said that what they lacked most was money to invest in production, whereas leaders in all the

non-successful projects except MP1 said that what they lacked most was skills, which suggests a primacy of skills over capital in determining albeit moderate success.

Interestingly, in both **LP3** and **LP2**, success has come despite the *initial* lack of some necessary know-how (farming skills in **LP3** and marketing skills in **LP2**), which were partially compensated for by the regular support of an extension officer in **LP3** and by specific training by the Agricultural Research Council in **LP2**. Nevertheless, in the project where the initial level of farming skills was arguably highest (*LP5*, where at least two participants out of nine were qualified farmers), production was initially very satisfactory but did not allow most participants to reap any benefits due to corruption. It seems therefore possible to conclude that (1) the availability of farming and management skills suitable for the nature of project operations is a necessary condition for success, (2) some skills can be successfully acquired by adequate training and support, and (3) appropriate skills may not suffice to ensure gains for participants if corruption is allowed to take place.

Other Characteristics

In their early study of the performance of land reform projects, Deininger and May (2000) find that three main characteristics are associated with better performance at the *project* level, namely that beneficiaries are willing to make cash contributions towards the project, small project size and flexible management structures, and receiving a loan from a third party.

Our case study data does not confirm these findings. In our sample, households reported making cash contributions towards the collective activity only in two projects out of six with a collective activity, one successful (**LP2**) and one unsuccessful (*LP4*). Furthermore, the correlation between total costs of participation and neither gross nor net benefits is significantly different from zero at the household level.[11] Following Deininger and May's recommendations, one of the main motivations behind the shift from SLAG to LRAD was to create smaller groups of beneficiaries. However, the present study shows that, despite the existence of coordination problems due to beneficiaries accessing land as a group, smaller size is by no means a guarantee of success. Only one of the not-successful projects sampled (MP2) comprises more than 30 households (a small size for South African projects standards), and the main reason for the failure of this project is not related to coordination problems, conflict, or other ills associated with its large size (200 households). The most shocking case of corruption,[12] which led to project collapse, was found in the smallest project (*LP5*, with nine members), and the two next smallest projects (MP1 with 26 members and *LP4* with 30) are not successful either. As to the role of loans, the only two

projects in our sample that (applied for and) obtained a loan (*LP5*, MP2) are the two projects who have collapsed.

When land is accessed as a group, experience shows that the members of the group need to have a common background in order to limit conflict (Oberai, 1988). Some degree of conflict was observed in all projects except the labour tenants'. Somewhat surprisingly, in the projects surveyed, coming from the same village or even from the same family is no guarantee for a conflict-free project. But communities with a long history of land-related hardships in common (MP3, MP4, MP2) experience much less conflict.

The very negative international experience with collective production would lead us to expect collective projects to perform less well. All redistributed farms in the sample are collectively owned by the beneficiary group. And except for the two labour tenant projects, all the farms sampled are mainly collective enterprises, which limits the potential to draw comparisons informing the role played by the collective approach to production and, a fortiori, to ownership. Although *some* of the collective enterprises are classified as successful (**LP1**, **LP2**, **LP3**), both projects based on individual production appear to bring about gains for their beneficiaries (MP3, MP4). In addition, whilst collective enterprises benefit at best only a handful of formal beneficiaries, the two individual small-scale farmer projects benefit most of their members. However, individual farming is not a sufficient condition for positive returns to land transfers: in the two projects mixing collective and individual farming, namely MP1 and **LP1**, neither the collective activity nor individual farming brought about any net benefits to the project members in the 12 months preceding the interview.

One issue commonly raised by commentators of land reform in South Africa and other recent land reform episodes is the lack of government support once the land has been transferred (Deininger, 1999; Cliffe, 2000; Human Sciences Research Council (HSRC), 2003; Borras, 2005). In the projects surveyed, the provision of extension services is indeed low (only 15 out of 37 households reported more than one extension officer visit per year). This is not surprising as one extension officer interviewed in Limpopo was in charge of just under 50 projects, up to 140 kilometres away from each other (including **LP2,** *LP5*, *LP4* and **LP1**). However, in projects where beneficiaries have been in control of the way land is used (namely, the labour tenant projects), the absence of extension services does not prevent land grantees from deriving net farming gains. Elsewhere, the main problem

appears to be that the business plans defining projects' productive structures have proved particularly unrealistic in the face of the beneficiaries' skills.

In MP1, for instance, the business plan reckoned on the implementation of eight `small group production under larger group ownership' units: `farming of tree crops and perennial crops under irrigation and vegetables; chicken, goat feedlot, muscuvy ducks; fresh produce packing, marketing and sale; general trading store; milling and packing operation; bakery; pleasure resort (restaurant, conference facility, tuck shop, picnic/braai); cultural village and craft/curio shop.' (Scott, 1995, p.3). The business plan acknowledged that `the youth [were] virtually the only people possessing any degree or educational background' and that training would be necessary to get the operations started (p.2). But the cash flow budget presented in the business plan (p.40) assumes that all operations will be functioning by month four.

Finally, previous case studies have suggested that the distance between place of residence and redistributed farms is an important barrier to project success (HSRC, 2003; Wegerif, 2004; Bradstock, 2005). For the households sampled in this study, distances varied between zero (for labour tenants) and 50 km. Although distance certainly is a hindrance, and a negative correlation is observed between distance to project land and net benefits from participation (see Figure 4), this correlation is driven by labour tenants and is not statistically significant.[13]
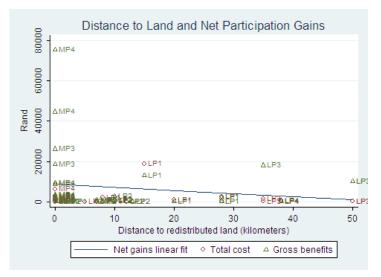

Figure 4: Relationship Between Distance to Project Land
and Costs and Benefits of Participation

Source: Primary household data. Average yearly costs and benefits calculated as detailed in Table 3.

7.   Conclusion

Econometric evidence based on a national (Labour Force) survey confirms the negative impressions of commentators on the impact of the South African land reform programme on its beneficiaries, since it indicates that beneficiaries tend to be *more* food insecure compared to non-beneficiaries with similar observed characteristics. But lack of adequate data limits the opportunities for testing the robustness of these results to unobserved variable bias and prevents the investigation of the mechanisms at work. This paper combines this quantitative analysis with a qualitative study of primary data specifically collected to triangulate and complement the econometric analysis.

One significant contribution of this study is to the emerging Q-squared literature, through the use of survey-based quantitative results to guide case-study data collection and thus improve the generalisability of the qualitative analysis. Although it is fairly common for researchers to collect data in different settings defined by characteristics expected to matter ex ante (for instance, to obtain a mix of agro-ecological zones or socio-economic characteristics), there is a general case to be made about using results from albeit incomplete observational data to target further data collection, be it for the purpose of case studies or for selecting sites to carry out randomised experiments.[14]

The paper's other main contribution to the literature is through the documentation of financial costs and benefits of participation in land redistribution at the household level and a qualitative investigation of their correlates, in South Africa. The qualitative analysis indicates that participation in the land redistribution projects sampled here has brought about comparatively large net gains for labour tenants, and moderate net benefits for beneficiaries among the minority still involved in comparatively successful projects. But for the remaining majority of beneficiaries, small to moderate net losses are registered. As a consequence of the sampling strategy adopted, and consistent with the views expressed by the beneficiaries themselves and key informants, this conclusion is unlikely to be overly pessimistic if generalised to other land redistribution projects. Therefore, the qualitative analysis corroborates the econometric finding that the average land grantee is not made better-off by land transfers.

The analysis of potential correlates of participation outcomes suggests that the binding constraint in most projects is lack of skills *in line with the project operations* rather than lack of capital. It also suggests that groups with a common history of land deprivation are

less prone to conflict, whereas group size and kinship do not appear to matter. Collective enterprises prove less likely to succeed than projects focusing on individual farming, but individual farmers in projects exhibiting a mix of individual and collective production do not achieve net gains either, so that individual farming per se may not be the panacea. Another factor often cited as preventing land reform beneficiaries from using redistributed land, namely distance to project land, is negatively correlated with net benefits from participation, but the pattern disappears when we exclude labour tenants, who live on the land transferred.

The analysis of determinants of successful participation points at several policy recommendations to improve participation outcomes, namely (1) targeting households with relevant farming experience, and a common history of land deprivation; (2) improving extension services delivery; (3) avoiding collective project structures and, when such structures are in place, introducing random audits to prevent corruption; and, most importantly, (4) adapting land use plans to skill availability in order to limit the reliance on training (which may not be delivered on time) and reduce project dependence vis-à-vis government support.

Such an evolutionist approach would be in contrast with the more transformationist take on land reform implemented so far in South Africa, where implementers' preferences for a certain type of commercial agriculture have prevailed over the needs of beneficiaries.

Three caveats should be emphasised here. First, it is important to note that, if the programme was altered to align farming models with beneficiaries' skills, for instance by favouring independent small-scale family farming, then the capital constraint may become binding. If we limit the analysis to labour tenant projects, where land is operated on a family basis, participation gains are found to be more robustly correlated with initial wealth than in other projects, suggesting that the absence of strong capital constraints may not hold in family farm projects. Second, official assessments of land quality were not accessible for most projects, and the study's financial constraints prevented obtaining an independent technical assessment. The question of whether land channelled through land reform is of below-average potential is an interesting one, and there is evidence that transactions outside the land reform programme involve better quality land (Lyne and Ferrer, 2006). A desirable avenue for future research would thus be to consider rigorously the impact of land quality and access to water on project performance. The third and more general caveat is that the policy recommendations put forward here are based on the analysis of the impact of land

transfers from the point of view of beneficiary households, and not from a social welfare standpoint. This study makes clear that, even in comparatively successful projects, where some benefits accrue to participants, returns can be quite low. This opens the important questions, which are beyond the scope of the present analysis, of the economic desirability and political feasibility of land redistribution in its current form. The policy recommendations drawn from the present analysis at least suggest that individual returns to land transfers could be improved at comparatively low cost. But irrespective of the cost-effectiveness of land reform in a narrow accounting sense, the threat of political instability and reduced long-term economic prosperity that could follow from failure to reform should continue to loom large over the debate surrounding land redistribution in South Africa in the foreseeable future.

Online Appendix

A- Labour Force Survey Data

A1- Further Discussion of LFS Data

In the LFS, a majority of land grantees are observed in urban areas, especially in the 2002 and 2003 rounds (the share of urban land grantees is 59% in 2001, 84% in 2002 and 87% in 2003). There is no rural/urban information in the 2004 wave.

Several factors may explain these striking figures. First, a significant number of beneficiaries may have accessed land through the land redistribution programme whilst living in a town or city. The scope of the land redistribution programme has been wide-ranging, as it was set up with the aim to "include the urban and rural very poor, labour tenants, farm workers as well as new entrants to agriculture" (Department of Land Affairs, 1997). There are no published statistics about the urban/rural classification of beneficiaries of land redistribution in South Africa, so that there is only limited scope to formally compare the actual urban proportion of beneficiaries and that of the beneficiaries in the LFS datasets. However, the Department of Land Affairs itself has expressed concerns that many land reform beneficiaries were urban dwellers who did not till the land transferred to them (Arenstein, 1999; Lodge, 2003, p.78). This is supported by a recent unpublished review commissioned by the DLA, which effectively consisted of a census of all redistribution projects that had been delivered from 2001-2006. The study found that "Of all projects surveyed, in 43% of projects beneficiaries originated from urban/peri-urban areas" (Umhlaba Rural Services, 2008, p. 58). The discrepancy between these project-level figures and the household-level LFS figures may be due to projects involving urban beneficiaries being larger than average, or, as suggested by an anonymous referee, could relate to the fact that the Review interviewed not all beneficiaries, but largely those who were still around, who are likely disproportionately rural.

Second, in the context of South Africa, where circular migration between urban and rural areas is widespread (see Statistics South Africa, 2006), it may be the case that a number of these apparent urban beneficiaries are in fact members of a multiple-home household with another home in a rural area. Indeed, a common household structure in South Africa is that of the "multilocal" household, i.e. a situation in which the "household is spatially divided into different components across two or more places for members to utilise the benefits of the different places, while staying linked as a household" (Statistics South Africa, 2006, p.23). Third, it is possible that a number of these apparently urban land grantees are people who have come to urban areas *after* receiving land in rural areas. Although data limitations

prevent checking this hypothesis, this could account for a large number of "urban beneficiaries" given the high levels of project abandonment (at least 60 per cent in the non-land-tenant projects surveyed for this paper), and multiple accounts of beneficiaries having left to go find jobs in towns and cities heard during primary data collection.

Importantly, propensity score matching estimates (for South Africa as a whole) suggest that the conclusions of the quantitative analysis are not led by the urban sample (see Appendix Table A1 below). Unfortunately, it is not possible to restrict the provincial regressions of the paper's Table 1 to rural beneficiaries because this would lead to very small provincial samples for most provinces, especially since this renders all LFS 2004 observations, i.e., a third of observations of land grantees, unusable (since there is no rural/urban data for this round).

Appendix Table A1. Propensity Score Matching Estimates for Different Sub-samples

Set of regressors entering the propensity score	(1) education dummies, whether female head, whether receiving benefits, whether single parent, household size, age of head and its square	(2) All regressors in column (1) plus a set of ethnic dummies	Number of beneficiaries in sub-sample (matched)
Dependent variable	Food insecurity	Food insecurity	
Sample: All 2001-2004	.038*** (.012)	.046*** (.016)	2,319 (2,279)
Sample: All 2001-2003[a]	.086*** (.015)	.046** (.018)	1,536 (1,504)
Sample: Rural 2001-2003[a]	.103*** (.029)	.106*** (.036)	398 (387)

Source: sample of households headed by a black individual in Statistics South Africa's Labour Force Survey. Provincial samples are obtained by stacking the four LFS surveys for which the relevant information is available, namely the September 2001, 2002, 2003 and 2004 rounds. Nearest neighbour matching algorithm by Leuven and Sianesi (2003). Bootstrapped standard errors (in brackets) partially correct for the fact that some observations may be sampled in more than one round, but cannot be identified between rounds. The balancing property is satisfied for all estimates. Namely, individual t-tests cannot reject the equality of means for beneficiaries and non-beneficiaries for each regressor included in the propensity score equation. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.[a]There is no rural/urban information in the September 2004 wave.

A2- Description of Variables

Appendix Table A2: Details of Variables Used in the Quantitative Analysis

Variable	Details
Education dummies	Set of 4 dummy variables controlling for the educational level of the household head: primary, lower secondary, senior secondary, and higher (the omitted category is `no schooling').
Benefits	Equals one if the household receives any of the following welfare grants, and zero otherwise: old age or disability pension, child support grant, care dependency grant, foster care grant, grant in aid, social relief. Eligibility for welfare grants is not linked to receiving a land grant or not.
Ethnic Dummies	Set of dummies controlling for the main language spoken at home: Debele, Xhosa, Zulu, Sotho, Sepedi, Tswana, Siswati, Tsonga, English.

B- Case Study Data

B1- Sampling of Households within Projects

The sampling of households to be interviewed individually within each project follows the same general principle: purposeful sampling was preferred when there was a clear argument in favour of it (for instance, in the case of MP2, only three out of the 200 formal beneficiaries had been employed on a full-time basis on the project, and so we purposefully sampled one of these three beneficiaries), and 'random' sampling was opted for otherwise. The word 'random' is put in inverted commas because the high rate of project desertion, migration, and the lack of homogeneity in project communities did not allow a strict random sampling of households within projects. In practice, the sampling of up to (depending on project size) 30 participants in each official project member list was performed randomly using Excel©. Fieldworkers would then ask, at the end of focus group discussions between project beneficiaries, following the order of the random draw, if focus group participants knew who the land grant beneficiary was, and where/how they could be contacted. It became clear from the piloting stage that a large proportion of formal beneficiaries were unknown from focus group participants and/or had moved far away (Johannesburg in many cases), and/or were not on civil terms with other project members so that, in some extreme cases such as that of LP1, five randomly picked beneficiaries had to be called for each identifiable household subsequently interviewed.

B2- Reliability of the Primary Data

The main approach adopted to check the reliability of the household data has been to triangulate these internally. This was done in two ways: first, we checked the internal

coherence of the information provided by each household; second, we checked the information obtained in the household questionnaires against the information obtained outside household interviews, i.e., during focus group discussions with beneficiaries, interviews with officials involved in the project, and structured interviews with project leaders.

Only two inconsistencies of notable degree were observed. These were in terms of participation costs in the labour tenant projects and in *LP4*. More specifically, the application costs reported by some labour tenants (and especially one of the `outliers' already mentioned in the paper p.13) were well above those suggested by the projects' representatives. It is unclear which source is more accurate, the labour tenants interviewed using the household questionnaires, or their projects' representatives. However, the conclusions of the case studies would not be significantly altered if we assumed the projects' authorities were correct, in the sense that the error in using the higher costs reported by the households would be to underestimate net benefits, and the study already concludes that labour tenants in our sample experience large participation gains. Conversely, in *LP4*, the chairperson reported twice as large household cash contributions than households did. But if the chairperson were right, then it would only reinforce the conclusion, based on household data, that participants in *LP4* have experienced moderate losses.

There are no comparable external data on individual costs and benefits of participation. However, some of the data collected can be checked against a relevant external source, namely the Quality of Life Surveys (QoLS) commissioned by the Department of Land Affairs. Four of these surveys have been commissioned, but only two (1998/1999 and 2001) have been circulated, and which interviewed two different random samples of beneficiaries. This leaves two surveys with which to compare some of our case studies data. Indeed, similar to these surveys, we have collected data on expenditure, livestock ownership, ownership of agricultural equipment, and household durable goods. Expenditure data can be deflated using Statistics South Africa CPI index, but count data for ownership of various goods cannot, which should be borne in mind when comparing figures between the QoLS (1999 and 2000) with the data collected in 2007 for our study.

As can be seen in the first row of Appendix Table B1 below, mean household expenditure for beneficiaries surveyed for the 2001 QoLS in Limpopo (R673) and Mpumalanga (R894) is quite similar to the deflated average expenditure reported by households in our 2007 survey (R747).

Livestock ownership varies a lot between the two QoLS, going from 39 per cent to 24 per cent on average. This illustrates the limits of comparing characteristics of different samples of land reform beneficiaries, given their heterogeneity. In our sample, the per centage of households who own livestock is 56 per cent for the whole sample, but falls to 37 per cent when excluding labour tenants, which illustrates once more the heterogeneity of beneficiaries. It is difficult to interpret the differences across ours and the QoLS samples, but it does not seem to indicate any `problem' with the case studies data.

Similarly, ownership of agricultural equipment is higher in our case studies sample, but is consistent with the QoLS figures (notably in view of the increase observed between 1998/99 and 2001).

Finally, ownership of household durable goods is also broadly in line between the QoLS and our case studies data.

Appendix Table B1: Comparison of primary data with Quality of Life Surveys

	Quality of Life Surveys				Primary Data		
	1998/99		2001		1999[a]	2001[a]	2007
	All-South Africa	MP	LP	All-South Africa			
Household Expenditure	926	894	673	1007	647[b]	747[b]	
Livestock ownership (excluding poultry)	39 %	26 %	23 %	24 %			56 % (37 % excluding labour tenants)
Ownership of agricultural equipment	64 %	68 %	87 %	73 %			90 %
Household durable goods							
Furniture				96 %			100 %
Appliances	`similar			88 %			77 %
TV/VCR/Radio	across	Not	Not	75 %			90 %
Gold/watch/jewellery	the two	available	available	37 %			23 %
Car/motorcycle	studies'			26 %			33 %
Bicycle				22 %			28 %

Quality of Life Surveys figures as reported by Ahmed et al. (2003) pp.224-227 and Tables 6.5, 6.9 and 6.13. Unless specified otherwise, values are in Rand. [a] deflated by Statistics South Africa CPI index. [b]Excluding one outlier reporting a monthly household expenditure of R44,500 (the next largest value reported is R6,500).

B3 – Description of Variables

Appendix Table B2: Details of Variables Used in the Qualitative Analysis

Livestock, physical capital, and durable goods:

Livestock categories in the household questionnaire: cattle, sheep/goats/pigs, poultry, horse/donkey, other.

Physical capital categories in the household questionnaire: motor vehicle including cars and bakkies (not tractors), motorcycle, bicycle, plough, tractor, animal cart, hand tools for farming, hand tools for off-farm activities, other.

Durable goods categories in the household questionnaire: furniture, household appliances, TV/VCR/Radio, telephone, jewellery/watches/gold items.
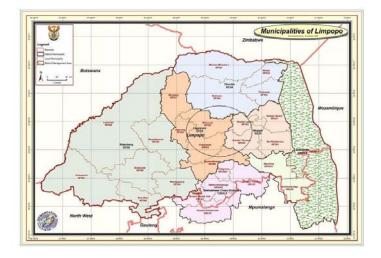
Value: as valued by the household (at replacement value) when such information is not missing in the household questionnaires. Otherwise, reported items are valued at the average value reported by respondents for similar items.

Value of agricultural production:

Crops: the value of crop output is calculated as the quantity of crops harvested in the past 12 months minus crops given to pay for hired labour or for rent, priced at the national average retail prices for these crops according to data from the Department of Agriculture, corrected for inflation (using Statistics South Africa Consumer Price Index data). The crops are not valued according to the information collected from households as the unit price variations from one household to the other are unreasonably wide.

Livestock: for animals other than cattle, livestock output is valued as the sum of the number of each type of animal sold or slaughtered minus animals bought in the past 12 months, times the average unit sale price reported by the households interviewed. For cattle, the annual produce was computed as the value of cattle sold plus the value of cattle slaughtered. The value of cattle bought was not imputed due to the particular role of cattle ownership in the communities visited (e.g., store of wealth).

C- Overview of Sampled Projects

Figure 1: Map of Limpopo

Source: www.srsa.gov.za. The circled area indicates where the sampled projects are located.

Data collection in Limpopo took place in January 2007. The three projects purposefully sampled as successful in Limpopo were LP1, LP2, and LP3. At the end of 1997, a group of 398 household constituted as LP1 CPA[1] acquired a 2,240 ha farm situated in the Capricorn municipality about 20 km West of the provincial capital Polokwane. The beneficiaries came from various villages up to around 30 km away from the farm. Both the initial project leaders and the Provincial Land Reform Office (PLRO) official first in charge of the project have changed, so that few details of the genesis of the project emerged during data collection. The main activity on the farm has been a collective cattle operation. This cattle operation started in 1997, and, in 2006, the cattle activity's turnover has reached R41,000. However, in that year, the largest activity in terms of sales was maize (R42,000), which has been produced collectively since 2005. The other source of income for the project comes from renting out grazing land (for a total of R24,000 in 2006). In the two years preceding data collection, chicken rearing has been organised by two beneficiaries and part of the farm land has been divided equally between all project participants, so that just over 2 ha of land have been allocated to each beneficiary. Organisational and production difficulties have so far prevented the distribution of any profits between beneficiaries, since expenses have systematically exceeded income. Nevertheless, LP1 has consistently been viewed in a positive light in comparison to other land reform projects, by both key informants and a researcher who visited the project in 1999-2000 (McCusker, 2002). But only the two farm

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[1] Communal Property Association.

workers involved in chicken production and some beneficiaries who sell part of their production from their private plot receive any financial reward from participation, and benefits in kind are limited to the possibility of renting the farm tractor at a discounted rate, certain free seeds, a piece of meat once a year when one animal is slaughtered, and if the annual maize harvest is good, one bag of maize meal. Members who are still active meet monthly, whereas the executive committee members meet every fortnight. About 100 members are still involved according to project members, although we counted less than 50 people present at the meeting we attended. Besides attending these meetings, the reality of participation varies across project members from being present at the farm several times a week to ensure the functioning of the collective cattle and maize operations (for a few committed members only), contributing occasional labour and small amounts of money for the communal enterprise, and/or farming one's individual plot.

The second Limpopo project purposefully sampled as successful is LP2. In 1998, this CPA of 126 households acquired a farm of 1,655 ha in the Capricorn municipality, about 45 km East of Polokwane. The land transfer was initiated by the former landowner, who contacted the authorities and suggested that they would buy his farm to meet the needs of nearby villagers who would occasionally approach him to rent grazing land. Ultimately however, the group was formed by households from villages up to 15 km away from the farm, under a business plan in which land use was restricted to a collective livestock enterprise, and forbidding the grazing of livestock owned individually by beneficiary households. The collective cattle enterprise started in 1999 and was still running at the time of data collection, but a piggery had to be shut down due to the poor standards to which the pigs were being maintained. The cattle enterprise had a turnover of R146,419 in 2006. The other source of income for the project as a whole comes from the renting out of the project's tractor and truck (about R30,000 in 2006). In the two years preceding data collection, a small number among the 46 beneficiaries who remain active have been carrying out group crop production. 20 people were involved in this crop operation in 2005, but only 6 in 2006, as the others have been discouraged by the destruction of crops by wild animals in the previous year. In 2006, the beneficiaries involved in crop production obtained 6 bags of 80 kg of maize meal each. Most participants in LP2 have contributed R20 per month since 1999 towards the collective livestock enterprise, and dividends started to be distributed in 2004. Until then, only the two fulltime farm workers received any income in cash or kind from the project.

The third Limpopo project sampled purposefully as successful is LP3. This LRAD project was initiated in 2002, and after three years of efforts by the group's leaders, the 177 ha

farm was finally transferred. It is situated in the Mopani municipality, about 20 km East of Tzaneen. The beneficiary group was initially composed by 97 individuals, most of them from the same village 35 km away from the farm, along with some of the 10 farm workers employed by the previous landowner. Contrary to the two previous projects, for which beneficiaries have not relocated to the farm, the eight beneficiaries currently still involved in the farm stay in the farm and only go back home at the weekend. They receive monthly salaries between R800 and R3,000 according to their role. The two significant activities taking place on the farm are chicken production (R175,000 turnover in 2006) and mango production (turnover in 2006: R40,000).

The last two projects sampled in Limpopo were purposefully sampled as unsuccessful (LP4 and LP5), and happened to be both situated in the Capricorn municipality. The 30 LRAD beneficiaries of LP4 live in a township about 35 km East of Polokwane, and applied for grants to buy a 24 ha farm some 20 km West of the provincial capital in 2002. Difficulties were noted at an early stage (e.g., by Wegerif, 2004), and the history of the project has been scarred with social conflict. In 2005, maize was collectively ploughed by most beneficiaries, but the profits from the sales disappeared in the hands of the chairperson, along with some of the farm's assets. The PLRO has attempted to revive the project, and despite several beneficiaries having lost interest in the project due to their initial predicament, six beneficiaries remain committed to the farm and have ploughed again in December 2006 at their own costs (including that of hired labourers).

The second unsuccessful project purposefully sampled in Limpopo is an LRAD project of nine relatives (LP5), who obtained a chicken operation of nine hectares in 2003. The farm was up and running, and seemingly quite successful for two years, and the seven beneficiaries who worked in the farm on a daily basis accepted the delay in payment presented by the chairperson as a necessary step towards healthy project finances. However, the chairperson and treasurer eventually disappeared with the project profits. At the time of data collection, one beneficiary was attempting to revive the project. But due to the circumstances, no focus group discussion or household interviews were attempted. The information regarding this project is based on an in-depth interview with the beneficiary who is still active and interviews with officials who have worked with this project.

Figure 2: Map of Mpumalanga

Source: www.srsa.gov.za. The circled area indicates where the sampled projects are located.

Data collection in Mpumalanga took place in February/March 2007. In this province, three projects were sampled randomly: MP1, MP2, and MP3. To compensate for the likely under-sampling of labour tenant projects and for replication purposes, a second labour tenant project was purposefully sampled (MP4).

MP1 is a project of 26 households (initially), who were encouraged by the former landowner to apply for grants in order to acquire part of his farm in 1994. Their 28 ha farm portion is situated in the Mbombela municipality, about 30 km North of Nelspruit. The adjacent portion was redistributed to another land redistribution project. On MP1's portion, the ambitious plan drawn by the consultant appointed by the PLRO was to operate both agricultural and non-agricultural commercial activities (see paper p.29). In the first year after land was transferred, some collective crop production was carried out by the beneficiaries but the quantities harvested were minimal due to the constant intrusion of thieves and animals. Since this disappointing first harvest, and except for the use of a farm building by the chairperson for a private non-agricultural business, the only use of the land has been individual subsistence farming (with land plots being allocated by the chairperson, who also is the wife of the traditional chief). The beneficiaries of the project live in different villages anything between 500 meters to about 10 km away from the farm. Crops have been harvested by a number of participants in some years, but participants continually face difficulties in harvesting the produce of their efforts, as crops are reported to have been stolen, eaten by animals, and not having been harvested due to drought.

The MP2 project is a group of 200 households, composed mainly of people who have been evicted from their nearby land at different dates since the 1980s, due to the expansion of a

local lake. They have been engaged in a struggle to access land for agricultural purposes since their relocation in a tribal authority where they felt they were not given access to sufficient land. However, only in 1997 did they obtain SLAG grants to purchase a run down 265 ha farm in the high-potential Nkomazi municipality (just over 100 km East of the provincial capital Nelspruit). The farm is situated seven km away from where most beneficiaries lived at the time of the transfer. Except for a small loan contracted by LP5 (R7,000), MP2 is the only group in the sample who has borrowed money. They contracted an establishment loan of just over one million Rand from the Land Bank in 1997 to start up sugarcane and citrus production. Only the sugarcane operation ever started, and the project was at first seen by observers as a success story (e.g., in Lodge, 2003). But data collected during fieldwork showed that only a small minority of beneficiaries ever received any income from the project. The project was intended to provide full time work for 80 beneficiaries and distribute dividends to all (Lodge, 2003). In reality, primary data collection revealed that during the two years during which production took place, only three full time workers were employed by the project and paid R500 per month. In the first year and a half, about 20 labourers would get R10 per day worked (about 10 days per month). No dividends were ever distributed due to lack of profits (despite the R250,000 and R160,000 sales revenue in 1998 and 1999, respectively). When torrential rains destroyed part of the crops in 1999 and eventually led to the end of activities in 2000, participants were often working for no pay on the farm. Despite efforts by twenty or so beneficiaries to revive the project, and earlier attempts by the Department of Agriculture (DoA) to reorganise operations, it seems unlikely that production will resume, as the debt had accumulated to R1.6 million at the time of data collection.

The third and last randomly sampled project in Mpumalanga is MP3, a labour tenant project settled as LRAD about 100 km North West of Nelspruit in the Thaba Chweu municipality. In 2002, the former landowner approached the PLRO offering to sell a portion of his estate for a group of labour tenants he had been trying to evict. Thirty three individuals were gathered to apply for grants which allowed the purchase of this 214 ha farm portion. The majority of applicants were living in different portions of the estate, and relocated in 2003 from areas between one and 18 km away from their current homestead. The chairperson reported that the project had no business plan, and so far, 90 ha of project land has been used as communal grazing land for the animals individually owned by the participant households, whilst crop production is taking place on individual household plots of between about one and 4 ha.

The last project sampled in Mpumalanga (MP4) is a purposefully sampled labour tenant project adjacent to MP3. Beneficiaries have been living on the farm now purchased through LRAD grants for decades. In 2000, the former landlord appointed a new farm manager who prohibited tenants from cropping land on the farm. Eviction orders were issued against the tenants, who complained to the national Department of Land Affairs in Pretoria, and eventually obtained 38 land grants to purchase their 188 ha farm. According to the project leader, the land was officially transferred in September 2006, even though no title has been issued yet. Despite the existence of a business plan for a commercial crop enterprise, the former labour tenants have been using their land in a way similar to MP3, that is to say, using about half the farm area as communal grazing land for their individually owned livestock whilst cropping is carried out on individual plots of generally less than 4 ha.

Endnotes:

[1] Definitions have not been standardised yet and warrant clarification. In this paper, the `quantitative' component refers to econometric estimates based on secondary, nationally representative household data. The `qualitative' aspect refers to the in-depth analysis of numerical and textual data obtained from a small, purposefully selected sample of beneficiaries using intensive data collection tools.

[2] As a consequence, 58 per cent of the beneficiary population aged 15 years and older surveyed in Ahmed et al. (2003, p.34) did not have any farming experience before accessing the land reform project.

[3] Up until May 2008, LRAD grants ranged from R20,000 for a personal contribution of R5,000 (generally under the form of labour, the so called `sweat equity`) up to R100,000 for a personal contribution of R400,000. A revised grant scale was approved in May 2008, so that the minimum grant amount is now R111,152 for a personal contribution of R13,000 and goes up to a maximum of R430,857 for a personal contribution of R500,000.

[4] The main variables of interest for this study are available in all September waves from 2001 to 2004. Despite being advertised as a panel dataset and 80 per cent of each wave sample being interviewed again in the following wave, given individuals and households cannot be identified between waves, which precludes the use of panel data techniques. Notice however that no household sampled in the 2001 wave could still be interviewed in the 2004 wave.

[5] The main concern raised by relying on this classification is that government officials are stakeholders in the land reform process and may therefore try to influence the results of the analysis. However, since both PLRO officials (who might be suspected of covering up the failings of land reform, and thus might try to hide truly unsuccessful projects) and DoA staff (who were outspokenly critical of the government's approach to land reform) agreed on the classification, we are confident that the use of this classification introduced no major bias in the analysis.

[6] More specifically, this informant reported being in charge of 48 redistribution projects, broken down as 32 SLAG projects, 12 group LRAD projects, and four individual LRAD projects. The 4 individual LRAD projects were said to be doing very well, and only six out of the 32 SLAG `showing some light of development' (including **LP1** and **LP2**). He refused to comment on the 12 group LRAD projects (including *LP4* and *LP5*) indicating that it was too early to comment (although some of these projects had been functioning for over four years).

[7] Questionnaires used for the household and project authority interviews, as well as the focus group schedule are available upon request.

[8] One project leader out of the seven said they did not apply for a loan because they did not need to, and five said that they did not apply because they would not have been able to repay the loan (which does not suggest rationing in the sense that the marginal product of capital is not higher than its marginal cost).

[9] It has not been possible to check with relevant authorities the exact nature of the irrigation-related technical problems encountered by MP2, and so this quote may not reflect the precise nature of the problem.

[10] Mogans are the most usual unit used by black South Africans to measure land area. It comes from the Afrikaans `Morgen', and one hectare is equal to just under 1.17 Morgen/Mogan.

[11] One possible explanation for the divergence between Deininger and May's findings and our own is that causality goes in both directions, and one or the other effect dominates according to the project `life cycle': at an early stage, individual contributions signal motivation and create effort incentives, but later on, higher contributions are in part caused by project difficulties.

[12] This redistributed farm was up and running, and seemingly quite successful for the two first years, during which period the seven beneficiaries who worked on the farm on a daily basis were not paid. They accepted the delay in payment presented by the chairperson as a necessary step towards healthy project finances. However, the chairperson and treasurer eventually disappeared with the project profits.

[13] However, comparison may be limited by the difference in the magnitude of the distances involved in other studies: in some projects mentioned in Wegerif (2004), distances involved are above 100 km, and in projects studied by Bradstock (2005), beneficiaries live up to 200 km away from their project.

[14] For instance, in the case of randomised field experiments, which also face issues of external validity or `generalisability', targeting areas with different levels of a previously estimated treatment effect would reinforce the value of replication. As put by Banerjee and Duflo (2008), `To address [both] concerns about generalisation, actual replication studies need to be carried out. Additional experiments have to be conducted in different locations, with different teams. If we have a theory that tells us where the effects are likely to be different, we focus the extra experiments there. If not, we should ideally choose random locations within the relevant domain.' In the absence of

clear theoretical predictions, but when some survey-based estimates are available, a fruitful alternative could be to divide the population according to the size of the treatment effect based on observational data, and then randomly sample locations to be targeted for randomised experiments within each quantile defined by the treatment effect.

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