Communal livestock farming in South Africa: Does this farming system create jobs for poverty stricken rural areas?

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ABSTRACT

Communal livestock farming is one of the world's oldest farming systems and is predominately practised by rural households in developing countries, especially in Africa. To date, this practice seems to be very resilient to any economic crises experienced throughout the globe. However, it is known to be prone to climatic conditions, especially drought. This farming system is associated with improved household food security in poverty stricken areas of South Africa, yet no information is available regarding its contribution to job creation. On the other hand, socio-economic challenges such as joblessness have been associated with rural areas where communal livestock practices prevail. The aim of the study was to investigate the contributions of communal livestock enterprises to job creation in several South African provinces. Based on the prevailing socio-economic challenges in the country, four provinces ($N = 4$) were selected for this study. Interviews were conducted with three hundred and eighty-three ($N = 383$) communal livestock owners. A purposive (non-probability) sampling design was opted for. The research approaches used in this study were qualitative and quantitative. These approaches were used to complement

each other. One-way multivariate analysis of variance (MANOVA) was used to perform the inferential analyses. The results showed that potential job creation varied per provinces. The *post hoc* tests further revealed that greater job creation capacity is found in the Eastern and Northern Cape and Kwazulu-Natal provinces, with enterprises in Limpopo Province having the least of the aforesaid potential. In view of these findings, the study recommends that appropriate support may be required to enhance sustainable job creation potential from these enterprises in these provinces.

INTRODUCTION

Communal farming (be it livestock or crop production) appear to possess a rich profile in the promotion of livelihoods in the disadvantaged parts of developing countries throughout the world (Becker, 2015; Barrett, 1992). In Zimbabwe, Barrett (1992) highlighted the importance of communal farming (especially livestock) as more important in providing socio-economic relief relative to its commercial counterparts.

This author pointed out that despite the common observation that Zimbabwean's communal cattle herd has a low off-take as compared to the commercial farming; communal farmers are seen as productive and rational in their cattle herd management. In addition, this author appeared to be convinced that communal farming compensates the economic capacity of the indigents by providing the draught power and manure for tillage and secondly by providing milk and meat for local consumption. Although the role of communal livestock in the farming system varies significantly from one part of Zimbabwe to another, its impact is seen to be considerable.

On the other hand, it is also echoed that this farming system has more social and cultural contributions which have secondary economic linkages relative to its commercial counterparts (Becker, 2015). Research in South Africa has confirmed that communal livestock gives major socio-economic relief to poverty-stricken individual citizens in rural areas. Although there seems to be consensus regarding

the importance of this type of farming, research indicates that only breeds that are well adapted to harsh conditions with minimal maintenance costs are suitable in this type of farming.

Contrary to experiences in the developing countries such as South Africa, there were fierce scholarly debates in developed countries such as Germany in the nineteenth and early twentieth centuries on communal livestock within the context of Roman communalism and the German and Slavic tradition of communal tenure (Komey, 2015, Peredo and Chrisman, 2006). Literature reveals that communal farming is associated with neo-classical economic theory (Buchanan, 1965). In this study, job creation through these farming activities will be investigated with the aim to expose the extent to which this type can assist in the creation of jobs to the poorest communities in South African provinces where this type of farming predominates.

THEORETICAL FRAMEWORK

Communal livestock farming can be traced to theories of communal economy emanating from Russian scholars such as Kablukov, Ko-sinskii, Chelintsev, Makarov and Stu-denskii who attempted to design an economic theory of communal economy (Kopsidis et al. 2015). According to Myeki (undated), the theory was later advanced by Alexander Vassilevich Chayanov. The theoretical make-up of communal farming was premised along major economic systems (i.e. capitalism, slavery, communism and family economy) at the time (Thorner, 1965).

Communal farming (in particular) leans heavily on the family economy and was innovated in order to ensure that communal family farms may translate into economic units that (amongst others) employ family labour without wage remuneration.

Contrary to commercial farming, this type of farming did not factor in a capitalistic entrepreneurial profit-making business ethos such as hired wage labour, interest on capital, rent for land and profit maximisation. Hence, the communal family farm does not represent capitalist production but a simple commodity production. Thus, the nature and character of communal farming has very little to do with profit making but rather food security. Efforts to transform this system to profit making has been found to be difficult. According to Sugimura (2007), a communal farmer does not get transformed immediately into a *"homo economicus"* whose objective is to maximise profit through market transactions.

COMMUNAL FARMING IN SOUTH AFRICA

The communal environments across South Africa are not homogeneous in character (Cousins, 2008) and their differences occur at different levels ranging from local, regional and agro-ecological zones. The economic contribution of communal agriculture remains an unexploited terrain. The National Development Plan (Chapter 6) points out to the need to revive and mainstream this section of our economy. The social contribution of this sector is huge, and yet has not attracted a lot of scholarly interest; for instance, the role of communal livestock as bride-worth, draught power or loaning. One striking feature of this less privileged section of agriculture is it resilience (surviving the test of time) even though due to its extensive mature it is very vulnerable to climatic conditions.

In some parts of the country during the days of apartheid, this form of agriculture (livestock) was discouraged on the basis of an ecological concern and Mckenzie (1984) argues that although there were a number of attempts that were made to reduce the number of livestock in communal areas, they failed.

The resilience of this sector is not visible in the economic contributions (in terms of sales) to household livelihoods. Yet, the contribution of livestock to the economies of these areas remained very small, measured in terms of sales for slaughter in the market. Cousins (2008) argued that household incomes within communal areas are derived from three major sources, namely migrant worker remittances, government pensions (and other social security grants) and as well as non-rural sources. This places local production (in communal areas) as a very minimal source of income, yet there is huge potential, in using agricultural land well. In this regard, Bembridge (1987) notes that about 84 % of land area in the former homelands, (known at the time as independently governed, less developed areas of Southern Africa) is suitable for grazing, with only 14 % classified as arable land (cropland).

It was earlier argued that off-take of cattle in the former Transkei was 5.4 % while that of their commercial counterparts in South Africa stood at 20 % (Tapson, 1982). This is in spite the fact that the share of livestock owned by farmers within the former homelands as a proportion of South Africa stood at 35 % for cattle, 57 % of goats and 10 % of sheep. This placed these areas at the core of livestock value chains (even though they may have been seen as collection areas of cheap animals). Normally, communal farmers are misunderstood regarding the reason why they keep or rear livestock and recently most interventions have aimed for the commercial aspect.

Cousins (2008) argued that livestock in communal areas serve multi purposes and yield high economic returns per hectare when their economic functions are valued, and agreed with (Mckenzie, 1984) and (Bembridge, 1987) in arguing that livestock, especially cattle, forms a fundamental part in the lives of rural people's lifestyle and their importance to be used in paying lobola (bride-worth) and other social activities.

Furthermore, Bembridge (1987) argued that food production has never been much of a competition to livestock, but traditionally a complementary system. Mckenzie (1984) argued that the area of the former Transkei had animals double the size, had a well developed management system as compared to other areas in Eastern Cape Province. These animals were in bad condition, since in the view of Mckenzie (1984), the focus of these farmers was more on number rather than quality.

However, Wilson (1969) argued that the Nguni are skilful cattle keepers who practised good veld management practises of shifting stock from one pasture to the other. In the early 1980s (Pieres, 1981, quoted in Mckenzie, 1984) outlined that during this period there was enough grazing land and land for cultivation and that livestock was taken care of even during tough drought times. It was revealed by Wood and Schoor (1976) as an interesting fact, yet normally missed in literature on small-scale farmers in the areas of the former Transkei, that various government attempts were made to reduce the number of livestock in that part of the world – even though they failed for one reason or the other. Such attempts to reduce this livestock were based on the assertion that the area could only support a maximum of two million large stock units (LSU).

Cousins (2008) argued that, on the basis of multiple purposes of rearing livestock, a high stocking rate makes economic sense, with an optimal stocking rate making sense for single purpose production systems. On the government policy side, the interventions to force down stocking rates as opposed to the will of farmers stand a good chance of failing (unnecessary and unlikely to succeed) (Mckenzie, 1984). This, then, makes questionable the argument of overstocking and attempts to reduce stocking rates as an ecological or environmental cost.

As Cousins (2008) argued some time ago, communal farming objectives for livestock production in rural areas are multipurpose in character; it can be argued that in 2015 not a lot has changed. In dry areas with poor grazing potential, livestock rearing for commercial reasons seem to make sense as compared to other areas. The use of livestock for draught power depends on the availability of tractor services – there seems to be a decline in the use of this power. The association of the number of cattle a household (individual) owns as a social class belonging seem to continue. The purpose whose importance seems not to be deteriorating with time is keeping cattle for milk purposes (used to be on top of KwaZulu priorities). The use of animals (unaccounted in economic transactions) as bride-worth, for cooperative ploughing, loaning) are common in all communities however vary in intensity regionally across the country.

REAL CHALLENGES OF COMMUNAL FARMERS

Reproduction is one challenge where there are low levels of calving and weaning in communal areas and this has been a problem for a long time. Bembridge (1987) noted that the calving rate in three areas of the former Transkei (Qamata, Emgcwe and Qumbu) was 38.8 %. In the same areas the aggregate weaning rate was about 27 %. It was noted by Steyn (1982) that the aggregate weaning rate was about 31 % in the former Ciskei, which is slightly higher compared to the surveyed areas of the former Transkei.

Mortality is another challenge: commercial agriculture experiences mortality rates of about 3 % as compared to communal farmers whose mortality rates are above 17 %. Mortality rates clearly represent an economic loss to communal farmers. Therefore policies aimed at reducing mortality (with a seasonal dimension) need to be encouraged such as the National Red Meat Development Programme (NRMDP) run by the National Agricultural Marketing Council.

Off-take of smallholder farmers in South Africa is estimated to be around 5 % (Myeki et al., 2014). This is slightly lower than that of communal farmers in Transkei in the 1980, which was 6.8 % (Bembridge, 1987 survey) and lower for the whole region at 5.4 %. This off-take was based on the share of animals sold through auctions, excluding sales between community members and lobola payments.

Stock management –seasonal grazing variations call for different measures. Animals are normally left to fend for themselves during winter months with less adoption of supplementary feed or culling and/or effective management of internal and external parasites.

In order for government programmes to work in improving the conditions of smallholder farmers, an acceptance of the multipurpose nature of this sector is paramount. Calibrating the support services by government to address the real challenges of these farmers stands a good chance of succeeding in increasing the off-take.

METHODOLOGY

The aim of the study

The aim of the study was to determine the economic contributions of communal livestock enterprises (especially in relation to job creation) in the poverty stricken areas of South African agricultural provinces. The objective was to try to estimate the contribution of the communal farming enterprises in alleviating joblessness in South African provinces where communal livestock farming exists.

Study location

The project was initiated in the year 2012 in the Eastern Cape Province through a partnership with the Department of Rural Development and Land Reform (DRDLR). Due to the tangible success of the project and its growing popularity amongst research institutions such universities, research institutes and individual farmers, the project has been extended to other provinces such Limpopo, Northern Cape KwaZulu-Natal and Eastern Cape. District and local municipalities' project beneficiaries were selected based on their agricultural skills and potential. This study presents the preliminary results of the socio-economic contribution of communal livestock in the designated areas.

Sampling methods

In this study, a purposive sampling design was chosen and consequently this design led to unequal responses. The aforesaid methodology was opted for due to the beneficiary selection of the participants. In addition, the beneficiaries did not have any organization that they belong to such that other sampling design became inappropriate.

DATA COLLECTION METHODOLOGY

The study adopted qualitative and quantitative research approaches. In the quantitative approach, the study used a one-on-one interview process, aided by the survey questionnaires. Thus, quantitative data was collected. The qualitative approaches were applied to collect descriptive and detailed explanations from the respondents through various forums. These forums were organised with the aid of stakeholders. The role of local stakeholders was to identify the rural agrarian entrepreneurs and to invite them to a common meeting place where all stakeholders were advised of the development plan and respondents were asked for their permission to participant in the research and development plan.

DATA ANALYSIS

For the descriptive analyses, the study used frequency analyses in order to get the number of the observations and accompanied percentage differences. In addition, means and standard deviations were analysed for all the variables. Inferential analyses, the Levene's test and one-way multivariate analyses of variance (MANOVA) were used to determine whether the means are the same (or different) and the latter was conducted to test the hypothesis that there were one or more mean differences amongst the variables. This was followed by a *post hoc* analysis to detect where the differences might be.

RESULTS AND DISCUSSION

This section presents and discusses the key findings of the research. It does so by presenting both descriptive and inferential analysis. In the descriptive analyses, only the description of the observation was made. The inferential portion, seeks to test the hypothesis.

Table 1: Demographic analyses of the communal livestock farming systems in selected provinces

Variables	Demographic	Frequency	Valid percent	Cumulative percent
Provinces	Eastern Cape	172	44.8	44.8
	Northern Cape	29	7.6	52.3
	Kwazulu-Natal	15	3.9	56.3
	Limpopo	168	43.8	100.0
	Total	384	100.0	
Gender	Male	283	73.7	73.7
	Female	101	26.3	100.0
	Total	384	100.0	
Types of the breeds	Nguni	60	15.6	15.6
	Cross-breed	278	72.4	88.0
	Other	46	12.0	100.0
	Total	384	100.0	

The results of the demographic analysis of the communal livestock farming systems are presented in Table 1. The results indicate that the majority of the respondents came from both Eastern Cape (44.8 %) and Limpopo Province (43.8 %). The sample was dominated male respondents (73.7 %) as compared to females (26.3 %). The livestock breeds were dominated (72.4 %) by crossbreeds, followed by Nguni breed (15.6 %) and other breeds (12.0 %). The descriptive analyses relating to the employment capacity, number of cattle owned and the income from cattle sales per provinces are presented in Table 2.

According to the results in Table 2, it is clear that communal livestock farming has created more employment in the Eastern Cape (*M*= 1.110, SD = 1.814, CI = 0.837, 1.384) and Northern Cape (*M*= 1.035, SD = 0.906, CI = 0.690, 1.379). The provinces which appear to have created less employment in the communal livestock sector were Kwazulu-Natal (*M* = 0.467, SD = 0.639, CI = 0.112, 0.821) and Limpopo Province (*M* = 0.429, SD = 0.585, CI = 0.339, 0.518).

Table 2: Descriptive analyses of communal farming in selected provinces

Variables	PV	*N*	Mean	Std. deviation	Std. error	95 % confidence interval for mean		Minimum	Maximum
						Lower bound	Upper bound		
Number of employee employed to herd the cattle	EC	172	1.110	1.814	0.138	0.837	1.383	0.00	10.00
	NC	29	1.034	0.906	0.168	0.690	1.379	0.00	3.00
	KZN	15	0.466	0.639	0.165	0.112	0.821	0.00	2.00
	LP	168	0.428	0.585	0.045	0.339	0.517	0.00	3.00
	Total	**384**	**0.781**	**1.343**	**0.068**	**0.646**	**0.916**	**0.00**	**10.00**
Number of the cattle owned	EC	172	18.994	29.649	2.260	14.531	23.456	0.00	250.00
	NC	29	44.413	29.621	5.500	33.146	55.681	4.00	121.00
	KZN	15	16.200	15.753	4.067	7.476	24.924	2.00	63.00
	LP	167	19.000	23.613	1.827	15.392	22.607	1.00	220.00
	Total	**383**	**20.812**	**27.482**	**1.404**	**18.050**	**23.573**	**0.00**	**250.00**
Income from the sale of the cattle per annum	EC	171	1205.216	3117.210	238.379	734.652	1675.780	0.00	23000.00
	NC	29	7094.241	16550.621	3073.373	798.721	13389.761	0.00	85000.00
	KZN	15	906.666	1288.668	332.732	193.025	1620.307	0.00	5000.00
	LP	168	1606.500	3973.181	306.537	1001.311	2211.688	0.00	40000.00
	Total	**383**	**1815.449**	**5805.030**	**296.623**	**1232.230**	**2398.667**	**0.00**	**85000.00**

Notes: EC = Eastern Cape, NC = Northern Cape, KZN = Kwazulu-Natal and LP = Limpopo Province, PV = Provinces

In addition, Table 2 provides the means of both the number of cattle owned and the income generated. On the other hand, Table 3 shows the results of both *F* and Levene's tests for the number of cattle owned and the income from the sale of cattle per the selected provinces.

The results of the means for the number of the cattle owned revealed that the Northern Cape Province has the highest (*M* = 44.414, SD = 29.621, CI = 33.147, 55.681) number of cattle under the communal farming system, followed by the Limpopo Province (*M* = 19.000, SD = 23.613, CI = 15.392, 22.608), which is then followed by the Eastern Cape (*M*= 18.994, SD = 29.649, CI = 14.532, 23.457), and the province that has the least number of livestock in this system appears to be Kwazulu-Natal (*M* = 16.2000, SD = 15.754, CI = 7.476, 24.924).

The outcome of the Levene's test showed that the variances are statistically insignificant at a 5 % confidence interval {*F* (3, 379) = 2.331, *p* = 0.074). Therefore, the null hypothesis for equality of variances was accepted. This implies that Levene's test assumptions were not violated. On the other hand, the results of the means showed that they were statistically significant at 5 % confidence interval {*F* (3, 378) = 8.202, *p* = 0.000). This means that there is sufficient evidence that these differences are not by chance. In addition, the confidence interval for all categories of ownership in these provinces were found to be high in all the provinces, which implies that the size of the effect of these means is quite large and therefore confirms the reliability of these findings.

The results of the income generative capacity of the communal livestock are also presented in Table 2. According to the results, Northern Cape communal livestock farming had the highest significant income generative capacity (*M* =7094.241, SD = 16550.621, CI = 798.722; 13389. 761), followed by Limpopo Province (*M* = 1606.500, SD = 3973.181, CI = 1001.311, 2211.688), the Eastern Cape (*M* = 1205.216, SD = 3117.210, CI = 734.652, 1675.780) and KwaZulu-Natal (*M* = 906.666, SD = 1288.669, CI = 193.026, 1620.308) respectively.

Table 3 shows the results of the *F* and Levene's tests. According to these results, it was found that means for employment created by communal livestock farming were highly statistically significant at a 5 % confidence interval {*F*(3, 380) = 8.373, *p* = 0.00 with the results of the Levene's assumptions being violated {F (3,380) = 23.169, *p* = 0.00}.

Table 3: Inferential analyses of the communal farming systems in selected provinces

Variables		ANOVA			Levene Test			
		F	**Df**	**Sig.**	**Levene Statistic**	**Df1**	**Df2**	**Sig**
Number of employees employed to herd the cattle	Between groups	8.373	3	.000	23.169	3	380	0.000
	Within groups		380					
	Total		383					
Number of cattle owned	Between groups	8.202	3	.000	2.331	3	379	0.074
	Within groups		379					
	Total		382					
Income from the sale of the cattle per annum	Between groups	9.400	3	.000	18.473	3	379	0.000
	Within groups		379					
	Total		382					

Post hoc analyses were conducted in order to determine where the differences were. During the analysis, Games-Howell *post hoc* test analyses were preferred because the results showed that assumptions of equality of variances were violated. The results of the *post hoc* analysis are presented in Table 4. According to these results, it was revealed that Eastern Cape Province has a highly statistically significant ($p < 0.05$) number of people employed in communal livestock farming compared to Limpopo Province (M = 0.682, SE = 0.146, CI 0.350,1.059).

Table 4(a): *Post hoc* tests for communal systems in the selected provinces (Games-Howell)

Variables	Province		Mean differences (i-j)	Std error	Sig	95% confident interval	
						Lower bound	Upper bound
Number Employed	EC	NC	0.076	0.218	0.99	–0.497	0.649
		KZN	0.644*	0.215	0.02	0.066	1.222
		LP	0.682*	0.146	0.00	0.305	1.059
	NC	EC	–0.076	0.218	0.99	–0.649	0.497
		KZN	0.568	0.236	0.09	–0.066	1.201
		LP	0.606*	0.174	0.01	0.134	1.078
	KZN	EC	–0.644*	0.216	0.02	–1.222	–0.066
		NC	–0.568	0.236	0.09	–1.201	0.066
		LP	0.038	0.171	0.99	–.0451	0.528
	LP	EC	–0.68189*	0.146	0.00	–1.059	–0.305
		NC	–0.606*	0.174	0.01	–1.078	–0.134
		KZN	–0.038	0.171	0.99	–0.528	0.451
Number of cattle owned	EC	NC	–25.419*	5.946	.001	–41.394	–9.445
		KZN	2.794	4.654	.931	–10.051	15.639
		LP	–0.005	2.907	1.000	–7.513	7.501
	NC	EC	25.419*	5.947	.001	9.445	41.394
		KZN	28.214*	6.841	.001	9.913	46.515
		LP	25.414*	5.796	.001	9.770	41.057
	KZN	EC	–2.794	4.654	.931	–15.64	10.051
		NC	–28.213*	6.841	.001	–46.514	–9.913
		LP	–2.800	4.459	.922	–15.272	9.673
	LP	EC	0.006	2.907	1.00	–7.501	7.513
		NC	–25.414*	5.796	0.00	–41.057	–9.770
		KZN	2.800	4.459	0.92	–9.6725	15.272

Table 4(b): *Post hoc* tests for communal systems in the selected provinces (Games-Howell)

Variables	Province		Mean differences (i-j)	Std Error	Sig	95% confidence interval	
						Lower bound	Upper bound
Income generated from cattle sales	EC	NC	–5889.02	3082.60	0.246	–14299.31	2521.26
		KZN	298.55	409.31	0.885	–811.61	1408.70
		LP	–401.28	388.32	0.730	–1404.20	601.66
	NC	EC	5889.03	3082.60	0.246	–2521.26	14299.31
		KZN	6187.58	3091.33	0.211	–2240.88	14616.02
		LP	5487.74	3088.62	0.305	–2934.97	13910.46
	KZN	EC	–298.55	409.31	0.885	–1408.70	811.61
		NC	–6187.57	3091.33	0.211	–14616.03	2240.88
		LP	–699.83	452.41	0.419	–1906.61	506.94
	LP	EC	401.283	388.31	0.730	–601.636	1404.20
		NC	–5487.74	3088.62	0.305	–13910.46	2934.98
		KZN	699.83	452.41	0.419	–506.94	1906.61
*. The mean difference is significant at the 0.05 level.							

In addition, it was revealed the Eastern Cape Province has significantly ($p < 0.05$) higher employees employed by communal livestock farming compared to KwaZulu-Natal Province (M= 0.644, SE = 0.216, CI = 0.066, 1.222). The results also showed that Northern Cape Province had statistically significant ($p < 0.05$) higher employees employed in these ventures compared to Limpopo Province (M= 0.606, SE = 0.174, CI = 0.134, 1.078).

Regarding the number of the livestock owned by these farmers, it was found that the Northern Cape has a significantly ($p < 0.05$) higher number of livestock owned by communal farmers as compared to the Eastern Cape (M= 25.419, SE = 5. 9474, CI = 9.445, 41. 394), KwaZulu-Natal Province (M = 28.214, SE = 6.841, CI = 9.913, 46.515) and Limpopo Province (M = 25.414, SE = 5. 796, CI = 9.770, 41.057). However, the number of livestock owned in Limpopo Province compared to those in Eastern Cape and KwaZulu-Natal Provinces was found to be statistically insignificant ($p < 0.05$). Similarly, all the comparisons relating to livestock sale income were found to be statistically insignificant at a 5 % confidence interval. This may imply that the differences identified were due to chance and thus there was no enough evidence to attest to these differences.

CONCLUSION

The aim of the study was to determine the economic sustainability of communal livestock farming in South Africa. Three factors, namely employment generation capacity, number of livestock owned by the farmers and income generative capabilities, were used as predictor variables. The study revealed that Eastern Cape Province has the highest employment generative capacity in these farming systems, compared to Northern Cape, KwaZulu-Natal and Limpopo Province respectively. In terms of income generative capacity, it was found that the Northern Cape and Limpopo Province had the highest capacity followed by the Eastern Cape and KwaZulu-Natal. Regarding the livestock owned by these farmers, Northern Cape was found to have the highest number of livestock owned, followed by the Eastern Cape, KwaZulu-Natal and Limpopo Province, respectively.

These findings led the study to conclude that the Northern Cape has the highest prospects of success in the use of communal livestock farming as a tool to reduce unemployment and increase food security. The Eastern Cape Province could be rated as the second province with similar prospects, followed by Limpopo Province. In this study, KwaZulu-Natal seems to have marginal prospects and is the least recommended. It is therefore recommended that well-designed supportive interventions for communal livestock farming enterprises in the three identified provinces may improve the performance of these provinces in their employment and food security status.

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