CHAPTER 7

RURAL ASSET INEQUALITY AND MIGRATION

7.1 INTRODUCTION

In Chapter 6 the descriptive results, the characteristics of the individual migrants and of the participating households were presented. The *t*- test, as a special Analysis of Variance (ANOVA) was applied as an exploratory analysis to establish whether there is significant difference in the means of important variables of the study between households with migrants and those without migrants.

The findings in the Chapter 6 also enable us to make certain observations regarding the three regions of the study and migration:

- Household in the Western region have the highest mean annual household income and per capita income. The majority (54.6 per cent) of the households in this region depend on dry land agricultural production of potatoes, citrus, maize and other crops; borehole irrigation is also practiced where water is adequate. Extensive livestock production is dominant, since the area is dry but with adequate land. There are white commercial farmers who own game and beef ranches. Other forms of farm and non farm production are also possible since the area is close to the city of Polokwane, which provides a reliable market. At the same time over 65 per cent of the households have migrants, out of whom 37 per cent of the households receive remittances, Western Region therefore can be said to be relatively better off than the other two regions. Migrants from this area most likely access high paying opportunities, since labour from this region can choose from the different economic options; they could also be migrating for better facilities in the cities or to high profile jobs that are better than the local economic opportunities.

- On the other hand, the Central Region, composed of Bochum and Seshego, perform minimal agricultural activities. In both sub-regions there is a high proportion of households (19.8% and 10.1% respectively) depends on pension

income. However, since this region is not too far from Polokwane and the road infrastructure is reasonably good, there is a strong pull factor to the cities (Polokwane and Pretoria) to look for wage employment, schools, and other modern facilities. The proportion of households receiving income from salaries and wages is 11.2% and 9% respectively. Even though the migration rate is not as high as was initially anticipated at the time of the survey, the propensity to migrate from this area is quite high both from the pull and push point of view.

- The Southern Region, consisting of Schoonord, Praktiseer and Zebediela sub-regions, has a mixed economy. While Praktiseer is characterised by 83.2 per cent of its households having no land at all, it has a vibrant wage / salary earning community (28.9 per cent of households) coupled with 18.8 per cent of the households receiving remittances and another 18 per cent receiving pension. Praktiseer received the highest amount of remittances (R21, 408) in 1999. Schoonord, on the other hand, relies more on salaries, wages and remittances, than on agricultural production. Zebediela has a staggering 64.8 per cent of its households without any land at all. A significant proportion of the households in this area are poor as 24 per cent of them reported to have no income at all. Only 10 per cent of the households in Zebediela receive remittances and another 8.8 per cent receive pension income. The implication, in this case, is that people are too poor to even send out members of the households to work outside the home, most likely due to the costs of migration. Those who are resident members may be a failing to find work in the locality. That means there are high levels of unemployment in this rural area. The Southern region is quite remote and poor compared to the Western and Central regions. Migration from this region could increase in future if constraints of accessibility were solved. Chances are that more people would like to venture out to look for jobs or change to better jobs, but the remoteness of the area is prohibitive.

Eastwood et al, (2006), found out that the there was a negative association between external and local incomes in Limpopo as there was higher unemployment rates in pension and remittance receiving households. They further established that the male unemployment rates in pension and remittance receiving households are quite high (in the range of 75-78 per cent). They concluded that the presence of an external income

source may reduce the incentive for members of the households receiving such transfer payments to seek for work.

In this chapter, the first key hypothesis of the thesis is analysed. It states that "*the size and distribution of household landholdings and productive farm and non-farm assets influence household behaviour regarding migration*". The analysis in this chapter will prove or disapprove whether inequality of land and productive assets leads to higher rates of out migration as was indicated by the literature review.

In Section 7.2 the presence of asset inequality is analysed using the Gini coefficient measure. Gini coefficients for different categories of assets, namely land, livestock, other farm assets, non-farm in-house assets and household income are computed to establish the level of inequality in asset and income distribution. For purposes of this study, inequality is analysed in terms of the size and distribution of assets. The values, rather than volumes and quantities of the assets are used in the analysis to maintain consistency. The investigation further establishes whether there is any association between high inequality (exhibited by high Gini coefficients) and the propensity to migrate. Using the model specified in Chapter 4, the causality relationships between asset inequalities and rural out migration is tested in Section 7.3 using. Section 7.4 gives a summary of the chapter.

7.2 ESTIMATION STRATEGY AND EMPIRICAL ANALYSIS OF RURAL HOUSEHOLD ASSETS

The empirical analysis carried out in this chapter is aimed at answering the following questions: What determines the household's decision to participate in the migration process? In particular, does inequality of rural assets contribute to the decision to migrate from home? The first step of the empirical strategy is to establish whether inequality of rural assets exists. The second step is estimating the determinants of household choice of having a migrant member in the household. In the third step of the empirical analysis, presented in Chapter 8, the impact of migrant remittances on the rural economy is estimated.

The size and distribution of assets are measured in terms of their values of total, per capita (PC) and adult equivalent (AE) Gini coefficients. However, with some variables only some of the measures are performed. The choice to undertake total, per capita (PC) or adult equivalent (AE) measure is guided by the significance of the measure, for example, pension per household gives more meaningful interpretation than pension per capita or pension per adult equivalent, because pension is supposed to be received by retired persons in the household. Due to poverty and desperation there are households that depend sorely on the pension money received by the old person(s).

7.2.1 Measuring inequality using the Gini coefficients and Lorenz curves

Table 7.1 presents the findings of the Gini coefficients for total, per capita and adult equivalent measures computed from the empirical results for the four main categories of assets, fixed assets (land and livestock), farm assets, non-farm assets and financial assets for the sample population. The Gini coefficients for total, PC and AE value of all assets for the entire sample are the same at about 0.76. The Gini coefficient for total land-holding for the entire sample of 573 households is 0.66, for per capita land it is 0.69, while AE land-holding is the lowest at 0.54. Appendix 2 contains a series of computations for AE Gini coefficients for the four categories of assets. Individual asset categories are analyzed in details in section 7.3.

An interesting observation from Table 7.1 is the fact that the Gini coefficients depicted for total ownership of different assets are smaller than the AE Gini coefficients for ownership of the same asset categories. According to Chayanov (1986) AE male = 0.8 AE female = 0.6 AE child.

The total (owners only) inequality, which does not distinguish between male heads from female heads of households, and does not single out children, result into a smaller inequality figure than the AE total (owners only) inequality, which takes into consideration Chayanov's definition of adult equivalent. Even if males and females were considered as equal, the total (owners only) inequality is still smaller than AE due to the consideration of children in the total. The magnitude of total versus AE

Gini coefficients depends on the ratio of adults to children in the households, as well as the number of male and female members in the households of the village or population being considered.

Table 7.1: Total, per capita and adult equivalent Gini coefficients for different categories assets

	Gini coefficients						
Category of assets	**Total** (N=573)	**Total owners only** N		**PC** (N=573)	**AE** (N=573)	**AE- owners only** N	
All assets	0.76	**0.74**	**537**	0.77	0.76	**0.75**	**537**
Land	0.66	**0.39**	**320**	0.69	0.54	**0.43**	**320**
Farm assets	0.97	**0.87**	**127**	0.97	0.97	**0.88**	**127**
Livestock	0.89	**0.76**	**250**	0.90	0.90	**0.77**	**250**
Non-farm assets	0.70	**0.68**	**537**	0.74	0.73	**0.71**	**537**
Household income including remittances	0.52	**0.46**	**513**	0.55	0.54	**0.48**	**513**
Household income excluding remittances	0.62	**0.52**	**459**	0.85	0.84	**0.59**	**220**

Source: Survey results, 2000.

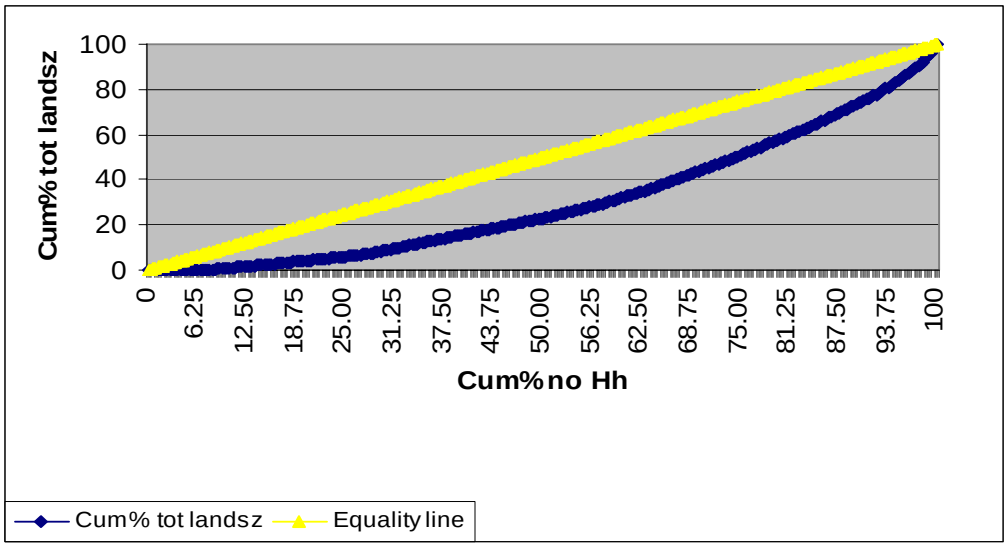
All the Gini coefficient measures for the entire sampled (N=573) and for all tested categories of assets are above the 0.5 mark indicating unequal distribution of the said assets. The lowest computed Gini coefficient is for the household income including migrant remittances (0.52), and this coefficient is lowered further to 0.46, when only those households who earn such income (N=513) are considered. This is a good sign as it could imply an equalising effect of remittances on income distribution (this is explored further in Chapter 8). Compared to income, the values of Gini coefficients for physical assets (farm, livestock and non-farm assets) are more unequally distributed than income, as demonstrated by the Gini coefficients in Table 7.1. This is expected, since the accumulation of physical assets by the poor is limited, given their limited saving and borrowing abilities against their high propensity to consume. Farm and non-farm asset ownership was exhaustively discussed in Chapter 6 where it was indicated that very few households own any physical assets.

7.2.1.1 Inequality in landholdings

Land is the main inheritable form of wealth for rural South African households and their main asset (apart from labour) that allow them to invest in widening opportunities. It is still considered the main form of collateral by micro credit financial institutions and formal-sector lenders. However, in the former homelands, where land was, and still is communally owned and the chiefs decide on the allocation of land, individual households can not put land as collateral. Poorer households attach more importance to land as it is often the main productive rural asset. Moreover, land in South Africa is an important issue because of its scarcity and its high marketability.

One of the main conclusions that can be deduced from Gini coefficients in Table 7.1 is that land and income are the most equally distributed assets. The Lorenz curve in Figure 7.1 illustrates the distribution of land among the 320 households who have got land; the resultant Gini coefficient of 0.43 and a flat looking Lorenz curve, implying fairly well distributed landholdings. This does not come as a surprise, since in South Africa the issue of land inequality and redistribution refers mainly to the large areas of land owned by white commercial farmers, who under apartheid, obtained large tracts of land. The masses in the rural areas, out of which the study sample was taken, still owned small parcels of land. The land distribution among clusters of African farmers in areas that used to be called homelands (including the study areas) is fairly even. The mean land size per household in the study area is as small as 2.4 hectare (excluding grazing land, which is communally owned and is not part of this analysis).

Since land in the rural areas is allocated by the chiefs and their headmen the difference between what one family owns compared to another family is guided by, among other things, the status of the head of the family and the number of grown-up sons in the household. In this case, the adult equivalent measure of land ownership more accurately depicts the situation than the total household land-holding measure does.



Source: Computed from survey data

Figure 7.1: **Total land owned (land-owners only, N=320)**

The computed Gini coefficient for AE landholding for the entire sample of 573 household, including 253 landless households is higher at 0.54. Since the thesis of this study is based on the premise that there is inequality in asset ownership, it is important to make this distinction. The Gini coefficient among households who own land, disguises, to some extent, the level of inequality. The Gini coefficient which has taken into consideration landlessness among the communities is a better reflection of land distribution among the households studied.

Comparison between a Lorenz curve for the AE landholding for the whole sample of 573 households and that for the AE land holding for the 320 households who actually own land, revealed an interesting phenomenon. The Lorenz curve for the entire sample of 573 households runs along the X axis for over 40% of the households, reflecting the landless households within that sample; its computed Gini coefficient is 0.54. The curve for the owners only does not run along the X axis and the Gini coefficient among 320 land owning households is only 0.43, thus disguising the severity of the landlessness problem. The Gini coefficient of land owners only does not reflect the full extent of inequality in the community. To explore the problem adequately one needs to look at the entire sample rather than just the people who own the land, who form a proportion of the population.

Table 7.2 presents a summary of the Gini coefficients (GC) for the six sub-regions for total land-holdings, and in brackets, AE land-holdings Gini coefficients. The coefficients and curves confirm the explanation in the preceding paragraph.

Table 7.2: Gini coefficients for total and (AE) land-holding by sub-regions

Sub-regions	N	Y (Ha)	GC=GA/TA (Total)	GC=GA/TA (AE)
Bochum	93	124.51	0.78	0.80
Seshego	62	56.77	0.70	0.67
Schoonord	84	211.6	0.42	0.48
Praktisser	137	61.36	0.88	0.90
Zebediela	54	17.14	0.75	0.78
Western	143	278.22	0.33	0.36
TOTAL (all areas)	573		0.66	0.54

Source: Survey data 2000.

Y = Sum total land (in ha) by sub-region

The highest Gini coefficients are for Praktiseer in the Southern region (total 0.88 and AE 0.90) and for Bochum in the Central region (total 0.78 and AE 0.80), closely followed by Zebediela (total 0.75 and AE 0.78). The implication is clearly unevenly land distribution in those areas.

The Western sub-region stands out as the sub-region with the least unequal distribution of land-holding with the lowest total land-holding Gini coefficient of 0.33 and an AE Gini coefficient of 0.36. This implies that land access is widespread and well distributed among the community members of Western sub-region, thus, making farming for many households a potential source of livelihood. Schoonord, in the Southern region, has the second least unequal land distribution while Praktiseer, in the same region, has the most unequal distribution of land-holding, with AE Gini coefficient as high as 0.90. Our hypothesis that *asset inequality impacts on household decisions regarding migration* would have been correct if migration was more prevalent in Praktiseer and Bochum than in Schoonord and Western sub-regions. However, that is not the case. There is no clear cut pattern between the prevalence of migration and land distribution, as shown in Table 6.7. Western region, with relatively better land distribution also has the highest percentage of households with migrants (65%). However, Zebediela with relatively more unequal land distribution also has a

high prevalence of households with migrants (61.1%). So far there is no evidence to support this hypothesis.

7.2.1.2 Inequality in livestock ownership

Livestock among households in the study area is unevenly distributed. This is clearly demonstrated in Figure 7.2, which shows a Lorenz Curve along the X axis for over 80% of the households. Inequality in livestock distribution was earlier reflected in the estimated Gini coefficients in Table 7.1. Inequality among 250 households owning livestock is quite high with the estimated total Gini coefficient of 0.76 and adult equivalent Gini coefficient of 0.77.

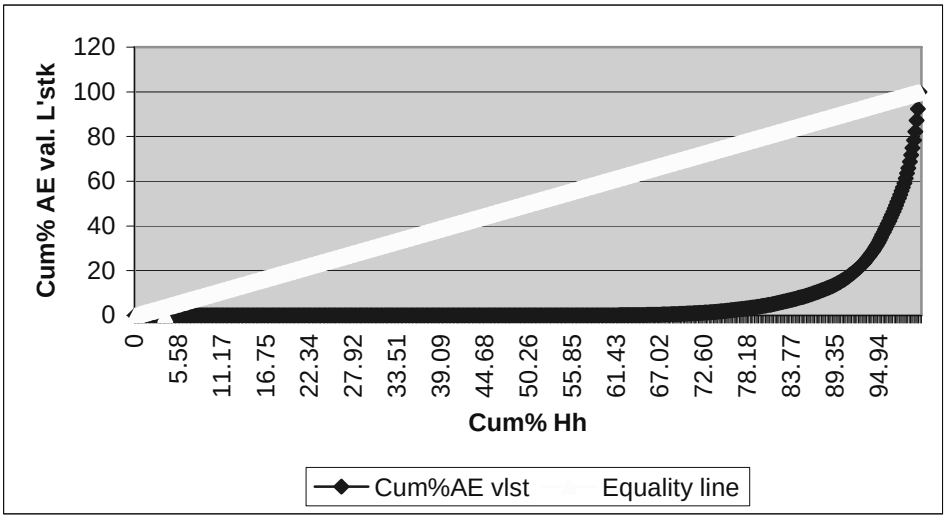


Figure 7. 2: Lorenz curve for Adult Equivalent value[26] of livestock

The total and adult equivalent Gini coefficient for the entire sample of 573 households is much higher, at 0.90, demonstrating the fact that livestock distribution is highly unequal. In Limpopo livestock is owned by only a small proportion of the community many of whom own small stock, such as goats, pigs and sheep, which have high

[26] *Livestock prices for different types were estimated from representative prices obtained from the regional agricultural offices. The range of values was as follows: cattle: R900 to R2250 depending on the region and the animals; goats: R180 to R350 and chickens R25 to R30.*

liquidity and divisibility characteristics. The majority of households are too poor to own any livestock, especially large stock such as cattle.

7.2.1.3 Farm assets

Farm and non-farm asset access by rural households is an important determinant of household income, security and status. However, only 127 households (22% of the surveyed households) own farm assets, such as, machinery and equipment. The distribution of these assets is quite unequal (as discussed in Chapter 6 section 6.5.3); the bulk of the farm assets in the communities belong to 10% of the households. AE Gini coefficient among owners of these assets is as high as 0.88. In comparison, this figure is the highest among all AE Gini coefficients for all the categories of assets presented in Table 7.1. The lowest AE Gini coefficient (0.43) is that of land-holding among land owners. This implies that the highest proportion of farm assets owned by the rural households is in a form of land, which enables households to undertake subsistence farming even in the absence of other farm assets. Very few households own non –land farm assets or livestock (except small stock such as goats and chickens). Thus, the point that land is the most important asset in rural Africa can not be overemphasised. However, Land ownership alone does not always guarantee that they are better off than those without land. As shown in Table 6.6 in Chapter 6, households without access to arable land receive higher cash and in kind remittances and have a higher mean income per person per annum. Some households without land are better off than those with land, because they benefit from other income opportunities such as salaries and wages and transfer payments and/or other non-farm opportunities. At sub-regional level, the distribution of assets is clearly uneven (Table 7.3), with Seshego topping the list.

Table 7. 2: AE value of HH assets in sub regions

Subreg/reg	N	Y	Sum(RiYi)	TA	LA=10000/2NY(Y+2NY -2SumRiYi)	GA=5000-LA	GC=GA/TA
Bochum	93	150912.82	12285001	5000	1300.58	3699.42	0.74
Seshego	62	212341.9	12418433	5000	647.87	4352.13	0.87
Schonord	84	76087.19	5664578.8	5000	1196.60	3803.40	0.76
Praktisser	137	215579.67	24358481	5000	1789.01	3210.99	0.64
Zebediela	54	71977.64	3148163.8	5000	1992.95	3007.05	0.60
Western	143	201647.12	23659075	5000	1830.13	3169.87	0.63

7.2.1.4 Non-farm assets

The distribution of non-farm assets even among those households that own such assets is quite unequal. This is a category of assets that include appliances used inside houses, such as, refrigerator, television, radio, as well as family cars. Some productive non-farm assets, such as sewing machines, deep-freezer and pick-up cars are used for undertaking small businesses to complement household income. AE Gini coefficient of the value of non-farm assets for the entire sample is 0.71, implying high inequality in the distribution of non-farm assets; it reflects the fact that many rural households, who are poor, do not have substantial (or high value) non-farm assets and are mainly reliant on either subsistence agriculture or transfer payments for livelihood. The few households who own some assets include those who receive remittances either in cash or in kind or both. The majority of the rural households with assets own farm-related assets that are used to facilitate agricultural production. As with land, non-farm asset ownership (for example, bicycle, sewing machines and baking facilities) enables households to undertake rural non-farm economic activities to complement other income sources. Some women have started local village bakeries and sewing of local school uniforms using assets sent to them or brought by their migrant relatives. However, some household assets (such as, television and household furniture) simply reflect the status of the households that own them.

From Table 7.3 it is obvious that majority of the households especially in Seshego, Bochum and Schoonord do not access such assets to enable them to carry out non-farm enterprises to generate income.

7.2.1.5 Household income

In most developing countries (with the exception of China), the distribution of fixed assets and of wealth is much more concentrated than the distribution of income (McKinley, 1993). This point is illustrated by the Gini coefficients presented in Table 7.1. It suffices to point out that the Gini coefficients for household income (or financial assets), among those who own some income works out as 0.46 for total household income, 0.55 per capita income and 0.48 for adult equivalent income, all of which are lower than the Gini coefficients for physical assets except land-holding.

The disaggregated Gini coefficients by income sources are higher than the total household income Gini coefficient except for the pension income. The total Gini coefficients for different income sources are 0.55 for remittances (n=295), 0.55 for salaries and wages (n=277), 0.76 for farm or agriculture income (n=227) and 0.22 for pension (n=217). Pension rates are set by the government according to the job status held by the individual pensioners, but the pensioners from our study group do not exhibit much difference in the amount of pension they receive. The income from agriculture is the most unequally distributed; this can be attributed to the distribution of all farm assets, including land, which accounts for a large share of rural assets. Lack of physical farm assets has a direct impact on the income generated from the farm. In the dry areas of Limpopo surveyed there was neither irrigation nor adequate farm implements. Agricultural production in these areas is a low input, low-value crop, small-stock farming; resulting in low farm income.

The extent of sub-regional level income inequality in terms of Gini coefficients is summarised in Table7. 4.

Table 7.3: 1AE income Gini by sub-region & regions

Subreg/reg	N	Y	Sum(RiYi)	TA	LA=10000/2NY(Y+2NY -2SumRiYi)	GA=5000-LA	GC=GA/TA
Bochum	**93**	**238513.3**	**16771808**	**5000**	**2492.68**	**2507.32**	**0.50**
Seshego	**62**	**206986.3**	**10296764.7**	**5000**	**2057.08**	**2942.92**	**0.59**
Schonord	**84**	**352355.4**	**23946662.8**	**5000**	**1968.85**	**3031.15**	**0.61**
Praktisser	**137**	**637168.2**	**65257311.5**	**5000**	**2560.75**	**2439.25**	**0.49**

Zebediela	**54**	**133162.6**	**5740852.06**	**5000**	**2108.97**	**2891.03**	**0.58**
Western	**143**	**695112.1**	**65132368.3**	**5000**	**3482.48**	**1517.52**	**0.30**

Western and Praktisser, which are less remote and closer to town than the rest of the sub-regions seem to have a fairly evenly distributed income

7.2.1.6 Remittances

A detailed analysis on remittances is presented in Chapter 8. The computation of the total and AE Gini coefficients (in Table 7.1) for the overall financial assets (income) among the sample households clearly shows that remittances have an equalising effect on the distribution of income. The Gini coefficient for AE income (with remittances) is 0.48 while the coefficient rises to 0.59 for the Gini coefficient for AE income when remittances are excluded from the computation.

7.3 DOES ASSET INEQUALITY CAUSE MIGRATION?

A combination of strategies is used in this section to establish the causality relationships between asset inequality and migration. In this study we are only testing for the decision to migrate or to send out a migrant member from a household, regardless of the destination of the migrants. However, the type of migration movement studied is exclusively internal; this is in view of the fact that for many decades, migration converged to South African mines and commercial farms from within the country and from Southern African countries for better opportunities for work.

7.3.1 Dependent and independent variables used in the model

As set out in equation 4.2 in Chapter 4, the decision to migrate or to have a migrant member is regarded as a binary (dichotomous) choice-problem, thus requiring binary dependent variables represented by $MGRDMY = 0$, if the household does not have any migrant member(s), $MGRDMY = 1$, if the household has at least one migrant member, thus, a binomial logit model is used for the test.

Table 7. 4: Dependent and independent variables

1. DEPENDENT VARIABLE	
MGRDMY	Dummy variable for presence of Migrants (=1) no migrants =0
INDEPENDENT VARIABLES	**Description of variable**
HOUSEHOLD HUMAN CHARACTERISTICS	
HH SIZE	Total number of people in household (residents + non-residents)
NWKAGE	Number of household members of working age
AGEHHEAD	Average age of household head
HOUSEHOLD PHYSICAL ASSETS	
LANDSIZE	Total land-holding (ha) per household
ALHHASSET	Total all household assets excluding livestock and land
AEVASSET	Adult equivalent value of assets inside house (e.g., TV)
PCLAND	Per capita land holding (ha)
AELAND	Adult Equivalent land holding (ha)
TVLIV	Total value of all livestock
PCVLIVSK	Per capita value of all livestock
PCVFASSET	Per capita value of farm assets excluding livestock
PCALLSS	Per capita value all assets
HVALIVSK	Total value of livestock in household
HOUSEHOLD INCOME	
PCTINCWS	Per capita income incl. salaries and wages:
AGINC	Av.agric inc. including subs
AEPEN	AE pension
PCAGINC	Per capita agricultural income including subsistence
PCPENSI	Per Capita pension

The observable factors Xi influences the participation to the migration process; they include household demographic characteristics, which are also related to the family labour endowment; the wealth position of the household assessed by its physical assets and household income, (including capital variables, such as, landholdings, livestock, farm assets, non-farm assets and financial assets).

MGRDMY may be hypothesised to be a function of the independent variables listed in Table 7.4 selected on the basis of the results of the preliminary analysis in Chapter 6.

7.3.2 Relationship between assets, some household characteristics and migration

The first confirmative tests of the main hypothesis regarding asset inequality and migration were done using:

1. Correlation analysis with un-weighted data
2. Correlation analysis with weighted data

7.3.2.1 Correlation analysis using un-standardised data

The analysis of the relationship between assets, selected household characteristics and migration using bivariate correlation analysis performed on the un-standardised data gave the results discussed below:

There was a significant positive correlation between the presence of migrants and the size of the household and the number of household members older than 15 years (0.198** and 0.146**, respectively), significant at the 1% level. The implication is that bigger households have a higher tendency of sending out a household member to become a migrant worker, and the more the number of grown up members there are, the higher the tendency to have a migrant. It could also mean that the households send out the youth to high schools and tertiary institutions away from Limpopo for perceived better education in cities away from Lebowa. The other variables (sex of household members, age of household head and average education of household) were positively related to migration but not significant.

The presence of migrants is negatively correlated with per capita land size and property, as well as with per capita pension income (-0.127* and -0.227** respectively) significant at 5% and 1% respectively. Also, per capita value of household landholding is negatively related to migration (-0.032) but not significantly. The results of the correlation matrices are tabulated in Appendices 10-1. These findings support the hypothesis that the size and distribution of household land-holdings contribute to the factors that influence household behaviour regarding

migration; other things being equal, the bigger the land-holding, the lower would be the migration rate. However, in real life other factors, such as, local unemployment rate, poverty level, and the presence or absence of rural based non farm opportunities will usually play a part in migration decisions making process.

The negative relationship to pension implies that pension is considered as a substantial source of income and more pension money would discourage migration and somewhat substitute for migration remittances. However, the negative relationship could also be a factor of age, reflecting the fact that those who receive pensions are old people who are no longer in a position to migrate.

7.3.2.2 Correlation using standardised data

Variables with large values contribute more to the calculations of distance measures than those with small values; for example, a value for the size of a household might be five members, while household wealth might be R 250 800; this introduces a problem of differences in scale and units, which is solved by transforming all variables to the same scale. The correlation analysis also utilised standardized data; all the variables were transformed to *z* scores, so that each transformed variable has a mean of 0 and a standard deviation of 1.

The results of the full correlation matrices using standardised per capita and adult equivalent variables are summarised in Table 7.5, which reinforces the discussion in section 7.3.2.1. The results indicate significant and positive relationships between migration (in terms of both the presence of migrants and the number of migrants in the households) and some selected human resource related household characteristics: the more grown-up members in the household (especially males), the higher the likelihood of migration. Per capita and adult equivalent correlation coefficients relating migration to the value of total household property and dwelling, the value of land size and the value of land for adults over the age of 15 years are all significant and negative; so are the coefficients between migration and pension, salaries and wages, and per capita agricultural income when the number of migrants per household is considered.

Table 7.5: Correlation Matrices – migration and assets

INDEPENDENT VARIABLES	DEPENDENT VARIABLES			
	Number of Migrants		Dummy var. –presence of migrant	
No. of people in household	0.397**		0.198**	
Average. educ. level of migrant hh	0.121*		(-)0.007	
Average age of household head	(-)0.020		0.066	
	PC	AE	PC	AE
Value of hh. land size and property	(-)0.175*	(-)0.151*	(-)0.127*	(-)0.137*
Value of household landholding	(-)0.200**	0.012	(-)0.203**	0.001
Farm assets excl. livestock	(-)0.27	(-)0.019	(-)0.048	(-)0.067
Value of livestock	(-)0.030	(-)0.110	0.071	(-)0.045
Household wealth	0.049	0.049	0.085*	0.085*
Agric. income with subsistence	(-)0.258**	(-)0.263**	0.054	0.060
Salaries & wages	(-)0.075	(-)0.104*	(-)0.114*	(-)0.102*
Pension	(-)0.298**	(-)0.281**	(-)0.227**	(-)0.241**
Household assets (TV etc)	(-)0.009	(-)0.014	(-)0.044	-0.041

** Significant at the 0.01 level (two-tailed)
* Significant at the 0.05 level (two-tailed)

The implication is that per capita and adult equivalent landholding, household property and dwelling and financial assets are significantly related to the presence of migration (and the number of migrants in a household). Households with migrants tend to have smaller land-holdings, household property and dwelling and less financial assets per capita and per adult equivalent. The hypothesis that 'the size and distribution of household land-holdings (and some of the other assets) influence household migration behaviour, is supported by these results. Small asset endowments, especially of land-holding per person and adult equivalent land-holding, coupled with scarcity of other livelihood opportunities in the rural areas seem to encourage migration from home'.

The relationships between migration and individual asset variables are mainly negative but not significant, except for the value of landholding and overall household property. The negative sign of the coefficients imply an inverse relationship between them and the propensity to migrate.

Per capita and adult equivalent pension coefficients are also negatively related to

migration and significant, implying that households consider pension as an important source of income and will send fewer members away as migrants if they receive high pension income.

The result in Table 7.5, therefore, supports the hypothesis that better access to and the size of rural assets and income have an influence on the household decisions regarding migration behaviour. Likewise household migration behaviour is likely to influence rural asset accumulation, but this aspect of the migration phenomenon was not analysed for this thesis. The inverse relationship implies that, as assets become more accessible and increase in amount, migration will decrease, but only to a certain level, since households in the Western Region, where land is more widely distributed and the plots are relatively bigger than in the other regions, proved to have a high rate of migrants. This is probably more related to the productivity of the Western region compared to the other areas.

Some asset variables do not show any significant relationship to migration; for example, per capita and adult equivalent farm assets, livestock and agricultural income are all negatively related to migration but not significantly, even at a 5% level. Likewise, when all the assets are considered together there is a negative relationship with migration, but not at a significant level. There does not seem to be a significant association between the education level of the households and migration. The education aspect of migration was considered by household rather than by migrant, maximum and minimum education per household generally and per migrant household was considered. Schooling status generally had no significant correlation with any of the variables being tested. However, the status of maximum education was positively significantly correlated with per capita all assets, per capita income and to the total number of people in the household. This may imply that household assets, especially those accumulated from migration income are may be influenced by the level of education of the household from which the migrant comes from However, households with migrants have slightly lower education levels compared to non-migrant households, even though they have better skills training level. The latter can be associated with exposure and information which migrants bring back home with them when they return home.

7.3.3 Aggregating variables influencing migration using Factor Analysis

Migration as a human behaviour is influenced by a number of variables, some of which are correlated. Factor analysis is used to perform two functions:

(i) One is to identify underlying construct in the data that could be indicated by a set of variables.

(ii) Secondly, to reduce the number of variables, but retaining as much information as possible

Empirical evidence shows that there are complex motivations behind migration, such as diversification of income portfolios for the families and risk-management strategies in the presence of inadequate resources and constraints to access resources (Stark and Levhari, 1982; Katz and Stark, 1986; Stark 1991), as well as household characteristics and their endowment of human, physical and social capital.

7.3.3.1 Correlation Matrix of variables

The initial step in factor analysis was to test if the variables were factorisable by computing a correlation matrix for the variables, which are said to have an influence on the decision to migrate. *Bartlett's test of sphericity* was used to examine the hypothesis that the variables are uncorrelated in the population. According to Bryman & Cramer, 2001, the rule that has to be met is that the majority of the variables should be significantly correlated either positively or negatively. If there are no significant correlations between the variables then it would mean they are not related and it would not be worthwhile to conduct a factor analysis. The correlation matrix of the variables inputted and their significance levels is presented as Appendix 8. The results indicate that many of the variables have correlation coefficients larger than 0.30 and are significantly correlated at less than 0.05 levels, either positively or negatively with one another. This implies that some variables are related and constitute one or more factors. Therefore, it is worth a while to carry out a factor analysis. However, there are some variables which were not significantly correlated, meaning that they are unrelated and can not form factors.

7.3.3.2 Communality and Variance Explained

The method used for extracting the factors was principal components for reasons explained in Chapter 5, section 5.7.2.2. This method first extracts the combinations of variables explaining the greatest amount of variance and proceeds to combinations that account for smaller amounts of variance. The variance of the test to be explained is known as its *communality*, it is the percentage of a variable's variance that contributes to the correlation with other variables or is common to other variables. Since principal component analysis examines the total variance of the test, its initial *communalities* are set at 1. Table 7.6 shows the SPSS output for the communalities of the principal component analysis. The first component or axis to be extracted accounts for the largest amount of variance shared by the variables and the second factor consists of the next largest amount of variance which is not related to or explained by the first factor; this means that the factors are unrelated or *orthogonal* to one another.

The SPSS output showing the initial and the rotated factors produced by the principal components analysis of the variables are associated to migration decisions and the amount of variance they account for (their *eigenvalue*) is presented in Table7.8; it is further showing the total variance explained, or the percentage of variance explained for all the original variables.

In the initial component the variance accounted for by the first factor is 14.266 or 71.33, percent of the total variance, which after rotation is reduced to 47.29 per cent. The total variance explained by the 15 factors is the sum of their eigenvalues, which is, in this case, is 20 and their cumulative percentage variance explained, adding up to 100 per cent. The sum of squares of the factor loadings of each variable on a factor represents the *Eigenvalues*, or the total variance explained by that factor. Based on the *Eigenvalues* the factors are arranged in order of decreasing variance, so that the most informative factor is the first and the least informative is the last.

Table 7.6: Communalities of principal component

	Initial	Extraction
pc earnings salaries & wages	1.000	.954
pc farm assets (eg tractor)	1.000	.769
pc hh assets (eg TV)	1.000	.922
per capita total income including subsistence & rem.	1.000	.973
per capita all asset including livestock	1.000	.990
pc total income with subsis., excl. remittances	1.000	.976
pc agric. income +subs.	1.000	.827
pc pension = pension / hhsize	1.000	.959
pcvland = vland/family	1.000	.847
Per capita value of livestock	1.000	.972
AE salaries & wages contribution (x12)	1.000	.952
AE hh pension	1.000	.911
AE hh wealth	1.000	.982
AE value hhl and	1.000	.847
AE hh income incl. subs & rem.	1.000	.960
AE total income excl. rem.	1.000	.970
AE value of livestock	1.000	.960
AE farm assets (excl. livst)	1.000	.673
AE hh assets (egTV)	1.000	.897
AE agric income & subs.	1.000	.742

Extraction Method: Principal Component Analysis.

The proportion of variance accounted for by any one factor is its eigenvalue divided by the sum of the eigenvalues, which are presented in the third column of Table 7.6. Some of the factors account for very small proportion of the total variance and would, therefore, not make sense to keep all of them, since there are as many factors as variables. Thus the first few factors are the most important ones

Table 7.7: Initial and rotated principal components and total their variance

Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.266	71.329	71.329	14.266	71.329	71.329	9.458	47.290	47.290
2	2.124	10.619	81.948	2.124	10.619	81.948	5.497	27.483	74.772
3	1.693	8.467	90.415	1.693	8.467	90.415	3.128	15.642	90.415
4	.859	4.297	94.712						
5	.588	2.942	97.653						
6	.301	1.504	99.157						
7	.095	.477	99.634						
8	.041	.203	99.837						
9	.017	.083	99.919						
10	.008	.042	99.961						
11	.003	.017	99.979						
12	.002	.012	99.990						
13	.001	.007	99.997						
14	.000	.002	99.999						
15	.000	.001	100.000						
16	3.80E-005	.000	100.000						
17	1.54E-005	7.70E-005	100.000						
18	4.84E-015	2.42E-014	100.000						
19	1.31E-016	6.53E-016	100.000						
20	-2.63E-016	-1.32E-015	100.000						

Extraction Method: Principal Component Analysis.

7.3.3.3 Factors retained

The decision on how many factors to extract was guided by two main criteria (Bryman & Cremer, 2001, Hair, et al, 1998), namely:

(i) *Kaiser's criterion* (or the latent root criterion) which requires that only factors which have an eigenvalue of greater than one should be selected. SPSS does

this by default unless it is instructed to do otherwise. Since the total variance that any one variable can have has been standardised as one ( ), it means that a factor which explains less variance than a single variable is excluded. Thus, from Table 7.6 it is clear that only factors 1 to 3 have to be retained; together they represent 90.42 per cent of the variance of all the variables. According to Bryman & Cramer (2001), the Kaiser criterion is recommended for situations where the number of variables is fewer than thirty and the average communality is greater than 0.70, or the number of participants is greater than 250 and the mean communality is greater than or equal to 0.60, a situation similar to what this study is addressing.

(ii) The second criterion or method is the graphical *scree test* proposed by Cattell (1966), quoted by Bryman and Cramer, (2001). The Scree plot is a graph drawn of the descending variance accounted for by the factors initially extracted. Where the plot shows a break between the steep slope of the initial factors and the gentle slope of the latter factors is considered to be the cut off point. The factors to be retained are those which lie before the point at which the eigenvalues seem to level off.

The SPSS produced scree plot for the factors presented in Table 7.6 is depicted in Figure 7.3. After the fourth factor the scree plot makes a break (point of inflection) and starts to level off. As a general rule, the scree test results in at least one and sometimes two or three more factors being considered for inclusion than does the Kaiser's criterion (Hair, et al, 1998). In this analysis the scree tests results in four factors, that is, one more factor than in the laten root criterion, which shows the fourth factor as having an eigenvalue of 0.859, disqualifying it from being retained as it is less than one.

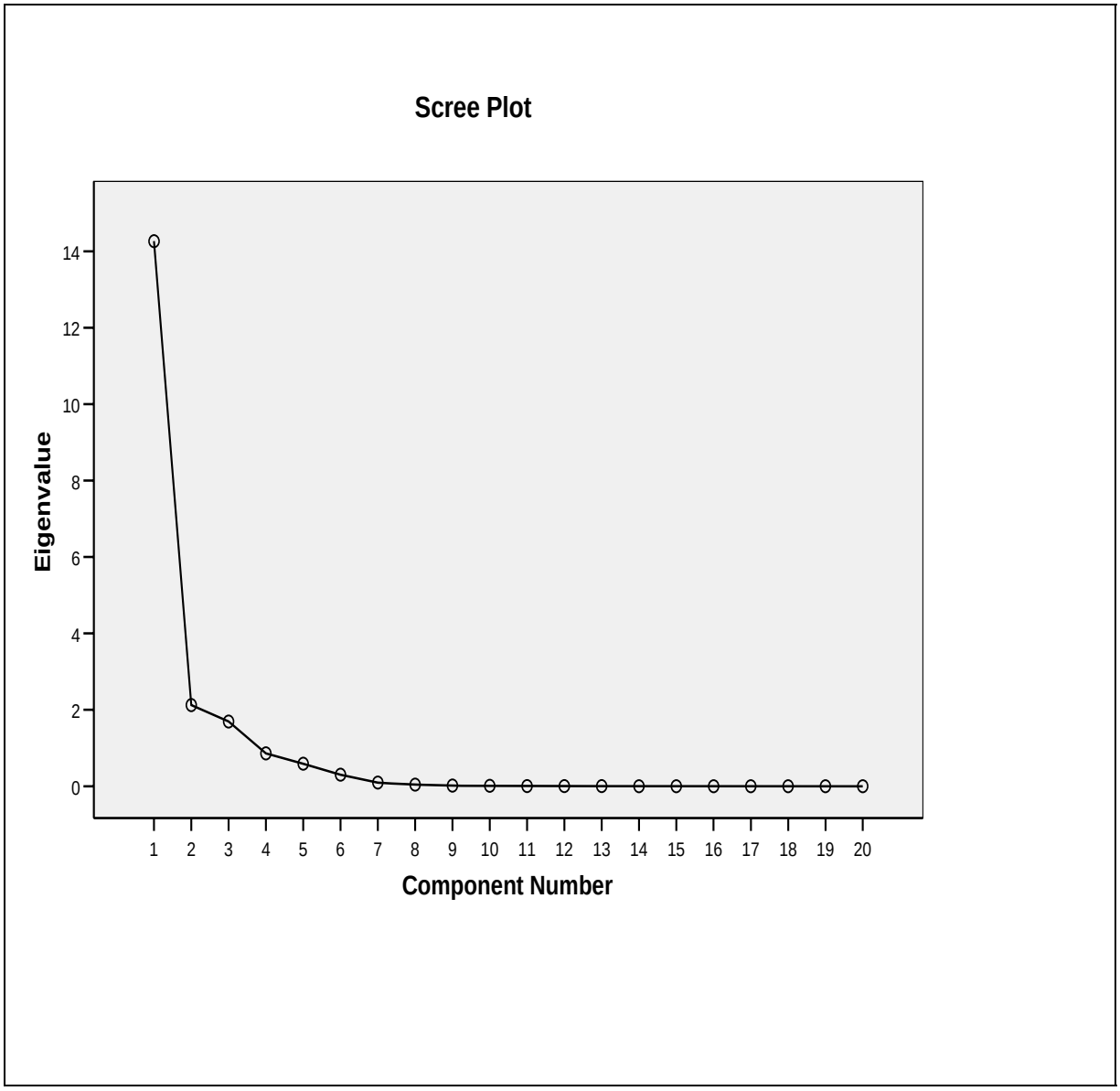


Figure 7.3: **Scree test of eigenvalues for component analysis**

7.3.3.4 Interpretation of Results

The factors derived from the component analysis are presented in Table 7.9, as the unrotated component analysis factor matrix and Table 7.10, as the rotated component analysis factor matrix. In the unrotated component

The initial unrotated factor matrix provides a preliminary indication of the number of factors to extract. Three factors or components were extracted showing the best linear combination of variables that account for more variance in the data as a whole than any other linear combination of variables. The first factor is viewed as the single best

summary of linear relationship exhibited in the data. Almost all the different aspects of per capita (pc) and adult equivalent (AE) income and assets loaded heavily on factor one.

Table 7.8: Unrotated Component Matrix*

	Component		
	1	2	3
per capita total income including subsistence & rem.	.986		
pc total income with subsis., excl. remittances	.978		
AE hh income incl. subs & rem.	.972		
AE total income excl. rem.	.961		
pc earnings salaries & wages	.950		-.223
AE salaries & wages contribution (x12)	.939		-.264
AE hh wealth	.929	-.283	
pc hh assets (eg TV)	.912	-.300	
AE hh assets (egTV)	.891	-.317	
pc agric. income +subs.	.880		
per capita all asset including livestock	.873	-.395	.270
pc farm assets (eg tractor)	.824		-.291
AE agric income & subs.	.803	.227	-.212
pcvland = vland/family	.798	.455	
AE farm assets (excl. livst)	.754		-.317
AE value hhl and	.747	.532	
Per capita value of livestock	.738	-.459	.466
AE value of livestock	.710	-.497	.457
AE hh pension	.481	.595	.570
pc pension = pension / hhsize	.539	.519	.631
Sum of squares (eigenvalue)	14.27	2.12	1.69
Percentage of trace	71.33	10.62	8.47

Extraction Method: Principal Component Analysis.

*3 components extracted.

Table 7.9: Rotated Component Matrix

	Component		
	1	2	3
AE salaries & wages contribution (x12)	.893	.374	
AE total income excl. rem.	.878	.340	.289
pc earnings salaries & wages	.872	.419	
pc total income with subsis., excl. remittances	.847	.408	.302
AE hh income incl. subs & rem.	.839	.424	.276
pc farm assets (eg tractor)	.808	.340	
pc agric. income +subs.	.806	.275	.318
AE agric income & subs.	.798		.276
per capita total income including subsistence & rem.	.791	.498	.316
AE farm assets (excl. livst)	.769	.284	
AE value hhl and	.729		.561
pcvland = vland/family	.683		.601
AE hh assets (egTV)	.676	.663	
AE value of livestock		.946	
Per capita value of livestock	.219	.940	.202
per capita all asset including livestock	.452	.871	
AE hh wealth	.560	.789	.216
pc hh assets (eg TV)	.669	.686	
pc pension = pension / hhsize		.248	.936
AE hh pension			.933

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
A Rotation converged in 6 iterations.

Examining the pattern of the variable loadings (the correlation of each variable and the factor) for factor two and three the interpretation of the role they have to play in defining the other factors is not clear. It is, therefore, preferred to look to the rotated component matrix because it displays coefficients (factor loadings) in such a way that the larger loadings are made larger and the smaller loadings are made smaller than their un-rotated values (Hair et al). Thus it was necessary to employ a rotational

method to achieve simpler, more meaningful and more interpretable factor solutions. An orthogonal Varimax rotation method was used and the rotated component matrix obtained is presented in Table 7.10.

A number of authors have given guidelines on the interpretation of the factor loadings (Hair, et al, 1998; Bryman & Cramer, 2001). In interpreting factors, a decision has to be made regarding which factor loadings are worth considering from a practical and statistical point of view. Factor loadings greater than 0.30 (±0.30) are considered to meet the minimum level; loadings ±0.40 are considered more important and if the loadings are ≥0.50 they are considered to be practically significant. The larger the absolute size of the factor loading the more important the loading in interpreting the factor matrix. Further more guidelines towards statistical significance are based on the sample size; the smaller the sample size the lager the factor loading required and vice versa.

Based on above rules of thumb, practically all the variables are loading significantly on factor one except the per capita value of livestock. This is not surprising since the first factor tends to be a general factor with almost every variable loading significantly. In this case all the different types of assets (farm, non-farm and livestock) and income from different sources correlate significantly to factor one which can reasonably be called *asset /income factor*. This factor accounts for 71.33 of the total variance. However, per capita and adult equivalent livestock, household wealth including 'in the house assets' are variables that are loading heavily on factor two, which we can safely call *Livestock factor*, it accounts for 10.69 of the total variance. Despite rotating the factor matrix orthogonally some variables are still loading significantly on two or all the three factors; many of the variables are asset or income related and thus are correlated. The third factor, which accounts for only 8.47 per cent of the total variance, is composed of per capita and household pension, it is called *pension factor*. Clearly, these three factors represent groupings of variables, here termed factors, which explain or influence decisions regarding migration. The asset/income factor and livestock factor could be looked ate from both the cause and effect regarding migration. Presence of migration proceeds can enhance asset accumulation, especially livestock, which is considered a store of wealth by African

people. At the same time, lack of such assets and income can positively influence migration decisions within a household.

7.3.4 Relationship between migration, assets and selected household characteristics using Logistic Regression Analysis

The relationship between asset inequality and migration was tested using the t Test in Chapter 6 and the correlation analysis in the preceding sections. The hypothesis regarding migration and assets is tested further using the *Logistic Regression Analysis*, also known as *Logit Analysis*. The dependent variable, in the study is a non-metric, dichotomous (binary) variable taken to be the dummy variable of presence of migrants and absence of migrants in households, while the independent variables are metric (Table 7.5). Households can decide to send out one or more or their members to work away from home as migrants in order to maximise their available human resources. The decision to do so may be dictated by one or more factors (predictor or independent variables). The Logistic regression approach is suited to handle the nonlinear relationship between the dependent and independent variables by directly predicts the probability of an event occurring.

The results of the Logistic regression are statistically used for prediction of the probability of occurrence of an event. In our case the results are used to test for the predictor variables associated with the presence of migrants (dummy variable) in the households as presented in Table 7.11. The different measures of independent variables used include: total, adult equivalent and per capita assets.

The interpretation of the Exp B is such that a unit change in the independent variables will lead to a change in the odds ratio in favour of or against the presence of migrant by the respective Exp B coefficients. The percentage in the odds ratio (ExB-1) x 100) means that a unit change in the independent variable will result in a given percentage change in the odds ratio in favour of or against the presence of migration.

Table 7.10: Factors influencing migration

VARIABLE	B	S.E	df	Sig	Exp(B)	% change in odds (EX(B)-1)x100
AGEHHEAD	.002	.001	1	2.625	.105	0.2
NWKAGE	.481	.079	1	37.180**	.000	61.7
HHSIZE	.155	.041	1	14.183**	.000	16.7
LANDSIZE	-.056	.068	1	.676	.411	-5.4
PCLAND	-3.849	1.947	1	4.501*	.034	-53.6
PCPENSIN	-.006	.002	1	9.496**	.002	-0.6
PCTINCWS	.000	.000	1	22.422**	.000	0
VLIV	.000	.000	1	1.284	.257	0
PCVLIVSK	.000	.000	1	.448	.503	0
PCFASSE	.000	.001	1	.047	.829	-0.2
ALHHASS	.000	.000	1	4.636*	.215	0
PCALLASS	-.001	.000	1	4.305*	.038	0
Constant	-1.374	.254	1	29.246	.000	-74.7

**Significant at $p < 0.01$, *significant at $p < 0.05$

7.3.4.1 Land-holding and migration

The findings in Table 7.11 indicate that the presence of migration is significantly associated with per capita land holding has a significant and negative influence on migration at $p < 0.05$. An increase in land ownership by one unit (hectare, acre, etc.) will result in a 53.6% change in the odds ratio against migration. This finding has important implications to the land reform programme of South Africa as long as the land transfer goes to people who are likely to use it productively. A unit change in the predictor "LANDSIZE" which indicates the total land in hectares owned by the households has a negative influence on migration, even though the influence does not test significant. Increasing land size by one unit (hectare, acre, etc.) will result in a 5.4% change in the odds ratio against the presence of migrants.

7.3.3.2 Other assets and migration

The presence of migrants is significantly influenced by per capita pension and per capita income at $p<0.01$ and by total assets and per capita assets at $p<0.05$. Our findings show that unit increase in the value of per capita pension will result to 0.6 percent change in the odds ratio against migration, a unit increase in per capita

income does not have any influence on the odds ratio of migrating. Total assets and per capita assets also influence migration significantly at $p<0.05$. A unit increase in per capita assets will result in 0.1 per cent change against the odds ratio of migration. The household data used in the study focused on migration that involved absence from home; migrants were defined as non-resident household members and those of working age were considered for the analysis. The activities of household members commuting from home to work on a daily or weekly basis were combined with activities of residents and were captured under local salaries and wages income.

Destination and duration of migrants vary a great deal, from nearby farms near home to the mines in another province and sometimes outside the country. The choice of the type of migration will vary depending on individual circumstances.

The results also show that the presence of migrants is positively but not significantly influenced by agriculture income This is not surprising as the discussion on migration in the three regions of the study (Central, Southern and Western) showed that the Western Region, which has more agricultural activities taking place and better land distribution, has a higher proportion (65%) of households with migrants than the other two regions (40.6% and 50.5% for Central and Southern, respectively). This positive influence of agriculture income on migration can also be interpreted to mean that the reverse causality will also be true, so that migration positively influences agricultural income through remittances. This line of thinking is explored further in Chapter 8.

The following additional observations can be made from the findings:

(i) Households with adequate income can easily take advantage of an occurring opportunity away from home by sending a member(s) of the household to work or study away from home and the family will help meet the necessary costs.

(ii) In all cases and will all the factors except pension, the reverse causation may apply; that is, migration may influence, positively or negatively the size and distribution of household assets. However, it has to be stressed that this study focused on migration, what might influence it and how the use of migrant remittances may influence inequality in the communities where migrants come

from. Future analysis of the data should endeavour to look into such issues

(iii) A successful migrant, who has already established himself or herself and has good networks, may decide to help more members of the household to look and obtain jobs or study opportunities away from home. That would lead to a reduced cost of migration but will increasing the rate of migration from that particular area migration.

(iv) The negative influence of pension on migration implies that pension is considered to be one of the main sources of livelihood; an increase in pension income received by the household would discourage migration. This is not necessarily a good thing because active members of households should not be encouraged to depend on pensioners but should be encouraged to assist pensioners. However, in reality, due to high unemployment levels in Limpopo, in some cases pensions are the only source of income for some households, used not only to buy food but also to meet other basic needs such as costs of health and school fees.

(v) A number of household characteristics also significantly influence the presence of migration. Migration tends to increase with increasing household size. The influence of household size is significant and positive at $p < 0.01$; an increase in the number of members of the household by one will result in a 16.7 per cent change in the odds ratio in favour of migration. This influence becomes even greater when only the number of working age members of the household is considered. A unit increase in the number of working age persons will result in a 61.7 percent change in the odds ratio in favour of migration and this is significant at $p < 0.01$.Having said that, we have to remember that a single factor may not necessarily on its own influence migration. It is the combination and complexity of the rural set up that will in the final analysis lead to a decision by a household or individual to go migrate.

One might ask, if the presence of migration have any influence on the household size? We can only speculate that in relatively well to do households, regular income flow from remittance may encourage families to have more children. However for poor household the size of the household is influenced by many other factors and migration may not necessarily be one of them.

The preceding discussion clearly shows that the presence of migrants in rural households is associated positively or negatively, to household characteristics and the amount and distribution of some physical and financial assets. Specifically, the results show that:

1. A unit change in land size, per capita land-holding (in hectare), per capita pension and adult equivalent salaries and wages will result in change in the odds ratio against migration. In the Central, Southern and Western regions, households with smaller land-holdings per capita tend to have migrants. However, the pattern of migration from these areas does not support the hypothesis that higher inequality of land lead to higher out-migration, since the Western Region with better land distribution has a higher proportion of households with migrants. Likewise, looking at this from the sub-region point of view, one would have expected a higher proportion of households from Praktiseer, where 83.2% of the households have no land to have migrants; only 42.3% of the households have got migrants.
2. A unit change in per capita (total household) income, adult equivalent agriculture income and household size (especially the number of the members in the household of working age) will lead to a change in the odds ratio in favour of migration
3. Farm assets, the distribution of which is uneven, do not have a significant influence on migration. Indirectly, however, one may consider adult equivalent agriculture income to be influenced by appropriate farm technologies including farm assets. Assets used inside the houses (such as electrical appliances) do not have any influence on migration. On the other hand, remittances from migration (in kind and in cash) do influence asset accumulation and distribution in the rural areas.
4. Limpopo is not well endowed with livestock as a form of asset; it is therefore not surprising that livestock does not have significant influence on migration from the rural areas. However, as revealed by the t-Test analysis in Chapter 6, households with migrants have a higher total value of livestock than those without migrants. This may have future implications that migrants would consider investing in livestock production if other things remain equal.

7.4 SUMMARY

This chapter has presented the complexity of the dynamics of rural out migration from Limpopo in South Africa. The analyses have produced the main empirical results relating to unequal distribution of rural assets to migration and have confirmed some of the exploratory analyses undertaken in Chapter 6. The procedures applied on the basic data in this chapter were the Gini coefficients analysis, correlation analysis, factor analysis, and Logistic Regression analysis.

The findings discussed in this chapter indicate that a relationship exists between presence of migrants in rural households, the amount and distribution of some of the physical and financial assets they own; the influence associated to different factors varies and should not be generalised. The presence of migration is significantly and negatively influenced by per capita land-holding, adult equivalent salaries and wages and per capita pension. Adult equivalent agriculture income significantly and positively influences the presence of migration The reverse causality, which is reflected mainly from the use of the migration remittances is not analysed in this study, but its existence is acknowledged and referred to where possible.

A number of household characteristics also play a role in influencing migration decisions. The results show that the presence of migration increases with increasing household size, especially when the number of household members of working age increases.

CHAPTER 8

REMITTANCES AND RURAL INEQUALITY

8.1 INTRODUCTION

In this chapter the second key hypothesis of the thesis is analysed; it states that: *"migration decreases rural income inequality in migration sending areas."* It is concerned with whether remittances (in cash and/or in kind) received by migrant-sending households decrease or increase rural inequality in the migrant-sending areas. The literature reviewed in Chapter 2 indicates the varying views on the way remittances are used and whether remittances increase or decrease inequality in rural areas. There is also disagreement about the answers to fundamental questions regarding the link between migration and development (World Bank, 1999), such as: Are migrants drawn disproportionately from low income, middle income, or high income families? Do remittances compensate rural households and communities for their loss of labour to migration? Do migrants send remittances to their families, or vice versa? Are poor families likely to receive more or fewer remittances from their migrant members than rich families? Migrants from poor families might be expected to have an interest in supporting their family members, but migrants from wealthier families may have greater vested interest in pleasing their parents in anticipation for better chances to inherit their parents' wealth. Does participation in migration raise rural incomes? How do migration remittances affect rural income distribution?

Answers to these and other similar questions are vital to understanding the role that migration plays in meeting food and other basic needs and income objectives. However, this study only attempts to respond to the last question regarding the impact of migrant remittances on the distribution of rural income by size. The answer to this question is very important as it sheds light on rural income inequality, economic growth and social welfare.

In section 8.2 the importance and share of remittances, as already observed from the findings of the study and also from other empirical studies, are summarised. Section 8.3 presents the framework which is later used to analyse the impact of remittances on

the distribution of rural household income in the study area in Limpopo. The effect of remittances on income inequality is measured by the Gini index and depends on the proportion of remittances relative to total household income, the inequality of remittances and the Gini correlation between remittances and total income. The household data from the 1999 / 2000 survey are used to derive Gini indices empirically and to highlight the role of migrant remittances in the level and distribution of rural income. Section 8.4 summarises the findings and highlights some conclusions.

8.2 THE IMPORTANCE AND SHARE OF REMITTANCES IN HOUSEHOLD INCOME

There are pertinent points that emerged from Chapter 6 regarding migration and remittances that will guide the discussion in this chapter:

i) Most households in the study sample rely, to a great extent, on one of the three income sources, local salaries and wages, remittances or pension, as discussed in Eastwood, et al, 2006.

ii) The share of remittance in household income of households with land is almost evenly distributed among households with land holdings of between 0.5 to 4 hectares.

iii) The number of migrants and the share of remittance in household income is low among households with land-holdings bigger than four hectare. However, the share of remittance in household income is also low among households with less than 0.5 hectare.

iv) In value terms, the total amount of remittances received per annum by landless households is higher than the total amount of remittances among the households with land. The highest remittances were received among the landless households, especially in the Southern region. The average annual household cash remittance among households with land was R11 674, while it was R12 650 among landless households. Likewise, the value of the total annual remittances (cash and in-kind) among households with land was R14 144 per household, while it was R16 4881 per household among the landless households. Therefore, it is true that, on the average, the landless households

depend on remittances and receive more remittances than households with larger land-holdings.

In order to analyse income inequality, it is essential to know the structure and composition of income in the rural economy. Part of the discussion on income is presented in Chapter 6 section 6.5; Appendix 7 summarises the different sources of income and provides the necessary background for income inequality analysis. The share of the different sources of income in the total household income is quite distinct; salaries and wages contribute the highest share of 46.3%, remittances (in cash and in kind) contribute 31.7%, pensions contribute 16.2% and income from agriculture contributes only 5.8 % to the total household income. Based on these figures it is fair to say that remittances cannot be ignored as they represent a very large (31.7%) and significant part of income for rural households; thus the remittances, to some extent, determine the distribution of village income.

Clearly, remittances are an important source of livelihood and the effects of migration on rural inequality depend critically on how remittances and the losses and gains of human resources through migration are distributed across households, on how production constraints are faced by different household groups and on how expenditure is linked to the rural economy. According to Stark et al. (1986), over a period of time, migration facilitating information and contacts become diffused through the village population making it possible for migration and receipt of remittances by households across the income spectrum, including the lower end of income distribution. This would most probably work in favour of reducing income inequality, as the poorest households get access to remittances.

These conclusions notwithstanding, there is no agreement on whether remittances increase or decrease inequality in the rural areas. Empirical studies have shown that remittances can increase as well as decrease inequality. While the Indian Village Studies show increasing inequality, Gustaffson and Makonnen's (1994) simulation analysis regarding remittances from male Lesotho migrants employed in South Africa show that remittances decreased inequality. Oberai and Singh (1980) conclude that, as only 6% of remittances flowing into the Indian Punjab were used for productive

investment, remittances improve the distribution of income. Adam's (1996) analysis of the role of remittances in rural Pakistan indicates that different sources of remittances have different effects: remittances from international migration tend to increase inequality, whereas those from national migration have an equalising effect. Stark, Taylor, and Yitzhaki (1998), analysing the impact of migrants' remittances on the distribution of household income in two Mexican villages, argue that inequality depends critically on how the migration opportunities are diffused across village as well as the "returns to human capital embedded in migrants' remittances".

While some studies conclude that migration results in improvement (Adelman & Robinson, 1977), others have concluded that it worsens inequality; for example, Singh, 1977; Rodgers et al., 1978). The overall effect is extremely hard to gauge since it depends on the period over which an assessment is made and on whether both direct and indirect effects are considered. Above all, it depends primarily on the relative propensities of migration among different segments of the rural population and on the flow of remittances and return-migration (return migration is out of the scope of this study). If migration is concentrated among the fairly rich and the fairly poor, then income inequality may tend to grow. However, if the very poor migrate as whole families pushed from the rural areas by debts and loss of land, the beneficial effect on wages may reduce income inequality. In this chapter an attempt is made to test the hypothesis that "remittances received by migration-sending households decrease rural inequality in the migrant-sending area".

8.3 ANALYTICAL FRAMEWORK

Let $y_1 \ldots\ldots\ldots y_K$ represent K components of household income and y_0 represent total household income, such that $y_0 = \sum_k^K = 1\, y_k$. Since the income receiving unit of analysis is the household, in this discussion, income will refer to household income component *k*. The component of the income may be positive, such as the regular migrant to household income, or negative, such as household to migrant remittances or taxes. The analysis follows Stuart (1954), Pyatt, Chen and Fei (1980) and Lerman and Yitzhaki (1985). The Gini coefficient for village income is written as a function of the covariance between income and its cumulative distribution, that is:

$$G_0 = \frac{2Cov[y_0 F(y_0)]}{\mu}, \qquad (8.1)$$

where, G_0 is the Gini coefficient of total village income, μ_0 denotes village mean income and $F(y_0)$ is the cumulative distribution of total income in the village. Using the properties of the covariance, equation (8.1) can be written as

$$G_0 = \frac{2\sum_{k=1}^{K} Cov[y_{0,} F(y_0)]}{\mu_0} = \sum_{K=1}^{K} R_k G_k S_{k,} \qquad (8.2)$$

where, S_k is the share of component *k* of rural income, i.e. $S_k = \overline{y_k} / \overline{y_0}$; G_k is the Gini index corresponding to income component *k*; and

$$R_k = \frac{Cov[y_k, F(y_0)]}{Cov[y_k, F(y_k)]} \qquad (8.3)$$

R_k is the Gini correlation of component *k* with total income.[27] The properties of the Gini correlation are a mixture of the properties of Pearson's and Spearman's correlation coefficients (Schechtman and Yitzhaki, 1985).

Equation (8.2) enables us to decompose the impact of remittances in inequality into three terms:

i) The magnitude of remittances relative to total income
ii) The inequality of remittances
iii) The correlation of remittances with total income.

Using this formulation, the effect of a small percentage change in any one component on the Gini of total income can be calculated. If an exogenous change happens in each of the household's income components *j* by a factor of *e*, such that $y_j(e) = (I + e)y_j$, taking household labour and decisions as given, then:

$$\frac{\partial G_0}{\partial e} = S_j (R_j G_j - G_0) \qquad (8.4)$$

[27] R_k is the correlation coefficient between two variables y_k and y_0.

where $S_{j,}G_j, G_0$ and R_j denote the j^{th} income share, Gini coefficients and Gini correlation before the marginal income changes. Dividing by G_0, we obtain

$$\frac{\partial G_0 / \partial e}{G_0} = S_j G_j R_j / G_0 - S_j \qquad (8.5)$$

Equation (8.5) states that the relative effect of a marginal percentage change in component *j* on inequality equals the relative contribution of component *j* to overall inequality minus relative contribution to total income. Thus, as long as remittances play a role in rural village incomes, then

- If the Gini correlation between remittances and total income, R_j, is negative or zero, an increase in remittances necessarily ***decreases*** inequality.
- If the Gini correlation is positive, then the impact on inequality depends on the sign of $R_j G_j - G_0$. A necessary condition for inequality to ***increase*** is that the inequality of remittances must exceed the inequality of total household income: $G_j > G_0$ (since $R_j \leq I$).

More understanding of equation 8.5 can be gained by rewriting it as

$$\frac{\partial G_0 / \partial e}{G_0} = MR - AR \qquad (8.6)$$

where, MR is a weighted average of the marginal importance from source *j* in households' total income, calculated over all possible pairs of households and weighted by income differences; while AR is the average importance of income from source *j* in households' total income. Equation (8.6) states that the effect of a small percentage change in income from source *j* on inequality depends on the difference between the importance of that income in households' total income.

8.4 EMPIRICAL DERIVATION OF DECOMPOSED GINI INDICES

A detailed analysis of the characteristics of households with and without migrants and the roles played by migration was presented in Chapter 6. It was found that internal

migration plays an important role in labour allocation in all the six sub regions under this study (Bochum, Seshego, Schoonord, Praktiseer, Zebediela and Western). The analysis is now turning to the decomposition of household income inequality in each sub-region and overall in order to establish whether migrant remittances decrease or increase income inequality. Decomposed Gini indices were empirically derived using the aggregated data from three regions (Central, Southern and Western) of Limpopo. Four components of rural income, and therefore, of income inequality were considered, namely:

i) Farm income (agricultural income: crops and livestock sales)
ii) Salaries and wages,
iii) Pension and
iv) Internal migration remittances.

The results of the decomposition of income inequality by the different sources of income are provided in Table 8.1.

Table 8.1: Composition of 1999 / 2000 income inequality in Limpopo

Income source	Percentage share in total household income	Share in total household income (S)	Gini coefficient for income source (G)	Gini correlation with total income rankings (R).	Contribution to Gini coefficient of income (SGR)	Percent share in Gini of total income
Salaries/ wages	**46.3%**	**0.46**	**0.78**	**0.96****	**0.34**	**72.3**
Agricultural income	**5.8%**	**0.06**	**0.90**	**0.68****	**0.04**	**8.5**
Pensions	**16.2%**	**0.16**	**0.70**	**0.16***	**0.02**	**4.3**
Remittances	**31.7%**	**0.32**	**0.55**	**0.38****	**0.07**	**14.9**
Total income including remittances	**100%**	**1.00**	**0.47**	**1.000**	**0.47**	**100.0**
Total income excluding remittances	**100%**	**1.00**	**0.62 Note the higher Gini coefficient**	**0.88***	**0.54**	**100.0**

*** Significant at the 0.01 level (or 99%); * Significant at the 0.05 level (or 95%)*

8.4.1 Overall inequality from different income sources

Column (S) of Table 8.1 presents the share of each income source in the total income. Non-remittance income comprises just over two thirds (68%). However, the contribution of migrant remittance income to the household income of 32% is significant. Note that in row 5 only remittance incomes are analysed, while in row 6 all income sources, including remittances, are considered. In row 7 only non-remittance incomes are analyses.

8.4.1.1 Key conclusions

The Gini coefficient (G) in the last row shows the distribution of total income by size excluding remittances. By comparing the last row to the Gini coeficients corresponding to total income (6^{th} row) we obtain a measure of the overall impact of the remittances upon the community income inequality. Income inequality decreases considerably when migrant remittances are considered; it drops by fifteen percentage points from 0.62 to 0.47. The last column of Table 8.1 presents the percentage share in the Gini coefficient of the total income. Salaries and wages contribute the highest share to the Gini coefficient (72.3%) followed by remittances (14.9%). Pensions are shown to contribute the least to the rural income inequality, contributing only 4.3% to the Gini coefficient of the total income. Salaries and wages and agricultural income have the highest Gini coefficients and they are also highly correlated with total income. Thus, it is the relatively better off households at the upper end of the income distribution that receive salaries and wages and agricultural income (most people do not farm because of lack of land). In contrast, pension and remittances have low correlation with total income (0.16 and 0.38, respectively), indicating that pensions and migrant remittances are widely accessible across income groups. The impact of migration remittances upon income inequality will tend to become more favourable as migration opportunities spread throughout the villages, this is explored further in the next section looking at the different sub-regions.

The last column of Table 8.1 shows the percentage contribution of each income category to the total rural inequality. Salaries and wages as one income source and

migrant remittances as another source have an almost similar share of total income (column 3 of Table 8.1); however, remittances account for a smaller percentage of total inequality (14.9%) than that of salaries and wages (72.3%). This means that remittances are distributed more evenly than salaries and wages among the households that receive them. It means also that even some households at the lower end of the income spectrum in rural areas have access to some migrant remittances.
The above explanation not withstanding, it is important to note from the observation in column 6 of Table 8.1 that all the contributions to Gini coefficient of income are positive, implying that all income sources are unequal but pensions and remittances less so than salaries and wages.

Another interesting observation from Table 8.1 is the share in total household income of agriculture income and pensions (respectively 0.06 and 0.16) and the resulting percentage share in Gini of total income (8.5% and 4.3%) of agricultural income and pensions, respectively. Whereas pensions are fairly evenly distributed, agricultural incomes are relatively more unequally distributed, that is, agricultural incomes contribute more to total income inequality than pensions. This is not surprising, given the fact that pensions are distributed among the old and retired people across the income spectrum where as agricultural income are only obtained by the few who own enough arable land and or own livestock.

8.4.2 Share of income sources in the Gini coefficients of sub-regional total incomes

The incomes levels in the six sub-regions were decomposed using two income categories, namely: (1) the non-remittance income (salaries and wages, pensions, agricultural income and any other) and (2) remittance income (only internal remittances are dealt with in this study). A summary of the second decomposition is presented in Table 8.2.

The first column (S) of Table 8.2 presents the share of each income source in the total income of each sub-region. In each case, non-remittance income comprises over half

of all income in all the six sub-regions. However, the contribution of remittance income is also significant, ranging from 21% in Seshego to 45% in Praktiseer.

The distribution of income, by size, in each sub-region is presented as the Gini coefficient, (G) for non-remittance income, remittances and total income. By comparing the non-remittance income Gini coefficients to those corresponding to the total income (bottom row of each sub-region), a measure of the overall impact of the remittances upon sub-regional income inequality is obtained.

Table 8.2: Composition of 1999 / 2000 income inequality in six sub-regions

Sub-region and income source (in Adult Equivalent – AE)	Share in total household income (S)	Gini coefficient for income source (G)	Percentage drop in Gini coefficient due to remittances.	Gini correlation with total income rankings (R)	Contribution to Gini coefficient of income (SGR)	Percent share in Gini of total income
Bochum						
Non-remittance income	0.75	0.86		0.96	0.62	76.5
Remittance income	0.25	0.84	**36**	0.90	0.19	23.5
Total income	1.00	0.50		1.00	0.81	100.0
Seshego						
Non-remittance income	0.79	0.79		0.92	0.57	78.1
Remittance income	0.21	0.82	**20**	0.91	0.16	21.9
Total income	1.00	0.59		1.00	0.73	100.0
Schoonord						
Non-remittance income	0.62	0.73		0.68	0.31	58.5
Remittance income	0.38	0.77	**12**	0.76	0.22	41.5
Total income	1.00	0.61		1.00	0.53	100.0
Praktiseer						
Non-remittance income	0.55	0.88		0.89	0.43	55.8
Remittance income	0.45	0.81	**39**	0.94	0.34	44.2
Total income	1.00	0.49		1.00	0.77	100.0
Zebediela						
Non-remittance income	0.73	0.86		0.95	0.60	76.9
Remittance income	0.27	0.74	**27**	0.91	0.18	23.1
Total income	1.00	0.59		1.00	0.78	100.0
Western						
Non-remittance income	0.70	0.78		0.99	0.54	76.1
Remittance income	0.30	0.58	**48**	0.98	0.17	23.9
Total income	1.00	0.30		1.00	0.71	100.0

In each sub-region income inequalities decreased when migration remittances were considered. Column 4 of Table 8.2 indicates the percentage drop in Gini coefficients when remittances are included, ranging from 48% to 12% in the Western and Schoonord sub-regions respectively. In each sub-region, the Gini coefficient for remittance income is nearly as high as for non-remittance income when each income source is considered alone. However, when the two sources of income are combined the resultant Gini coefficient is much smaller than for each source considered alone; this is due to the overall equalizing impact of remittances upon village income inequality. In each sub-region, income inequality decreases when migrant remittances are considered; that is to say, migration remittances have an equalizing effect on rural incomes as follows:

Bochum, from 0.86 to 0.50, resulting to Gini drop of 36%
Seshego, from 0.79 to 0.59, resulting to Gini drop of 20%
Schoonord, from 0.73 to 0.61, resulting to Gini drop of 12%
Praktiseer, from 0.88 to 0.49, resulting to Gini drop of 39%
Zebediela, from 0.86 to 0.59, resulting to Gini drop of 27% and
Western, from 0.78 to 0.30, resulting to Gini drop of 48%

Since in each sub-region income inequality among the sampled households decreased when migrant remittances were considered, the hypothesis that 'migration decreases rural inequality in migration sending areas" is cautiously accepted, at least at the sample and sub-regional levels. Even in the sub-regions where the findings imply that households at the upper hand of the income spectrum received migration remittances (thus accentuating inequality within the sub-region), the overall effect of the remittances was to dampen the level of inequality. This is the case where a high Gini coefficient of the remittances is associated with a high Gini correlation between remittances and total income (as was the case in Bochum, Seshego and Praktiseer). In Bochum and Seshego the highest proportion of the households sampled (19.8% and 10.1%, respectively), depend on pension, while in Praktiseer the highest proportion (28.9%) of sampled households rely on salaries and wages.

The above notwithstanding, in value terms, the landless households of the sampled population received higher remittances than the landed households (see table 6.15);

such a phenomenon is conducive to a situation where remittances may decrease inequality in the rural areas. Thus, it is true that a significant proportion of migrants come from landless households and those that have low land holdings. Where this is the case it implies that the remittances received would play an income equalising role if migrants come from predominantly landless and land poor household.

Stark, et al. (1986) argues that the impact of migrant remittances on income inequalities tends to become more favourable as migration opportunities spread throughout the area or sub-region. A comparison of the impact of the overall remittances upon inequalities in the six sub-regions shows that the decline in inequality due to migration remittances is higher in the sub-regions which were identified in Chapter 6 as having the highest proportion of households receiving remittances. In the Western Region 65% of households have migrants and 37.3% of those households reported receiving remittance income; the Western Region experienced the highest percentage drop in Gini coefficient of 48% when remittances were included. Likewise, Praktiseer, where 18.4% of the households receive remittances, experienced a 39% percentage drop in Gini coefficient of total income. It also worthy noting that:

- When considered separately, the distribution of non-remittance income and the distribution of remittance income in each sub-region are considerably uneven, thus exhibiting high inequality of income as measured by the Gini coefficients. The distribution of remittances between sub-regions also varies considerably, from 0.58 to 0.84 Gini coefficients in the Western and Bochum, respectively.

As equation (8.2) shows, the distribution of income from a particular source and the share of that source in total income reflect only part of the contribution of the income source to overall income inequality. The remaining contribution depends on where the recipients of the different categories of income are located in the overall sub-region income distribution. Column R of Table 8.2 presents the Gini correlations between each income category and total income. The variation in the correlations of the six sub-regions is not too striking but the correlations are all highly correlated with total income.

The importance of the Gini correlation is evident when the percentage contribution of the non-remittance and the remittance income categories of each sub-region are compared to sub-regional income inequality. In all the sub-regions, the migrant remittances account for a significant part of total inequality; the lowest being 21.9% in Seshego and the highest 44.2% in Praktiseer. However, in all cases, the non-remittance income contributes more to the total income inequality of the sub-region; it ranges from a high of 78.1% in Seshego (in Central region) to a low of 55.8% in Praktiseer (in the Southern region).

Two extreme cases have emerged from the empirical results and are pointed out below:

a. In Seshego, Bochum and Zebediela, percentage shares of remittance income in the Gini of total income are the lowest, implying that in these areas migrant remittances are distributed more evenly than the non-remittance income. It also means that even households at the lower end of the income spectrum in these rural areas may have access to some migrant remittances, thus remittances are seen to decrease inequality. This is a positive indication because it is in these areas where the highest proportion of households that are landless and near landless are found (see Chapter 6, section 6.5.1); most households in these areas are dependent on remittances.

b. The other extreme represents areas where migrant remittances contribute a high percentage shares in the Gini of total income or to the total inequality. Praktiseer and Schoonoord fall in this category, contributing 44.2% and 41.5% share in the Gini of total income of those areas. Schoonord has the highest mean annual contribution of salaries and wages from resident members and the highest mean of land size. The majority of households undertake some agricultural activities and do not rely on remittances. Migrants in this area most probably originate from the upper end of the income distribution thus increasing income inequality.

c. Praktiseer is more puzzling: 83.2% of the households in that sub-region are landless but only 42.3% of the households have migrants. However, in value terms, Praktiseer receives the highest average annual contribution to total income from migrant remittances (R21 408), which is 45% of the household income. This clearly indicates that less than half of the households have access to remittances, thus increasing income inequality in that area. The area has a double dilemma for the poor people; they have neither access to land or to migrant remittances, probably left to depend on pensions and agriculture subsistence production.

8.5 SUMMARY

The effect of migration remittances on the rural income distribution by size varies from one area to another. It appears to depend critically on the sub-region's migration history and on the degree to which migration opportunities are diffused across the households in a particular area. In the areas where only households at the upper end of the income distribution receive migrant remittances, remittances increase income inequality. This phenomenon may be exacerbated by potential remittance–enhancing skills and education. However, in the sub-regions where the remittances are fairly evenly distributed across the income spectrum their percentage share in the Gini of total income is small. Overall, remittances exhibited a decreasing effect on rural income inequality among the sampled households of each of the six sub-regions studied. The percentage drop in the Gini coefficient due to remittances was substantial in each sub-region.

CHAPTER 9

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

9.1 INTRODUCTION

The main theme of this study was to find out if a link exists between rural out migration and rural inequality of assets; the economic analysis of such link was conducted and the conclusions herein are based on the empirical findings. This study started from the concerns expressed regarding agricultural production in the arid and semi arid areas of Limpopo, where migration was seen as one of the important dynamics in Limpopo provincial economy; it was considered essential to establish the link of migration on rural economies. The study focused on the African rural households and did not deal with all the rural households across the race spectrum.

The overall aim of this study was twofold; firstly, the study analysed and established the effect of unequal distribution of land and other productive assets on rural household migration decisions, secondly it established whether migration remittances (in cash and in kind) received by migrant-sending households decrease or increase rural inequality in the migrant-sending communities or economies, thus assessing the contribution of migration, through remittances, to the migration-sending rural economies. Migration behaviour and characteristics and the influence of household assets size and distribution on migration were investigated. Data were collected using a structured survey instrument to conduct face to face interviews of household heads or their representatives and migrant members of the family. Key informants in the villages surveyed also provided valuable information of the general nature about the villages. Using a multi-stage sampling technique a sample of 585 households was selected and interviews carried out on them, but 12 households were omitted at a later stage, because the migrants in those homes could not be interviewed, despite revisits; thus the sample was reduced to 573 households. The households were selected from 24 randomly selected villages in the Central, Southern and Western Regions of Limpopo. Descriptive and multivariate data analysis was used for this investigation. Note that the author was fully involved in all the stages of the study from field work,

data capturing, cleaning, analysis and coordination to result interpretation and write ups. This Thesis used only part of the data collected relating to the aspects discussed herein.

This chapter holistically looks at the different parts of the study that have tried to explain why migrants leave their homes in search of jobs away from home and whether rural inequality of resources is one of the determinants of migration. The chapter is presented in three sections. Section 9.2 provides the main conclusions based on the findings of the study. Section 9.3 provides some broad and specific recommendations as well as questions for further research in rural migration.

9.2 RESULTING CONCLUSIONS

The following conclusions can be deduced from the empirical results:

(i) Migrants are not a random sample of the population of origin; it is selective group formed on the basis of one or a combination of characteristics, such as gender, age, education and social status. Migrants in the Limpopo Province have similar usual characteristics as described in the literature: predominantly men, young, fairly educated and moving primarily to find a job; the first period of migration took place between the ages of 15 and 30, the mean age of first migration was about 23.8 years.

(ii) Economic reasons are no longer considered to be the only trigger for migration, because migration from rural Limpopo (as from other areas of rural South Africa) is continuing despite the prevalence of high urban unemployment. Push factors, such as overcrowded areas and unproductive land were also quoted as motivation for migration. Attractiveness of the urban life to young people and better education facilities were important pull factors. At the same time, the economic contribution from migration through remittances cannot be over emphasized.

(iii) Households sending out migrants support the migrants through the settling in period. Generally, migration reduces family labour and affects the allocation

of tasks among members of the households. However, in Limpopo over half of the migrant households had enough people to take over the migrants' tasks. The responses on the effect of migration on family labour are in line with the new economics of labour migration (NELM)'s view that migration decisions take place within a family or household context and that the household members left behind reorganise themselves to accommodate the departed members' tasks.

(iv) The migrants compensate for their absence by regularly sending home remittances in both cash and kind. As migrants do not loose their right to use of the household assets, especially land, they send some remittances for investment back home. However households with migrants receive remittances at varying degrees, some frequently, others sometimes and some rarely.

(v) Migration remittances supplement rural incomes, boost consumption in rural areas, contribute to household savings and thus can stimulate the local economy. Entire families who receive remittances benefit, and their financial position is improved.

(vi) Asset distribution is un-evenly distributed and landlessness is common in rural Limpopo, but compared to other assets land and income are more evenly distributed than the other physical assets (farm, livestock and non-farm assets). The lowest Gini coefficient is for total income, including migrant remittances (0.52), and is lowered further to 0.46, when only the households who earn that income are considered. This is a good sign as it implies an equalizing effect of remittances on income distribution. However it could also mean that due to migration assets and income in the rural areas become more unequally distributed; this depends on the whether the migrants are from the poorer or relatively better off segments of the communities.

(vii) There is a regional dimension of inequality of land distribution that cannot be ignored. Land access is widespread and well distributed among the community members of Western sub-region, thus, making faming for many households a

potential source of livelihood. Praktiseer, in the Southern region, has the most unequal distribution of land-holding the situation is variable in the other sub-regions. Households with smaller land holdings per capita tended to have migrants. This study did not find any evidence to suggest a reverse causation between migration and household size.

(viii) From a regional perspective, there is no clear cut pattern between the prevalence of migration and land distribution. Our hypothesis that land inequality impacts on household decisions regarding migration would have been accepted if migration was more prevalent in Praktiseer than in Western sub-region, but that is not the case. Western sub-region, with relatively better land distribution also has the highest percentage of households with migrants compared to Pracktiseer. On the other hand, Zebediela with relatively more unequal land distribution also has a high prevalence of households with migrants. The above notwithstanding the findings strongly suggest an inverse U relationship for landed households between land per household and the remittance share in income.

(ix) In Limpopo livestock is owned by only a small proportion of the community many of whom own small stock, such as goats, pigs and sheep, which have high liquidity and divisibility characteristics. The majority of households are too poor to own any livestock, especially large stock such as cattle.

(x) The bulk of the farm assets in rural Limpopo belong to 10% of the households. Since the AE Gini coefficient (0.43) for land-holding among land owners is the lowest of the physical assets, it implies that the highest proportion of farm assets owned by the rural households is in a form of land, which enables households to undertake subsistence farming even in the absence of other farm assets. Thus, the point that land is the most important asset in rural Africa can not be overemphasised.

(xi) Households with land are not always better off than those without land. Some households without land are better off than those with land, because they benefit from other income opportunities, such as salaries and wages, transfer

payments and/or other non-farm opportunities.

(xii) The income from agriculture is the most unequally distributed; this can be attributed to the distribution of all farm and non-farm assets, including land, which accounts for a large share of rural assets. Lack of physical farm assets has a direct impact on the income generated from farm.

(xiii) There is significant positive correlation between the presence of migrants and the size of the household and the number of household members older than 15 years. The implication is that bigger households have a higher tendency of sending out a household member to become a migrant worker, and the more the number of grown up members there are, the higher the tendency to have a migrant. More over, if there is a successful migrant remitting enough to the household the other members who are of age and unemployed or under employed may follow suit. Alternatively it may lead to some members coming back home if the income from remittances is considered to be enough.

(xiv) There is a negative correlation between the presence of migrant and assets and land ownership. Households with migrants tended to have smaller landholdings; the relationship between migration and other asset categories were also negative, implying an inverse relationship between them and the propensity to migrate. These results, therefore, support the hypothesis that access, size and distribution of rural assets and income are important determinants of household migration behaviour. The inverse relationship implies that, as assets become more accessible and increase in amount, migration will tend to decrease.

(xv) Variables influencing migration decisions, either positively or negatively, identified on the basis of the factor loadings include: household land and income factor, pension and household composition factor, livestock factor and asset factor.

(xvi) Increasing household access and size of land, other assets and old age pension decreases the propensity of households to send out members of the family as

migrants, but changing per capita income neither decrease nor increase the odds of migration. Thus the hypothesis that *the size and distribution of household landholding and other productive farm and non-farm assets influence household behaviour regarding migration* is partly accepted because the relationship can not be generalised over all the assets and under all circumstances.

(xvii) The negative influence of pension on migration implies that pension is considered to be one of the main sources of livelihood; an increase in pension income received by the household would discourage migration. This is not necessarily a good thing because active members of households should not be encouraged to depend on pensioners but should be encouraged to assist pensioners. In reality, due to high unemployment levels in Limpopo, in some cases pensions are the only source of income for some households, used not only to buy food but also to meet other basic needs such as costs of health and school fees.

(xviii) Livestock did not have significant influence on migration from the rural areas. This is not surprising for Limpopo, since the province is not well endowed with livestock as a form of asset. Nevertheless, households with migrants have higher total value of livestock than those without migrants.

(xix) Remittances are an important source of livelihood and the effects of migration on rural inequality depend critically on how remittances and the losses and gains of human resources through migration are distributed across households. If the impact of migration on rural income distribution exceeds that of the remittances rational reason would dictate that at individual and household level migrants would return home, but since there is evidence that people migrate for other reasons other than for economic opportunities this may not always happen.

(xx) Different income sources add to income inequality but at different rates and extents. In the case of Limpopo, remittances account for a smaller percentage of total inequality compared to salaries and wages; but pensions contribute the

least to the rural income inequality. Income inequality decreases considerably when migrant remittances are considered with the other sources of income and pensions and migrant remittances are more widely accessible across income groups. The second hypothesis, which states that *Migration remittances decrease rural inequality in migration sending areas,* is accepted for Lebowa in Limpopo. However, the impact of migration remittances upon income inequality will tends to become more favourable as migration opportunities spread throughout the villages.

(xxi) Agricultural income is relatively more unequally distributed, and agricultural incomes contribute more to total income inequality than pensions and remittances. This is not surprising, given the fact that pensions are distributed among the old and retired people across the income spectrum and agriculture is a monopoly of only those that own enough land. It is also because agricultural income is affected by all the other unequally distributed farm assets; pension income is weakly correlated with land

(xxii) In each of the six sub-regions (Bochum, Seshego, Schoonord, Praktiseer, Zebediela and Western) income inequalities decreased when migration remittances were included with the other sources of income. In each sub-region, the Gini coefficient for remittance income was nearly as high as for non-remittance income when each income source is considered alone. However, when the two sources of income are combined the resultant Gini coefficient is much smaller than for each source considered alone due to the overall decreasing impact of remittances upon village income inequality.

(xxiii) Overall, remittances exhibit a decreasing effect on rural income inequality; the Gini coefficient of total income including remittances is lower than the Gini coefficients of total income excluding remittances. However the extent to which remittances can decrease or increase income inequality depends critically on the areas' migration history and the degree to which migration opportunities are diffused across the households in that area or village.

(xxiv) Migrant remittances are distributed more evenly than the non-remittance

income in some areas (Bochum, Praktiseer, Zebediela an Western), so that even households at the lower end of the income spectrum have access to some migrant remittances. In such cases remittances are seen to decrease inequality. This is a positive indication because it is in such areas where the highest proportion of households that are landless and near landless are found.

In areas such as Schoonoord and Western, migrant remittances contribute a high percentage shares to the total inequality. Important to note is the fact that, the majority of households in these areas undertake some agricultural activities and do not sorely rely on remittances. The migrants in this area most probably originate from the upper end of the income distribution thus increasing income inequality.

(xxv) The poor people in areas such as Praktiseer are faced with two dilemma; they have neither access to land or to migrant remittances, probably left to depend on pensions and agriculture subsistence production and or pension.

(xxvi) The effect of migrant remittances on the rural income distribution varies from one area to another and in Limpopo, it appears to depend critically on the sub-regions, migration history and on the degree to which migration opportunities are diffused across the households in a particular area. In the areas where only households at the upper end of the income distribution receive migrant remittances they may increase income inequality; this phenomenon may be exacerbated by potential remittance-enhancing skills and education.

9.3 RECOMMENDATIONS

(i) Internal migration is likely to continue, in South Africa generally, and in Limpopo in particular, because of the strong regional inequalities that exist. (*A case in hand is the on going disputes of people refusing to have their areas incorporated into other provinces, for example the people from Khotsong, an area currently based in Gauteng, considered a province of opportunities, to the North West considered a poor province* . Even if these people were to be

forcibly and physically moved, they will always find their way back to Gauteng in search of jobs and other attractions). Internal migration is unstoppable, thus planners and policy makers have to concentrate on maximizing the benefits of internal migration for development and reduction of inequality and poverty. Although migration is not the ideal solution to employment generation and poverty reduction, it is an important (and in some cases the only) route out of poverty in the rural areas, where opportunities are scarce and conventional development efforts have had limited success.

(ii) Evidence from the findings generally suggests that the distribution of assets including land among rural households in Limpopo is unequal and uneven. All other physical assets have an inverse relationship between them and the propensity to migrate. The inverse relationship implies that, as assets become more accessible and increase in amount, migration will tend to decrease. The implication of these findings is that any serious strategy to reduce rural inequalities should hinge on methods that would promote redistribution of productive resources in the rural areas. This provides a powerful argument for land reform, geared towards creating a small farm economy, which is not only for local economic development, but also good for more effective social policy, than allowing the status quo, to keep driving the poor out of the rural areas in search of unavailable jobs in the city. On the other side of the coin, migration remittances, in cash and in kind, may lead to assets being more accessible if some of the remittances are invested in acquiring them.

(iii) Migrants who have shown commitment to agriculture (for example, those who have invested in agriculture oriented capital resource, such as implements, livestock, irrigation equipment and knowledge etc) should be eligible for more arable land. On the other hand, other possible rural non-farm investments of migration remittances have to be carefully explored. Ensuring remunerative and safe employment in manufacturing and rural services should be a pursued policy goal and viewed as complementary to other rural development policies in the effort to reduce poverty and inequality in the countryside.

(iv) In areas where households at the middle and lower end of the income

distribution receive migrant remittances, they (remittances) have been shown to decrease income inequality, as shown in Chapter 8. Such a situation should be taken advantage of, by promoting diversification through mobility, for example, by designing possible programmes to reduce the costs of migration. Even though the manner in which remittances are utilized varies and much is used for consumption purposes, remittances can have positive impact on sending households by freeing up other household income, which can be used to purchase other necessities and exert a multiplier effect on the economy, in turn leading a reduction in inequality and poverty and enhancing development in the rural areas.

(vi) Knowledge management

It is essential to collect and improve the quality of migration data and its use; this will increase awareness and understanding by policy makers leading to effective policies base on up to date information. Data should be widely shared and easily accessed by all stakeholders working in the area of migration and development.

(vii) Policy makers need to ask more fundamental questions about the best approaches towards reducing poverty and inequality in the rural setting using all available opportunities; for example, other possible rural non-farm investments of migration remittances have to be carefully explored. Ensuring remunerative and safe employment in manufacturing and rural services should be a pursued policy goal and viewed as complementary to other rural development policies in the effort to reduce poverty and inequality in the countryside. Migration needs to be understood from a livelihood perspective and policies need to be designed through multidisciplinary and multi-sectoral studies and analysis. In order to hasten policy response more data and methods for understanding migration and remittance flows have to be explored. The focus should be towards raising awareness of decision makers about socio-economic impact of migration on both sending and receiving areas.

9.5 CONTRIBUTION OF THE STUDY

The information generated by this study will add to the body of knowledge that promotes sustainable rural development through the reduction of rural inequality, and ultimately, the reduction of rural poverty. By isolating the impact of rural inequality on rural migration and the impact of migration on rural inequality and the consequences thereof on rural income and asset distribution, policy makers and planners will be able to make appropriate decisions, for example, regarding the Land Redistribution and Development (LRAD) Programme and similar rural development programmes. Also, by understanding the impact of migration remittances on the migration sending economies policy makers will be able to understand how to maximize the benefits of internal migration for development; for example, this study has clearly showed that migration remittances decreases inequality among the households of migration sending communities, as long as the poor are among those who receive such remittances.

There is a lot of information about counties in Asia and other African countries rural out migration and a concentration of international migration in the South African literature. This study is among the few that has addressed African rural out migration and its effect on communities where the migrants come from; the study adds to the literature about this topic which other researchers can refer to and expand upon.

9.6 POSSIBLE QUESTIONS FOR FURTHER RESEARCH IN RURAL MIGRATION

1. The links between migration and development are complex as there are positives and negatives associated with it, but if well managed migration could have a significant development impact. What kind of policies would make internal migration compatible with and conducive to development?

2. South Africa could investigate about support programmes for maximizing the benefits of migration for development that have been successful in other countries; for examples, the migration labour support programme (MLSP) that was established in Western India (Deshingkar, 2005). Also schemes for migration to improve livelihoods

through vocational training and development of small businesses and agribusinesses as well as support for those left behind.