

Measurement and Analysis of Rural Household Income in a Dualistic Economy: The Case of South Africa

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Abstract

Government Departments in South African utilizes a number of different data sets on income of rural households. These include the Population Census, the October Household survey of 1995 and 2000, the Rural Household Survey of 1997 and then the various agricultural censuses (1996 and 2003). All of these use different approaches in obtaining household income. The agricultural census for example only reports on farm income – excluding the non-farm income. This paper reviews the different sources of household income data, their measurement techniques and their utilization. The difference in application of various surveys in the former homeland areas and the so-called commercial farming areas are also shown. In the case of the former homeland areas integrated rural household data is used for poverty measurement purposes. The context and methodologies of these surveys are discussed in detail.

1. Introduction

South Africa currently celebrates its 10th year of democracy following the historic elections in 1994. Although the country experiences remarkable political and economic stability one important challenge remains, namely that of addressing poverty and integrating the so-called 'second economy' into the advanced and rapidly growing first world economy of the country. The challenge to rid South Africa of its dualism is not only relevant for the economy at large but even more so in the agricultural sector and the rural economy where the legacy of apartheid is physically visible. Regions characterized by poverty, unemployment, food insecurity, large migrant communities, poor infrastructure, traditional tenure and subsistence agriculture are bordered by regions within the same province characterized by freehold tenure, large commercial farming operations, mainly white land owners, good infrastructure, etc. The policy of apartheid created 'two agricultures': the one largely neglected, backward and subsistence oriented and located in the former homeland areas and the other developed, export oriented and well supported by government systems and located in the 'former white South Africa'.

This situation also applied and still applies to South Africa's agricultural statistics. Given the statutory control of agricultural marketing (which required statutory measures on records and returns) from 1937 to 1997 a good solid database was generated on agricultural production, sales, gross value of production, exports, imports, etc. Regular agricultural censuses and intermittent agricultural surveys provided a relatively good overview of farm income, assets, land size, etc. in the so-called 'commercial sector'. Only very limited statistics on farm household activities, sales, income was available from the agricultural sector in the 'former homelands'. None of the agricultural censuses in the pre-1994 years covered these regions resulting in only a one-sided picture of the total agricultural sector and also a total data void on rural households and livelihoods.

One of the first efforts during the transition years of the early 1990s to address this void was the "Project for Statistics on Living Standards and Development" implemented by the Southern Africa Labor and Development Research Unit (SALDRU) in 1993. For the first time this survey tried to assess the living conditions, source of household income and a range of other household statistics of a representative sample across the whole of South Africa. A large portion of the sampled households was drawn from the rural areas of the 'former homelands'.

Given this background and the continued effort by the South African government to address rural poverty and obtaining a better picture of the real living standards of rural households, a number of surveys during the 10-year period following democracy have been conducted. This paper reviews the different surveys of

rural and farm households since 1994 and highlights the different approaches in measuring household income of rural and farm households.

2. AGRICULTURAL CENSUSES AND SURVEYS

Since 1965 regular censuses of the agricultural sector were undertaken. This was complimented with 'agricultural surveys' based on a representative sample survey of 10% of all farming units implemented during the intermittent years almost annually up to 1996. The most recent comprehensive data base on the 'commercial' agricultural sector originated from the agricultural censuses of 1988 and 1993. The results of the 1993 census were only made available in 1997. The new agricultural census of 2002 is still in progress and results will only be made available early 2005. This section briefly describes the nature (and where applicable) some key results of the 1993 and 2002 census and the 1994, 1995 and 1996 agricultural surveys.

2.1 Agricultural Census of 1993

In 1993, the former Central Statistics Service, now Statistics South Africa, conducted a Census of Agriculture covering all commercial farming units in South Africa. The farmers in the former homelands were excluded from the census. Farmers were requested to provide information regarding production and financial activities for the year between 1 March 1992 and 28 February 1993. The Census data were obtained by means of a mail questionnaire that was mailed to farmers who were requested to complete and return the questionnaire. A total of 57 980 questionnaires were sent out to farming units and only 39 821 were completed and returned – implying a non-response rate of 32.1%.

The gross farm income estimated from the 1993 census of agriculture comprises only of income earned from agricultural activities and largely ignored non-farm income. This was partly a function of the fact that farming was considered to be full-time occupation and thus only full-time farmers were included in the sampling frame. Table 1 contains a summary of the main findings of the census with specific reference to the number of farms and gross farm income.

Table 1: The number of farming units and gross income from the results of the 1993 census of agriculture

<i>Province</i>	<i>Number of farming units</i>	<i>Land surface</i> <i>1 000 Ha</i>	<i>Gross Income</i> <i>R 1 000</i>
Total	57 980	82 759	19 620
Western Cape	8 352	10 250	4 394
Eastern Cape	6 106	10 320	1 204
Northern Cape	6 593	29 962	1 032
Free State	10 252	11 321	2 492
KwaZulu-Natal	6 080	4 064	3 163
North West	7 638	6 184	1 910
Gauteng	2 500	675	1 387
Mpumalanga	5 406	4 648	2 754
Limpopo	5 035	5 335	1 285

Source: Census of Agriculture, 1993

2.2 Agricultural Surveys of 1994, 1995 and 1996

Statistics South Africa conducted annual agricultural surveys from 1994 to 1996. The surveys were conducted in the commercial agricultural sector and again excluded the former homelands. The purpose of the surveys was to collect useful information for national and provincial planning, development, policy formulation and marketing. The information obtained from the surveys was primarily used for benchmarking and re-basing of the quarterly Gross Domestic product as well as for the calculation of the Gross Geographic Product.

The surveys were conducted in the same manner as the agricultural census of 1993 except that it was only sample surveys of around 6 300 farmers or roughly 10% all farming units and thus not a census. The surveys were, therefore, not representative of the total population of farming units in the commercial agricultural sector of South Africa. The response rate for these surveys was, however, much better than with the 1993 census: 78.5% in 1994, 76.0% in 1995 and 74.2% in 1996.

Gross income as reflected in the results in Table 2 below was once again defined as income earned from agricultural products sold and insurance payments for cattle and harvest losses. No reference was made to non-farm income earned for the respective periods.

Table 2: The number of farming units, land surface and gross income for 1994, 1995 and 1996

<i>Item</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>
Number of farming units	60 901	59 828	60 938
Total farm area (1 000 Ha)	81 862	82 139	82 210
Gross income from agricultural sales (R 1000)	27 014 299	30 552 513	32 931 236

Source: Agricultural surveys 1994, 1995 and 1996

2.3 Survey of large and small-scale agriculture, 2000

The agricultural censuses and surveys during the 1990s continued the practice of earlier surveys and clearly provided no information on farming activities of small-scale and subsistence farms in the former homeland areas. To address this data void Statistics South Africa conducted a survey on large and small-scale agriculture in August 2000 as an attempt to collect data on the small-scale and subsistence farming sector in the country.

Sampling Methodology

A master sample was created which was based on enumeration areas (EAs) from the 1996 Census as well as a sampling frame from the National Department of Agriculture. Approximately 1 500 Primary Sampling Units (PSUs) were selected from the former South Africa and the former homelands. The apartheid-based political geography of the country, prior to democracy, was very important to the survey. Large-scale commercial farming operations in South Africa were mostly under white ownership. This was in contrast to the mainly small-scale and subsistence farming operations of the former homelands. Consequently, different sampling designs had to be used for the different types of farming operations, one for the former South Africa and one for the former homelands.

A household was defined as a farming operation if it met at least one of the following specifications:

- a) It had access to land for farming purposes,
- b) It had livestock,
- c) It cultivated crops, and
- d) The respondent considered the household or a member of the household to be a farming operation.

If the respondent did not consider the household to be a farming operation (d), it was classified as a farming operation if it complied with at least one of the following:

- a) It had sold crops, livestock or other agricultural products produced on or by the operation, during the 12 months prior to the survey,
- b) It had access to 0.5 hectares or more of cropland,

- c) It produced enough crops and livestock to feed household members for six months or more,
- d) It five or more of any of the following animals: cattle, sheep, goats, pigs, mules or donkeys, or
- e) It had 25 or more chickens.

Of the households that qualified as farming operations in the former homelands using the above criteria, 15% were systematically selected in each EA or PSU. Tenant farmers were found in both the former South Africa as well as the former homelands. In cases where tenant farmers were identified, they were all sampled.

Questionnaire design and data collection

The survey questionnaire was designed by the National Department of Agriculture in consultation with the United States Department of Agriculture's Statistical Agency. Face-to-face interviews were used as the data collection method. Trained fieldworkers collected the data from 14 August to 18 September 2000 in all nine provinces.

In this survey total income was defined as the total amount generated from agricultural and non-agricultural activities. This includes income generated from sales of crops, livestock, and poultry, products from crops, livestock and poultry, other farm income (e.g. hiring out of livestock for drafting and letting farm property to others) and non-farm income (e.g. cash gifts, grants, pension or retirement annuities). Farming income was defined as the income earned from agricultural products sold, such as field crop products, animals and animal products, while farming turnover referred to the total amount generated from agricultural activities, including farm-related income such as hiring out of livestock for drafting purposes and the letting of farm property to others, but excluding non-farm income such as grants, gifts cash gifts, remittances and pensions. If one considers the other farm-related income the largest share came from 'custom work for others and machine hire', sales of machinery' and letting farm property.

A brief overview of the findings

It was estimated that there were 1.1 million farming operations in South Africa in August 2000. This number consisted of 150 000 farming operations in the former South Africa (including tenant farmers) and 943 000 farming operations in the former homelands (see Table 3). One should be careful in comparing these results with that of the 1993 census and the agricultural surveys since they only considered commercial agriculture. Small plots and weekend farms purchased by urban investors also now entered the definition resulting in the larger number of farming units in the former 'South Africa' reflected in Table 3.

Table 3 indicates that of the estimated 1.1 million farming operations in South Africa in August 2000, 698 000 kept livestock and poultry, 855 000 cultivated cereals, tubers and roots, 349 000 grew vegetables and 245 000 grew fruit. Most

of the farming operations in the former homelands cultivated cereals, tubers and roots whereas the majority of the farming operations in the former South Africa kept livestock.

Table 3: Number of farming operations by type of farming activity and geographical location

<i>Type of farming activity</i>	<i>Former South Africa</i>	<i>Former Homelands</i>	<i>South Africa (total)</i>
Total	150 000	943 000	1 093 000
Livestock and poultry	84 000	614 000	698 000
Cereal, tuber and root crops	56 000	799 000	855 000
Vegetable crops	19 000	330 000	349 000
Fruit crops	17 000	228 000	245 000

Source: Survey on large and small-scale agriculture, 2000

The results of the survey also contained information on the total income, farming turnover, farming expenses, debt, and farming profit and total profit. This information was useful to estimate the amount of non-farm income received by farming operations in South Africa, the former South Africa and the former homelands. Figure 1 illustrates farm income and non-farm income as a percentage of total income for South Africa, the former South Africa and the former homelands. It indicates that, for commercial farm households in the former South Africa farm income is the main source of income whereas non-farm income is a far more important source of income for farming operations in the former homelands. This is confirmed by the discussion later on the surveys of poor rural households.

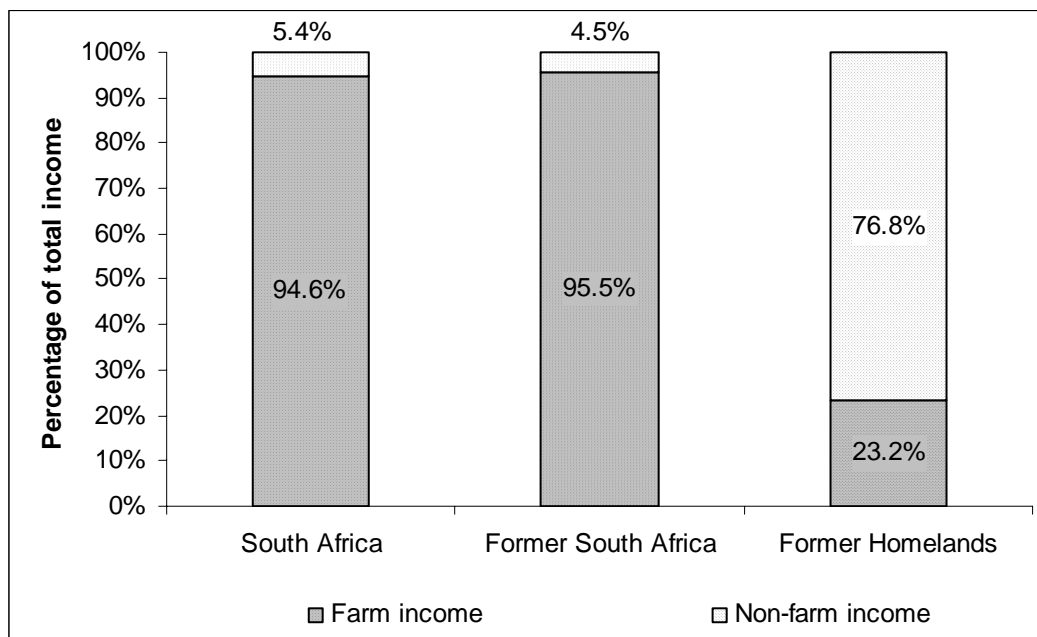


Figure 1: Farming income and non-farm income as a percentage of total income of farm households in South Africa

Source: Survey of Large and Small-scale agriculture, 2000

The results from the survey also reveal that only 13.72% of the total number of farming operations was situated in the former South Africa, but received 98.85% of the total farm income in South Africa. The 943 000 farming operations in the former homelands covered a total land surface of 97,3 million hectares while the 150 000 farming operations in the former South Africa covered a total land surface of 217,98 million hectares (Figure 2).

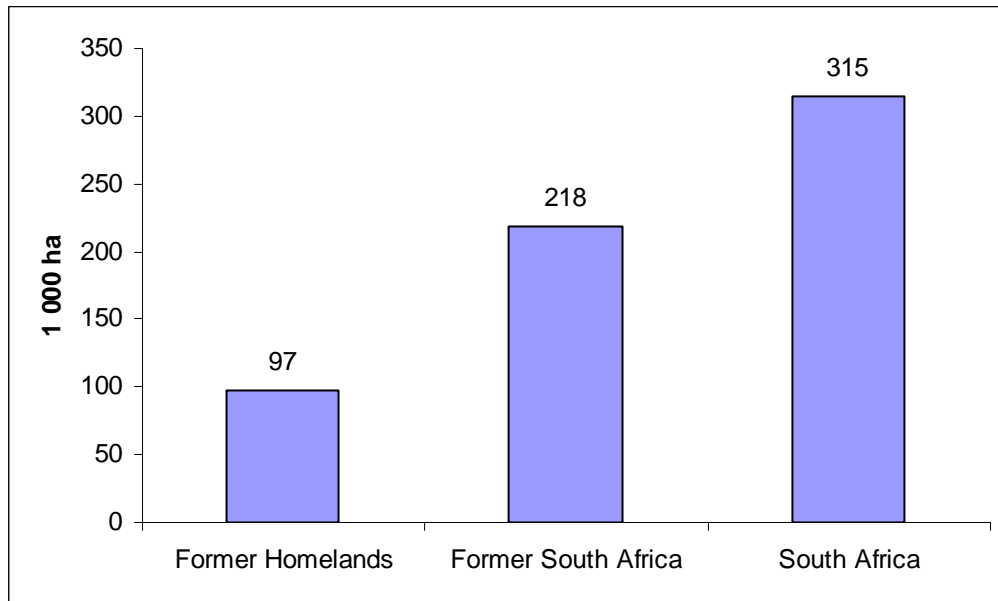


Figure 2: Total land surface of farming operations according to geographical location

Source: Survey of Large and Small-scale agriculture, 2000

2.4 The Census of Commercial Agriculture, 2002

The Census of Commercial Agriculture of 2002, conducted for the financial year 1 March 2001 to 28 February 2002 (which is still being conducted and processed) once again only covers the activities on commercial farms in South Africa. For the purposes of the census, a commercial farm was defined as a farm that is registered for Value Added Tax (VAT).

The questionnaire consists of a 24-page booklet with questions ordered into 15 sections. Section 6 captures all the income from farming activities while Section 7 covered all the other sources of income. This included income received for work done for other / fellow farmers such as ploughing, harvesting, threshing, baling, picking, spraying shearing, water drilling, earth moving and transport. It also included income generate from the leasing of farming equipment, leasing of land and the sales of fixed assets, vehicles, machinery, equipment and tools. As indicated in the extract from the census questionnaire (Box 1) respondents were also asked to specify the income earned from a range of other non-farm income sources. The biggest problem here lies in the last question: 'other sources of income'. It is not clear whether salaries from non-farm employment were captured here.

1101-E

Part 7 – Other income

106. Income received for work done for other/fellow farmers (such as ploughing, harvesting, threshing, baling, picking, spraying, shearing, water drilling, earth moving and transport) and the leasing of farming equipment, excluding leasing of land and the sales of fixed assets, vehicles, machinery, equipment and tools R'000

107. Income earned from –

 agri-tourism

 game farming

 farm based retail stores

 processing and small manufacturing enterprises

 professional services rendered

 shares (dividends and interest received)

 other sources (specify)

Box 1: Extract from Census of Commercial Agriculture, 2002

3. RURAL INDICATORS/SURVEYS

An often forgotten but very important outcome of apartheid and the previous apartheid regime has been the absence of credible and comprehensive data on which policy, such as poverty reduction strategies, can be based. The previous government had little interest in collecting information on this nature. For most of the pre-1994 years official statistics excluded any information from the former homelands. This meant that the large proportion of the poor was automatically excluded from official statistics, since most of the poor population resided in the homelands.

Although surveys were undertaken in these areas, the commissioning and release of both reports and data were often subject to the whims of governments from these independent state and territories. Various studies and data 'panel-beating' exercises, such as those undertaken by the Development Bank of Southern Africa [DBSA, 1987a, 1987b, 1991, 1994], tried to fill this information gap. It was not until the 1993 Project for Statistics and Living Standards and Development (PSLSD) that a comprehensive household database for development was created.

3.1 PSLSD, 1993

The first South African national household survey, the Project for Statistics and Living Standards and Development (PSLSD) was undertaken in the last half of 1993 by a consortium of South African survey groups and universities under leadership of the South African Labor and Development Research Unit (SALDRU) at the University of Cape Town (UCT), with financial and technical support from the World Bank and the governments of Denmark, The Netherlands, and Norway [PSLSD, 1994].

The PSLSD was a comprehensive household survey collecting a broad array of information on the socio-economic conditions of households. It includes sections on household demographics, household environment, education, food and non-food expenditures, remittances, employment and income, agricultural activities, health and anthropometry. In addition to the household questionnaire, a community questionnaire was also administered in each cluster of the sample to collect information common to households such as school availability, health care facilities and prices of various commodities.

An important component of the design, as with any household survey, was the definition of a household. In order to account for the complexity of the South African situation with its history of residential restrictions and migrant labor, a two-tiered definition for household members, resident or non-resident, was formulated based on time spent in residence. Only a limited amount of information was collected from non-resident household members.

PSLSD has had an important role in guiding policy. The allocation of state revenue between South Africa's nine provinces has drawn extensively on the data from the PSLSD survey, so to, target poverty programs such as the Community Based Public Works Programs.

The 1993 PSLSD survey is, therefore, an example of a cross-sectional survey – a one time representative survey – and continues to serve as a benchmark for related studies in South Africa.

3.2 KIDS 1993 – 1998

With the aim of addressing research questions in South Africa concerning the dynamics of poverty, households surveyed by the PSLSD in KwaZulu-Natal province were re-surveyed from March to June 1998. The re-survey was directed by a research consortium including the University of Natal, the University of Wisconsin, and the International Food Policy Research Institute and was known as the KwaZulu-Natal Income Dynamics Survey (KIDS). KwaZulu-Natal was chosen partly because of practical considerations and because of the feasibility of locating the households interviewed during the 1993 PSLSD survey.

The 1993 PSLSD sample was representative on a provincial level for KwaZulu-Natal. However, this was conditional on the accuracy of the 1991 census and other information used as the sampling frame. The sample contained 1 558 households of all race groups. It was decided not to re-survey white and colored households in 1998. In order to ensure comparability, the 1998 household questionnaire largely followed the 1993 version. There were however, some important changes. One of these was a greater focus on individual ownership of assets and control over their use so that gender-differentiated analysis is possible. A second underlying change was an expanded emphasis on the set of individuals not living in the household but economically linked to it. Four new sections were added including economic shocks, social capital, assets brought to marriage, and household decision-making.

3.3 The rural survey of 1997

In 1997, Statistics South Africa (STATSSA) conducted a survey of households in rural areas. In common with the population census, the rural survey included a number of questions regarding living conditions of households engaged mainly in subsistence and small-scale farming. The survey was specifically designed to provide in-depth information about living conditions of rural households in the former homelands of South Africa.

The database established during the 1996 populations census constituted the sampling frame for the selecting Enumerator Areas (EA). The EAs was restricted to the former homeland areas. A total of 600 EAs were drawn and 10 households were selected from each EA. This yielded a sample of approximately 6 000 households. The sample selection was carried out independently in each stratum. A two stage sampling procedure was applied. In the first stage, systematic sample of EAs followed by the second stage in which a systematic sample of households within the selected EAs were drawn.

Although the 1997 rural survey produced a myriad of results, only some of the key findings are presented here. In June 1997, about 12.7 million people, or 31.4% of the total South African population, lived in rural areas of the former homelands of South Africa. Access to farmland is crucial for these rural

households since they either depend entirely on farming activities for their survival and generation of income, or depend on these activities to supplement their main source or sources of income.

Since this paper is primarily concerned with household income of farm households, we briefly review some of the results on income from the 1997 rural survey. Selected households were asked to state their most important source of income during the past 12 months prior to the survey.

As many as 71% of the 2.4 million households (approximately 1.7 million) in the rural areas in the former homelands had access to land for farming purposes. About 800 000 households who had access to land, reported that the farming land that were cultivated for crops in the past year was smaller than one hectare. The majority of households (93%) were engaged in subsistence farming with very little income generated from the sale of crops, livestock and animal products. Only 3% of the 2.4 million households in the sample relied on farming activities as their main source of income. Household income was mostly generated from household members' salaries and wages and pensions received by the senior citizens of the household as illustrated by Figure 3.

Approximately 71% of the 1.7 million households, who had access to land, received some form of assistance with regards to crop production or animal herding. Employment from these activities were either for family members or in kind payments or access to land rather than cash payments.

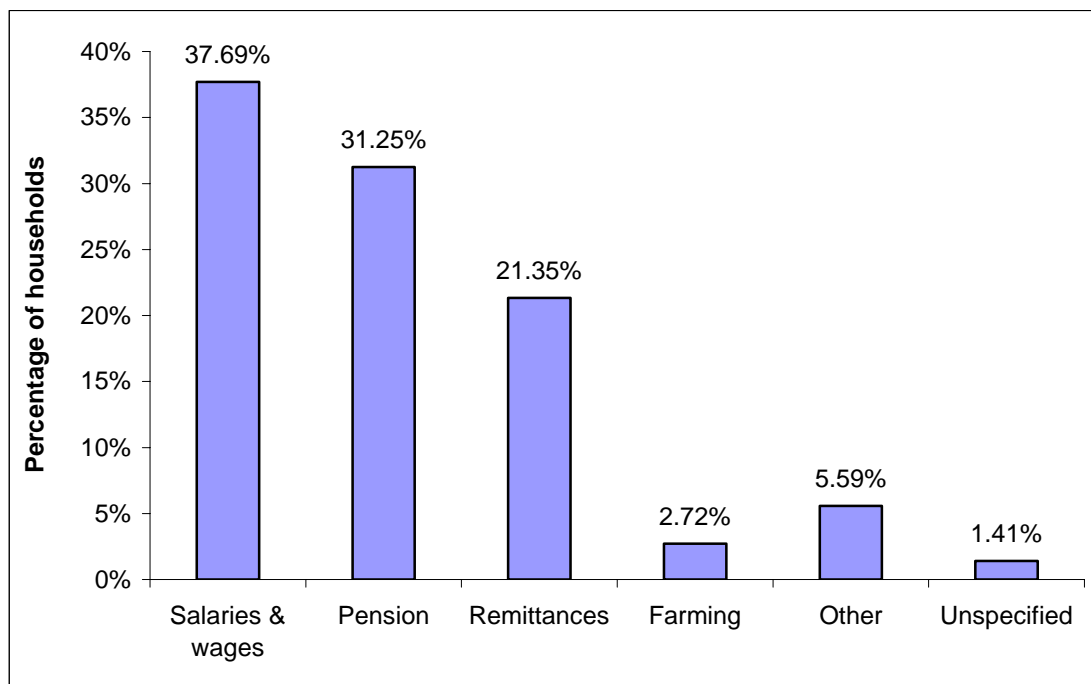


Figure 3: Most important sources of income of households in rural areas

Source: Rural Survey, 1997

4. Conclusion

Apart from the rural surveys discussed in section 3 it seems that there has been very little effort in South Africa to obtain information on agricultural activities amongst disadvantaged communities located in the former homelands. The agricultural statistics landscape mirrored to a great degree the dualism in the sector and even the most recent census only focus on commercial agriculture. Only two 'official' surveys have been conducted since 1994 to get some sense of agricultural activities in the former homeland areas. In these surveys a lot of effort was put in to get a sense of the level of household income acknowledging that most of these households have multiple livelihood strategies with agriculture generally playing a small role in the household. This data is critical for poverty alleviation policies and to identify the most appropriate target group for agricultural interventions.

The agricultural census and surveys were not representative of the entire agricultural sector. This makes it very difficult to compare more recent results with previous censuses and surveys. The exclusion of non-farm income is also problematic, especially if one wants to analyze the effect of deregulation on farm household income.

Table 4 provides a summary of how different surveys have treated household income. This shows that South Africa has applied a mix bag of definitions for household income. Commercial agriculture operations were generally considered to be full-time farmers and thus only farm and farm-related income were included. However, surveys of small-scale farmers in the former homelands generally considered household income to be consisting of large number of sources.

Table 4: Treatment of household income in different agricultural and rural surveys

Survey/Census	Coverage	Income definition
Agricultural census 1993	Only commercial farms in former 'white' South Africa	Sales of farm products and farm-related income
Agricultural census 2000	Only commercial farms (farms registered for VAT)	Sales of farm products and farm-related income PLUS other income
Agricultural surveys: 1994, 1995, 1996	10% of commercial farms in former 'white' South Africa	Sales of farm products and farm-related income
Survey of large and small scale agriculture, 2000	Farm households in 'former homelands' and commercial farms	Total income from agricultural and non-agricultural activities
PLSDS 1993	Sample of 9000 urban and rural households	Total income from agricultural and non-agricultural activities
KIDS, 1998	Same households from PSLDS in KwaZulu-Natal	Total income from agricultural and non-agricultural activities
Rural Survey, 1997	Households in former homelands	Total income from agricultural and non-agricultural activities

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