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NATIONAL INSTITUTE OF STATISTICS OF RWANDA

EICV POVERTY ANALYSIS FOR RWANDA'S ECONOMIC DEVELOPMENT AND POVERTY REDUCTION STRATEGY

Final Report

Executive Summary

Background

This report has been prepared to support the Economic Development and Poverty Reduction Strategy (EDPRS) process. It compares the results of the *Enquete Intégrale sur les Conditions de Vie des ménages de Rwanda* (EICV2) household survey (for which fieldwork was conducted from October 2005 to October 2006) with the results of the EICV1 which took place in 2000 to 2001. The period covered by the two surveys therefore closely matches the period of implementation of the first Rwanda PRSP. This report was specifically commissioned by the Ministry of Finance and Economic Planning (MINECOFIN) to respond to the emerging priorities for the EDPRS. Seven key policy challenges are being addressed by the EDPRS, and issues relevant to all but the last of the issues listed below are covered by this report. The EDPRS priorities are:

- Raising agricultural productivity
- Extending energy and transport infrastructure into rural areas
- Creation of non-farm employment on a large scale
- Reducing the population growth rate
- Making progress on land reform
- Targeting access of the poorest to core services, including basic healthcare and education
- Addressing weak institutional capacity.

Demographic changes

There is an estimated increase in the population of 1.5 million people, but the confidence interval surrounding these results indicates that the real value lies in the range of 1 million and 1.9 million people. Comparing the population pyramid of the EICV1 and the Population Census of 2002 there is a shortfall in the EICV1 among young adult males. This may have some consequences on the estimated changes in employment numbers presented in this report. In addition the current population projections underestimate the numbers of children in the population, and the amount of internal migration in the country. The authors estimate that around 0.9 million people moved district between the two surveys.

Poverty and inequality

Over the period between the surveys household consumption grew at 3% per annum per adult equivalent, while poverty fell from 60.4% in 2000/01 to 56.9% in 2005/06, a reduction of 3.5 percentage points. There were important regional dimensions to this: the poverty headcount fell substantially in Eastern Province, fell by smaller amounts in Northern Province and the City of Kigali, and actually rose slightly in Southern Province. Calculations show that 68% of the total reduction of poverty was accounted for by poverty reduction in Eastern Province. An important part of the story was an increase in inequality as measured by the Gini coefficient. The level of inequality was already high in 2000/01, with a Gini coefficient of 0.47, and this rose to 0.51 in 2005/06. The high initial level of inequality, and the fact that inequality worsened over this period, were important factors making the consumption growth less effective in terms of poverty reduction – in more technical terms, lowering the growth elasticity of poverty reduction. Inequalities rose in Southern and Western provinces in particular. Even though the consumption growth rate was positive in Southern Province, poverty also rose.

An analysis of household income shows that the proportion derived from farming fell by almost 9% over the period, while income from other sources increased, particularly from small non-farm businesses and agricultural wage labouring. Some 65% of households now derive the majority of their livelihoods from farming their own land, compared with 72% in EICV1. It is these agriculturally dependent households where poverty has reduced the most, with the exception of a very small proportion of households who derive their income from non-labour sources. Poverty levels have risen for households who derive their incomes from mainly non-agricultural sources, as has the proportion of households concerned. This suggests that there is increased competition for non-agricultural work and there is some evidence that wage rates have declined in real terms. However the levels of poverty are much lower for non-agricultural households than for farmers. The poorest households of all are those who derive the majority of their incomes from agricultural wages, with over 90% of them poor, there was a very small improvement in their poverty levels over the period.

Land

Ninety percent of Rwandese people live in households that own some farming land, and more than 60% of households cultivate less than 0.7 hectares of land. Land size is strongly related to consumption quintile. Southern and Western provinces, along with the City of Kigali, have the highest proportion of households in the very small cultivators' category, while Eastern has the largest proportion in the medium and large categories. It will be recalled that Eastern Province has seen the largest decline in poverty and accounts for 68% of poverty reduction over the period. Viable farm sizes appear to be a major force in poverty reduction. Land transactions have grown, with higher proportions now renting land and some 13% of households reporting buying land in the preceding 12 months. Both buying and selling of land is most commonly observed in the higher consumption quintile groups, and there is little to suggest that the poor are selling land in desperation.

Land conservation measures have also accelerated over the period, with 60% of rural communities' now practicing reforestation compared with 40% previously. A mean of 12.3 hectares were planted by communities in 2005/06, more than double the amount reported in EICV1.

Agricultural production

Ninety percent of Rwandese households practice crop cultivation, and more than half of households now grow fruit and vegetable crops alongside their traditional staple foods. In all quintiles, other than the top and richest 20%, the proportion growing non-staple fruits and vegetables has increased. There has been a large proportionate increase over this period in the number of households cultivating rice, corn, Irish potatoes, cooking banana, papaya, mango and coffee. For many of these commodities this increase has occurred in all quintile groups. There is evidence of increased agricultural production over the period. This partly reflects the increased number of households producing many commodities, though for some crops, such as sweet potato or manioc, the increases are below the population growth rates. For some traditional crops including sorghum, sweet potatoes and beans, median household production also increased, as was also the case for papaya. The increase in banana production over the period is partly accounted for by the unusually low values in 2001 reflecting the impact of the drought in some regions of the country in that year.

A very significant change over the period has been the proportion of households selling crops; this is the case for all staple crops and in all consumption quintiles. It is particularly striking in the case of sweet potatoes, cooking banana and manioc. Large increases are also observed in the proportion of producers selling fruit and vegetable crops such as mangos, papaya and avocado.

These results suggest a significantly increased degree of market engagement compared to the situation revealed in the EICV1 data, and there is evidence that those living in Eastern Province are more likely to be involved in selling crops.

The EICV surveys show that there has been a substantial increase in the number of households purchasing inputs over this five year period; this has been the case in all quintile groups and all provinces. With the exception of seeds, the proportion of households purchasing inputs increases consistently with the quintile. There has been a large increase in the proportion of households purchasing sacks, packaging, etc., which is consistent with the large increase over this period in the number of producers selling some of their output. A striking change is the large increase in the proportion of farmers reporting having spent on hired labour, an increase which is observed in all quintile groups and all provinces and corresponds with some of the changes reported in the labour market.

Over the period between the surveys the number of households that report having undertaken processing activities has generally declined, and this is particularly striking in the lower quintile groups. The flour products are almost exclusively produced for own consumption rather than for sale, and this situation has not changed between the two surveys. However, the drinks products are partially produced for sale, and the extent of this has increased substantially over this period. Banana beer has consistently been the product most likely to be sold, but the proportion of households that brew banana beer that now sell some of it has increased by a factor of nearly four over this period, such that the vast majority now sell some of their output. Banana juice seems to be an important developing product; more households are making it and a larger proportion of these are selling.

Considering livestock ownership the likelihood of owning livestock tends to increase with the quintile up to the 3rd or 4th quintile, but to be lower in the 5th quintile, a significant proportion of which is urban. There has been a large increase in the number of households owning most livestock categories, an increase which – unsurprisingly given recent policy initiatives including *Ubudehe* – is particularly notable in the case of goats. The number of households owning goats has increased in all quintiles and provinces. Relatively few livestock owners sell livestock products, with eggs followed by milk being the most important commodities. The proportion of households selling both products increased over the period, but remains a relatively small minority of the number of households owning the corresponding animals.

Economic Activity

An estimated 600,000 more people are working than was the case in EICV1. More children and adults are in school or education on a full time basis and the incidence of child labour has declined. Eighty-three percent of the population aged 15 years or more is economically active, with rates having increased in the City of Kigali but fallen elsewhere as more young people remain in education. Employment growth has been highest in Eastern Province where the 36% growth in the adult population has been matched with job growth; in comparison Northern Province has experienced a very low increase in employment and high outward migration.

In EICV1 85% of working adults were classified as subsistence farmers, either as an independent farmer or as a member of a family working on the family farm. By EICV2 this proportion had declined to 71%, with growth in waged farm labour, waged non-farm work and independent small business self-employment. There was also a small growth in people working without remuneration in small non-farm family businesses.

There are marked differences in net employment change between the provinces. Only in Eastern province has independent farming grown, in Southern Province the situation has been static, and in Western and Northern provinces the numbers farming have declined. In all provinces there has been an increase in wage farm labour and in non-farm jobs.

Wage labouring is carried out by three distinct groups, the heads of the poorest households, the adult children of very small scale farmers, and those who have become live-in farm workers in more wealthy households. The first group is relatively elderly and have been engaged in this kind of work for long periods, while the other two groups are very young and tend to lack any formal qualifications. This type of work is the fastest growing in the country, and its workers are among the poorest.

Migration has played a part in economic changes: 550,000 adults have moved district between the surveys and with their children the total movement of people across districts is estimated to be 900,000 over the last five years. Three quarters of adult migrants are under 30 years of age, they tend to be unmarried or with few dependents and to live in better off households. The most significant destination is Eastern Province, where most go for farming work. However the City of Kigali also attracts a large number of migrants. In the city the waged migrants work as domestic servants and in the service, construction and security sectors, while the independent small business people work in trade and the commercial sector.

Underemployment is notable among farm workers, with independent farmers and their families working 24 hours a week on average, or just three or four hours a day. Waged agricultural labours work a little longer, but those in non-agricultural jobs work an average of 35 hours or more. Farmers and small business owners in rural areas are likely to be doing more than one job, suggesting that multiple jobs are required to sustain their livelihoods. Secondary rural jobs tend to be waged farm work, which is seasonal and of short duration, or small business, mainly trading, which continues throughout the year. Most of the small businesses in urban and rural areas are in the informal sector, with 96% of them run as household enterprises. Some 63% of them are engaged in trade, and a further 12% in manufacturing. Most small business owners had not sought a loan in the last 12 months, although the lack of capital was given as the major obstacle to establishing the business. The main source of capital was household savings or support from parents.

Demographic changes and vulnerable groups

The population of Rwanda is young, with a mean age of 21 years and children under 15 years comprising 43% of the population. The province of the City of Kigali has grown relatively less fast than the rest of the country, resulting in it having a declining share of the total population. The biggest changes have been the reduction in the share of the population in Northern Province, and the considerable increase in Eastern Province. It is apparent that the parts of the country that are increasing their share of the population are those that had a lower population density in the 2002 Population Census, and there is a slowing down of growth in areas which had high population densities.

The proportion of households headed by women, widows and by children has declined considerably. Female headed households are slightly more likely to be poor (3%) than male-headed households, but the gap has been reduced. The proportion of the population living in child-headed households has almost halved and there is no indication from either EICV1 or EICV2 that child-headed households are more likely to be affected by consumption poverty than the population as a whole.

The average household in Rwanda contains five members. Poorer households tend to be larger than wealthier ones, with an average of 5.5 members for the poorest quintile and 4.7 for the richest. Nationally, every working person supports 1.2 other persons, however, for the poorest households this rises to 1.5 and in the richest it falls to 1.

Targeting access of the poorest to core services

Enrolment in primary education increased considerably between the surveys, net primary enrolment for female students had already achieved parity with those of male students in 2000/01, and has now overtaken the male enrolment rate. There remains a large disparity in the enrolment rates of students in the best-off households compared with those from the poorest households; this reflects an urban rural dimension. Ninety-two percent of primary-age students in the highest consumption quintile now attend primary school, compared with 79% of those in the lowest quintile. But this gap of 13% is 6% smaller than it was in EICV1. Membership of a household headed by a female, including widows, does not reduce the likelihood of enrolment; in fact, these children are slightly more likely than average to go to school. Expenditure on students in primary education has changed little in real terms since the previous survey.

There has been considerable improvement in gross enrolment rates at lower secondary level since 2000/01, with gross enrolment increasing from 14% to 26%. The gross enrolment rate at all secondary levels has increased by 9%, but is still very low at just 21%. There is an enormous variation in gross enrolment between people from poor and from wealthy households. Most of the increase in enrolment comes from the wealthiest. Expenditure on secondary school students is much higher than on primary students, with median expenditure on secondary students in the past year 37 times higher than on primary students.

There is a small reduction in self-reported illness or injury between the surveys. The prevalence of illness is approximately the same in every consumption quintile; however people in the highest consumption quintile are more than twice as likely to have a medical consultation as those in the lowest. One factor that may influence the likelihood of consultation is the proximity of medical facilities. People in the lowest quintile live an average of 15 minutes further away from the nearest health care centre, and an hour's walk further from the nearest district hospital, than those in the highest quintile.

Mutual insurance now reaches 38% of the population[1], with a further 5% of the population covered by other forms of insurance. The uptake of insurance by some vulnerable groups is less widespread. Some 65% of households headed by women and young people under the age of 21 have no health insurance. About one in every 10 people in Rwanda incurs some expenditure on health-related items in a two-week period. There is a clear trend of non-poor households spending more on health care than poor households, although there has been a decrease on health expenditure of some 25% in real terms since 2000/01.

Take-up of safe water to households had changed little between the surveys as a proportion of households, although some 900,000 more people are now using safe water. Households in the wealthiest consumption quintile are much more likely to use mainly safe water than households in all other quintiles.

[1] Promotion of health insurance took place during the 12 month period of fieldwork for the EICV2.

Extending infrastructure in rural areas

Most communities report some kind of road access, and there has been little change between the surveys. However, approximately 1.1 million people are being better served by the current road system due to a reduction in the period when roads are not accessible. Access to markets does impact on farming practices; the proportion of own consumption or subsistence type farming patterns were correlated to the existence of a market in the community. People with a daily market in their community were more likely to buy a larger proportion of their food than those without a market.

New water networks are now available to an estimated additional 1.1 million persons in rural communities since the last survey, but despite the increase in availability and general proximity to the new and safer resource, a large number of persons still prefer to use non-networked sources and travel twice as far to fetch their water. In rural communities with community networks available one in four persons still obtain most of their water from an unsafe source. This has remained the same between the surveys.

There is little difference in the availability of electric power between the surveys, with 10% of persons in rural communities having electric power available. People in communities with electricity available appear to enjoy lower poverty rates than those without; however it is not possible to draw any conclusions about causality based on this. It should be noted that communities with electricity have shown a larger poverty reduction between the two surveys (12%), than those without (2%), though over this period there has only be a very modest increase (around 40 thousand) in the number of rural people living in communities with electricity..

No single service appears to be strongly correlated with rural poverty (except distance to the market and electrical supply). However, an accessibility index was constructed using factor analysis to combine distance to various key facilities. This index was then examined in relation to the rural community's reported consumption poverty. It shows an association between remoteness and higher levels of poverty, but only a weak one. More remote locations, though, do have much lower levels of many other services including public transport, telephone connections and veterinary services.

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Abbreviations

DFID	Department for International Development
DHS	Demographic and Health Survey
EDPRS	Economic Development and Poverty Reduction Strategy
EICV	*Enquete Intégrale sur les Conditions de Vie des ménages de Rwanda*
MINAGRI	Ministry of Agriculture
MINECOFIN	Ministry of Finance and Economic Planning
NIS	National Institute of Statistics
OPM	Oxford Policy Management

1. Introduction

1.1 Background to the study

In December 2006 the National Institute of Statistics (NIS), with the support of the DFID-funded project to support the NIS, published a Preliminary Poverty Update Report giving the main results of the second household survey, the *Enquete Intégrale sur les Conditions de Vie des ménages de Rwanda* (EICV) of 2005–06, and comparing the findings with the results of the earlier survey conducted in 2000–01. This report was specifically commissioned by the Ministry of Finance and Economic Planning (MINECOFIN), drawing on the two surveys, to respond to the emerging priorities for the Economic Development and Poverty Reduction Strategy (EDPRS). Seven key policy challenges are to be addressed by the EDPRS, these are:

- Raising agricultural productivity
- Extending energy and transport infrastructure into rural areas
- Creation of non-farm employment on a large scale
- Reducing the population growth rate
- Making progress on land reform
- Targeting access of the poorest to core services, including basic healthcare and education
- Addressing weak institutional capacity.

This report will address these areas, with the exception of the last mentioned, as no data on institutional capacity is available in the household surveys. Some demographic issues will be addressed by this report, but there are some methodological concerns about drawing too many conclusions about population growth, and the reader is directed to the Demographic and Health Surveys (DHS) which are specifically designed to respond to demographic concerns.

1.2 Background to the surveys and methodological issues

The first EICV survey (EICV1) was conducted in 2000 and 2001 using a sampling frame derived from administrative records, as no census based frame was available following the war of 1994. The first post-war population census was conducted in the year following the EICV1, in 2002. This census was used to construct the sampling frame for the second EICV survey (EICV2) of 2005/06. The sample design for EICV2 was therefore able to be more efficient than its predecessor, and has a smaller confidence interval surrounding its estimates. In comparing the numerical estimates of change between two surveys, two sets of sampling errors and non-sampling errors are involved, therefore caution should be exercised when making comparisons. The EICV surveys should not be used to calculate demographic trends such as annual population growth rate. There are two Demographic and Health Surveys (DHS), conducted over a similar time period. These surveys are designed specifically to measure demographic issues and are considered to be a more reliable source of demographic information.

Despite the reservations on comparing population sizes, the two surveys are very comparable, and were designed to be as similar to one another as possible.

The authors have exercised caution in using the agricultural data. The EICV does not measure farm plot sizes, but asks household representatives to estimate plot sizes with support from the enumerators; the land size information is therefore less reliable than that usually obtained from

agricultural surveys where plots are measured. Farm sizes in this report have been categorised for analysis, and the authors consider this to be meaningful. Farm size measurement errors, plus the likely difficulty in measuring each household's agricultural production precisely over the year, makes it very difficult to derive exact measures of agricultural productivity from the EICV surveys. On the other hand the data appear to be reliable enough to draw conclusions about broad trends relating to agricultural production for main crops; and to classify households into broad categories of land cultivated and owned. A comparison of the EICV agricultural data and the Light Rural Sector Survey conducted by the Ministry of Agriculture (MINAGRI) will follow in the next few months under the auspices of the National Institute of Statistics (NIS).

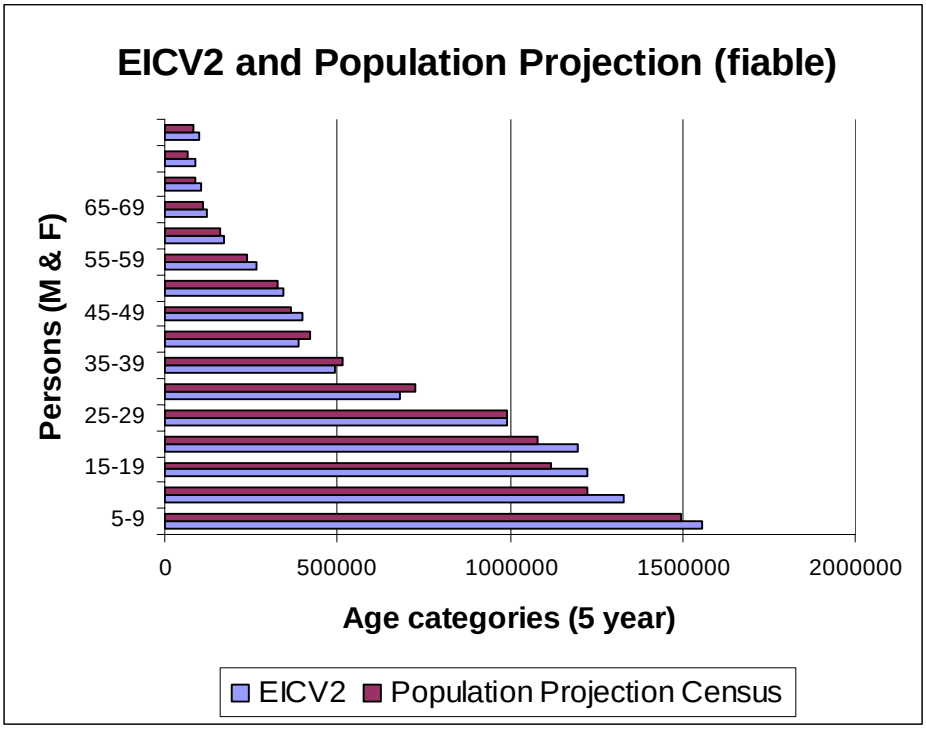
1.3 Demographic changes in the population

Between the EICV1 and EICV2 surveys the population is estimated to have grown by approximately 1.5 million people. However the 95% confidence intervals for the two surveys shown in Table A.1 indicate that the true value could lie in the range of 1 million and 1.9 million people.

The EICV1 and EICV2 population profiles have been compared with the 2002 population census, and with the 2006 population projections derived from the population census. The population projections are likely to have underestimated the numbers of children in the population, as the 2005 DHS found the Total Fertility Rate to be 6.1 live births per woman. This is substantially higher than any of the three alternative sets of assumptions used for the population projections. The population projections based on the 'weak assumptions' have been chosen for comparison, as these utilise the highest fertility assumptions[2]. The higher than expected fertility rates explains the higher numbers of children found in the EICV2 population, when compared with the 2006 population projections; this is illustrated in Figure 1.1. Other than the larger numbers of children found in the survey, the EICV2 profile compares well with that of the population projection, however the underestimation of young persons extends as far as the 15-19 year old category. This mismatch is therefore not entirely explained by changes in fertility rates.

[2] *Hypothèse faible* : l'indice synthétique de fécondité (ISF) passerait de 5,9 à 4,9 entre 2002 et 2022 ; 4,9 étant l'indice synthétique de fécondité enregistré en 2002 dans l'ensemble du milieu urbain rwandais : *ISF : de 5,9 enfants par femme en 2002 à 4,9 enfants par femme en 2022*. 3ème Recensement General De La Population Et De L'habitat Du Rwanda Au 15 Aout 2002; Perspectives Et Prospectives Demographiques.

Figure 1.1 Comparison of EICV2 and population projection

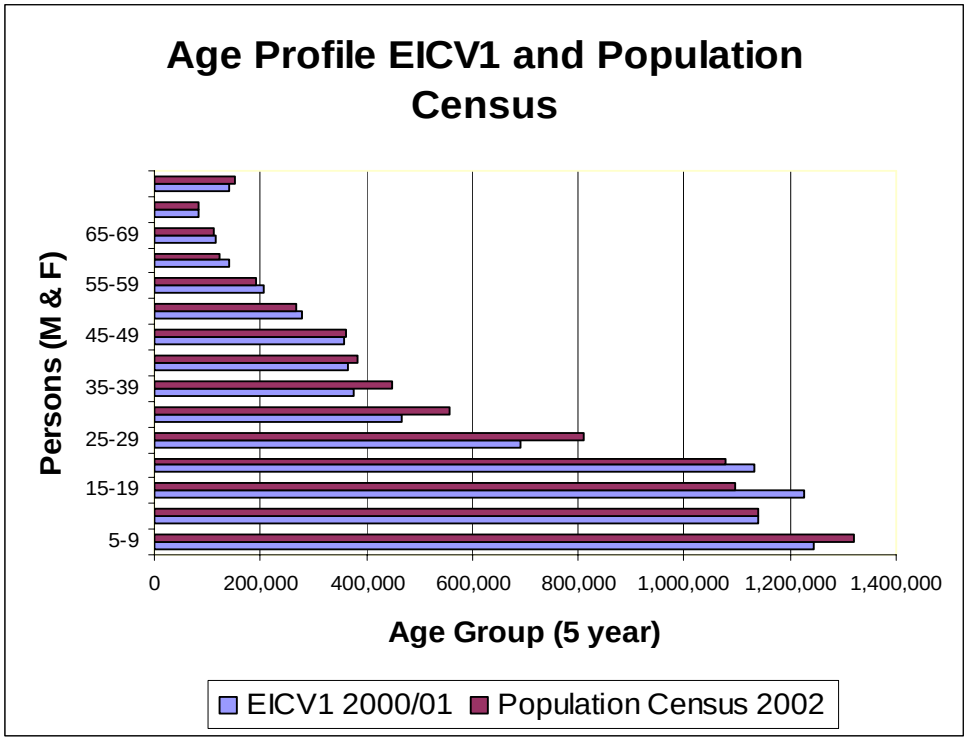


Source: EICV2 and Population projections from census.

More concerning is the poor fit between the EICV1 and the population census, The age range 25 years to 40 years seems under-represented in the EICV1, while younger age groups are overestimated; this is illustrated in Figure 1.2. The population census shows a large institutional population (prisons, refugee camps, barracks, hospitals etc.), and this may account for the missing adults. To estimate the potential effects on the labour force of these 'missing adults' the economic activity rates found in the EICV1 have been applied to the 2006 population projection. The missing adults could account for a workforce of around 190,000.

In the light of the information given in the preceding paragraph, the estimated growth of the workforce presented in section 5 of the report should be treated with caution. The estimates given for the growth in workers may be around 200,000 fewer than given, and sampling errors also apply; however, it is our view that the size of the adult workforce increased by at least 500,000 between the two surveys.

Figure 1.2 Comparison of EICV1 and population census



Source: EICV1 and Population Census.

1.4 Population growth and migration

The rapidly changing nature of Rwanda's population size and structure is widely recognised, and demographic factors have long been taken into consideration in planning for sustainable development. The complex relationship between population growth and economic development was highlighted in the preliminary poverty update report for EICV2, which noted that the absolute number of Rwandese living in poverty has risen since 2000/01. This is because the reduction in the proportion of people who are poor from 60.4% to 56.9% has been more than offset by the population increase (see Table 2.1). Recent statistical series such as the 2002 Population Census and the Rwanda DHS of 2005 suggest that a combination of the high total fertility rate, a mortality rate that is much lower than the birth rate, and high levels of immigration have all contributed to the rapid population growth in recent years.

In addition to the increase in the total population, Rwanda also continues to experience considerable internal migration, both within and between provinces, and from rural to urban areas. An understanding of these changes in the distribution and concentration of the population is, of course, critical in planning and delivering public services and infrastructure to support poverty reduction and economic development. These issues are discussed in more detail in section 6.5 below.

The EICV surveys are not intended to substitute for the population census in determining the overall population of Rwanda and should not be used to calculate a growth rate because of the wide confidence intervals involved which are found in Table A.1.

Table 1.1 Population structure, by stratum[1]

Stratum	EICV1		EICV2	
	Estimated population	**Share (%)**	**Estimated population**	**Share (%)**
City of Kigali	663,000	8.3	703,000	7.4
Other urban	618,000	7.8	865,000	9.1
Rural	6,683,000	83.9	7,893,000	83.4
Total	**7,963,000**	**100**	**9,460,000**	**100**

Source: EICV1 and EICV2 data. Note: (1) The population is estimated using the total sum of household weights. These figures are consistent with census data and projections, though should not substitute for the census data as they may be affected by sampling errors or any errors in the sampling frame, particularly that of EICV1.

The population has grown fastest in urban areas other than Kigali between 2000/01 and 2005/06, and these areas now contain one in every 11 people in Rwanda. The overall share of the population living in urban areas, including Kigali, has risen slightly to 16.5%. Boundary changes have been taken account of in the comparison of urban areas and in comparing provinces.

2. Poverty and inequality in Rwanda

The preliminary poverty update report produced in December 2006 provided an initial analysis of how poverty and wellbeing had changed in Rwanda over the period between the two EICV surveys. It showed a picture of substantial progress in many areas, including average consumption levels, education, use of health care services, ownership of consumer durable goods and ownership of livestock. The results of the DHS surveys were also in line with this general picture of improvement in welfare indicators, with falling infant, child and maternal mortality rates, and reduced incidence of wasting and being underweight among young children (though increased stunting). Readers are referred to the Poverty Update Report for more details on these trends.

All these outcomes represent substantial achievement over a period of five years, much of which is widely recognised. At the same time though, the progress in terms of reducing income (strictly consumption) poverty has been considered to be disappointing. Over this period consumption per adult[3] grew at an average rate of around 3% per annum, and so by about 15% overall. Poverty fell from 60.4% in 2000/01 to 56.9% in 2005/06, a reduction of 3.5 percentage points. There were also important regional dimensions to this as shown in Table 2.1. For instance the poverty headcount fell substantially in Eastern Province, fell by smaller amounts in Northern Province and the City of Kigali, and actually rose slightly in Southern Province. Calculations show that 68% of the total reduction on poverty was accounted for by poverty reduction in Eastern Province.

Table 2.1 Poverty headcount by province, EICV1 and EICV2 (%)

	EICV1	EICV2
City of Kigali	24.4	20.2
Southern Province	65.8	67.3
Western Province	63.1	62.0
Northern Province	66.9	62.7
Eastern Province	61.8	50.4
National	**60.4**	**56.9**

Source: authors' computations from EICV1/2 surveys.

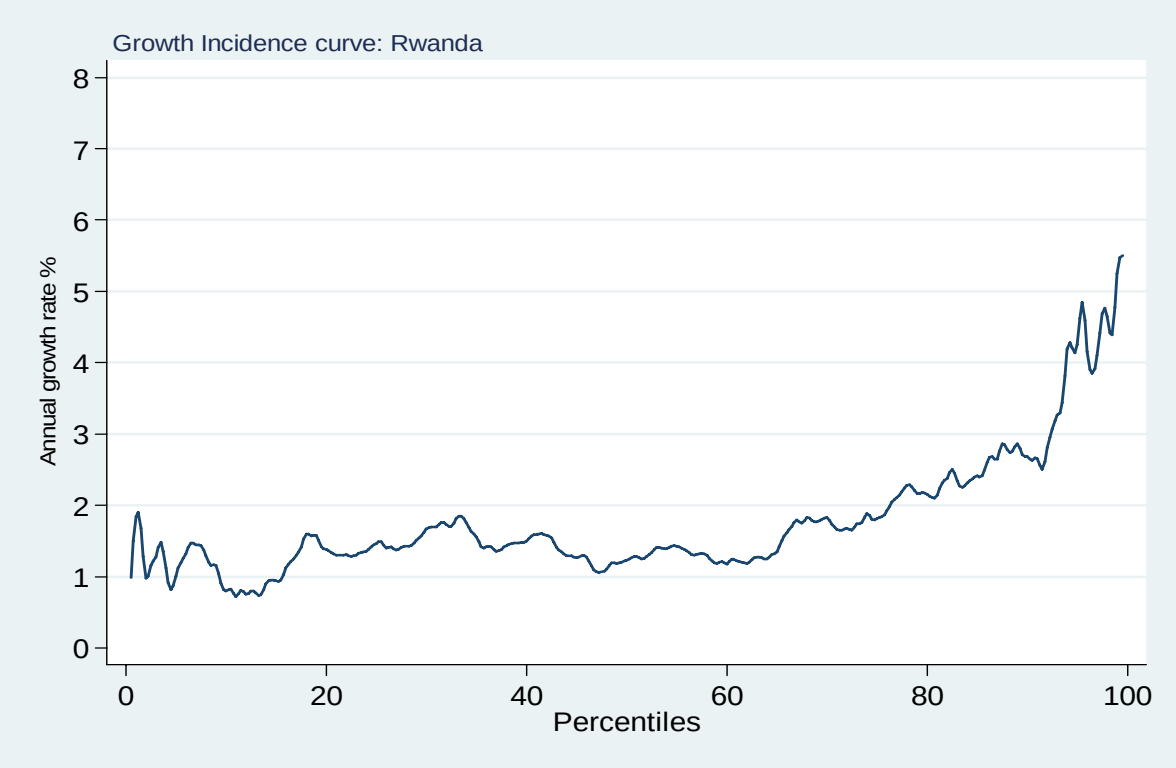
One important part of the story was an increase in inequality as measured by the Gini coefficient. The level of inequality was already high in 2000/01, with a Gini coefficient of 0.47, and this rose to 0.51. The high initial level of inequality, and the fact that inequality worsened over this period, were important factors making the consumption growth less effective in terms of poverty reduction – in more technical terms, lowering the growth elasticity of poverty reduction. A province level analysis of inequality showed that Gini coefficients rose in Southern and Western provinces in particular. The consumption growth rate was positive in Southern Province, but inequality rose sharply and poverty also increased.

The pattern of growth over the period can be represented as a growth incidence curve as plotted in Figure 2.1. This curve compares the consumption level for each percentile group in the two surveys, and computes the implied annualised growth rate at each point. The curve shows that, for each percentile, consumption per adult was higher (in real terms) in 2005/06 than in 2000/01; but is also shows that the growth rate was higher for higher percentile groups. It is only above the 90th

[3] This uses the same adult equivalent scales used in the poverty and inequality analysis; see the Poverty Update Report, December 2006.

percentile that the growth rate is equal to or above the national average figure. While the increase in inequality reflects many factors, one significant one seems to have been the increase in food prices relative to non-food prices over this period.

Figure 2.1 Growth incidence curve for Rwanda, 2000/01 to 2005/06



Source: authors' computation from EICV1/2 data.

Repeating this analysis at the province level (Figure B.1) shows an important geographic diversity. The curves highlight the increasing inequality in Southern and Western provinces, but not elsewhere. In Southern Province the consumption growth rate was negative up to about the 70th percentile but there was a very large increase in consumption levels at the top of the distribution. In Western Province, though poverty fell modestly overall, consumption growth rates were negative up to about the 30th percentile which is consistent with an increase in the depth of poverty there. In the remaining provinces growth was more equally distributed.

The EICV surveys also collect sufficient data to enable household income to be estimated. Income data is very valuable because it allows an analysis of the sources from which households are able to finance their consumption. The average share of income households earn from five main sources is summarised in Table 2.2. Agricultural income mostly comprises income from crop production (whether sold or consumed by the household), as well as some income from processing, livestock and other agricultural sources. Wage income data includes payments in kind as well as in cash; agricultural labour income relates to earnings from working on other households' land, while non-agricultural wage earnings cover both formal and informal forms of employment. Non-agricultural self employment refers to earnings from a range of different, mostly informal, business activities, and other income is made up mostly of remittances and other transfers, but includes other elements such as rent.

Table 2.2 Average share of household income from different sources

Survey	Stratum	Household agriculture	Non-agriculture self employment	Wage work		Non-labour
				Agricultural labour	Non-agricultural employment	
EICV1	Kigali	6.7%	27.6%	1.2%	51.8%	12.7%
	Other urban	60.1%	11.3%	4.6%	17.8%	6.1%
	Rural	75.3%	5.4%	6.4%	5.4%	7.5%
	Total	**68.6%**	**7.7%**	**5.8%**	**10.1%**	**7.8%**
EICV2	Kigali	8.2%	21.2%	1.5%	53.9%	15.3%
	Other urban	62.2%	12.2%	6.9%	10.6%	8.1%
	Rural	64.4%	9.8%	8.9%	7.7%	9.3%
	Total	**60.0%**	**10.9%**	**8.1%**	**11.4%**	**9.6%**

Source: author's computations from EICV1/2 surveys. Note: household agriculture includes livestock rearing and household level processing of products, as well as cultivation of crops, and includes a valuation of consumption of own production. Wage Income from agricultural labour is where individuals work for a different household.

As expected, agriculture is the predominant income source in rural areas, followed by wage earnings – more than half of which comes from agricultural wage labour. Over this period the importance of household agriculture as an income source in rural areas fell, and that of wages (agricultural and non-agricultural) and non-agricultural self employment increased. Household agriculture is also the largest income source for those living in other urban areas (i.e. outside of Kigali), and this remained largely unchanged over the period. Non-labour sources of income are largest proportionately in Kigali, but are significant in all areas. The importance of this source also increased marginally over the period.

The income data was also used to classify households according to their main income source, which in turn can be used to study poverty. There are many ways of classifying households; one such categorisation is presented in Table 2.3. In the first five rows are households that obtain at least half of their earnings from a single income source. In practice this income share is usually substantially larger than half. For instance, those households classified as relying on household agriculture obtained on average 85% of their earnings from this source in EICV2, and 89% in EICV1. And the corresponding shares are only slightly lower for those obtaining the majority of their earnings from wages or non-farm agricultural self employment activity. Other households have more than one major source of income, and the next five rows identify some of the more common combinations of the two main sources. The eleventh row relates to other combinations, and households in the twelfth row could not be classified because the data needed to compute their incomes was missing.

The results show that the vast majority of households (93%) rely predominantly on one main type of income, and this reliance one main source has only declined marginally (3%) over the period. The majority of the Rwandese population live in households which earn the majority of their income from their own agricultural activities. Among this group there has been an important reduction in poverty over the period. Poverty also fell within the small group earning their incomes from agriculture in combination with a non-agricultural wage employment activity. Around 5% of Rwandese live in households that earn the majority of their income from agricultural wage labour, an activity which is generally very low paid and insecure. Moreover, the available price data suggest that over this period the wage rate for daily labour fell in real terms, perhaps by as much as 15% (though this is an approximate estimate). The poverty rates are highest by far among this group reliant on agricultural wage labour, followed by households that combine agricultural wage labour with farming on their own land. Neither of these groups experienced a reduction in poverty

over this period, and their numbers actually grew. There is therefore a very important difference between those able to cultivate their own land, and those having to reply of working on other households' land.

Table 2.3 Poverty headcount data by main income sources of households

Households' main income sources	Sample share		Poverty headcount		Poverty change
	EICV1	EICV2	EICV1	EICV2	
Agriculture	71.6%	64.1%	66.0%	61.3%	4.7%
Non-agricultural wage labour	9.3%	10.4%	22.6%	31.2%	-8.6%
Non-agricultural self employment	6.7%	9.1%	31.5%	35.9%	-4.4%
Agricultural wage labour	4.8%	5.6%	92.2%	91.0%	1.2%
Non labour income	3.2%	3.9%	64.7%	55.4%	9.3%
Agriculture plus agric labour	0.9%	1.3%	80.2%	81.6%	
Agriculture plus non-agric self employment	0.7%	1.1%	48.8%	60.5%	
Agriculture plus non-agric wage	0.7%	1.1%	47.3%	41.0%	
Non-agric business plus non-agric wage	0.4%	0.5%	40.2%	49.3%	
Agriculture plus non-labour income	0.0%	0.5%	83.4%	43.2%	
Other combinations	0.9%	1.1%	60.2%	46.8%	
Non defined	0.8%	1.3%	49.1%	46.8%	
Total	**100.0%**	**100.0%**	**60.4%**	**56.9%**	**3.5%**

Source: calculated from EICV1/2 surveys. Note: an explanation of these household categories is provided in the text. Data on the extent of poverty reduction is only reported for the five cases with the largest number of observations. A positive figure here signifies a reduction in poverty in that group, and a negative figure an increase.

Poverty levels are substantially lower among households earning most of their income from non-agricultural activities, whether for wages or in a household business activity[4]. For both groups though, the poverty headcount increased over this period, as did the proportion of households engaged in these activities (especially in the case of self employment). Further analysis shows that the increase in poverty among the non-agricultural wage earners is apparent throughout the country except in Kigali; whereas the increase in poverty among the non-agricultural self employed is observed in the Northern and Western provinces, but not elsewhere. The average consumption level of households in these economic activity categories fell over the period. This might be interpreted as suggesting that those that have entered these activities over this period are poorer than those that were already engaged in these activities in 2000/01, or it may indicate increasing competition for these non-agricultural activities. It is of course possible that they may still be better

[4] These classifications group together a range of activities, a few highly lucrative but many marginal (see section 5 for more detail on this).

off in these activities than they might have been in previous agricultural work, but none of these hypotheses can be verified in the absence of panel data.

An analysis of households' income source classification by quintile group shows some important differences by quintile (Table B.1). Between the surveys by far the biggest increase in those in the poorest quintile group are among those working in agricultural wage labour; and this is also the quintile group in which the reduction in the proportion working in independent agricultural activity is greatest. Households moving into agricultural wage labour appear to be condemned to a situation of severe poverty. The growth in non-agricultural wage activities over this period is greatest in the three lowest quintiles (though from a low starting point), but clearly these jobs are not allowing households to escape poverty to a significant extent. The growth of households reliant on non-agricultural self employment activities is observed in all quintile groups, with the largest increases in the three middle quintiles. Dependence on non-labour income is highest among the lowest and the higher quintile groups, although over this period it fell in the lowest quintile as a proportion of all households.

These household activity shifts are likely to be major factors underlying the distributional pattern of growth and accounting for the increase in inequality. While the definitive pattern cannot be confirmed in the absence of panel data, the results here strongly suggest that significant numbers of households may have been able to improve their living conditions by apparently earning more in agriculture (a hypothesis to be investigated in section 5) or by moving out of agricultural activities (although it is also clear that not all non-agricultural jobs are well paid). Others though have had to become more reliant on working as agricultural labourers, where earnings are very low, and less on cultivating their own land. Preliminary analysis of the income data also suggests that a rise in inequality in non-agricultural self employment income has been another contributory factor to increased income inequality over the period.

3. Land

It is clear that the agricultural sector plays a central role in explaining observed changes in poverty and inequality in Rwanda, given that it is the predominant activity for the majority of the population, and especially so for the poor. In this section we begin at looking at land as a key productive input for agricultural production in Rwanda, one in scarce supply, and the policy importance of which is self evident.

3.1 Distribution of land

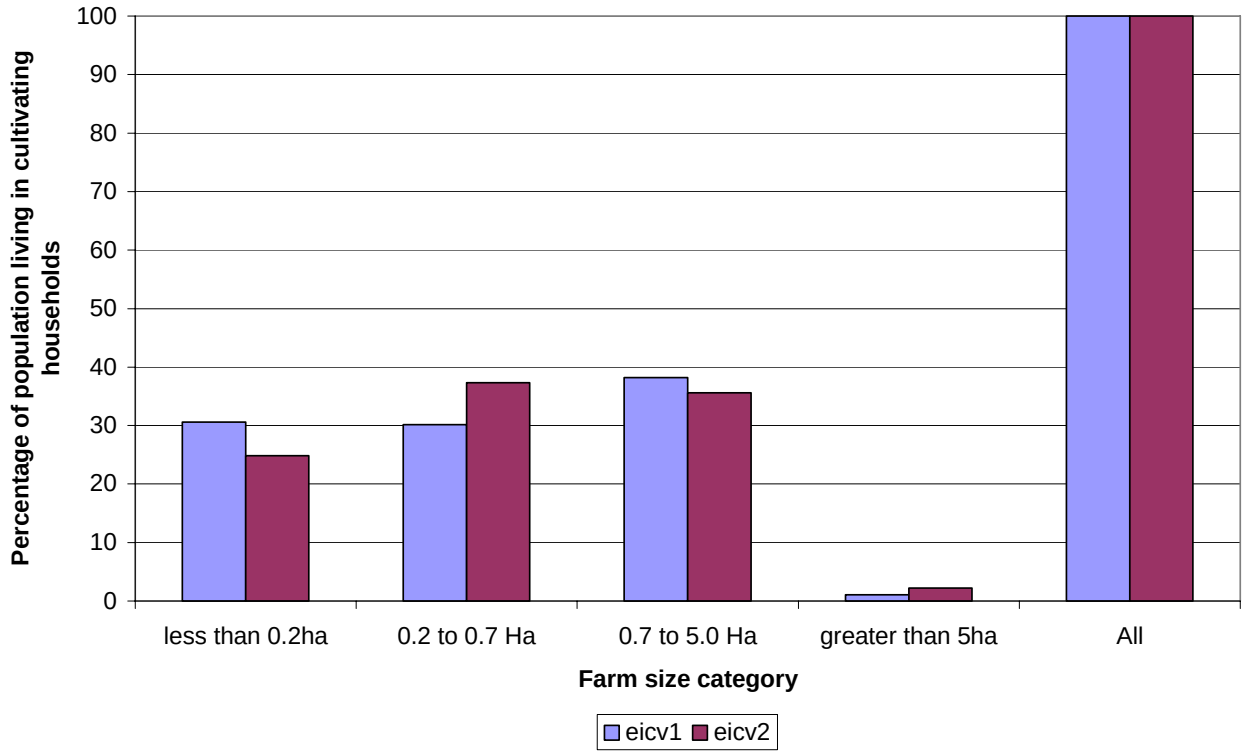
While, as already stressed, a multipurpose survey such as the EICV cannot be expected to give as reliable estimates of land size (based on farmers' recall) as a specialist agricultural survey (in which plot sizes are measured), the average values for land size cultivated from the EICV surveys (0.76 ha in EICV1, 0.81 ha in EICV2) are comparable to those in recent agricultural surveys in Rwanda. This suggests that there is not a systematic mis-measurement problem. However, because the farmer-specific estimates may be imprecise, analysis of land size issues in this report will generally be based on classifying farmers in four categories based on the size of the land area they *cultivate*: very small cultivators (less than 0.2 ha per farming household); small cultivators (between 0.2 and 0.7 ha)[5]; medium cultivators (from 0.7 to 5 ha); and very large farmers (more than 5 ha). Unfortunately, the surveys do not provide any information to allow any basic assessment to be made of land quality, even to the basic level of distinguishing valley bottoms from steep slopes and hilltops. This is an important limitation to bear in mind given the big variations in soil quality in Rwanda. Again the agricultural surveys conducted in Rwanda provide more detail on these aspects.

Looking at the distribution across cultivating households (Figure 3.1), more than 60% cultivate less than 0.7 ha, and more than a quarter cultivate less than a fifth of a hectare. Very few households cultivate large land areas. In general the proportion of households in each of these land size categories has changed relatively little over the period. It is very important to note that in both surveys around half of cultivating households (representing 3.6 million people in EICV1 and 4.5 million in EICV2) cultivate less than half a hectare, the threshold which has was widely discussed in relation to land registration proposals.

Unsurprisingly, land size category is strongly and monotonically related to a household's consumption quintile. More than 70% of households in the lowest consumption quintile cultivated less than 0.7 ha and more than 50% of those in the top quintile cultivated more than 0.7 ha; the proportions of both increased over the period. By province, the Southern and Western provinces, plus the city of Kigali have the highest proportion of households in the very small cultivation category, and the Eastern Province has the largest proportion of cultivators in the medium and large category.

[5] 0.7 ha is approximately the average cultivated size; it is one estimate of the minimum farm size needed to feed a typical Rwandese family.

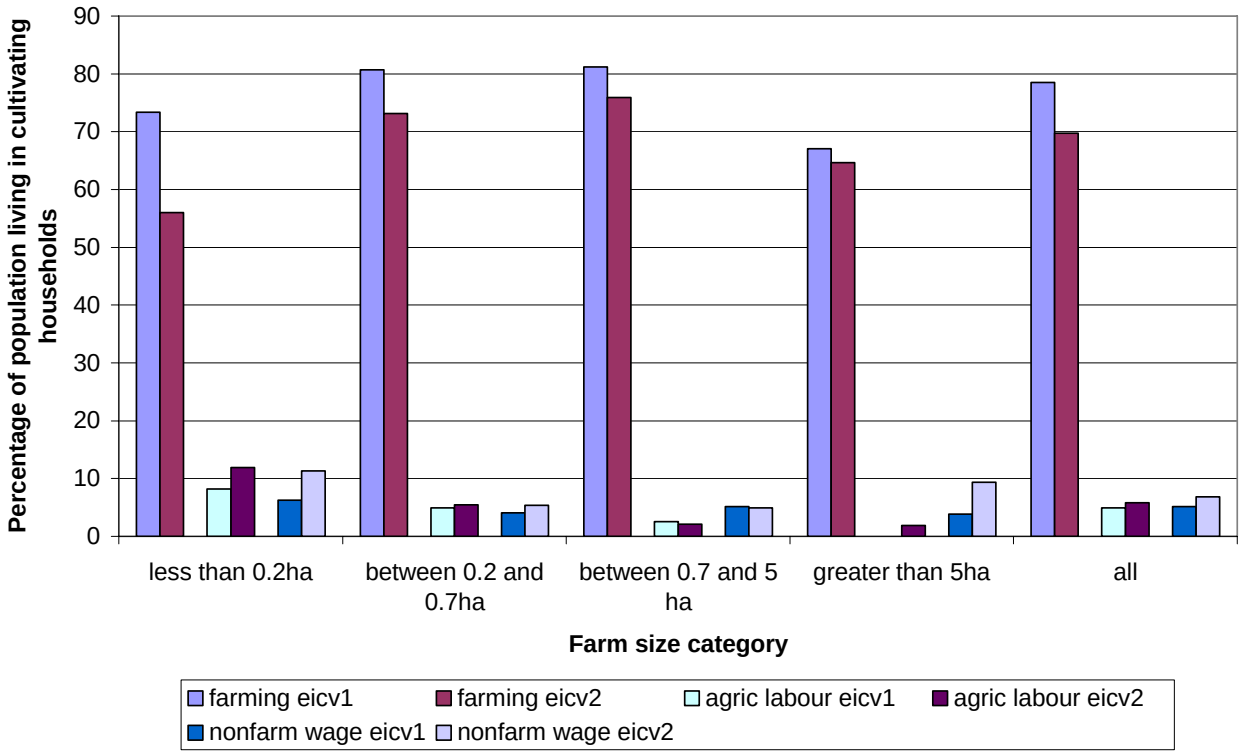
Figure 3.1 Distribution of land size cultivated, for households that grow crops



Source: EICV1 and EICV2.

There is also a strong association between the land sizes which households cultivate and the economic activities in which they are engaged (Table C.1 and Figure 3.2). Those for whom independent agriculture is the main activity are most likely to be in intermediate land categories, while those cultivating less than 0.2 ha are much more likely to be predominantly reliant on wage work, either in agriculture or in a non-agricultural activity. Over the time period between the two surveys there is also a large reduction among the very small cultivating group in the proportion predominantly engaged in independent agriculture, and a corresponding increase in the numbers reliant on wage work, whether in agriculture or in non-agricultural activities. The corresponding changes are much less apparent in the other land size groups identified here.

Figure 3.2 Changes in proportions working in agriculture and wage labour



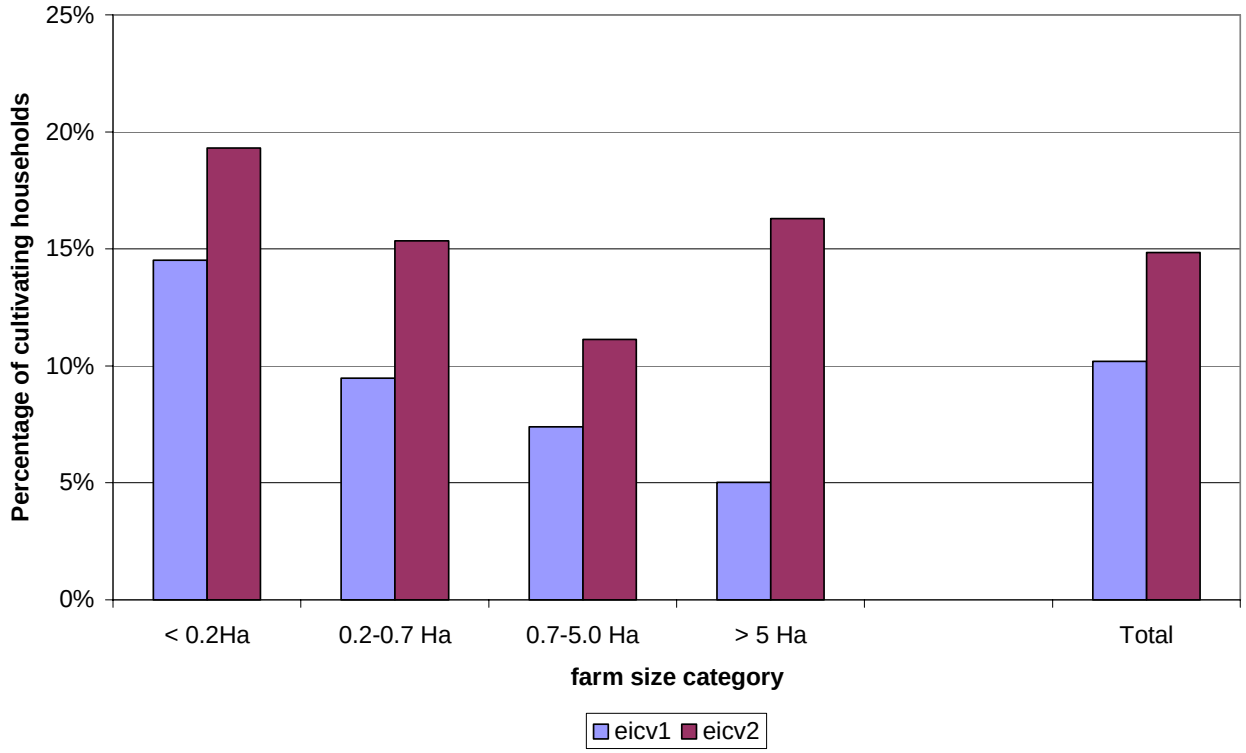
Source: EICV1 and EICV2.

3.2 Terms of access to land

More than 90% of all Rwandese live in households that own some farming land, in both surveys, and among those that cultivate crops only 2% do not own any land (so having to rent, sharecrop or borrow land). In that sense landlessness affects a very small proportion of the population. There were some small changes in land ownership over the period between the two surveys. There was a reduction in the percentage owning land in Southern Province and an increase in the City of Kigali. By quintile, there was a reduction in the proportion of landowners in the lowest quintile and an increase in the highest quintile. This latter is consistent with the shift into greater reliance on wage labour in the lowest quintile. A lack of access to land may be an important driver of this.

Among cultivating households, the very smallest cultivators rent in, sharecrop in or borrow a higher proportion of their cultivated area compared to larger farming categories (Figure 3.3). In all farm size categories the proportion of cultivated area which was rented in or borrowed by the farmer rose over this period and the share owned fell. This was particularly the case in Eastern Province. At the national level this suggests the development of a more active rental market for land. A greater reliance on a rental market may also suggest increased vulnerability for the smallest cultivators; the proportion of this group that reported owning some farming land fell over this period from 98% to 95%. Renting implies up-front costs, and potentially greater tenure insecurity. This is an issue which needs to be investigated in more depth.

Figure 3.3 Average percentage of household cultivated area that was rented in or borrowed, by farm size



Source: EICV1 and EICV2.

As well as a developing rental market, there also seems to have been a significant increase in the development of land purchases and sales. Data on land transactions in EICV2 shows that 13% of households report purchasing some land in the preceding 12 months, and 6% had sold some land, both of these figures representing a significant increase over the situation in EICV1[6]. These increases in land purchases and sales are observed in all provinces. In addition the proportion of households that bought land tends to be greater in higher quintile groups; and among larger cultivators. The proportion selling land also increases with the scale of cultivation; in other words it does not seem to be the case that most land sales are distress sales among those in the lowest quintile groups or cultivating the smallest areas. In addition the very small cultivators and those in the first quintile are less likely to rent, sharecrop or lend out any land. These findings strongly suggest that the poorest are very keen to retain and try to cultivate their plots, however small the area. In addition the patterns of purchases, sales and rentals shown by the survey data do not give any clear indication about trends in land inequality.

3.3 Land conservation

There is very limited information available in the surveys to judge one key land issue in Rwanda, the extent of progress on reducing environmental degradation. Two possible indicators, though,

[6] The imbalance between the numbers reporting purchasing and selling could be interpreted as suggesting increased land fragmentation.

are whether farmers keep some of their land fallow; and whether rural communities have practised reforestation. In both respects the message is positive in terms of progress over this period.

Only a small minority of cultivating households in Rwanda report having left one or more plots of land fallow in the past year; but the proportion increased substantially between the two surveys (Figure C.1). Unsurprisingly, the proportion leaving some land fallow increases substantially with the scale of cultivation; but in all land size categories there was an increase in the proportion of households leaving some land fallow. This proportion increased in all provinces, particularly in Southern and Western Province; and increased in all quintile groups, though least in the lowest quintile.

Table 3.1 Extent to which households are engaged in reforestation activities, by quintile

Quintile	Rural population living in communities that practise reforestation (%)		Mean hectares planted[1]	
	EICV1	EICV2	EICV1	EICV2
Lowest	41.2	62.0	4.8	12.4
Second	39.2	59.9	5.0	12.4
Third	40.3	56.3	5.4	12.0
Fourth	40.1	58.2	4.2	12.1
Highest	37.4	62.1	3.9	13.2
Total	**39.8**	**59.6**	**4.7**	**12.3**

Source: authors computations from EICV1/2 data. Note: (1) Data refer to communities where replanting took place.

Sixty percent of the rural population in EICV2 lived in communities that were engaged in reforestation activities, representing a large increase relative to EICV1 for which the corresponding figure was 40% (Table 3.1). For those that replanted, the average area planted also increased substantially over this period, from around four hectares in EICV1 to more than 12 hectares in EICV2. The biggest increase in the proportion living in communities that engaged in reforestation was in the Eastern Province, followed by the Southern Province; and it was smallest in the Northern Province. And the increases were of similar magnitudes in all quintile groups.

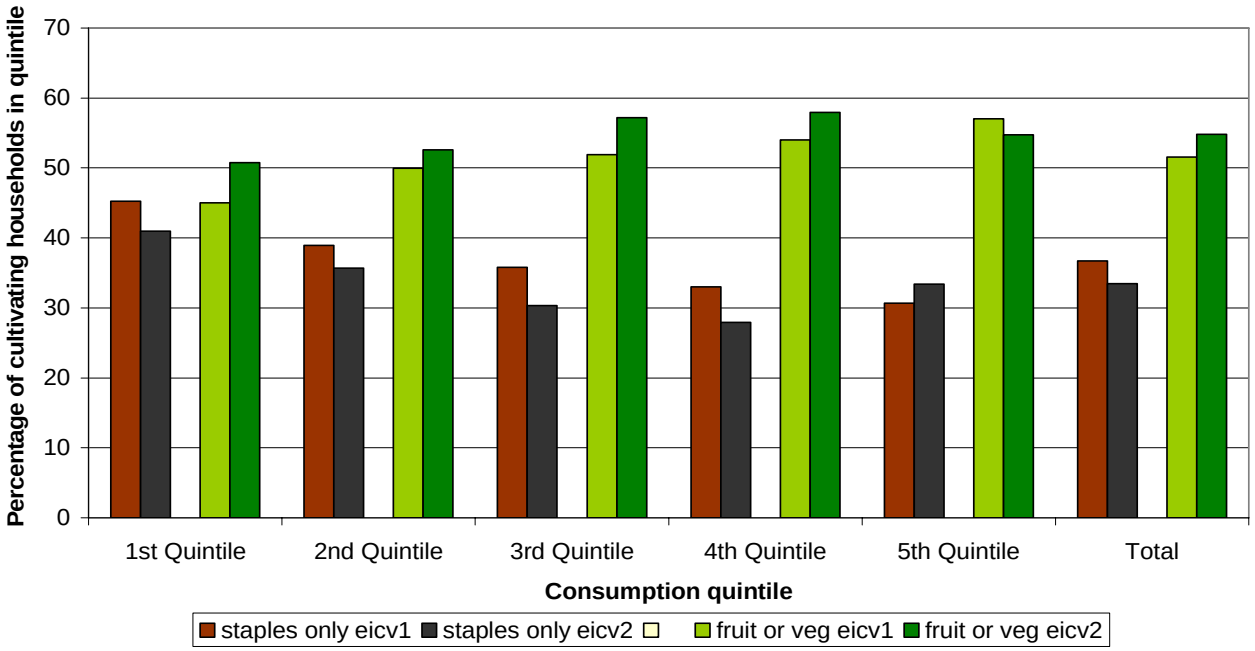
4. Agricultural production

Agriculture remains the predominant activity for the large majority of the Rwandan population, and the sector plays a central role in attaining poverty reduction. This section examines trends in relation to crop production and sales, use of inputs, livestock production, and the making of processed agricultural products.

4.1 Crop production and sales

In both surveys more than 90% of Rwandese population undertakes some crop cultivation, and produce a wide diversity of products. The majority of households grow some of the traditional staple food crops, such as sweet potatoes, beans, manioc, sorghum, bananas and Irish potatoes[7]. But more than half of Rwandese households that cultivate crops are now also producing alongside their staple crops a wide range of fruit and vegetable products such as avocados, papaya, mango, tomatoes, squash and peppers (Figure 4.1). In all quintiles less than half of the farming households are engaged only in the production of staple crops, and this share has fallen between EICV1 and EICV2 (except in the top quintile). Around 10% of households in all quintiles also cultivate Rwanda's traditional export crops, coffee and tea.

Figure 4.1 Patterns of cultivation of main crop groups, by quintile, for all households cultivating any crops

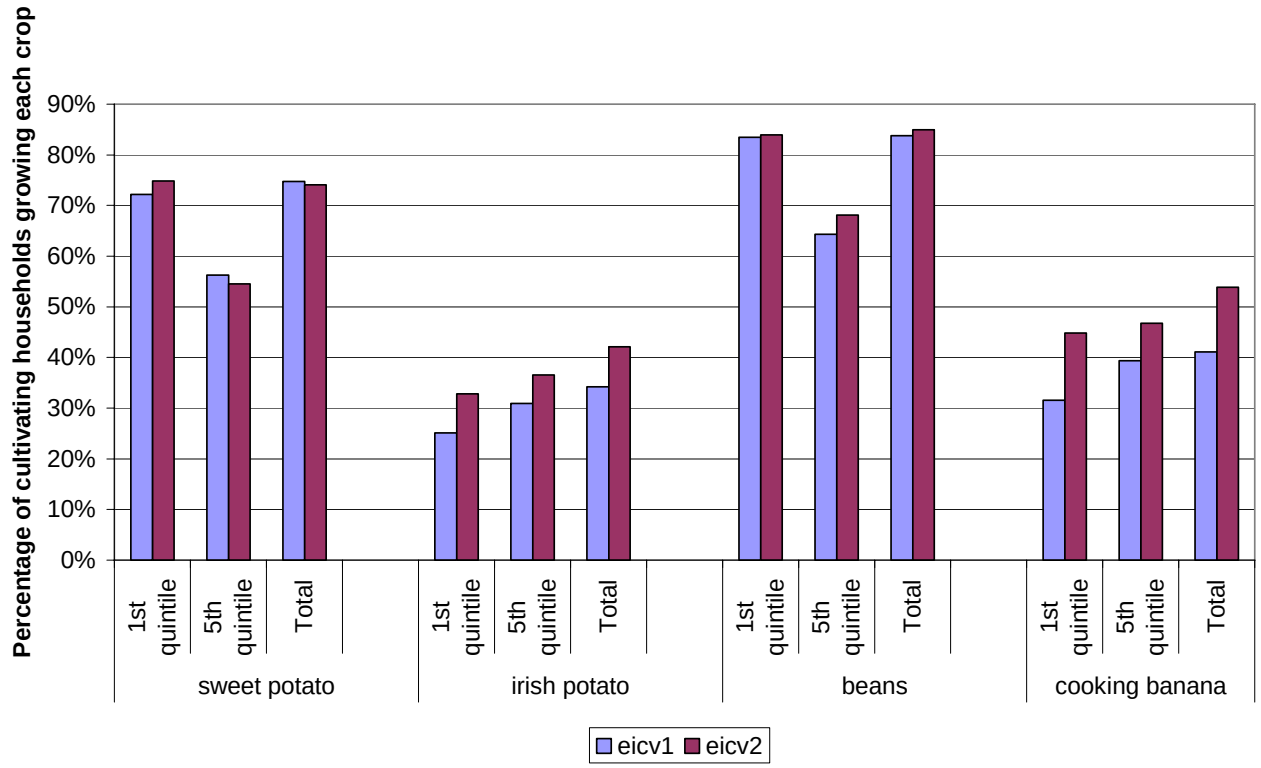


Source: authors' computations from EICV1/2 survey data.

[7] The full definition of staple crops used here includes the following: rice, corn, sorghum, wheat, other grains, manioc, yam, sweet potato, Irish potato, taro, soy, peanuts, beans, peas, sweet bananas, cooking bananas, beer bananas, cabbage, fresh peas, manioc leaves, rengarenga and imbwija.

A large majority of households in all quintile groups produce Rwanda's two predominant food crops, beans and sweet potatoes, though this proportion has not changed much over the period between the two surveys (Figure 4.2, and Annex D). On the other hand there has been a large proportionate increase over this period in the numbers of households cultivating rice, corn, Irish potatoes, cooking banana, papaya, mango and coffee. The increased numbers producing many of these commodities has occurred in all quintile groups, as in the cases of Irish potatoes and cooking bananas, but this has not been the case for other commodities such as mango, papaya and coffee (Figure 4.3).

Figure 4.2 Proportion of households cultivating key staple crops

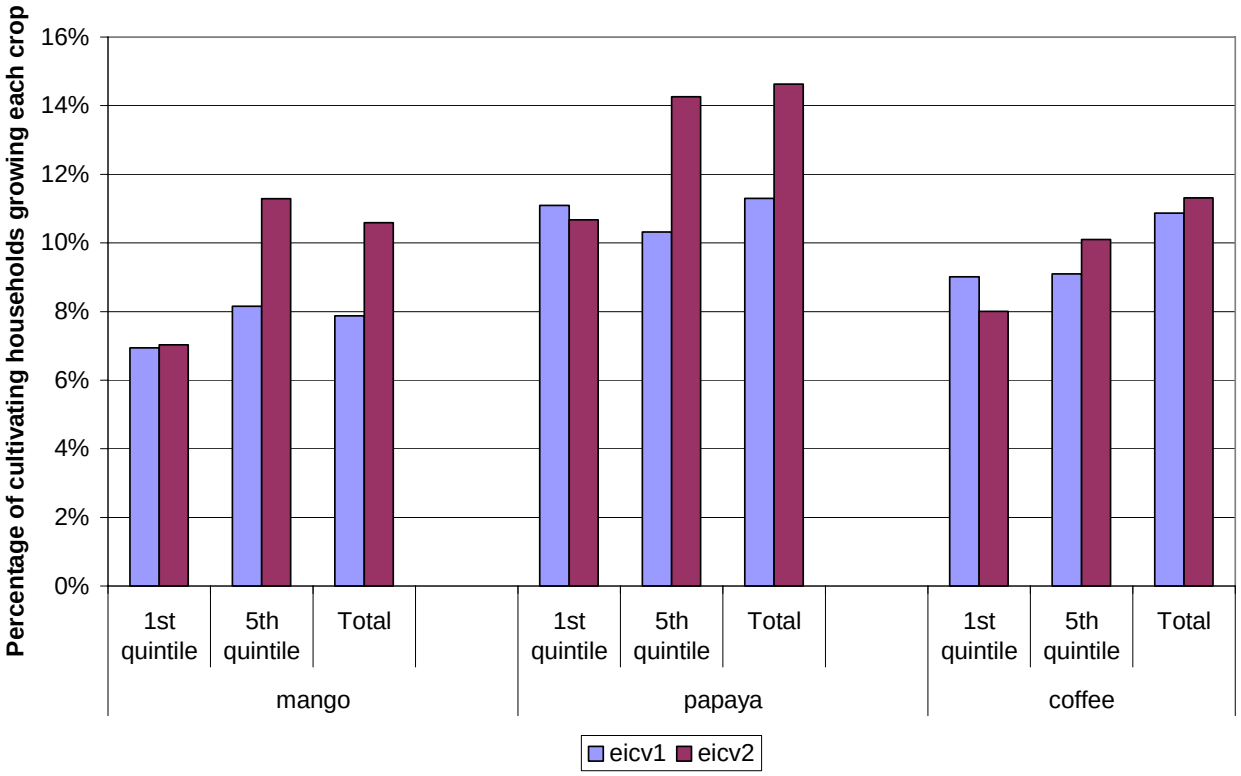


Source: authors' computations from EICV1/2 survey data.

The production data collected by the EICV surveys provide evidence for increased agricultural production over this period (Table D.3)[8]. This partly reflects the increased number of households producing many commodities, though for some crops such as sweet potato or manioc the increases are below the population growth rates. For some commodities the median value of household production remained relatively unchanged over the period between the surveys, although in most cases the mean value increased. For some traditional crops, including sorghum, sweet potatoes and beans, median household production also increased, as was also the case for papaya. The increase in banana production over the period is partly accounted for by the unusually low values in 2001, reflecting the impact of the drought in some regions of the country in that year.

[8] This production data is inevitably less precise than that collected by a specialist agricultural survey, but can be considered to provide reasonable estimates of overall trends at national and probably provincial level.

Figure 4.3 Proportion of households cultivating selected other crops



Source: authors' computations from EICV1/2 survey data.

It would be highly desirable also to use the production data to examine productivity. Unfortunately this is very difficult to assess with confidence based on the EICV survey data. Productivity is a ratio of two variables, production and land size, each of which will inevitably be subject to significant measurement error. Furthermore, the survey does not give plot level production data, nor does it give information on the amount of land devoted to different crops. This is not unexpected because the EICV survey is not a dedicated agricultural survey designed to measure productivity.

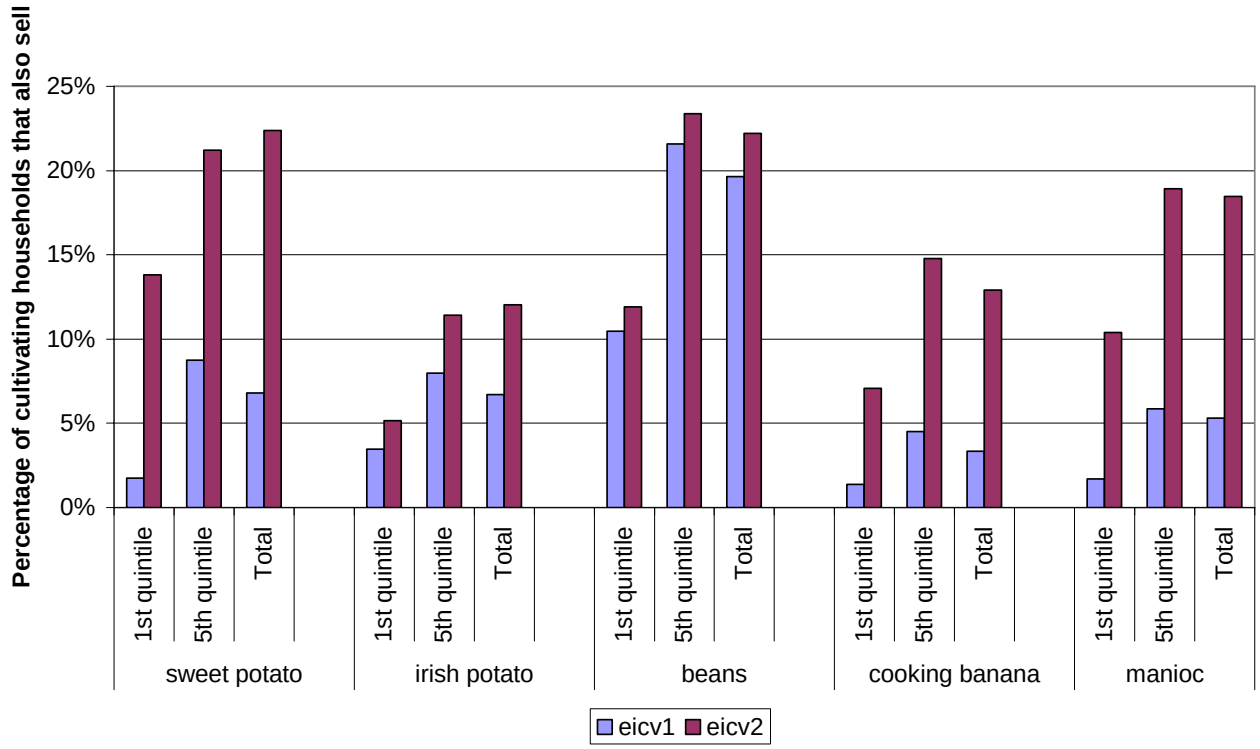
Potentially, though, a very significant change over this period is the increased reporting in the EICV2 survey, as compared to EICV1, of selling many crops. This change is apparent for all staple crops (presented in Figure 4.4 and Table D.2), and is particularly striking in the case of sweet potatoes, cooking banana and manioc. In addition this pattern is observed in all quintile groups. Large increases are also observed in the proportion of producers selling fruit and vegetable crops such as mangos, papaya and avocado, again in all quintile groups. These results suggest a significantly increased degree of market engagement compared to the situation revealed by the EICV1 data.

A number of important factors may have contributed to this increase in the number of households selling, including a higher level of production in the EICV2 period[9]. Analysis suggests that the

[9] Given this increase in the number of people selling, it may seem surprising that food prices increased so much over this period. There are a number of issues here though. First, this data does not relate to the quantity sold but to the number of people selling. Second, it is not possible to know the balance of supply and demand factors in food markets from this data; demand for these commodities also increased over this period. Third, we know little about changes in cross border trade for these commodities over the period. Fourth, increased road and market infrastructure over this period probably contributed to increased selling,

likelihood of selling some staple crops is greater in the Eastern Province than elsewhere; and unsurprisingly is greater among those cultivating larger areas of land. There is some weaker evidence of the likelihood of selling being greater in communities that have a road leading to them, at least in the EICV1 survey. This issue though needs to be investigated in more depth.

Figure 4.4 Percentage of households producing a staple commodity that also sell it



Source: authors' computations from EICV1/2 survey data.

4.2 Use of inputs for crop cultivation

An important policy priority has been to encourage farmers to increase their usage of modern inputs in crop cultivation as a means of raising productivity. The EICV surveys show that there has been a substantial increase in the number of households purchasing inputs over this five year period (Table 4.1 and Table D.4). This has been the case in all quintile groups and all provinces. It is clearly true that, with the exception of seeds, the proportion of households purchasing inputs increases consistently with the quintile, but important increases have been observed in all quintiles.

The proportion of households using organic or chemical fertiliser remains very low globally, but has doubled over this period. The percentage using fertiliser increases with the quintile groups, but the increase in usage is apparent in all quintile groups. By province, the largest increases in the

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and this itself may have influenced prices (though this could work in either direction). And finally, the price increases may be precisely the factor that encouraged more households to sell.

numbers using fertiliser have been in Eastern Province (from a very low base) and Northern Province. A slightly higher proportion of households use insecticides, but again the proportion of households purchasing has more than doubled, including in most quintile groups and in all provinces except the City of Kigali and Western region. There has also been a large increase in the number of households in all quintiles and provinces purchasing sacks, packaging etc., which is entirely consistent with the previous finding about the large increase over this period in the number of producers selling some of their output.

A striking change in this table is the large increase in the proportion of farmers reporting having spent on hired labour, an increase which is observed in all quintile groups and all provinces. Proportionately the increase is actually larger in lower quintile groups, and geographically it is highest in Western Province. This is the demand side corresponding to the increased employment of wage labourers reported on elsewhere in this report. It seems that households are now more able to hire some waged labour to help work on their farm.

Table 4.1 Households using different crop inputs, by quintile (%)

Crop input	Survey	Expenditure quintile					Total
		Lowest	2nd	3rd	4th	Highest	
Organic fertiliser	EICV1	0.9	1.1	2.8	3.5	5.6	2.6
	EICV2	3.7	6.9	8.1	7.0	10.6	7.1
Chemical fertiliser	EICV1	1.8	3.2	7.1	7.8	11.8	6.0
	EICV2	6.6	9.3	11.4	15.9	17.4	11.9
Labour	EICV1	6.7	13.7	25.2	38.4	58.6	26.5
	EICV2	16.6	34.4	47.8	63.9	77.9	46.7
Seeds	EICV1	58.9	51.1	51.2	49.9	41.4	51.1
	EICV2	71.4	73.6	73.4	70.6	65.6	71.2
Sacks and packaging	EICV1	10.0	14.6	19.2	20.3	28.1	17.8
	EICV2	21.5	36.2	43.6	47.0	46.2	38.6
Insecticide	EICV1	3.9	8.1	14.2	14.8	21.1	11.8
	EICV2	10.3	21.4	29.6	33.6	39.2	26.2

Source: authors' computations form EICV1/2 data.

The proportion of households purchasing seeds tends to decrease with the quintile. This proportion has also increased over the period. These results though are difficult to interpret because the need to purchase seeds may in some cases be a poverty indicator – that the household is not able to store seeds from the previous harvest. On the other hand, purchasing improved seeds may be a positive welfare indicator. Hence the fact that more households in all quintiles are buying seeds cannot necessarily be interpreted as a positive or negative development.

The EICV community surveys also collect information on community level agricultural facilities. In general a comparison between EICV1 and EICV2 surveys shows little change over the period

(Table 4.2), apart from an increase in the number of communities reporting that they have access to rural credit. In general the percentages having these facilities do not vary systematically by quintile; the poorest are not any better or any worse served than the less poor. In general, also, there are not systematic differences by provinces, although over this period the number of communities in Eastern Province reporting having an extension agent or having associations improved more than anywhere else. The large majority of communities reported having associations of farmers or breeders, but less than half report having access to rural credit or having an extension agent within their community. On a more positive note the average distance to an agricultural extension agent fell over this period, with the biggest reductions (from the highest initial values) being reported in Eastern Province and the City of Kigali.

Table 4.2 Prevalence of community-level agricultural facilities (% of households in rural communities with facility)

Community-level facility	EICV1	EICV2
Extension agent	43.7	43.7
Access to rural credit	32.6	42.3
Association of farmers or breeders	84.8	80.6
Veterinary services	50.6	53.6

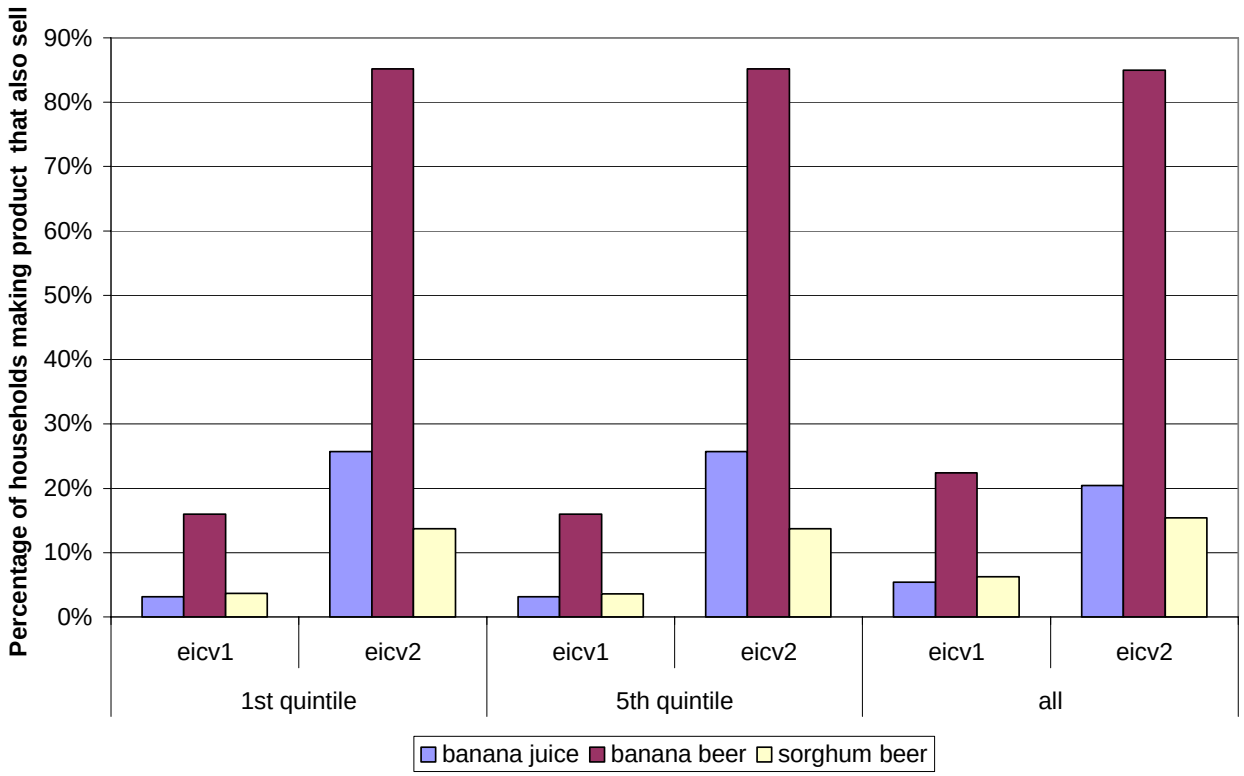
Source: EICV1 and EICV2.

4.3 Processing of farm products

Many Rwandese agricultural households are involved in processing their outputs, with the main activities being making flours (manioc and sorghum in particular) or making drinks (chiefly banana juice, banana beer and sorghum beer). Over the period between the surveys the number of households that report having undertaken processing activities has generally declined (Table D.5), and this is particularly striking in the lower quintile groups (with the exception of soya flour). The number of households producing banana juice has increased slightly in the higher quintiles, but the numbers producing banana or sorghum beer has fallen.

The flour products are almost exclusively produced for own consumption rather than sale, and this situation has not changed between the two surveys. However, the drinks products are partially produced for sale, and the extent of this has increased substantially over this period (Figure 4.5). Banana beer has consistently been the product most likely to be sold, but the proportion of households that brew banana beer that now sell some of it has increased by a factor of nearly four over this period, such that the vast majority now sell some of their output. Sorghum beer is much less likely to be sold, though the proportion of households that do so has also increased. Banana juice seems to be an important developing product; more households are making it (generally in the top three quintiles) and a larger proportion of these are selling.

Figure 4.5 Percentage of households producing processed products that sell some of their output



Source: authors' computations based on EICV1/2 data.

4.4 Livestock

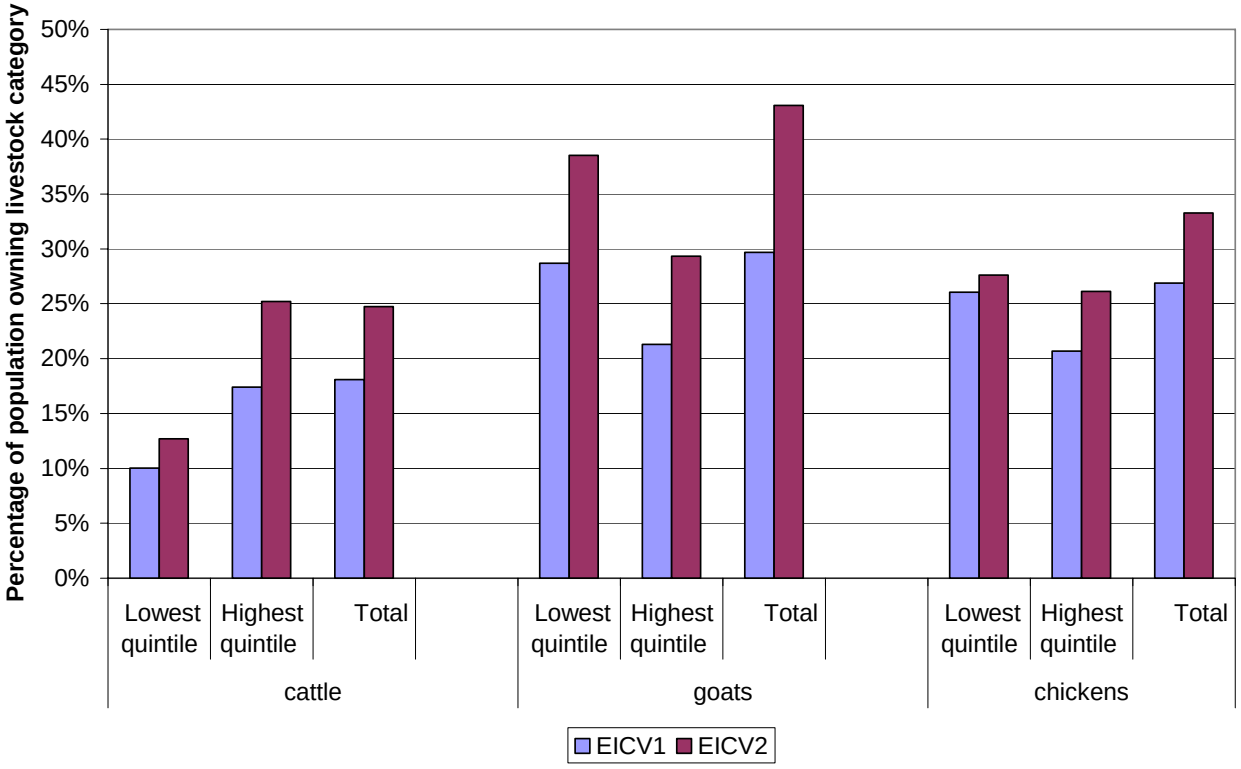
The extent of ownership of livestock and its changes over time is clearly a key agricultural policy issue in Rwanda and one of substantial importance to Rwandese households given the many important roles that livestock play in agriculture and in society. Following the war, restocking livestock has been an important priority and there have been many important initiatives over the period covered by the two EICV surveys. Goats, chickens and cattle are the most numerous livestock categories in Rwanda, but there are also significant numbers of sheep, pigs and rabbits.

Considering livestock ownership for the entire Rwandese population (including those that do not report any crop farming activity), the likelihood of owning livestock tends to increase with the quintile up to the 3rd or 4th quintile, but to be lower in the 5th quintile a significant proportion of which is urban (Figure 4.6).

The EICV surveys show a large increase in the number of households owning most livestock categories between EICV1 and EICV2, an increase which – unsurprisingly (given recent policy initiatives including *Ubudehe*) – is particularly notable in the case of goats. The number of households owning goats has increased in all quintiles and provinces. The largest increases are observed in Eastern and Western provinces, with the lowest in Southern Province (from admittedly a slightly higher starting point), and are higher in the middle three quintiles than in the lowest (or highest) quintile. In the case of cattle, it is also true that the increases are lower in Southern Province and in the first quintile nationally. To some extent these two dimensions may be

correlated because the highest proportion of households in the first quintile lives in Southern Province.

Figure 4.6 Percentage of Rwandese population owning selected livestock categories, by quintile



Source: authors' computations based on EICV1/2 data.

Relatively few livestock owners sell livestock products, with eggs followed by milk being the most important products. The proportions of households selling both products increased over the period, but remain a relatively small minority of the number of households owning the corresponding animals. The proportion selling eggs and milk was highest in the Southern Province and City of Kigali and lowest in the Western Province, and tended to be higher in higher quintile groups, particularly in the case of milk.

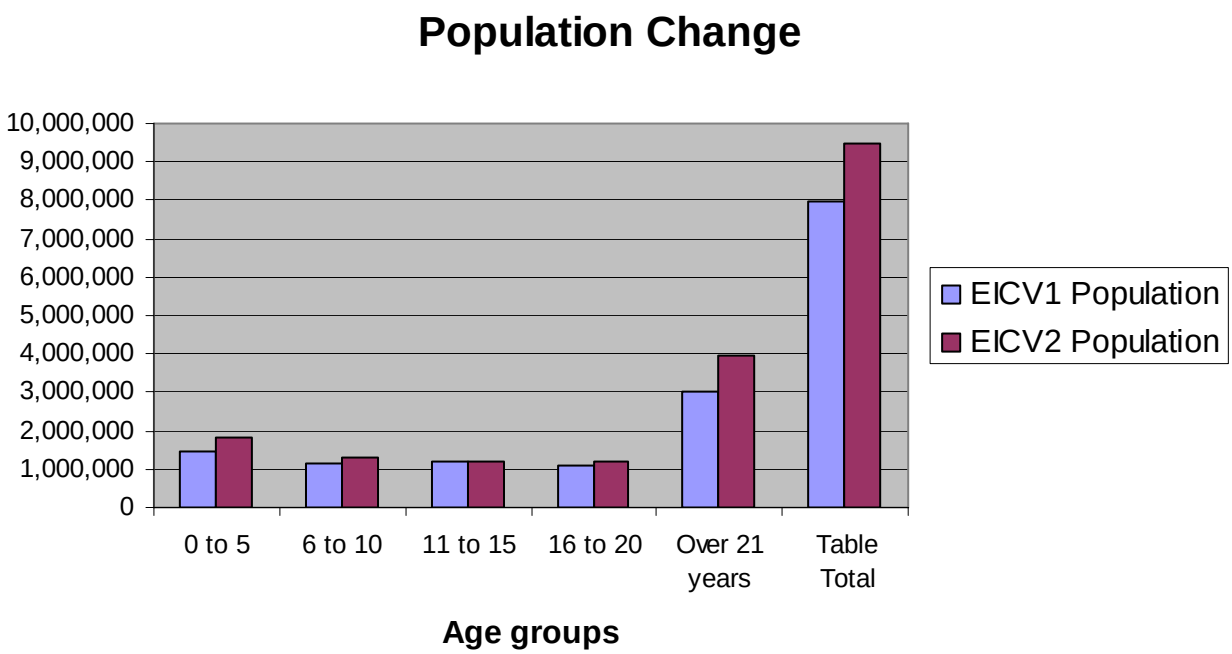
At the moment the sale of both livestock products and processed food products remain a very small share of household income in Rwanda.

5. Economic activity

5.1 Population changes and job growth

The changes in the population between EICV1 and EICV2 are illustrated in Figure 5.1 below. The report has a remit to examine creation of non-farm employment on a large scale, and it is important to recall the warnings given in the first section about examining gross numerical changes between the two surveys. In particular the reader is reminded of the mismatch in the age groups between the EICV1 and the Population Census, particularly among young adults, which may have been caused by deficiencies in the frame, or the presence of a large institutional population at that time.

Figure 5.1 Population change, by age group



Source: EICV1 and EICV2 data.

The numbers of those aged seven years and above grew by just over a million people, and over 600,000 more people are now working in some kind of economic activity (Table 5.1). The workforce is estimated to have grown from 3.9 million people to 4.5 million. Despite the overall rise in the numbers of young persons under 21 years, there are now fewer children and adolescents working in economic activities. This partly reflects the dip in the population pyramid of those born around or just before the war of 1994, but it also reflects the change in working patterns and the higher incidence of young adults remaining in education or training. For adults aged over 21 years the increase in the working population almost matches the change in the population size. It should be noted that the numbers expected to enter the labour force is expected to grow dramatically after 2012 as the children born as a result of the increased fertility rates of recent years begin to enter the workforce.

Table 5.1 Change in the population aged 7 years and above since EICV1 (000s)

Age	Working persons	All persons
7 to 10	-8	143
11 to 14	-65	-16
15 to 20	-120	91
21 to 30	442	512
31 to 40	125	128
41 to 50	113	116
51 to 65	78	88
Over 66 years	54	68
National	**620**	**1,130**

Source: EICV1 & EICV2 household population aged 7 years and over.

5.2 Economic activity rates

The economic activity rates for the population declined a little over the period between the surveys, with proportionately fewer children and slightly fewer adults economically active (Table 5.2). For those aged 15 and over, 83% of the population was economically active in 2005/06, compared with 86% in 2000/01. Unemployment was low in both surveys, but has risen fractionally, with just 1.5% of the reference group describing themselves as unemployed (available for and seeking work). Unemployment is estimated to be 87,000 people, and is most prevalent among adults aged 21 to 30 years, among whom some 39,000 are unemployed. The unemployed are concentrated in Kigali, and tend to be younger persons, often female, living in households belonging to the richest consumption quintiles.

The major change in economic activity patterns has been for younger people to be solely in full-time education rather than in work. These results correspond with the rises in enrolment rates noted elsewhere in the report.

Table 5.2 Economically active population (000s), and economic activity rate (%), by age

	EICV1			EICV2		
	Working	**Unemployed**	**Total**	**Working**	**Unemployed**	**Total**
Total number (000s)	3,863	65	3,928	4,484	87	4,570
7 to 10	22	0	22	13	1	14
11 to 14	158	3	161	93	3	96
15 to 20	907	20	927	787	18	806
21 to 30	967	27	994	1,409	39	1,448
31 to 40	692	7	699	817	13	830
41 to 50	574	5	579	687	6	693
51 to 65	393	2	395	472	5	477
66 and over	151	1	152	205	1	206
Economic activity rate (%)						
7 to 14	9.6%	0.2%	9.8%	5.3%	0.2%	5.5%
15+	84.4%	1.4%	85.8%	81.6%	1.5%	83.1%

Source: EICV1 & EICV2 household population aged 7 years and over.

Child employment, defined as children younger than 15 years who are working in an economic activity, either for reward or in a family farm or business, has fallen from 9.6% in EICV1 to 5.3% in EICV2. Almost 200,000 fewer people under 21 years are now working and school participation is now much higher, with 320,000 more children under 15 years in school than was the case during EICV1, and almost half a million more under 21 year olds now students.

Table E.1 shows the changes in the population defined as economically inactive[10]. The increase of around 13% of children aged 11 to 14 years, and 16% of those 15 to 20 years identified as students, demonstrates a much higher number of older children in school or other forms of education[11]. This rise in the number of students relates to those who are totally economically inactive, those who do some work are classified as working. Rates of economic inactivity for the whole population aged over seven years have increased overall and this is mainly accounted for by the increases in exclusively full-time education. Although many people work beyond 65 years, there has been little change in the proportion of economically active, with less than a quarter of all persons aged over 65 years having stopped work.

5.2.1 Provincial economic activity changes

The provincial changes in working patterns are shown in Table 5.3. The lower economic activity rates in Kigali City, compared with the other provinces, reflect the higher incidence of students in teenagers and young adults living there, and the presence of wealthier households where not all members need to work. However, comparing between the two surveys, it is only Kigali where the economic activity rates have increased between the surveys.

[10] Economically active are those either working at least one hour a week for wages or other remuneration, or those available for and seeking work.

[11] Children who are both in school and who describe themselves as working have been classified as economically active.

Table 5.3 Provincial economic activity rates (% of people aged 15 and over)

	EICV1 Economically active			EICV2 Economically active		
	Males	**Females**	**All**	**Males**	**Females**	**All**
City of Kigali	78.8	71.5	74.8	79.9	75.1	77.4
Southern Province	83.4	87.8	85.8	80.7	84.3	82.7
Western Province	85.3	90.6	88.3	80.8	86.2	83.7
Northern Province	86.8	90.2	88.7	81.3	86.5	84.1
Eastern Province	83.8	87.8	86.0	83.4	85.9	84.7
National	**84.1**	**87.2**	**85.8**	**81.3**	**84.6**	**83.1**

Source: EICV1 & EICV2 persons aged over 15 years.

The activity rates mask some significant provincial demographic changes in the population aged over 15 years since 2000/01. The adult population of Eastern Province has grown by 36% and the number of workers by a similar proportion. In Northern Province the population has grown by only 9%, and employment by 3%. Of the rural provinces only Eastern Province has been able to match so closely the total increase in persons with employment. Some of the reasons for these population changes will be explored in the migration section of this report, but there is evidence that many people are moving to Eastern Province to take advantage of job opportunities and farming land. Given that the largest decreases in poverty are found in Eastern Province, it is likely that the growing employment opportunities found there are closely linked to its success in reducing poverty. Eastern Province has the highest proportion of cultivators in the medium to large land category (see section 3.1), which suggests that farm work opportunities are driving employment growth; this will be explored in following sections.

Table 5.4 Increase in persons aged 15 and over since EICV1, by province (%)

	Working persons			All persons		
	Males	**Females**	**All**	**Males**	**Females**	**All**
City of Kigali	26.9%	24.2%	25.6%	22.4%	12.7%	17.1%
Southern Province	21.5%	14.2%	17.3%	26.5%	19.6%	22.7%
Western Province	23.1%	17.3%	19.8%	30.1%	23.7%	26.5%
Northern Province	0.1%	4.8%	2.7%	8.1%	10.1%	9.2%
Eastern Province	43.4%	26.5%	33.7%	44.6%	30.2%	36.5%
National	**22.1%**	**16.3%**	**18.8%**	**26.6%**	**20.1%**	**23.0%**

Source: EICV1 & EICV2 persons aged over 15 years.

Slightly puzzling in Table 5.4 above is the increase in the male component of the population compared with females, although this may be partly due to the effects of the war, and possibly the return home of people resident in institutions during EICV1. The Population Census gives an institutional population of 164,744 in 2002; institutional populations are not captured in household surveys and any reduction in the institutional population (hospitals, prisons, military etc.) may account for this rise in males in the household population, and may also account for some of the missing adults noted earlier in the EICV1 population. Only in Northern Province, where net out-migration is high, do females account for a larger part of the population growth. Nationally there has been higher percentage increase in male workers compared with females, but this tends to mirror the adult population change. Only in Kigali City have jobs females' jobs grown more quickly

than the female population. Migration patterns and gender differences in employment will be explored in a later section.

5.3 Job status

This section examines the usual main job of adult workers: the main job is determined as the one job on which individuals have spent most time over the 12-month reference period. The vast majority of economically active adults in Rwanda are subsistence farmers working on family farms. The survey classified those who reported themselves as independent farmers, and those household members working on their family farms without pay as subsistence farmers, and refers to both types in the text following. The head of household responsible for the farm is normally classified as an *independent farmer*, as it is he or she who makes decisions about the farm, and to whom the income accrues. In some cases several members of the household may control their own parcels of land, and these are all identified as independent farmers. The family members working under the direction of the independent farmer are classified as *unpaid family workers;* they benefit from their work only at the household level as they consume its produce, but they do not earn their own income either in produce or monetary terms. In the EICV1 survey 85% of the working population was classified as subsistence farmers in their main job. By EICV2 the proportion had reduced to 71%, a reduction of some 14%.

For non-farm workers there are three work type classifications: the paid employee or waged non-farm worker; independent self-employed persons and owners of small businesses; and the unpaid non-farm worker who work for no pay or reward in family enterprise, but who benefit from their work as a member of the household owning the business.

Table 5.5 Main job of economically active people, by province (% of those aged 15 years and over)

	EICV2						EICV1
Job type	**City of Kigali**	**Southern**	**Western**	**Northern**	**Eastern**	**National**	**National**
Wage farm	4	8	9	10	7	8	4
Subsistence farmer[12]	24	75	74	75	79	71	85
Wage non farm	48	8	8	7	6	11	7
Independent non-farm	18	7	7	7	7	8	4
Unpaid non farm worker	6	2	1	1	1	2	1
All	**100**	**100**	**100**	**100**	**100**	**100**	**100**

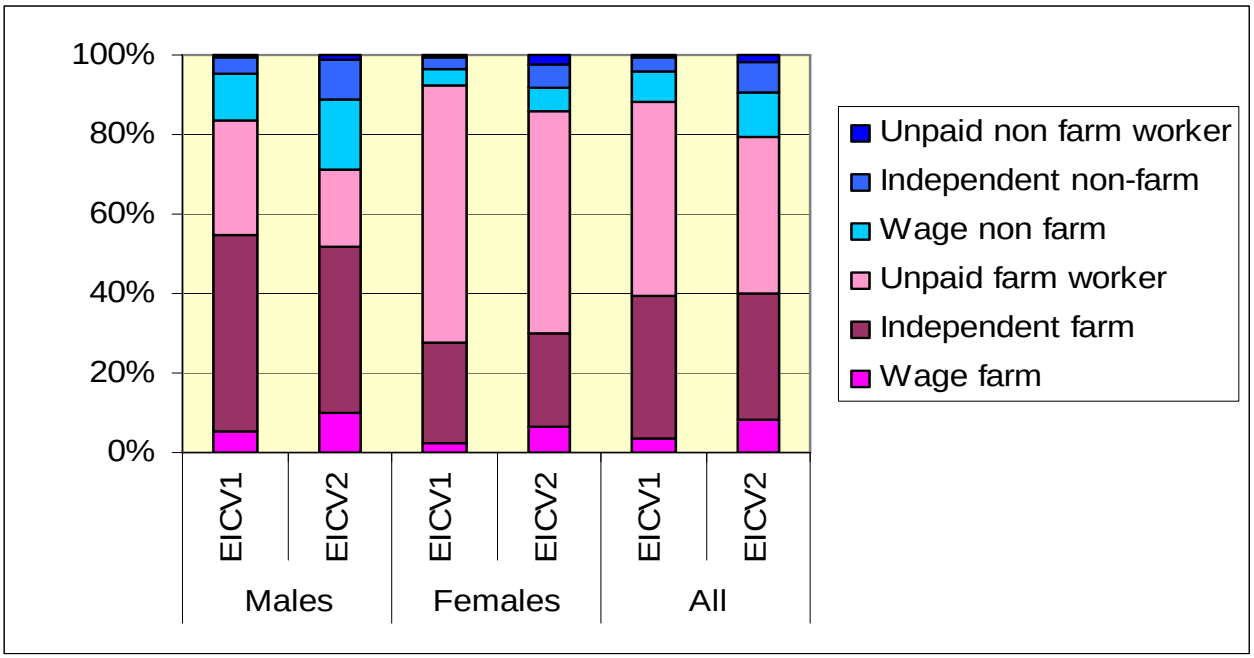
Source: EICV1 & EICV2 data.

Figure 5.2 below shows the proportions of adult workers in the two surveys by the work status classification, with independent and unpaid farm workers separated. It shows the reduction in the proportions subsistence farmers (independent and unpaid farm workers) and the corresponding increases in non-farm activities and paid agricultural work in the five year period. The move away from family subsistence farming is much more marked for males than for females. Almost a quarter of the population lives in female-headed households, so it is important that they continue to see improvements in their living standards. Women have been able to take advantage of some small

[12] Family farmer includes independent and unpaid farmers

business opportunities in a very minor way, and this marks one of the few opportunities for them to diversify away from agriculture. For some women, another potential non-farm opportunity appears to be in paid work in Kigali, but this is predominantly for rather young women, and the tenure of these posts appears to be short.

Figure 5.2 Main job of economically active people, by gender (% of those aged 15 years and over)



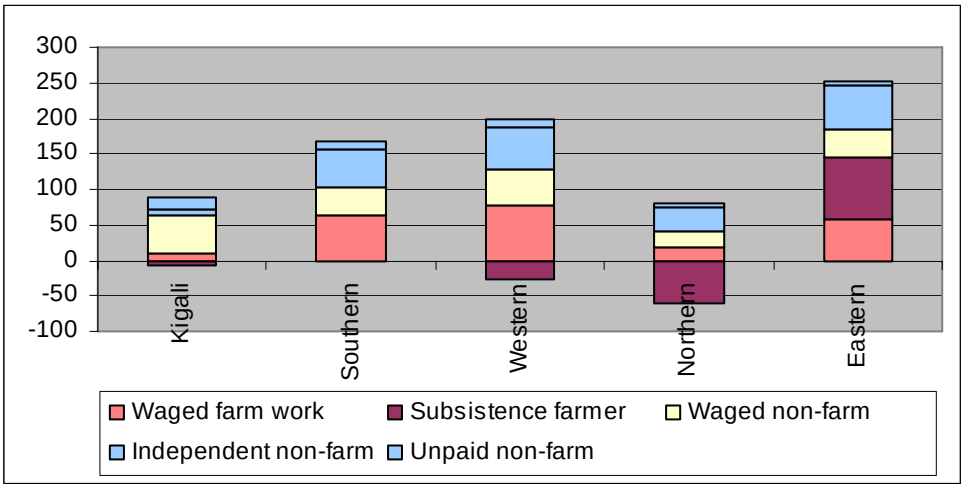
Source: EICV1 and EICV2 data[13].

5.3.1 Changes in provincial jobs

The provinces show rather different patterns of growth over the period between the surveys. In particular Kigali, which has a different economic structure, has seen rapid employment growth proportionately (see Table 5.4) and an increase in the economic activity rates of its adult population. Figure 5.3 shows the net change in jobs for each province by working status. Of the rural provinces, Eastern Province has seen the highest job growth and Northern Province the lowest. Eastern has increased its employment numbers in all work categories, including subsistence farming: and it is the only province where there has been a growth in farmers (independent and unpaid). The number of subsistence farmers in Southern Province has remained static, while Western and Northern provinces have experienced reductions in the number of farmers overall, with Northern Province showing the largest decrease (the urban province of Kigali has also seen a reduction in farmers). Non-farm work has increased in all provinces, and Kigali has experienced a large increase in waged employment. An important change in three of the rural provinces is the substantial growth in waged agricultural labour as a main job. This will be discussed later in the section, but these workers are among the poorest in the country and tend to combine waged farm work with independent farm work.

[13] EICV1 independent farmers recoded to be consistent with EICV2 definitions.

Figure 5.3 Net change in number of jobs since 2000/01, by province (000s)



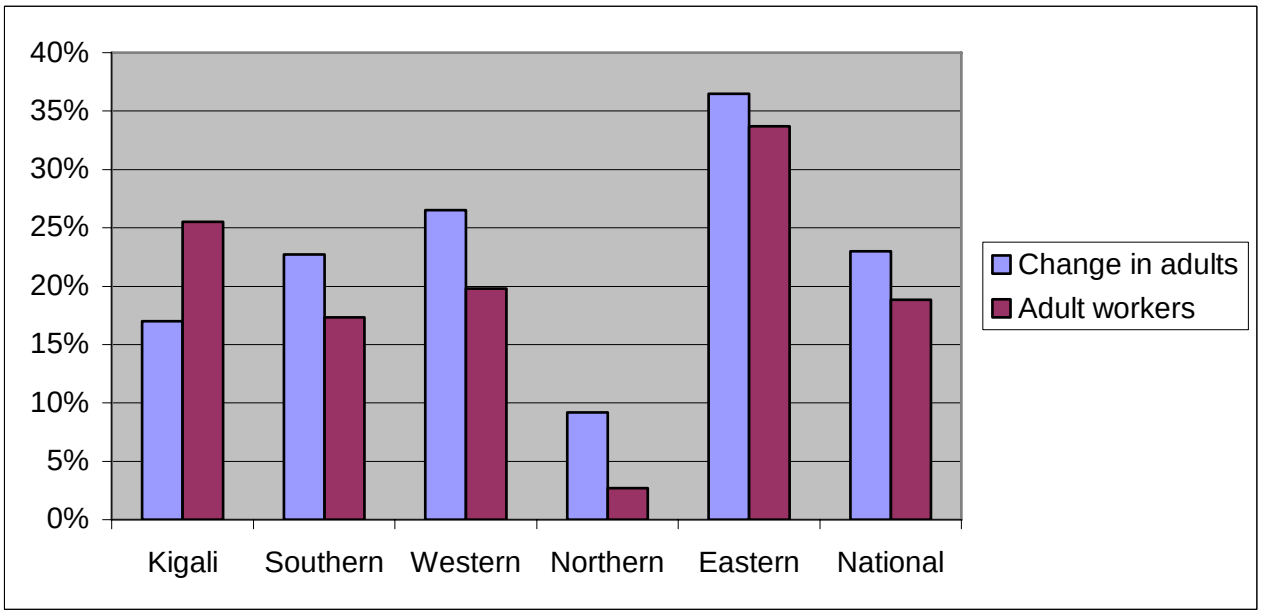
Source: EICV1 and EICV2 data.

5.4 Migration patterns and economic activity

5.4.1 Provincial job growth and migration

Migration appears to follow job creation (Figure 5.4). Eastern Province, which has shown the largest growth in jobs and in adults, has been quite effective in balancing employment and population growth. Kigali has absorbed more workers, and this can be seen in the higher economic activity rates demonstrated for Kigali in EICV2 compared with EICV1 (see Table 5.3). The other provinces have not matched population growth with job growth, which is especially marked in Northern Province and may explain the high levels of out-migration from that province.

Figure 5.4 Population and job growth



Around 550,000 adults said they had migrated to a different district in the past five years. The number of child migrants is not known, but by including all the children in households where all adults or the head or spouse moved, the number of accompanying children can be estimated at around 350,000. This gives a very large number, almost 1 million, of migrating people, contrary to the assumptions in the population projections which assume negligible international or internal migration. Patterns of migration are discussed further in section 6.5. This section will consider the economic characteristics of migrants.

5.4.2 Characteristics of migrants

Migrants are characterised by being younger, having fewer dependants, and living in wealthier households than their more sedentary counterparts. Some 74% of adult migrants are aged 30 or under (Table E.2). Half of adult migrants are heads and spouses, a quarter are relatives of the heads of the households they live in; and another quarter are unrelated to the head of the household (Table E.3). These 100,000 non-relatives are concentrated in the City of Kigali (60%) and are largely working as maids and cleaners.

In provinces other than the City of Kigali the majority of migrants are independent farmers and their families. In Eastern Province in particular 67% of migrants are farmers and their families, although the migrants tend to be young and most are aged less than 30 years. The farming migrants in Eastern Province are more likely to be engaged in growing fruit and vegetables than is the case nationally, 62% compared with 51%.

Table 5.6 Job status of working migrants aged 15 years or over

Province	Independent farm	Unpaid farm worker	Independent non-farm	Wage		Unpaid non-farm	Total
				Agricultural labour	Non-agricultural		
City of Kigali	4	5	13	3	66	9	100
Southern	22	31	7	14	23	2	100
Western	28	27	8	15	21	2	100
Northern	27	39	8	11	14	1	100
Eastern	25	42	6	12	14	1	100
All	**19**	**28**	**9**	**10**	**31**	**3**	**100**

Source: EICV2 data. Note: (1) 'Province' refers to destination province of migrants.

Looking in closer detail at the occupation of migrants, the largest group comprises farmers (Table 5.7), of whom over 40% migrated to Eastern Province. The service sector, largely in Kigali, employs the next most significant group of migrants, involving 90,000 adults, of whom almost 63,000 are maids, cleaners of similar workers. The remaining important groups of service workers are the police, military, security workers, cooks and bar workers.

Some 31,000 commercial and sales workers have migrated in the last five years, and 22,000 of these are sales and street vendors, almost half of whom have moved to Kigali. In the manufacturing and construction workers (who comprise the bulk of semi-skilled operatives) some 26,000 workers have migrated. The major destination for the construction workers was Kigali.

The number of professionals who have moved amounts to 17,000 people, and these include 3,500 medical staff and 4,300 teachers. Some 6,000 office clerks, officials and managers have also moved and the majority of these have come to Kigali.

Table 5.7 Occupation of working migrants

Occupational group	City of Kigali	Southern Province	Western Province	Northern Province	Eastern Province	National
Professionals	6,500	3,200	2,000	700	4,200	17,000
Senior Officials and Managers	800	400	200	0	0	1,400
Office Clerks	3,600	500	160	300	200	4,700
Commercial and Sales	15,900	5,000	2,100	1,100	6,800	31,000
Service Sector	55,600	13,500	7,600	3,300	9,800	89,800
Agricultural & Fishery Workers	13,400	59,200	39,900	26,300	102,300	241,000
Semi-Skilled Operatives	12,900	4,200	3,700	1,700	3,900	26,300
Drivers and Machine Operators	2,700	900	300	200	200	4,300
Unskilled Labourers	1,900	600	1,000	400	1,600	5,500
Total	**113,300**	**87,500**	**57,000**	**34,000**	**129,000**	**420,800**

Source: EICV2 data.

5.5 Characteristics of the workforce and underemployment

The demographic component of the different job status types is of interest in the policy process. The age structure and the gender of the workers differ quite markedly by job status category. Waged farm work, although still a small component of the workforce, is one of the fastest growing types of jobs between the surveys and tends to include younger men, and women of all ages. The composition of this growing group of workers is studied in the next subsection in some detail. Independent farmers, those in control of family farms, are fairly evenly distributed between male age groups, but women independent farmers tend to be older. The median age of independent farmers is at least 10 years older than for any of the other groups of workers; at 43 years of age and slightly older than this for women. The unpaid family workers are young men together with women of all ages, but the median age is young at 25 years. Three quarters of all types of unpaid workers are women in both agricultural and non-agricultural work. These details are rather self evident, with the household heads tending to be the independent farmers, and other members of the household working on the farm or finding work in paid and non-farm sectors. However it is worth drawing attention to the age status of the independent farmers, as they are the farm decision makers to whom policies must be directed. In introducing measures to modernise agriculture, it is important to understand that the farmers are the oldest group of all workers, and may be less ready to change their practices than their younger counterparts.

For the non-agricultural workers the age group 21 to 30 is the most numerous – comprising 40% of each work status category. Younger women are over-represented in waged non-farm work: and over one-third of them are under 21 years of age. The independent non-farm worker has a median age of 32 years. The pressure on farm land and the young profile of non-farm workers suggests that young persons are leaving the land where they are able to do so. Those not able to find alternative work remain on the farm to mix family farm work with waged work on the farms of other households.

Table 5.8 Characteristics of economically active adults

Status of main job	Mean total number of jobs	Hours per week		Median age
		Main job	All jobs	
Independent farm	1	20	24	43
Unpaid farm worker	1	20	23	25
Wage farm	2	24	30	30
Independent non-farm	2	30	40	32
Wage non farm	1	48	49	28
Unpaid non farm worker	1	27	35	26
All	**1**	**21**	**25**	**29**

Source: EICV2. All workers 15 years and over.

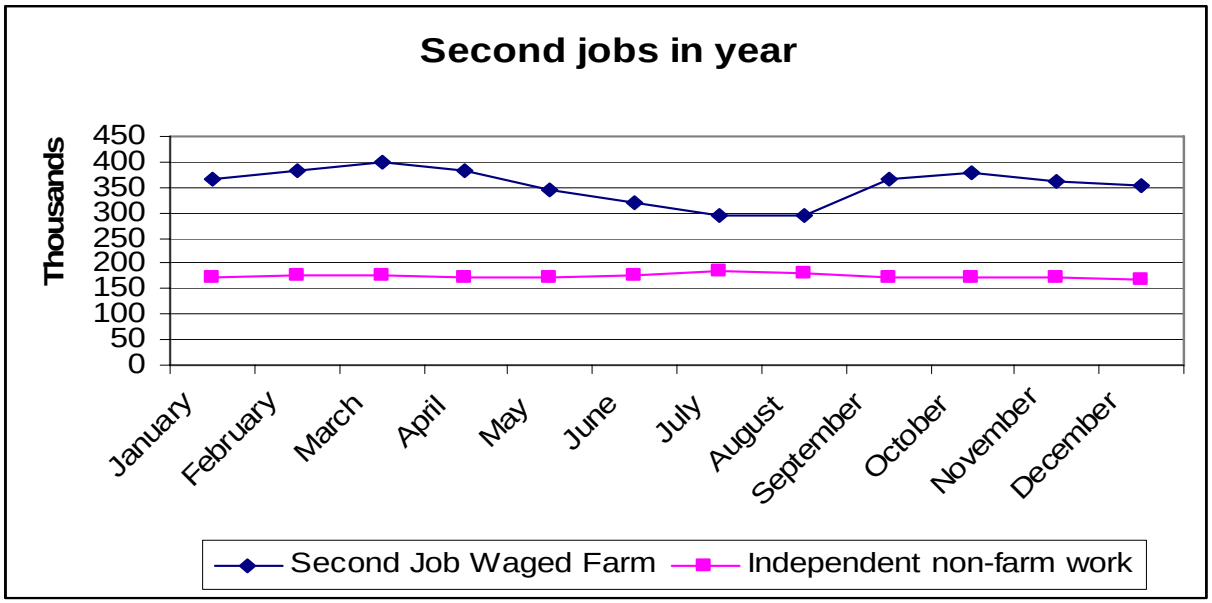
Waged farm labourers, and those running small enterprises (independent non-farm workers) are the most likely to have more than one job, although multiple jobs are much more common in rural areas. For those engaged in non-farm jobs, the median hours worked per week in all jobs is 35 hours per week or more, therefore there appears to be very little underemployment in non-farm jobs. In farming jobs underemployment is evident, with independent farm workers and their families spending only three or four hours a day on their work, and those working in waged farm jobs doing a little more, six hours more work per week on average. There is certainly scope for increasing labour productivity in the farming sector.

5.5.2 Second jobs

Some 40% of all workers have a second job. Just under half of all independent and family farmers work as waged farm labourers as a second job at some point in the year, and these second jobs form the majority of all waged farm workers. Only 26% of secondary paid farm jobs are undertaken the whole year round. For the majority, the waged farm work is for less than six months of the year, and most have taken these jobs quite recently. Waged farm work is therefore insecure and may leave those who do it prone to shocks.

Those who are subsistence farmers are more likely to have second jobs than non-farmers, and the two types of jobs they are likely to do in addition to working on their own farms are waged farm and independent non-farm work (either as independent business person or as an unpaid family worker). The non-farming second jobs are less likely than secondary farm jobs to show a seasonal pattern, even though most of these jobs are held by those who are farmers in their main jobs. In rural areas 80% of these businesses are in trade, and 10% are in manufacturing industries (mainly textiles, wood products and drinks). More detail on second jobs is available in Table E.4.

Figure 5.5 Second jobs in year



Source: EICV2 data.

5.6 Employment Groups – special studies

5.6.1 Waged farm workers a growing phenomenon

Detailed analysis has been made of this growing sector of the labour market. Some 360,000 workers are in waged farm work as their main job, and half of these said they started this job in the last five years. This estimate is reasonably close to the 220,000 estimated net increases in jobs of this kind since EICV1, although the time between the surveys is a little more than five years and respondents are unlikely to recall exactly when they started their jobs.

There are three distinct groups of waged farm workers; i) heads of households and their spouses who have usually worked in these jobs for long periods of time; ii) sons and daughters of farming heads; iii) other non-related members of households who have migrated in recent years.

The first type of paid farm worker is the head of household for who waged farm labour is his or her main source of income, but who also farm small parcels of their own land. The second type of worker are the sons and daughters and other relatives of independent farmers; these are predominantly young unmarried people. The third group are paid non-relatives, living as household members, who are generally found in wealthy households and who appear to be live-in paid labour. Some 60% of the recent waged farm job takers (started as a main job within the last five years) were men, whereas those who have been in their waged farm jobs for six years or more are equally divided between the two sexes.

Eighty-three percent of long-term waged workers are either the head of household or the spouse of a head, and therefore fit in category i) described above. Taking these waged heads as a group, they are the poorest group of workers in the survey. Almost half of the female long-term farm wage workers were in the poorest quintile and 70% are found in the poorest two. Female long-term waged farm workers tend to be heads of household and widows, their male counterparts are

slightly better off, but still desperately poor. (See Table 5.9 and also the results at the household level in Table B.1). To clarify, section 2 discusses income at the household level, and classifies the household by main income source. This section discusses income at the individual level, and looks at the internal household dynamics.

Table 5.9 Waged farm workers by quintile (%)

Relation to household head	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile	Total
Head or spouse	41	23	18	12	7	100
Relative of head	37	26	18	14	5	100
Not a relative	6	4	5	25	60	100
All	**36**	**22**	**17**	**14**	**11**	**100**

Source EICV2: Waged farm workers in main job aged over 15 years.

The other major group of waged workers are the sons and daughters of independent farmers (category ii). They comprise 30% of paid farm labourers. They are young, 96% are under the age of 25 years, and almost all are unmarried. Although the households they live in are a little better off than those of waged agricultural heads, they are still concentrated in the poorest quintiles. It is likely that this group belong to households whose family land holdings are too small to offer them a livelihood, and they therefore look to other households for paid work. As the demographics of the Rwandese population changes over the next 10 years, these young persons, originating in households living on small holdings and who cannot afford to marry will become an increasing phenomenon. Recalling that these persons are living in the poorest households, they are potentially an increasing component of the poor. ten percent of all workers less than 25 years of age are paid agricultural workers, and between 80% and 90% of them have no qualifications at all. Of all the 15 to 24 year olds in the EICV2, those taking paid farm work have the lowest levels of qualification. A picture emerges of the least well qualified young persons taking the lowest paid farm wage work; while their better qualified age counterparts move into non farm self employment or waged non-farm work.

Paid farm workers are clearly struggling to make a living; 80% of paid farm workers have a second job, much higher than for all other workers. These second jobs are almost exclusively working on the family farm. Table 5.10 below, examines the household income sources of waged farm workers. For the heads of household working for farm wages, these waged jobs are their main source of income, and women heads rely more heavily on their wages than do men. For the sons and daughters of farming households, wages are a very important component, but the family farm provides the larger part of the household income.

Table 5.10 Household income sources for waged farm workers

Type of income	Head of household	Relative of head (non spouse)
Males	Median	Median
net income from crops	54,000	111,000
household income from wages	62,500	67,000
total household income[1]	137,000	213,000
Female		
net income from crops	36,000	97,000
household income from wages	57,000	75,000
total household income[1]	119,000	198,000
All		
net income from crops	50,000	103,500
household income from wages	62,500	75,000
total household income[1]	131,000	204,000

Source: Authors' calculation from EICV2 data. Note: (1) The total family income is not the exact sum of the net income from crops and the household income from wages as these figures are medians. The total figures also include some other income, such as non-labour income.

5.6.2 Independent non-farm business sector

Some 350,000 people run independent businesses as their main job. Each province has about 70,000 such small businesses with the exception of Northern Province which has just fewer than 55,000 people employed as business people in their main job. The vast majority – over 95% depending on definition – are informal sector businesses.

Table 5.11 Small enterprises as main jobs – informal sector indicators

Indicators of Informal sector	%
Revenue belongs to the household	96%
Not registered with a state authority	73%
Enterprise does not have an accounting system	88%
Fewer than 5 people employed in the last 12 months	98%

Source: EICV2. All enterprises operated as main job.

Sixty-three percent of the small businesses are engaged in trading; 17% are in wholesale trade with the majority in wholesale food, 38% are in retail trade and a further 6% are running bars. Only 12% of small businesses are in manufacturing, making a diverse range of products; furniture, clothes and textiles are the main products. One quarter of the enterprises were less than two years old, however business in Kigali and those engaged in trade were the shortest lived.

The total number of small businesses is much larger than the number of persons who have a small independent enterprise as their main job. There are an estimated 670,000 small businesses reported in the EICV2, compared with 350,000 identified as main jobs. This indicates that many people are supplementing their main jobs with self employment, and as has been shown, the majority of these are farmers.

Table 5.12 Small Businesses – Main Job

	City of Kigali	Southern Province	Western Province	Northern Province	Eastern Province	National
	%	%	%	%	%	%
Agriculture, fishing, forestry	1	1	1	0	2	1
Mining & quarrying	2	1	1	2	2	1
Manufacturing	9	18	9	14	10	12
Construction	1	0	0	0	1	1
Trade	67	58	68	60	61	63
Transport & communications	7	4	4	6	7	5
Financial services	0	0	0	0	0	0
Government	0	1	0	1	2	1
Recreation & tourism	0	2	2	1	1	1
Other services	13	11	11	9	9	11
Inadequately described businesses	0	4	4	7	5	4
	100	**100**	**100**	**100**	**100**	**100**
Number of self-employed main jobs (000s)	70.8	77.2	75.7	53.8	70.6	348.0

Source: EICV2 data.

Some 480,000 self-employed businesses have been established in the last five years; with 230,000 of these main usual jobs. The City of Kigali has a lower incidence of businesses run as a second job, while Eastern Province has a very high incidence of such secondary businesses.

Table 5.13 Age of small businesses

	City of Kigali	Southern Province	Western Province	Northern Province	Eastern Province	National	'000s enterprises
Main Job	%	%	%	%	%	%	
Established less than 6 years	21	22	23	14	21	100	230
Established 6 years or more	19	23	20	19	19	100	118
Secondary Job							
Established less than 6 years	7	27	20	15	32	100	248
Established 6 years or more	7	22	26	14	31	100	71

Source: All small businesses, EICV2 data.

Small business owners were asked to state the major obstacle in establishing their business, some 35% said there were no obstacles, but 21% said that lack of capital was a problem, and this was more serious in Southern, Western and Northern provinces. Sixty-five percent of business capital came from household savings and a further 10% from parents. Formal loans came from commercial banks (2%), COOPEC (1%), other loans (3%) and Tontine (2%), the remainder came from other non-specified sources (16%). Only 17% of business owners had applied for a formal loan in the past 12 months, and 13% had been successful. Kigali residents were more likely to have applied, and were also more likely to have been unsuccessful. Those in Northern Province were the least likely to have sought loans (see Table E.5 and Table E.6).

Access to market was a problem for another 15%, and curiously more of a problem in Southern Province (19%) and less so in Northern (8%).

5.6.3 Non-farm paid employment

There is also quite rapid growth in non-farm paid employment, with an increase of an estimated 200,000 jobs since EICV1, out of a total 480,000 of all such jobs. Sixteen percent of job holders have been in their current jobs for less than a year and 62% for less than six years, indicating a high turnover in paid non-farm employment. There are regional and gender dimensions to this pattern, with Kigali job holders in their current jobs for a shorter time compared with the national picture. In particular, over one third of all female workers in Kigali have held their current jobs for less than a year, and a large proportion are under 21 years old, implying a fairly rapid turnover of young female workers in the capital.

Rural non-farm employees were most likely to be working in the service sector (20%), government (30%) or construction industries (15%). Some of these employees were very poorly paid, and these include maids and domestic staff (14%), but 12% were teachers and 5% military.

5.7 New non-farm job creation

It is difficult to identify new jobs from household survey data, The study has so far looked at net job change, however the survey also asks the length of time people have held their current jobs. The results below, therefore, rely on respondents' memories of the length of time they have spent in their current jobs, which is of course subject to recall error. There will also have been job turnover during the five year period. The results presented in Table 5.14 below reflect the non-farm jobs held by the population in 2005/06 which have been secured in the last five years.

Some 850,000 current jobs of a non-farm nature have been started by household members over the five year period. Not all of these will be new jobs, and for employees in particular, much of this will be job turnover, with new job holders being appointed to existing posts. It should be recalled that net change in the number of all working persons (farm and non-farm) is estimated to be around 600,000, including agricultural jobs. The figure of 850,000 can be taken therefore as being a very imperfect surrogate for new jobs, and of these some 250,000 are second jobs.

Of the 850,000 recently acquired non-farm jobs, a little under half (350,000) of these are in the sales sector, where the majority are informal sector self-employed persons, either as their primary or secondary jobs. The service sector is the second most important area of job creation, and the majority of those working in the service sector are in waged employment (see Table E.7), with an estimated 92,000 taking a job in the last five years as maids and cleaners. Almost half of all 'new' waged jobs are in the service sector.

Table 5.14 Provincial distribution of non-farm jobs taken in last 5 years

Region	Non-farm jobs taken in the last 5 years				
	Independent Main Job	Independent Second	Wage	Unpaid	All
City of Kigali	47,800	17,900	135,600	14,800	216,100
Southern	50,200	64,900	62,000	9,900	187,000
Western	52,400	47,400	56,200	9,000	165,000
Northern	30,900	36,100	38,000	3,300	108,300
Eastern	48,200	78,000	45,500	6,200	177,900
National	**229,500**	**244,300**	**337,300**	**43,200**	**854,300**

Source: All adults over 15 years reporting taking job in previous 5 years EICV2 data.

The regional pattern of these 'new jobs' is interesting; in Kigali waged jobs predominate while in the rural provinces independent businesses are the most numerous. While Kigali has the highest number of new job entrants, it is followed closely by Southern Province. The new job entrants in Southern Province are mainly working in independent enterprises and a large number of these enterprises are secondary jobs. There are also 62,000 new waged job takers. The majority of 'new jobs' are found in the independent sector, where 230,000 main businesses and another 240,000 secondary enterprises have been created. The vast majority of these are in trade. Waged jobs are found in the service sector, where the majority are in cleaning and catering. Further details of these 'new jobs' are found in Annex E.

5.8 Employment status and poverty

The poverty status of the workforce is closely related to their employment status. The poorest workers are the paid farm workers, with over one third of paid farm workers in the lowest quintile. Family farmers are the next poorest, while the most prosperous are paid non-farm workers over half of whom are in the highest quintile. There is a clear dichotomy between farm and non-farm work. There is also a gender difference; the better paid waged non-farm employment is predominantly held by male workers. Unpaid work on farms or otherwise is largely undertaken by women. However, the strongest message of all is that the waged farm worker is the poorest of all workers.

Table 5.15 Poverty and gender of workers

	Gender		Poverty status	
	Male	Female	Not poor	Poor
Independent farm	59.2	40.8	42.1	57.9
Unpaid farm worker	22.1	77.9	38.3	61.7
Wage farm	55.9	44.1	27.6	72.4
Independent non-farm	58.8	41.2	64.0	36.0
Wage non farm	71.6	28.4	74.5	25.5
Unpaid non farm worker	24.5	75.5	69.4	30.6
Total	**44.9**	**55.1**	**45.1**	**54.9**

Source: EICV1 & EICV2. Main job of those 15 years and over.

Turning to the income status of heads of household, rather than individual workers, very similar patterns emerge. forty percent of heads of household working as paid farm workers in their main jobs are found in the poorest quintile, while 50% of waged non-farm heads are found in the richest quintile. Independent farmer heads are clustered in the middle quintiles, while non-farm independent enterprise heads tend towards the upper quintile groups.

Table 5.16 Time spent in current waged employment by quintile group

Expenditure quintile	Time in waged employment						Total
	Under a year	1 year	2 to 5 years	6 to 10 years	11 to 20 years	over 21 years	
	Col %	Col %	Col %	Col %	Col %	Col %	Col %
Worker not in agriculture							
1st Quintile	4.2	7.2	7.9	9.0	5.8	6.5	6.9
2nd Quintile	11.1	10.6	8.4	10.0	11.9	12.8	10.1
3rd Quintile	10.5	12.7	8.9	9.1	7.9	7.4	9.7
4th Quintile	12.8	15.0	15.7	16.8	23.3	22.8	16.2
5th Quintile	61.3	54.4	59.1	55.1	51.1	50.4	57.1
Worker in agriculture							
1st Quintile	29.2	24.7	34.6	35.1	46.7	41.1	36.3
2nd Quintile	10.0	24.8	22.2	26.9	20.5	23.9	22.3
3rd Quintile	10.7	13.3	14.7	21.3	17.9	19.0	16.7
4th Quintile	22.1	14.6	16.4	13.6	6.7	10.8	13.8
5th Quintile	27.9	22.7	12.1	3.1	8.2	5.2	11.0

Source: EICV2. Waged employees in main job 15 years and over.

5.8.2 Poverty and employment trends

The authors took recent job entrants as a group to compare their work and poverty status with that of the general workforce, this was to take a view on the recent trends in employment creation and the likely poverty outcomes. It is worth noting that people who have held their current job for shorter lengths of time are more likely to be in the higher quintiles than those who have held their current job for a longer period (see Table 5.16 above).

The net change in jobs has been used to consider the possible poverty status of the 'new jobs' created. As has been noted, many working in agriculture are found in the poorest households, while those working in the financial services sector are the most wealthy; however the largest net increases in jobs were found in the trade and agricultural sectors. Almost 80% of all workers are in agricultural occupations, but over 60% of them are poor[14] (See Table E.8). Other manual occupations are less poor, with 45% poor among semi-skilled operatives and 49% of unskilled labours poor. However, those working as drivers, considered a manual occupation, are amongst the better off occupational groups. Only one quarter of skilled service workers, and just 30% of

[14] Note that occupation does not necessarily correspond with industrial activity. An example might be an agricultural advisory worker in government: his occupation is agriculture, but his industry government.

commercial workers are poor. The most prosperous workers are professionals, senior managers and office workers (see Table E.9).

Using the poverty status of job types, and relating this to the net job change between the surveys, it is estimated that the numbers of poor are likely to change little in future years, unless the propensity to be poor in the various industries and occupations changes, or the types of jobs created differ markedly from last five years. The likely driver in increasing poverty levels will be the increase in paid farm work accompanied by static or declining productivity levels on family farms. It is also worth noting that section 2 showed falling levels of income in households sustained mainly by small enterprises and non-farm employment (Table 2.3), which may reflect increased competition for work in these better remunerated occupations.

6. Demographic changes

6.1 Gender structure

The continued predominance of women in the overall population of Rwanda is confirmed in the EICV2 survey. Although there is never an exact match between the number of men and women in a population, the disparity in Rwanda was exacerbated by the effects of the genocide. Nonetheless, the fairly even split between males and females among newborn children means that the number of men per 100 women has improved from 87 in 2000/01, to 90 in 2005/06 (Table 6.1).

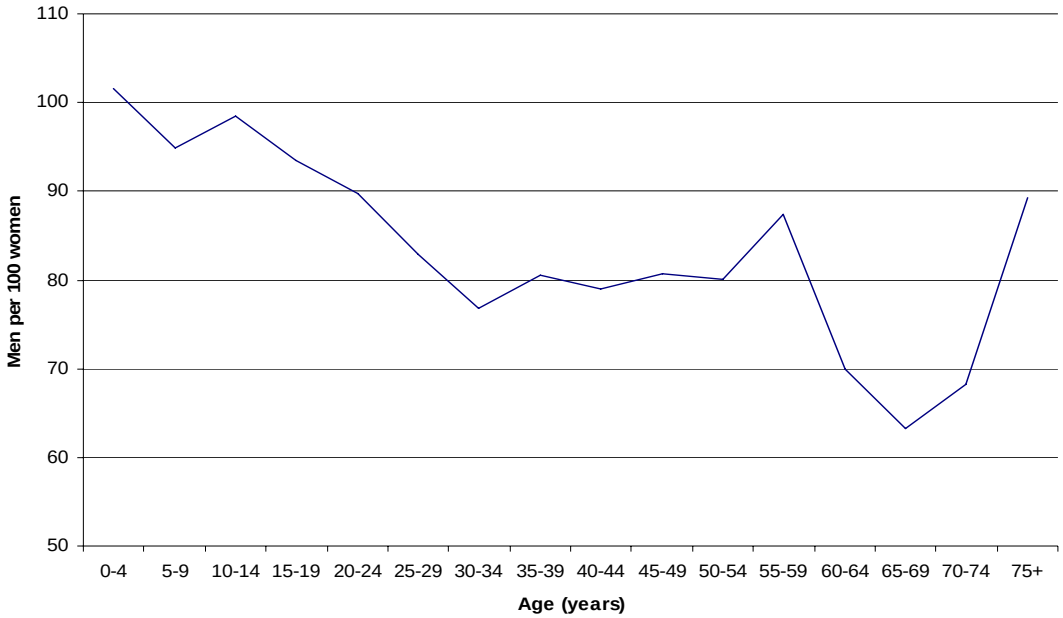
Table 6.1 Number of males per 100 females, by province

Census province	EICV1	EICV2	Change
City of Kigali	87	95	9
Southern	85	87	2
Western	86	92	6
Northern	90	88	-2
Eastern	86	92	5
All	**87**	**90**	**4**

Source: EICV1 and EICV2 data.

The province of the City of Kigali and Western Province have seen the sharpest increases in the ratio of men to women: Kigali province now has 95 males for every 100 females. In contrast, however, the Northern Province has experienced a decrease in the proportion of males to females, from 90 per 100 in 2000/01 to 88 per 100 in 2005/06. This may reflect the fact that the proportion of people in Northern Province who are aged 60 or older has increased from 4.0% of its population in 2000/01—the lowest proportion of all the provinces other than the City of Kigali—to 5.5% in 2005/06, the highest proportion of all the provinces (see Table 6.2). The ratio of males to females is very much lower among this older age group than in the population as a whole, with a national average of 72 males for every 100 females aged 60 and over in 2005/06 (see Figure 6.1 and the following subsection).

Figure 6.1 Number of males per 100 females, by age group

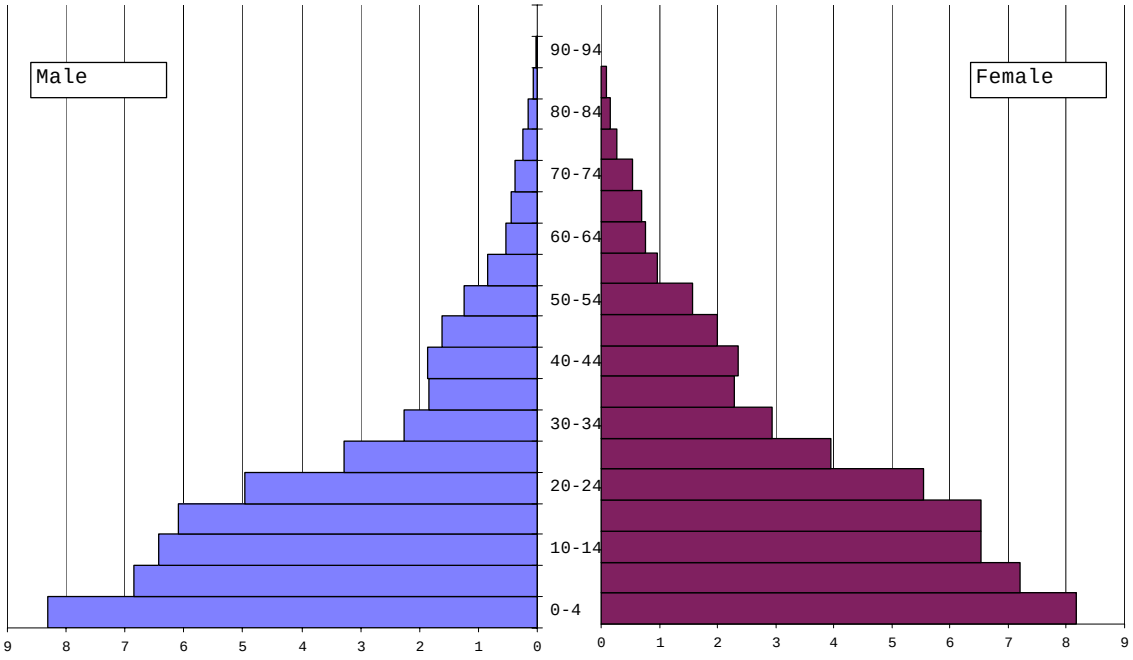


Source: EICV2.

6.2 Age structure

The population of Rwanda remains young: the mean age of the population in 2005/06 is 21.4 years, which represents only a small increase from the mean age of 21.0 years in 2000/01. Children under the age of 15 comprise some 43.5% of the population (Figure 6.2).

Figure 6.2 Age pyramid, 2005–06 (% of total population)



Source: EICV2.

The age structure of the population differs quite markedly in Kigali from the other provinces: Kigali has a much smaller proportion of young children and elderly people, and a much higher proportion of people of working age, than the rest of the country (Table 6.2).

Table 6.2 Distribution of age groups, by province (%)

	EICV1				EICV2			
	Child under 15	**Adult 15-59**	**Adult 60+**	**All**	**Child under 15**	**Adult 15-59**	**Adult 60+**	**All**
Stratum								
City of Kigali	40.3	57.3	2.4	100	37.7	60.3	2.0	100
Other urban	42.9	51.9	5.3	100	41.7	53.9	4.4	100
Rural	46.1	49.5	4.4	100	44.2	51.2	4.6	100
Province								
City of Kigali	40.6	56.5	2.9	100	38.9	58.4	2.7	100
Southern	43.0	51.9	5.1	100	42.5	52.9	4.6	100
Western	47.7	48.0	4.3	100	44.9	50.8	4.4	100
Northern	47.8	48.2	4.0	100	44.9	49.6	5.5	100
Eastern	45.3	50.4	4.3	100	44.0	52.0	4.0	100
National	**45.3**	**50.4**	**4.3**	**100**	**43.5**	**52.1**	**4.4**	**100**

Source: EICV1 and EICV2 data. Note: (1) In defining the strata, 'City of Kigali' maps exactly onto the definition of the province of the City of Kigali used in the census. The new province of that name covers a larger area, so it also includes some other urban and rural areas.

This distribution is likely to be affected by the relatively high number of people moving to Kigali and the much lower total fertility rate in the capital, at 4.3 children per woman compared with the national average of 6.1 (though the latter effect is partly offset by lower child mortality rates)[15].

6.3 Geographical distribution

The growth of Rwanda's population since 2000/01 has been unevenly spread throughout the country. Not only have urban areas seen far higher proportional increases than rural areas, as seen in Table 1.1 above, but also different provinces have experienced startlingly different growth patterns. The result is a shift in their shares of the overall population between 2000/01 and 2005/06 (Table 6.3). The province of the City of Kigali has grown relatively less fast than the rest of the country, resulting in it having a declining share of the total population; however, the biggest changes have been the reduction in the share of the population in Northern Province, and the considerable increase in Eastern Province.

Table 6.3 Share of total population, by province (%)

Province	EICV1	EICV2	Percentage-point change
City of Kigali	10.1	9.6	-0.4
Southern	24.9	25.5	0.6
Western	23.9	24.1	0.3
Northern	21.3	18.4	-2.9
Eastern	19.9	22.3	2.4
National	**100**	**100**	**0**

Source: EICV1 and EICV2 data.

Comparing these patterns with the population densities recorded in the census of 2002, it is apparent that the parts of the country that are increasing their share of the population are those that previously had a lower population density (Table F.1). Umutara and Kibungo, now in Eastern Province, had the smallest number of people per square kilometre at the time of the census, and have experienced the greatest increase in population share; conversely, Ruhengeri—now largely in Northern Province—and the City of Kigali had high population density in 2002 and are now seeing a reduction in their share of the overall population.

The regional population projections in the 2002 census use the 'proportional method' which assumes that the current relationship between regional populations and the national total will remain constant throughout the duration of the period to which the projections refer. It states that the disparities in population growth between regions are sufficiently small, outside Kigali, not to have much of a distorting effect on the projections. However, the EICV2 data indicate that inter-regional differences may be greater than were expected, and are worth investigating further. A summary of the changes, including estimates of population growth are shown in Table 6.4 below.

[15] Fertility rates are from DHS (2005).

Table 6.4 Population growth, by province

Province	Estimated population size ('000s)			Population increase by stratum (%)			
	EICV1	EICV2	Increase	City of Kigali[1]	Other urban	Rural	All
City of Kigali	801	911	110	6	200	21	14
Southern	1,983	2,416	433	-	28	21	22
Western	1,901	2,283	382	-	31	19	20
Northern	1,693	1,741	48	-	107	-2	3
Eastern	1,584	2,109	524	-	-3	36	33
National	**7,963**	**9,460**	**1,497**	**6**	**40**	**18**	**19**

Source: EICV1 and EICV2 data. Note: (1) In defining the strata, 'City of Kigali' maps exactly onto the definition of the province of the City of Kigali used in the census. The new province of that name covers a larger area, so it also includes some other urban and rural areas.

The table paints a picture of a loss of population from rural areas in the north, accompanied by a large increase in the rural population in Eastern Province. In the Northern Province, the rural population has declined since 2000/01 while the urban population has more than doubled. The area with the highest population growth by far is Eastern Province, the population of which has increased by 33% between 2000/01 and 2005/06, with the growth being concentrated in rural areas.

Migration, rather than simply changes in fertility and mortality rates, is an important consideration in these varied experiences of population change at the provincial level. Section 6.5 examines these migration patterns in more detail.

6.4 Households

Rwanda's population comprises about 1.9 million households[16]. Some household types are generally considered to be more at risk of falling into poverty than others. This section reviews some basic features of Rwandan households and examines the extent to which groups that are usually classified as 'vulnerable' experience a greater rate of poverty than the overall population.

6.4.1 Characteristics of household head

Households headed by women—especially widows—and by children or very young adults are traditionally considered more vulnerable to poverty shocks than households headed by male adults. Since 2000/01 the proportion of the population living in such households has declined considerably (Table 6.5).

[16] A household generally consists of a group of people living in the same accommodation and recognising one person as the head; it may include both related and unrelated members, and may range from a single individual to multiple families.

Table 6.5 Population share and poverty incidence among potentially vulnerable households (%)

	EICV1		EICV2	
	Population share	**Poverty incidence**	**Population share**	**Poverty incidence**
Female-headed	27.6	66.3	23.8	60.2
Widow-headed	22.0	67.7	18.7	59.9
Child-headed[1]	1.3	60.1	0.7	56.9
All households	**100**	**60.4**	**100**	**56.9**

Source: EICV1 and EICV2 data. Note: (1) A 'child-headed' household is one that is headed by a person under the age of 21 years.

Just under one-quarter of the population lives in a female-headed household; three out of every four female heads of household are widows. Although these households are slightly more likely to be poor than male-headed households, the gap between the national poverty rate and that among female-headed households has been reduced between 2000/01 and 2005/06. Some 60.2% of female-headed households are poor, which is about three percentage points higher than the national average.

The proportion of the population living in child-headed households has almost halved, from 1.3% to 0.7%, which means about 65,000 people now live in child-headed households (of whom some 94% are themselves under the age of 21). This decline is consistent with the fact that children who became heads of households in the aftermath of the genocide are now young adults. Rwanda's national policy for orphans and other vulnerable children observes, however, that the proportion of people living in child-headed households may rise owing to HIV/Aids-related deaths[17]. There is no indication from either EICV1 or EICV2 that child-headed households are more likely to be affected by consumption poverty than the population as a whole.

6.4.2 Household composition

The average household in Rwanda contains five members, almost all of whom are related to the household head (Table 6.6). Poorer households tend to be larger than wealthier ones, with an average of 5.5 members for the poorest quintile and 4.7 for the richest. The downward trend in household size between poor and rich households levels off at the fourth and fifth quintiles. This may be influenced by the marked increase in members unrelated to the household head in the wealthiest households. Some 10% of household members in the richest quintile are not related to the household head, which is more than three times the proportion found in any other income group.

[17] Government of Rwanda (2002) 'National policy for orphans and other vulnerable children in Rwanda'. The 2005 DHS reports an HIV prevalence of 3% among 15–49-year-olds in Rwanda.

Table 6.6 Composition of household

Quintile	Composition of household (%)				Household members		
	Related to head	Ward of head	Not related	Total	Mean household size	Mean no. of unrelated people	Mean no. of orphans[1]
Lowest	98.5	0.3	1.2	100	5.5	0.1	0.1
Second	98.0	0.4	1.6	100	5.3	0.1	0.1
Third	97.9	0.7	1.3	100	5.0	0.1	0.1
Fourth	96.8	0.4	2.8	100	4.7	0.1	0.1
Highest	89.2	0.9	10.0	100	4.7	0.5	0.2
Total	**96.1**	**0.6**	**3.4**	**100**	**5.0**	**0.2**	**0.1**

Source: EICV2. Note: (1) Data refer to full orphans, i.e. people aged under 21 with neither parent known to be alive.

The wealthiest households are much more likely than others to care for a ward and to look after orphans. More than one in every seven households in the highest quintile include at least one full orphan, i.e. a person aged under 21 with neither parent known to be alive (not shown in table). In contrast, one in every 16 households in the poorest quintile look after an orphan. Table 6.7 shows that orphans are almost twice as likely to be in the wealthiest quintile as people under the age of 21 who have one or both parents still alive.

Table 6.7 Distribution of people aged under 21 by quintile (%)

Quintile	Not orphan	Semi-orphan[1]	Orphan[2]	All
Lowest	21.8	24.5	14.9	22.0
Second	21.2	20.1	16.1	20.7
Third	20.4	19.1	17.2	20.0
Fourth	19.3	18.8	20.4	19.2
Highest	17.4	17.6	31.4	18.1
Total	**100**	**100**	**100**	**100**

Source: EICV2. Note: (1) 'Semi-orphan' refers to a person aged under 21 with one parent not known to be alive. (2) 'Orphan' refers to a person aged under 21 with neither parent known to be alive.

6.5 Patterns of migration

For several decades Rwanda's population has been affected by international migration, both into and out of the country, for political and economic reasons and as a consequence of conflict. Internal migration, in contrast, has traditionally been viewed as less significant. However, the need to address the internal displacement of large numbers of the population, the return of refugees from abroad and the loss of housing stock at the time of the genocide, together with the high birth rate, has caused the Government of Rwanda to elaborate its strategy for restructuring urban areas and for consolidating settlements in rural areas, in order to ensure access to housing and public services for the whole population[18]. This has had an impact on migration flows since 2000/01. Moreover, individuals and households also migrate for personal reasons including for marriage, employment and studies.

[18] Ministry of Infrastructure (2004) 'National human settlement policy in Rwanda'.

6.5.1 Migration within the last five years

Some 10.3% of Rwandese aged 15 and over have moved district within the last five years, which amounts to a movement of about 550,000 people in that age group. The most common areas to migrate from are the City of Kigali, Kigali Ngali and Gitarama: 38.3% of people who have migrated within the last five years come from these former provinces (Table F.2).

Most migrants end up relatively close to their province of origin. There is little movement between the west and the east of the country, or between the north and south. A very high proportion of migrants from Ruhengeri and Byumba have moved to Eastern Province (58.2% of the former and 72.3% of the latter); similarly, a large proportion of migrants from Cyangugu and Kibuye have remained in Western Province (Table F.3). However, Eastern Province is the most common destination for migrants overall, receiving 28.8% of migrants aged 15 and over in the last five years, slightly more even than the province of the City of Kigali.

Migrants from Rwanda's neighbouring countries, too, tend to be concentrated in the provinces that are adjacent to their countries of previous residence, or in Kigali, resulting in a fairly even spread throughout Rwanda (Table F.3). The exception is Northern Province, which has received just 8% of international migrants in the last five years.

The most common reason for migration is economic: 41.3% of migrants aged 15 and over cited economic reasons as the principal cause for migration, of whom about half moved on being assigned to posts (Table 6.8). One in four moved for marriage or other family reasons.

Table 6.8 Reasons for migration of people aged 15 and over in the last five years

Reason	Frequency
Economic	41.3
Assigned to post	*20.6*
Other employment-related reason	*11.9*
Lack of land	*8.9*
Family	26.4
Other	32.3
All	**100**

Source: EICV2 data.

6.5.2 Lifetime migration

Four out of every five Rwandese aged 15 and over (81%) are now living in the province of their birth ('province' in this case refers to the former administrative divisions used in the census). However, many of these people have not remained in the same place throughout their lifetime: half of all Rwandese aged 15 and over have moved districts or provinces at least once. This is consistent with the migration flows of the mid- to late 1990s when there was considerable displacement of the population, who have since returned to their province of origin.

6.6 Dependency ratios

The numbers of persons in the household were divided by the number of usually working persons to derive the dependency ratio. Nationally the ratio is 2.2, which means that every working person

supports 1.2 other persons. However, for the poorest households this rises to 2.5 and in the richest it falls to two.

Table 6.9 Mean dependency ratio, by quintile

Quintile	Mean
Lowest	2.5
Second	2.4
Third	2.2
Fourth	2.1
Highest	2.0
Total	**2.2**

Source: EICV2 data.

7. Targeting access of the poorest to core services

7.1 Education

Rwanda continues to make progress in improving access to and take-up of education, and in achieving better educational outcomes in the form of higher literacy rates among both young adults and the wider population. A comparison of the two EICV surveys shows how equitably progress has been made among people of different genders, age-groups and consumption levels since 2000/01. This reflects the effectiveness of the government's policies which aim at universal access and the equitable provision of high quality education[19].

7.1.1 Availability of services

The Government of Rwanda recognises the urgency of supporting infrastructure development and increasing the number of trained teachers in order to keep pace with the expansion of student enrolment, especially in the light of the Nine-Year Basic Education programme (Table G.1)[20].

As yet, changes at primary level have only been small. Between 2000/01 and 2005 the number of primary schools increased by 7% to 2,295 and the number of classrooms increased by a similar proportion, but the total number of classes taught fell from 39,045 to 36,175. At secondary level there has been a much greater increase in the number of schools, from 376 to 553, and a 40% increase in the number of teachers.

The EICV surveys indicate that the small expansion in the number of primary schools has not had a marked effect on students' proximity to school: the mean time taken to reach school has barely changed, at an average of 25 minutes in 2005 compared with 22 minutes in 2000/01. There is very little variation among the different quintiles.

Among secondary school students the daily time taken to reach school is much lower than for primary school students, but this is strongly affected by the fact that over 70% attend boarding school and do not travel daily. The government's stated policy to reduce the number of students who board will increase the amount of time taken for students to reach schools, but this drawback should be weighed against the benefit of the funds from subsidised boarding facilities being used to expand the total student population under the Nine-Year Basic Education programme.

7.1.2 Use of education services

Primary

Enrolment in primary education increased considerably between 2000/01 and 2005/06 (Table 7.1 and Table G.1). This represents progress towards the Ministry of Education's (MINEDUC's) aspirations to achieve universal completion of primary education by 2015, in line with the

[19] See, for instance, the objectives outlined in Rwanda's high-level strategy documents such as *Vision 2020.* the poverty reduction strategy paper (PRSP), and sector-specific planning documents, e.g. the Education Sector Policy, the Education Sector Strategic Plans (ESSPs), and the more recent Long-Term Strategy and Financing Framework 2006–15.

[20] See e.g. ESSP 2006–2010.

international targets presented by the Millennium Development Goals and the 'Education for All' principles.

Table 7.1 Net enrolment rate at primary school (%)

	EICV1			EICV2		
	Male	**Female**	**All**	**Male**	**Female**	**All**
Quintile						
Lowest	65.0	65.8	65.4	78.6	79.2	78.9
Second	73.6	69.2	71.4	84.0	86.4	85.2
Third	74.2	76.8	75.5	86.7	90.1	88.4
Fourth	75.1	79.3	77.3	87.3	89.1	88.2
Highest	85.6	83.9	84.7	90.2	92.9	91.6
Stratum						
City of Kigali	81.5	83.9	82.7	89.8	91.0	90.4
Other urban	75.5	72.8	74.1	89.0	91.3	90.1
Rural	72.9	73.0	72.9	84.0	86.2	85.1
National	**73.7**	**73.7**	**73.7**	**84.8**	**86.9**	**85.9**

Source: EICV1 and EICV2 data. Notes: (1) Net enrolment rate shows children aged 7–12 who are reported to be attending primary school, as a proportion of all children aged 7–12. (2) Figures for EICV1 have been recalculated to make them comparable with EICV2. This results in a small difference (1 percentage point) between the figures presented here and those in the EICV1 report.

Net primary enrolment for female students had already achieved parity with those of male students in 2000/01, and has now even slightly overtaken the male enrolment rate, with 87% of female students of primary age reportedly attending primary school, compared with 85% of male students. This indicates that, in terms of attendance, Rwanda has achieved the Education for All goal of eliminating gender disparities in primary education by 2005. However, the goal emphasises the need not only for girls to be present in school, but also for attention to be paid to their needs in relation to teaching and learning practices, curricula and the safety of the school environment; these aspects are not covered by the EICV surveys.

There remains a large disparity in the enrolment rates of students in the most well-off households compared with those from the poorest households: 92% of primary-age students in the highest consumption quintile now attend primary school, compared with 79% of those in the lowest quintile. But this gap of 13 percentage points is six percentage points smaller than the 19-point gap observed in 2000/01: enrolment rates have improved more among students in the lower income groups than among those in the higher income groups.

Children of primary age who do not live with a relative and who are not formally the ward of the household head are much less likely to go to primary school than the national average (Table 7.2). Children who are full orphans, too, have a lower enrolment rate than those who have at least one parent alive, whereas there is little difference in enrolment at primary level between children who have one or both parents still living. Membership of a household headed by a female, including widows, does not reduce the likelihood of enrolment: in fact, these children are slightly more likely than average to go to school.

Table 7.2 Net enrolment rate at primary school, 2005–06, by household structure (%)

	Male	Female	All
Relationship to household head			
Related	85.6	87.5	86.6
Ward of household head	85.5	77.3	81.2
Not related	56.4	72.3	65.1
Characteristic of household head			
Female	86.3	89.3	87.8
Widow	86.2	90.0	88.1
Orphan status			
Not orphan	85.4	87.0	86.2
Semi-orphan[2]	83.7	87.7	85.7
Orphan[3]	80.6	80.0	80.3
National	**84.8**	**86.9**	**85.9**

Source: EICV2 data. Notes: (1) Net enrolment rate shows children aged 7–12 who are reported to be attending primary school, as a proportion of all children aged 7–12. (2) 'Semi-orphan' refers to a child with one parent not known to be alive. (3) 'Orphan' refers to a child with neither parent known to be alive.

The disparity in enrolment rates between rich and poor households is seen also with *gross* enrolment rates at primary level (Table G.2). The wealthiest 20% of households have much higher gross enrolment than the poorest 20%, at a rate of 146% compared with 128%; however, the difference between the two quintiles is much smaller than it was in 2000/01, when there was a gap of 32 percentage points. There is no longer any significant difference in the gross enrolment rates in the second to fifth consumption quintiles.

The EICV2 survey examined the premature abandonment of studies by children of primary age who had previously been enrolled at school but who had not attended for at least a year and were no longer considered by their household to be in education. The proportion of children to whom this applied is quite small, at only 2.7%[21]. In these cases, the cost of schooling was cited as the most common reason, despite the implementation of the fee-free policy at primary level (Table G.3). Costs are examined further in section 7.1.3 below.

Secondary

A central component of Rwanda's recent education policy has been to increase enrolment at secondary level and, in particular, to aim at ensuring that all children complete nine years of basic education—six years at primary school, plus three years at lower secondary level (*tronc commun*). This is critical for enabling the country to achieve its objectives of becoming a knowledge-based and technology-driven society. Fee-free education has now been extended to the first three years of secondary school. The effects of this latter policy are not seen in the EICV2 data since the survey was carried out before the fees were removed, but nonetheless it is evident that there has

[21] Note that this is not the same as the dropout rate, which is calculated as the difference between the promotion rate (the proportion of children in any given year who proceed to the next class the following year) and the repetition rate (the proportion of children in any year who repeat the same class the following year). These statistics are not available in EICV2. For this reason it is also not possible to calculate the rate of transition from primary to secondary level.

already been considerable improvement in gross enrolment rates at lower secondary level since 2000/01, with gross enrolment increasing from 13.7% to 26.5% (Table G.4)[22].

However, the difference in enrolment rates between the quintiles is extremely marked, and has become even more so in the last five years: much of the increase in enrolment rates between the two surveys comes from improvements in enrolment among the wealthier households.

Most of the students enrolled at *tronc commun* level are outside the official age range of 13–15 years: fewer than one in five students in *tronc commun* classes in 2005 is aged 13–15. The net enrolment rate at that level is just 4%. This is due to delays in starting school and repetition of classes which mean that most students of that age are still in primary school.

Among secondary school students as a whole (both lower and upper secondary), enrolment rates remain extremely low, especially among very poor households; net enrolment, in particular, has improved by only a few percentage points since 2000/01 (Table 7.3 below).

Table 7.3 Net enrolment rate at secondary school (%)

	EICV1			EICV2		
	Male	**Female**	**All**	**Male**	**Female**	**All**
Quintile						
Lowest	1.2	0.5	0.8	3.9	1.5	2.6
Second	3.7	2.4	3.0	6.0	4.8	5.4
Third	3.3	5.3	4.4	8.8	8.5	8.6
Fourth	7.7	11.9	9.8	12.9	13.3	13.1
Highest	16.5	20.5	18.6	22.6	21.4	22.0
Stratum						
City of Kigali	24.9	22.7	23.6	29.2	29.0	29.1
Other urban	7.4	11.3	9.3	12.6	14.9	13.8
Rural	4.5	5.4	5.0	8.9	7.0	7.9
National	**6.2**	**7.5**	**6.9**	**10.6**	**9.5**	**10.0**

Source: EICV1 and EICV2 data. Notes: (1) Net enrolment rate shows children aged 13–18 who are reported to be attending secondary school, as a proportion of all children aged 13–18. (2) Figures for EICV1 have been recalculated to make them comparable with EICV2. This results in a small difference (about 0.5 percentage points) between the overall figures presented here and those in the EICV1 report. (3) Figures do not include students on vocational 'post-primary' courses.

The gross enrolment rate at secondary level has increased by nine percentage points since 2000/01 but is still very low, at just 20.9% (Table G.5). There is an enormous variation in gross enrolment between people from poor and from wealthy households. Most of the increase comes from higher enrolment by the wealthiest households; the rate of improvement must increase rapidly if the Government of Rwanda is to achieve its target of 43% gross enrolment at secondary level by 2015.

[22] The Government of Rwanda has several targets for increasing gross enrolment at *tronc commun* level. These include an increase from 20% in 2004 to 36% in 2010 (ESSP 2006–2010); an increase from 16% in 2004 to 47% in 2015 (Long-Term Strategy and Financing Framework, p.3); and an increase from 20% to 69% by 2015 (Long-Term Strategy and Financing Framework, p.9 and p.15).

As with children of primary age, those of secondary age who do not live with a relative and who are not formally the ward of the household head are much less likely to go to secondary school (Table 7.4). Again, membership of a female- or widow-headed household has little effect on enrolment rates. However, enrolment in secondary school among orphans is much higher than for non-orphans. This reflects the fact that they are much more likely to be in the highest consumption quintile, where enrolment rates are higher (Table 6.7 and Table 7.3).

Table 7.4 Net enrolment rate at secondary school, 2005/06, by household structure (%)

	Male	Female	All
Relationship to household head			
Related	11.1	9.7	10.4
Ward of household head	18.8	11.8	15.0
Not related	3.8	6.4	5.1
Characteristic of household head			
Female	11.3	9.5	10.4
Widow	11.2	9.2	10.1
Orphan status			
Not orphan	9.7	8.9	9.3
Semi-orphan[2]	11.3	8.6	9.8
Orphan[3]	13.3	16.1	14.7
National	**10.6**	**9.5**	**10.0**

Source: EICV1 and EICV2 data. Notes: (1) Net enrolment rate shows children aged 13–18 who are reported to be attending secondary school, as a proportion of all children aged 13–18. (2) 'Semi-orphan' refers to a child with one parent not known to be alive. (3) 'Orphan' refers to a child with neither parent known to be alive.

Some factors that influence the use of education services include the cost of education and satisfaction with the quality. These are discussed in the following subsections.

7.1.3 Costs of services

Expenditure on students in primary education has changed little in real terms since the previous survey: median expenditure over a 12-month period, at FRw 1,845 per student, compares closely to the median value of FRw 1,798[23] in 2000/01 (Table 7.5). There remains almost no difference in expenditure between male and female students. Median expenditure on students in the highest consumption quintile is about three times as high as that in the lowest quintile.

[23] At constant January 2006 prices.

Table 7.5 Median education expenditure per student in primary education in past 12 months, by gender and consumption quintile (FRw)

	EICV1			EICV2		
Quintile	**Male**	**Female**	**All**	**Male**	**Female**	**All**
Lowest	975	928	950	1,233	1,136	1,174
Second	1,335	1,417	1,412	1,516	1,729	1,616
Third	1,775	1,856	1,817	1,827	1,810	1,817
Fourth	2,363	2,261	2,300	2,050	2,161	2,117
Highest	3,558	3,491	3,505	3,653	3,327	3,466
All	**1,817**	**1,795**	**1,798**	**1,844**	**1,854**	**1,845**

Source: EICV1 and EICV2 data. Notes: (1) All values are expressed in January 2006 prices using the consumer price index (CPI).

The total costs of primary education, however, are very unevenly distributed. For example, the average education expenditure for students in public or subsidised schools, at just under FRw 2,500, is 14 times lower than the average expenditure on the small percentage of students who attend private (fee-paying) primary schools (FRw 35,000). The overall mean, which amounts to FRw 3,724 at January 2006 prices, is heavily skewed towards students in the highest quintile, which reflects the fact that they make up by far the highest proportion, some 47%, of students at private schools.

On average, for each household in 2005/06, uniforms constitute the largest expense in primary education, at 42% of mean household expenditure on education. Books and stationery together contribute another 37% of the total cost. Remaining expenditure is devoted to a range of items including donations to the school for specific items or events, food and transport. For students in private schools, enrolment fees make up a large component of overall education expenditure.

Expenditure on secondary school students is much higher than on primary students. Median expenditure in the past year is over FRw 68,000, which is 37 times as much as households spend on primary students (Table 7.6 below).

Table 7.6 Median education expenditure per student in secondary education in past 12 months, by gender and consumption quintile (FRw)

Quintile	**EICV1**	**EICV2**
Lowest	32,344	20,916
Second	32,373	47,972
Third	27,315	60,195
Fourth	51,300	63,700
Highest	66,834	81,971
All	**50,920**	**68,298**

Source: EICV1 and EICV2 data. Notes: (1) Figures do not include students on vocational 'post-primary' courses. (2) All values are expressed in January 2006 prices using the consumer price index as a deflator(CPI).

The pattern of expenditure is similar to that in primary schools. Again, there is little difference in cost for male and for female students: median expenditure for male students in EICV2 is FRw 65,000, while for females is just under FRw 70,000 (not shown). Households in the highest consumption quintile spend far more on education than those in any other quintile, which is due in

part to the fact that they contain more than half the students in private schools. The increase in expenditure for the poorest households is very small compared with the increased expenditure for households in the other quintiles.

7.1.4 Satisfaction with services

Satisfaction with primary schools, among households who use them, is quite high: almost four out of every five households are satisfied with the service they provide, and one-third reported observing an improvement in the 12 months preceding the survey (Table 7.7 below). Satisfaction with secondary schools is less widespread, at 56.7%; one-quarter of users reported an improvement in secondary schools in the preceding 12 months.

Table 7.7 User satisfaction with schools, by stratum (%)

Service	Users satisfied with service (%)				Users observing improvement in service in last 12 months (%)			
	City of Kigali	Other urban	Rural	All	City of Kigali	Other urban	Rural	All
Primary school	75.8	77.4	77.9	77.8	31.4	31.6	36.6	35.9
Secondary school	69.7	56.9	55.4	56.7	31.6	23.7	23.6	24.2

Source: EICV2. Note: (1) Figures are calculated for people that use each facility. (2) Data refers to the quality of the nearest available service of each type.

7.1.5 Impact of education

Approximately two-thirds of people aged 15 and over declare themselves to be literate (Table 7.8 below). The literacy rate reported by males is much higher than that of females; this reflects the tendency among older generations that females are less likely ever to have gone to school than males. Literacy among people aged 15+ in the highest consumption quintile, at 79.4%, is almost 30 percentage points greater than that in the lowest quintile. Among young adults aged 15–24 there is a similar trend of people in wealthier households being more literate than those in poorer households, but the gap is much narrower: young people in the lowest quintile have a much better literacy rate than that for their quintile as a whole (66.3% compared with 50.6%).

Table 7.8 Literacy rate among people aged 15+ years, by quintile (%)

Quintile	All aged 15+			Aged 15–24		
	Male	Female	All	Male	Female	All
Lowest	56.7	46.1	50.6	67.6	65.1	66.3
Second	65.2	54.0	58.9	72.9	72.1	72.5
Third	71.1	58.9	64.4	78.8	77.4	78.1
Fourth	75.9	63.9	69.6	82.8	80.3	81.5
Highest	83.0	75.8	79.4	80.0	86.8	83.4
National	**71.5**	**60.1**	**65.3**	**76.9**	**76.8**	**76.8**

Source: EICV2. Note: (1) Data are based on reported literacy rather than tested literacy. The DHS 2005, which required respondents to read a sentence to the interviewer, found that 70% of women and 78% of men could read part or all of a sentence.

In accordance with its international commitments under 'Education for All', which require a 50% improvement in levels of adult literacy between 2000 and 2015, the Government of Rwanda has pledged to increase literacy to 80% from the level of 52% reported in the EICV1 survey in 2000/01.

In a background paper for the 'Education for All' *Global Monitoring Report 2006*, MINEDUC's Non-Formal Education Unit suggested that the target could be reached by 2010 if an estimated 400,000 adults per year achieved literacy[24]. The results from the EICV2 survey permit these figures to be refined:

- The population of Rwanda aged 15 and over is projected to be 7.15 million by 2015[25].
- Assume that the current literacy rate of young adults is maintained, so that by 2015 the literacy rate of 76.8% covers all adults aged 15–34. Assume also that the current literacy rate is maintained for adults who will be 35 and over in 2015, i.e. who are aged 25 and over in EICV2 (this is 57.3%—not shown in table). Using population projections for these age groups, the national literacy rate in 2015 is estimated at 69.2%.
- The shortfall of literate adults will therefore be (80 – 69.2) $\times$ 7.15 million = 772,000 people.
- This indicates that the number of additional youths and adults to be made literate each year is about 77,000[26].

This can be achieved by improving the literacy rate among people reaching the age of 15, as well as by running adult literacy centres. This would suggest either that the number of literacy centres and trainers required is therefore much smaller than the 10,000 suggested in MINEDUC's background paper, or that Rwanda has the potential to achieve a considerably higher literacy rate than the target.

7.2 Health

7.2.1 Use of health services

Illness and injury

In any two-week period during 2005–06 almost 20% of the population reported themselves as suffering from an illness or injury (Table G.6)[27]. This self-reporting of illness is not a reliable indicator of the health status of the population, as it was not the result of any professional diagnosis or careful investigation of the symptoms; however the information sets the context for the analysis of people's access and satisfaction with health services which follows in this section. The reported illnesses in 2005/06 show a five-percentage-point reduction on the equivalent figure for 2000/01 (25%). Women are slightly more prone to report illness than men, and people in rural areas more than those in the City of Kigali, but these differences have narrowed during the period between the two surveys.

[24] MINEDUC Non-Formal Education Unit (2005), 'Functional literacy for youth and adults in Rwanda: national policy and strategy'. . Paper commissioned for the *EFA Global Monitoring Report 2006, Literacy for Life*.

[25] US Census Bureau projections.

[26] Death rates are not taken into account.

[27] For the sake of brevity in the remainder of this subsection 'illness' refers to both illness and injury. This self-reporting of illness is not thought to be a reliable indicator of health status, more accurate reporting of health conditions may be found in the 2005 DHS.

The prevalence of illness is approximately the same in every consumption quintile (not shown). However, there is a marked contrast in the tendency for people in the different quintiles to consult medical practitioners. Table 7.9 shows that people in the highest consumption quintile are more than twice as likely to have a medical consultation as those in the lowest (though in all cases, people tend to undertake such consultations more in 2005/06 than was the case in 2000/01). The same is true when one looks just at the people who report themselves to be ill, rather than at all people who have consultations (even if they are not ill): only 20.1% of ill people in the poorest quintile saw a medical practitioner, compared with 43.3% of ill people in the highest quintile. One factor that may influence the likelihood of consultation is proximity of medical facilities. People in the lowest quintile live an average of 15 minutes further away from the nearest health care centre, and an hour's walk further from the nearest district hospital, than those in the highest quintile.

Table 7.9 Percentage of population consulting a medical practitioner in the last two weeks, by gender and consumption quintile (%)

	EICV1			EICV2		
Quintile	**Male**	**Female**	**All**	**Male**	**Female**	**All**
Lowest	4.0	3.3	3.6	3.8	4.2	4.0
Second	4.1	4.2	4.1	5.6	5.5	5.6
Third	5.8	5.2	5.5	6.4	6.1	6.3
Fourth	5.6	7.9	6.8	6.9	7.5	7.2
Highest	7.0	9.2	8.1	7.8	10.8	9.3
All	**5.3**	**5.9**	**5.6**	**6.1**	**6.8**	**6.5**

Source: EICV1 and EICV2 data. Note: (1) Figures show the proportion of people consulting a medical practitioner, regardless of whether or not they were ill.

Community-level mutual insurance schemes have been promoted in Rwanda since the reintroduction of a payment policy for health in 1996 as a means of improving financial access to health care and mobilising domestic funds for health services. The mutual health insurance policy is targeted particularly at people in rural areas, and those working in the informal sector, to complement other health insurance schemes such as the Rwandan national insurance (RAMA) and private insurance.

Since 2004, and including during the later fieldwork period of EICV2, the schemes have been given further heavy promotion. The result has been a widespread adoption of mutual insurance, which now reaches 38.2% of the population (Table 7.10). A further 5.3% of the population is covered by other forms of insurance.

Table 7.10 Prevalence of health insurance (%)

Category[1]	With insurance				No insurance	Total
	Mutual	RAMA	Employer	Other[2]		
Quintile						
Lowest	30.0	0.4	0.0	2.7	67.0	100
Second	33.9	0.8	0.1	2.7	62.6	100
Third	43.0	0.1	0.1	1.7	55.2	100
Fourth	46.3	1.6	0.2	2.5	49.4	100
Highest	37.8	8.0	0.8	4.8	48.6	100
Stratum						
City of Kigali	23.1	8.3	1.8	5.4	61.3	100
Other urban	25.2	5.5	0.5	8.5	60.2	100
Rural	41.0	1.3	0.1	2.0	55.7	100
Vulnerable groups						
Female-headed household	30.4	0.6	0.1	4.4	64.6	100
Widow-headed household	30.9	0.6	0.0	4.4	64.0	100
Child-headed household	29.9	0.0	0.0	3.9	66.1	100
Elderly (aged 60+)	39.9	0.7	0.1	2.2	57.0	100
National	**38.2**	**2.2**	**0.2**	**2.9**	**56.6**	**100**

Source: EICV2 data. Notes: (1) The figures shown under 'quintile' and 'stratum' show the prevalence of health insurance among the whole population. (2) 'Other' includes private insurance policies. (3) Comparable data are not available from EICV1.

MINISANTE's expenditure plan to support the expansion of the scheme throughout the country in 2005/07 is based on an assumption of subscriptions by 50% of the population in 2005, 70% in 2006 and 80% in 2007[28]. Although coverage had not yet reached the level of 50% in 2005, it is seen to be already considerably higher than the rate of 27% recorded by MINISANTE in 2004.

The survey data indicate that the targeting policy is achieving its aims: coverage by mutual insurance schemes in rural areas, at 41% of the rural population, is 16–18 percentage points higher than in Kigali and other urban areas. People aged 60 and over are as likely to be covered by health insurance as the rest of the population. However, the uptake of insurance by other vulnerable groups is less widespread. Some 65% of households headed by women, and 66% of those headed by young people under the age of 21, have no health insurance.

7.2.2 Costs of services

Expenditure

About one in every 10 people in Rwanda incurs some expenditure on health-related items in a two-week period. There is a clear trend of non-poor households spending more on health care than poor households. The median amount spent within a two-week period in 2005/06, for those who have spent anything on health care, is FRw 419 (at January 2006 prices). This represents a

[28] MINISANTE (2004) 'Mutual health insurance policy in Rwanda'.

decrease of some 25%, in real terms, since 2000/01 (Table 7.11). One explanation for this may be the greater coverage of health insurance. For people with no insurance, the median expenditure of FRw 559 remains close to the overall median found in EICV1, whereas for people who are insured the median amount spent drops to half this figure (FRw 274)[29].

Health-related costs vary very widely between individuals, even when considering only those who do pay something. Costs can mount rapidly. While some people spend just a few Rwandan francs on health care in a two-week period, others spend tens of thousands: mean expenditure, at FRw 1,319, is some FRw 900 greater than the median. In fact, the 1% of individuals with the highest costs had a mean expenditure of nearly FRw 38,000 each.

Table 7.11 Median health-related expenditure in previous two weeks, by consumption quintile (FRw)

	EICV1			EICV2				
Quintile	**Male**	**Female**	**All**	**Male**	**Female**	**Insured**	**Not insured**	**All**
Lowest	399	266	348	289	281	186	369	281
Second	410	405	405	342	300	183	422	305
Third	521	449	487	373	380	204	475	380
Fourth	532	644	580	382	408	204	685	400
Highest	1,005	1,058	1,028	830	652	473	1,020	745
All	**557**	**547**	**557**	**422**	**408**	**274**	**559**	**419**

Source: EICV1 and EICV2 data. Notes: (1) Data refer to people who have incurred any health-related expenditure during the given time period. (2) All values are deflated to January 2006 prices using the consumer price index (CPI). (3) Figures include the cost of consultation, medical tests, hospitalisation, medicine and transport to medical appointments. They do not include payment of insurance premiums. (4) EICV1 does not include information on whether or not households have insurance.

7.2.3 Satisfaction with health facilities

Satisfaction with health facilities is quite high: 77% of users are satisfied with their nearest health care centre, and 74% with their district hospital. About one-third of users of both types of facility had observed an improvement in the previous 12 months.

Table 7.12 User satisfaction with services, by stratum (%)

Service	**Users satisfied with service (%)**				**Users observing improvement in service in last 12 months (%)**			
	City of Kigali	**Other urban**	**Rural**	**All**	**City of Kigali**	**Other urban**	**Rural**	**All**
Health care centre	69.0	75.3	77.9	77.1	24.0	31.9	37.9	36.5
District hospital	57.6	72.0	75.7	73.9	20.4	28.5	32.8	31.4

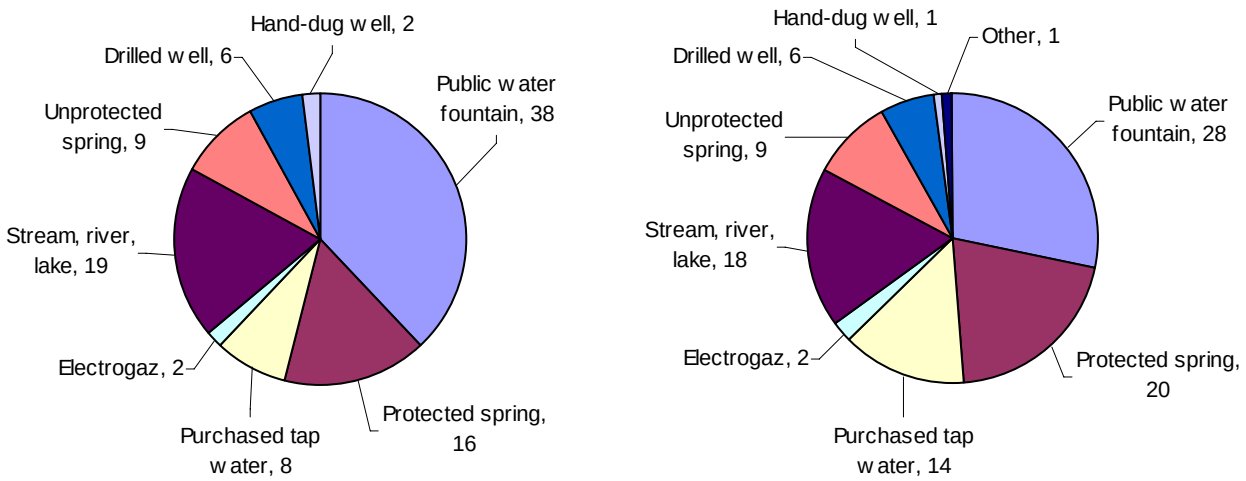
Source: EICV2. Note: (1) Figures are calculated for people that use each facility. (2) Data refers to the quality of the nearest available service of each type.

[29] This excludes the cost of the insurance premium itself. Note also that the figures for EICV1 do not take into account whether or not the person is insured.

7.3 Access to water

The poverty update report indicated that provision of safe water to households had changed little between the surveys, with 64% of households using safe water as their main source of household water (Figure 7.1 and Table G.7). It should be recalled that the population has increased between the two surveys, and while the proportions of households using safe water as their main source has changed very little, some 900,000 more people are using safe water (an increase from 5.2 million to 6.1 million people).

Figure 7.1 Main source of household water (%)



Source: EICV1 and EICV2 data. Note: 'Safe' sources are a public water fountain or standpipe, a protected spring, purchased tap water or water supplied by a public utility (Electrogaz). The remainder are 'unsafe' (including surface water such as streams or lakes, wells, and unprotected springs.)

Households in the wealthiest consumption quintile are much more likely to use mainly safe drinking water than households in all other quintiles (Table G.8).

This issue is discussed in more detail for rural areas in section 8.7 below.

8. Extending infrastructure in rural areas

8.1 Rainfall

Although not part of the information collected by the EICV surveys, rainfall data was available from MINAGRI through FEWSNET at the district level and merged with the community level information gathered by the EICV survey.

Communities were assigned into one of four categories depending upon the amount of average annual rainfall that had been measured in each district. The following table defines the four categories and the average rainfall associated with each category:

Table 8.1 Mean rainfall and poverty incidence for rainfall categories

	Rainfall Category	Rainfall in cm	95% Conf. Interval		Poverty incidence	95% Conf. Interval	
			Low	High	%	Low	High
EICV2	Low rain	17.1	16.9	17.3	64	59	69
	Average	20.8	20.6	21.0	64	60	68
	Above average	24.2	23.9	24.4	69	64	74
	High rainfall	31.8	31.3	32.3	68	64	72
EICV1	Low rain	20.6	20.4	20.9	51	47	56
	Average	24.3	24.3	24.4	61	56	65
	Above average	25.5	25.4	25.6	66	62	71
	High rainfall	29.8	29.5	30.1	71	68	74

Source: FEWSNET/MINAGRI rainfall data. This is rainfall data collected at the district level with three observations per month for the years 2000–2007.

For the most part there is not a strong association between poverty and the rainfall in the district. If anything in EICV1, poverty tends to be lower in districts which had less rainfall. This may seem counterintuitive from the point of view of agricultural production, but too much rain, especially if falling in a concentrated time period, may also result in flooding or damage to roads. Data on road access, discussed below, shows that there is some correlation between road accessibility and rainfall categories, with road access being more likely to be interrupted in districts with higher rainfall (Table 8.8). Examining the relationship between poverty and rainfall is also further complicated by the fact that rainfall levels, and potentially requirements, vary across the different ecological zones of the country. From the point of view of agriculture, the key question is whether rainfall comes in the right quantity at the correct time, and this cannot be easily assessed based on a simple tabulation.

8.2 Rural access to services

Both EICV1 and EICV2 administered a community level questionnaire. These questions were asked by the team supervisor to a distinguished person in the community. The questionnaire sought community based information from rural areas only. The results presented in this section are only applicable to a rural sub-sample and so some of the results may vary from national level

results[30]. The results presented are weighted to represent the population with access to these services. It is important to note that over the course of the last five years, there was a large increase in the estimated rural population of Rwanda, of the order of around 800,000 persons. The extension of rural services to the rural population, who are usually the most needy, must take account of this growing population and provide for more before accessibility improves.

Table 8.2 below reports on the persons being served with facilities available in their community, and also gives information on the increases in the availability of facilities in the last five years.

Table 8.2 Persons being served with facilities in their communities, EICV2 survey

Facility	Total persons currently being served in rural communities (millions)	% of rural population	Additional persons being served in their communities by facilities built in the last 5 years (millions)
Schools	3.03	38.4	1.59
Health Centres	0.57	7.2	0.21
Bridges	2.01	25.4	0.77
Roads (all surfaces)	6.77	85.8	1.71
Markets	1.20	15.2	0.17
Water networks	3.09	39.1	1.12
Imudugudus	3.20	40.6	1.32

Source: EICV2 data. This data is based on a rural subset of households being served by the facility in their community and represents the number of persons being served by the facility in their community.

Increased availability of services to rural population is clearly beneficial in its own right, but it is also expected to have a beneficial impact on poverty. Increased access to education and health facilities enables improved human capital, which should have beneficial impacts on household incomes in the longer term. Increased access to roads and markets provides increased opportunities to access inputs and to sell outputs, each of which should be potentially beneficial for households that are able to produce a surplus.

There is some evidence in the EICV data that poverty is higher in localities that are less well served by facilities such as the above, though the relationship is not very strong. However, it is important to recognise that the full poverty reducing impacts of improved infrastructure and facilities will only be realised over the medium to long term.

8.3 Health Centres

Heath care availability and access at the community level for the rural population is contingent on various factors. The availability of a formal health care centre in the community and access to that centre is only one of the factors. Unlike roads or clean water facilities, which would be expected to extend to and include all communities, most communities will share a health centre with another and therefore the estimate of the population served in Table 8.2 is an underestimate of the total numbers served. They are points of service shared by a larger population and proximity to these centres would likely be the most important factor to evaluate. As can be seen from Table 8.3, the

[30] A household level file was attributed the specific characteristics of the community in which they were located.

average distance to the nearest health centre for communities without a health centre facility has decreased from approximately 6 km. to 5 km. The incidence of poverty also appears to be lower in those communities with health centres available. This though does not imply any causal link, and the association may be in part due to the existence of other services as can be seen from Table 8.4, or to the location of health centres in better off communities.

Table 8.3 Poverty incidence and mean distance to health centre by communities with a facility available.

	EICV1		EICV2	
Health Center in cell	**Poverty incidence**	**Distance to Health Center in km**	**Poverty incidence**	**Distance to Health Center in km**
No	0.66	5.9	0.63	5.1
Yes	0.62	0.0	0.56	0.0
Total	**0.66**	**5.5**	**0.62**	**4.7**

Source: EICV1 and EICV2 data. Note: These data have not been checked for statistical significance.

The EICV2 collected more information at the community level on the availability of other health care practitioners and/or facilities, such as midwives, traditional healers and pharmacies. Table 8.4 demonstrates that rural communities are likely to depend on other providers such as traditional healers and midwives to provide some level of health care. The existence of pharmacies in the community appears to be greatest in communities where poverty levels are lower; however the median annual household expenditure is also much higher in these communities.

Lower poverty incidence is associated with the availability of more services in the community. 35% of the rural population report no community level access whatsoever to any practitioner. In general with an increase in number of services (or practitioners) available, poverty incidence appears to decrease but the median household expenditure on health care also increases.

Table 8.4 Rural population being served by health care facility in their community (median expenditure and poverty incidence)

Health Service	EICV2			
	% population	**Persons (millions)**	**Median Annual Household Health Expenditure (RFr)**	**Poverty incidence**
Health care centers	7.9	0.6	7800	0.56
Traditional Healers	40.5	3.2	7800	0.62
Midwives	58.6	4.6	7800	0.62
Pharmacies	11.9	0.9	10400	0.47
No service	27.2	2.2	6,500	0.63
Only 1 service	35.2	2.8	5,980	0.67
2 services	30.0	2.4	5,980	0.60
3 services	6.4	0.5	10,400	0.48
4 services	1.2	0.1	15,600	0.42

Source: EICV2 data. Note: The EICV1 did not collect information on the existence of other health care practitioners and facilities. A comparison with the EICV1 is not presented.

8.4 Schools

Questions on accessibility to schools focused primarily on the availability of primary schools in rural communities. Thirty-seven percent of persons in rural communities are now being served by a primary school in their community, a slight increase from 31.5% during EICV1 (representing an increase of approximately 100,000 more primary school age children in school). Rural communities within the newly demarcated Eastern Province report the least number of primary schools, with only 32.6% reporting that they had a primary school.

There is an association between distance to school and number of days absent (Table 8.5), with children that have to travel further to school reporting greater absence. Poverty levels tend to be higher in communities located further away from primary schools, but the association is not strong.

Table 8.5 Relationship between distance to school, absenteeism and poverty, rural areas, EICV2

Distance to school	Days Absent	Minutes to school (one way)	Poverty incidence
0 km	2.32	19.3	0.68
1 km	2.65	21.5	0.68
2 km	2.88	26.7	0.67
3 km	2.85	25.7	0.69
4km	3.08	30.6	0.71
5km and greater	1.68	32.1	0.75
Average	2.56	23.1	0.68

Source: computed from EICV2 survey.

8.5 Markets

The survey sought responses whether there was a market in the community, and if so whether it operated on a daily or weekly basis. The proportion of own consumption or subsistence type farming patterns were correlated to the existence of a market in the community. People with a daily market in their community were more likely to buy a larger proportion of their food than those without a market (Table 8.6). However, in those communities where there was a weekly or no market at all, the pattern was generally indistinguishable.

Table 8.6 Share of food consumption supplied from own production, by whether or not community has a regular market, EICV2, rural areas

Market	Own consumption as a proportion of total food consumed	95% Conf. Interval	
		Low	High
No daily market	0.32	0.31	0.33
Daily market	0.24	0.19	0.29

Source: computed from EICV2 survey.

Table 8.7 Poverty incidence by distance to nearest market, rural areas, EICV2

Distance to Market	Poverty Incidence
0 km	0.57
1 km	0.60
2 km	0.63
3 km	0.62
4 km and more	0.65
Total	**0.62**

Source: computed from EICV2 survey. Note: the distance is recorded as zero when there is a market in the community.

The incidence of poverty also tends to increase with distance to nearest market, though not monotonically and without a steep gradient (Table 8.7). This is perhaps an indication that remoteness from markets is a factor which has some influence on poverty levels.

8.6 Roads

Most communities report some kind of road access. There has been little change between the surveys. EICV1 reported 7.3% of rural communities without any access to a road and 6.9% during the current survey. However, though no increase in the road network is reported, a large increase in all-year accessibility has been recorded, with year round access increasing from 63.6 % of roads accessible to 71.9%. Approximately 1.1 million people are being better served by the current road system.

For those communities reporting accessibility problems the average length of time where problems have been experienced is three months. This is slightly down from the previous survey which reported 3.5 months of non access to the roads. As rainfall data was available the number of months the road was not accessible was examined in terms of the rainfall category. As demonstrated in Table 8.8, communities with higher amounts of rainfall reported that the roads were not accessible for longer periods of time. Similarly, those communities with high rainfall were less likely to have public transport.

Table 8.8 Relationship between rainfall, road accessibility and availability of public transport, rural areas

Survey	Rainfall	Months not accessible	Bus arrives in the community (percentage)
EICV 1	1 Low Rainfall	1.00	
	2 Average Rainfall	1.24	
	3 High Rainfall	1.34	
	4 Highest Rainfall	1.50	
	Average	1.26	
EICV 2	1 Low Rainfall	0.63	32.0
	2 Average Rainfall	0.97	12.0
	3 High Rainfall	0.60	10.0
	4 Highest Rainfall	1.32	18.0
	Average	0.87	21.0

Source: computed from EICV surveys. Note: the question on the availability of public transport was not asked in EICV1.

8.7 Utilities

New water networks are now available to an estimated additional 1.1 million persons in rural Rwandan communities since the last survey[31]. More people are now using safe water as their main household source, although the proportion of households doing so has not changed[32] (Table G.7 and Table G.8). Despite the increase in availability and general proximity to the new and safer resource, a large number of persons still prefer to use non-networked sources (and travel twice as far to fetch their water; Table 8.9). There is also a small reduction in the proportion of the poorest households using safe water sources, suggesting that the increase in the cost of water may be a factor preventing take up of the new facilities. In rural communities one in four persons still obtain most of their water from an unsafe source in communities which have community networks available. This has remained the same between the surveys. Note that these figures do not necessarily refer to drinking water, in that the survey question asked about "water for household use". Even those obtaining most of their household water from a non-networked source may still pay for some of their drinking water.

Table 8.9 Persons using safe water by communities with access to safe water (%), distance and per person utility costs

Household's stated main water source	EICV 1			EICV 2		
	Communities with safe water available			Communities with safe water available		
	% persons	Avg. Dist in km	Annual per person utility expenditure	% persons	Avg. Dist in km	Annual per person utility expenditure
Unsafe water	24.6	1.2	39	24.8	1.4	216
Safe water	75.4	0.5	110	75.2	0.5	360
Total	**100.0**	**0.7**	**88**	**100.0**	**0.8**	**313**

Source: computed from EICV surveys.

The likely reason for selecting further and unsafe drinking water is its relative lesser cost. It seems many households will travel over twice the distance to fetch water, spending less on water as a result.

A similar problem appears to be the case in communities where electric power is available. There is little difference in the availability of electric power between the surveys with 10.2% of persons in rural communities having electric power available in EICV1 and 9.8% in the current survey. In those communities with electricity available, access and affordability of the service is likely to be an obstacle to electrification. Of those communities reporting availability of electricity, the primary lighting fuel continues to be kerosene. As demonstrated in Table 8.10 below, even in communities with electricity available, 92.6% still burn kerosene lamps. Rural electrification continues to be relatively low whether through a lack of extension of the network in the community or the high utility costs, with only 1.6% of the population in rural communities actually and regularly enjoying the benefit of electricity as the primary source of lighting.

[31] The estimate of population served by new water networks is obtained from the community questionnaire; while the estimates relating to households and persons using water facilities is derived from the household questionnaire.

[32] Use of safe water has kept pace with the population growth, giving an estimate of 0.9 million more people using safe water, while the proportion of households doing so remains the same.

Table 8.10 Lighting choice and average annual expenditure, rural areas, EICV2

Lighting choice	Communities with no electricity	Communities with Electricity	Annual Utility expenditure in Rwandan Francs (EICV2)
Electricity-Main Supply	0.0	1.6	18,692
Kerosene-Oil Lamps	92.6	92.6	2,003
Firewood	5.5	2.6	16
Other	2.0	3.1	1,208
Total	**100.0**	**100.0**	**1,910**

Source: computed from EICV2 survey.

Despite accessibility problems, those people in communities with electricity available appear to enjoy lower poverty rates than those without (Table 8.11). However, it is not possible to draw any conclusions about causality based on this. It may be that less poor communities are more likely to be provided with electricity (e.g. because they are nearer to urban centres), or that electricity does help communities become less poor, or both, but it is not possible to draw any firm conclusions from the available data. It should be noted that communities with electricity have shown a larger poverty reduction between the two surveys (12%), than those without (2%), though over this period there has only be a very modest increase (around 40 thousand) in the number of rural people living in communities with electricity. There is not much difference, though, in poverty levels between communities with and without a networked water supply.

Table 8.11 Poverty incidence by availability of networked water and electricity, rural areas (%)

	EICV 1		EICV 2	
	If community has electricity available	If community has networked water supply	If community has electricity available	If community has networked water supply
No	67	66	64	64
Yes	60	66	48	62
Total	**66**	**66**	**62**	**62**

Source: computed from EICV surveys.

8.8 Other services

No single service appears to be strongly correlated with rural poverty (except distance to the market and electrical supply). However, an accessibility index was constructed using factor analysis to combine distance to various key facilities (roads, markets, primary school, health centre, agricultural extension agent, and water source, with each distance being set to zero if it was available in the community). This index was then examined in relation to the rural community's reported consumption poverty. It shows an association between remoteness and higher levels of poverty, but only a weak one. More remote locations do have much lower levels of many other services, including public transport, telephone connections and veterinary services (Table 8.12).

Table 8.12 Link between remoteness and access to other services not taken into account in remoteness index, rural areas

	Quartiles of isolation - distance measure	Bus arrives in the community (%)	Public telephone in the community (%)	Forest Planting (%)	Veterinary services in the community (%)	Incidence of poverty (%)
EICV 1	1 Least remote quartile			44.1	71.3	63.2
	2 Second quartile			46.6	56.7	63.2
	3 Third quartile			39.1	47.4	68.7
	4 Most remote quartile			41.0	30.8	70.1
	Total			41.3	49.9	66.3
EICV 2	1 Least remote quartile	33.3	21.1	64.6	63.6	63.0
	2 Second quartile	27.7	8.9	67.4	60.1	63.2
	3 Third quartile	11.9	4.3	63.7	51.7	66.6
	4 Most remote quartile	10.4	7.4	55.4	45.8	66.1
	Total	21.0	10.5	62.9	55.4	64.7

Source: computed from EICV surveys. The grey shaded cells denote the non-availability of these indicators in the EICV.

8.9 Summary

The relationship between infrastructure provision and poverty is not always clear cut, and even where the two are strongly correlated the nature of any causality is not clear. Over this period there has been substantial progress in some areas of infrastructure provision. In some cases this may lead to substantial short term benefits, thus easier access to schools or health centres may lead to relatively quick benefits in terms of enrolment and consultation. In general, though, the poverty benefits of infrastructure investment are likely to be more long term. This does not make investment in roads, markets, electricity, telephone connections and other infrastructure any less important; on the contrary these are very important priorities for rural Rwanda, especially given the emphasis throughout this report on the need to create better economic opportunities in rural areas for those unable to survive on their own agricultural activities.

Annex A Additional demographic tables and figures (to accompany section 1)

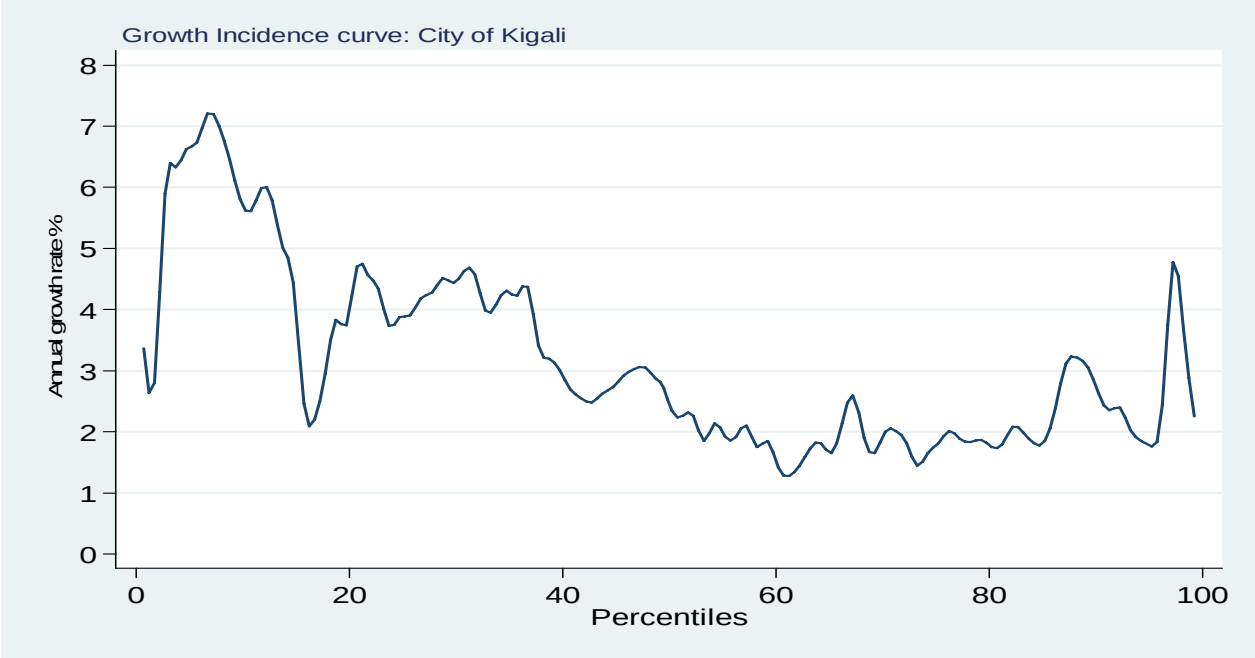
Table A.1 Confidence Intervals for population estimates

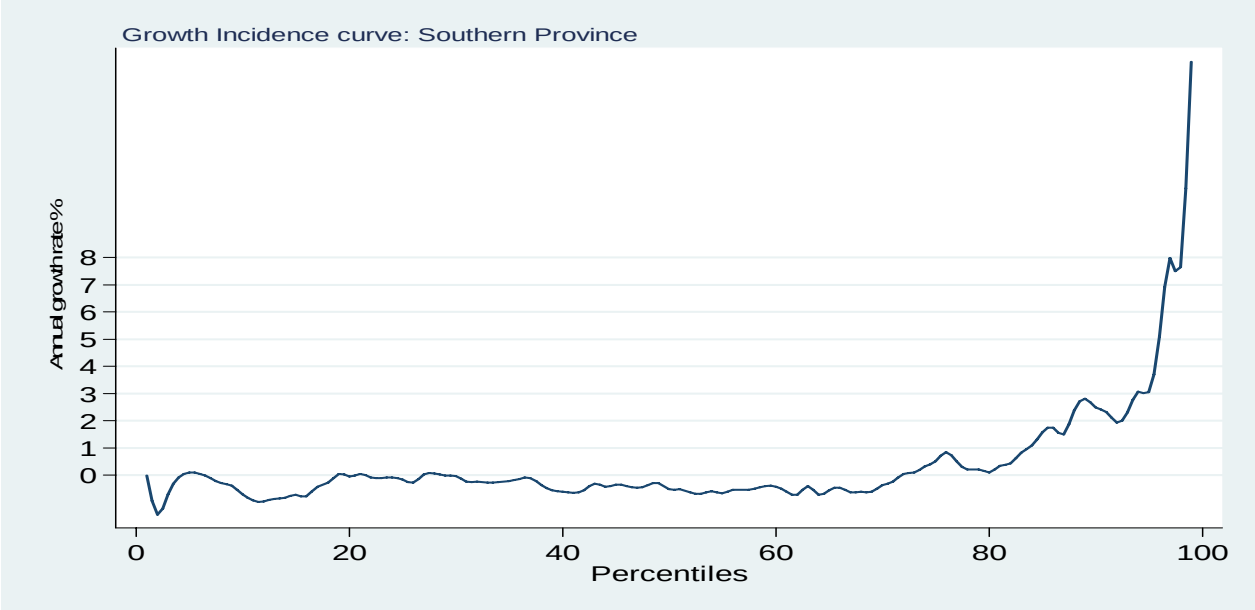
			95% Confidence Interval	
	Estimate	**Standard Error**	**Lower Limit**	**Upper Limit**
EICV1	7,979,930	142,454	7,700,719	8,259,140
EICV2	9,460,129	94,579	9,274,754	9,645,504

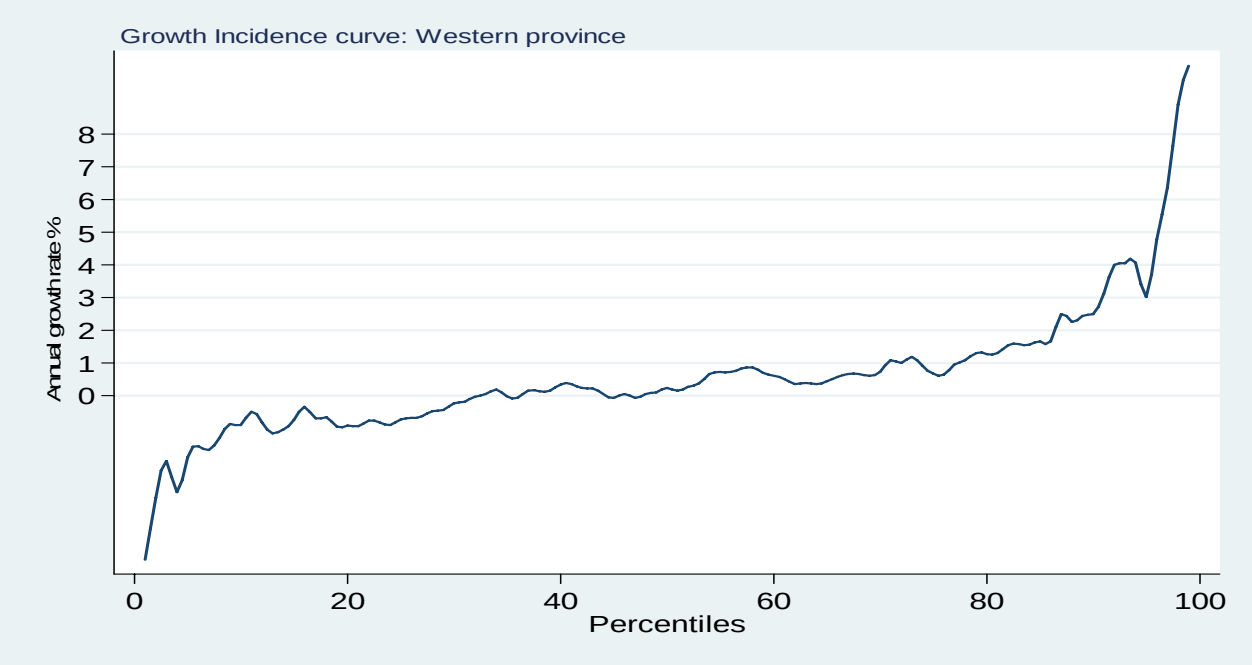
Source: Tables of Standard Errors from CENVAR Analysis of Total Population Estimates for Rwanda from EICV1 and EICV2 Data

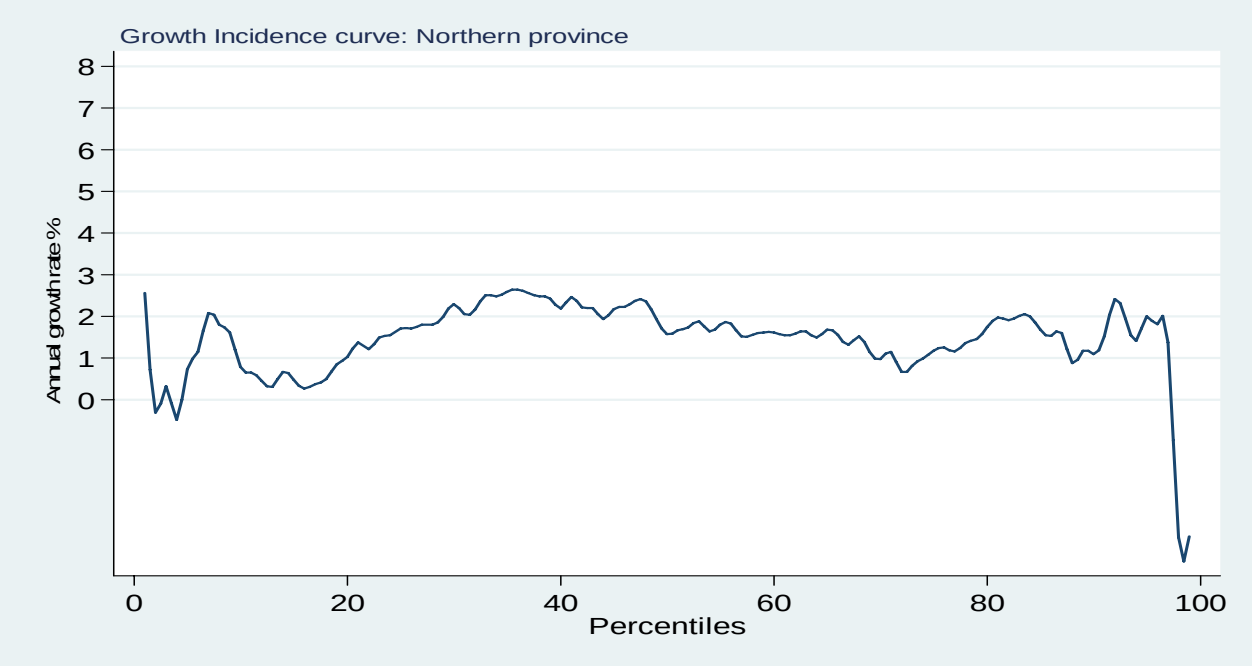
Annex B Additional poverty and inequality tables and figures (to accompany section 2)

Figure B.1 Growth incidence curves for provinces of Rwanda






Growth Incidence curve: Western province
Annual growth rate %
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100
Percentiles


Growth Incidence curve: Northern province
Annual growth rate %
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100
Percentiles

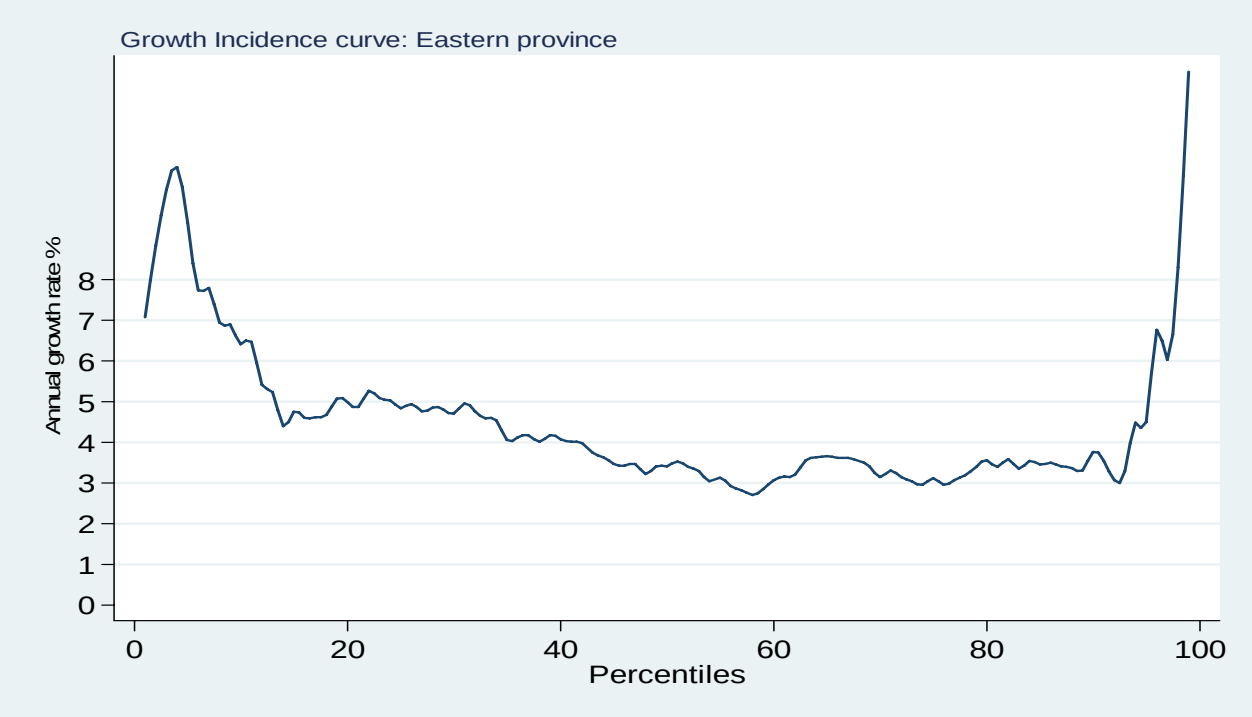


Table B.1 Distribution of livelihood categories, by quintile group

Livelihood category	Survey	Expenditure quintile					Total
		Lowest	2nd	3rd	4th	Highest	
Agriculture	EICV1	70.9	81.3	82.5	78.3	45.1	71.6
	EICV2	60.1	72.4	76.5	69.4	42.1	64.1
Non-agricultural self employment	EICV1	3.4	2.9	4.1	5.9	17.1	6.7
	EICV2	4.9	5.8	6.8	10.6	17.5	9.1
Agricultural wage labour	EICV1	10.9	6.6	4.5	1.4	0.4	4.8
	EICV2	16.6	6.7	2.5	1.9	0.5	5.6
Non-agricultural wage labour	EICV1	3.0	3.6	3.8	8.8	27.3	9.3
	EICV2	5.7	5.9	5.3	9.0	26.0	10.4
Non-labour income	EICV1	6.4	2.5	1.5	1.7	4.2	3.2
	EICV2	5.5	2.6	3.1	3.4	5.0	3.9
Agriculture plus agric labour	EICV1	2.0	1.0	0.6	0.4	0.5	0.9
	EICV2	2.9	1.5	1.1	0.7	0.2	1.3
Others	EICV1	3.4	2.2	3.1	3.4	5.5	3.5
	EICV2	4.2	5.1	4.7	5.0	8.7	5.6
Total	**EICV1**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	EICV2	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: authors' computation based on EICV1/2 surveys.

Annex C Additional tables and figures on land (to accompany section 3)

Table C.1 Distribution of livelihood categories, by land area cultivated

Livelihood category	Survey	Land size category				All
		less than 0.2 ha	between 0.2 and 0.7 ha	between 0.7 and 5 ha	greater than 5 ha	
Agriculture	EICV1	73.4	80.7	81.2	67.0	78.5
	EICV2	56.0	73.2	75.9	64.6	69.7
Non-agricultural self employment	EICV1	4.9	3.6	4.7	21.4	4.6
	EICV2	9.3	6.9	8.1	10.9	8.0
Agricultural labour	EICV1	8.2	4.9	2.5	0.0	5.0
	EICV2	11.9	5.4	2.1	1.9	5.8
Non-agricultural wage labour	EICV1	6.3	4.0	5.2	3.9	5.1
	EICV2	11.4	5.4	4.9	9.3	6.8
Non-labour income	EICV1	2.6	2.8	2.3	0.9	2.6
	EICV2	4.6	2.7	2.5	3.2	3.1
Agriculture plus agricultural labour	EICV1	1.0	1.1	0.9	0.0	1.0
	EICV2	2.1	1.6	0.9	0.0	1.4
Others	EICV1	3.6	2.8	3.2	6.8	3.2
	EICV2	4.7	4.8	5.6	9.9	5.2
Total	**EICV1**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
	EICV2	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

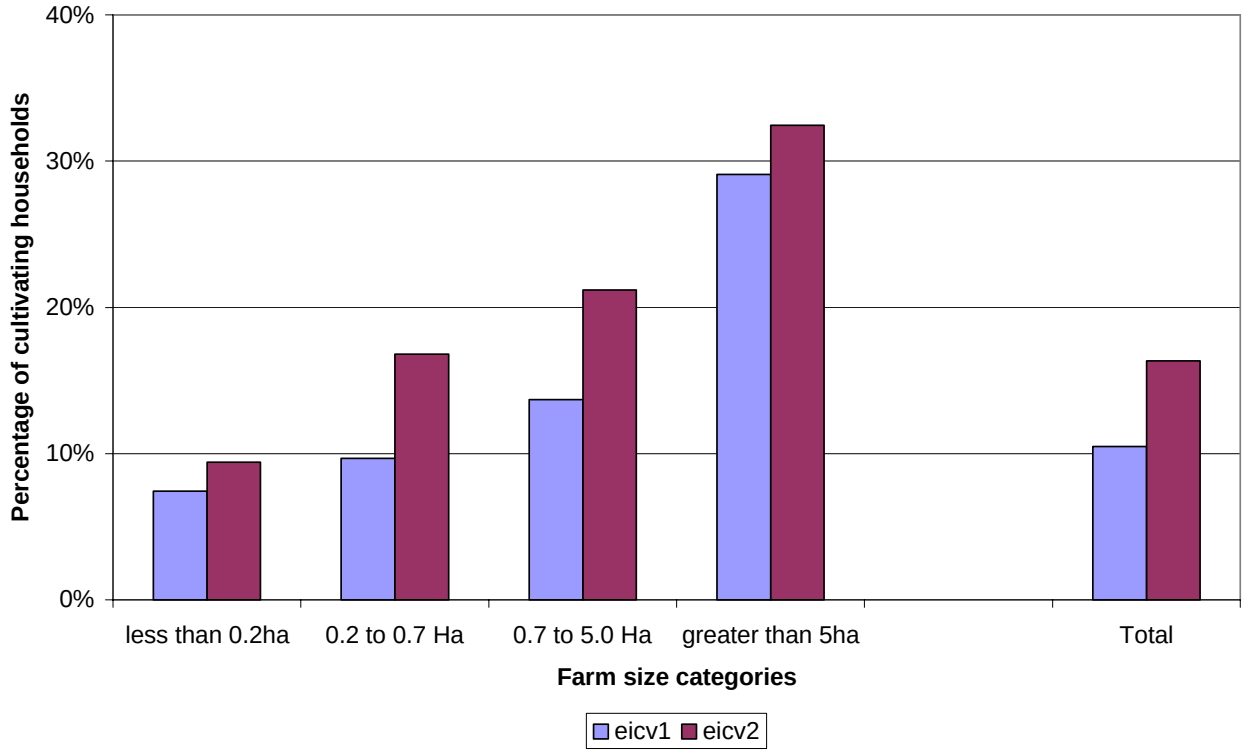
Source: authors' computation based on EICV1/2 surveys.

Table C.2 Percentage of cultivating households that bought, sold or rented/loaned out any land in previous 12 months

Land size category	Bought land		Sold land		Rented or loaned out any land	
	EICV1	EICV2	EICV1	EICV2	EICV1	EICV2
less than 0.2 ha	4.1	7.7	2.5	4.8	14.4	17.1
between 0.2 and 0.7 ha	7.0	12.2	3.4	6.1	16.8	22.3
between 0.7 and 5 ha	9.1	19.3	3.6	7.3	29.1	37.1
greater than 5 ha	8.8	27.0	2.9	11.7	62.0	40.1
Total	**6.9**	**14.0**	**3.2**	**6.3**	**21.2**	**26.7**

Source: authors' computation based on EICV1/2 surveys.

Figure C.1 Percentage of cultivating households leaving some area of land fallow in last two seasons, by farm size



Annex D Additional tables on agriculture (to accompany section 4)

Table D.1 Households producing key crops, by quintile (%)

Commodity	EICV1						EICV2					
	Expenditure quintile						Expenditure quintile					
	Lowest	2nd	3rd	4th	Highest	Total	Lowest	2nd	3rd	4th	Highest	Total
Corn	38.8	46.1	54.1	54.6	40.7	46.8	46.4	56.6	66.7	68.8	52.6	58.2
Sorghum	54.6	58.4	56.3	54.2	39.8	52.7	48.0	55.5	55.2	54.4	40.8	50.8
Manioc	48.3	54.3	58.9	59.8	42.1	52.7	42.9	53.4	56.5	56.7	43.8	50.7
Sweet potato	72.2	81.7	80.5	83.1	56.3	74.8	74.9	80.7	81.1	79.1	54.5	74.1
Irish potato	25.1	33.7	40.7	40.8	30.9	34.2	32.8	44.7	49.7	46.7	36.5	42.1
Beans	83.4	90.1	91.1	90.1	64.3	83.8	84.0	90.8	92.4	89.4	68.1	85.0
Cooking banana	31.6	39.9	46.3	48.2	39.4	41.1	44.8	54.9	60.7	62.2	46.8	53.9
Beer banana	53.4	57.8	59.2	58.2	42.8	54.3	54.0	58.3	60.4	61.3	42.1	55.2
Rengarenga	38.5	36.3	39.7	48.9	32.2	39.1	32.7	36.5	42.1	46.0	29.6	37.4
Sweet banana	18.3	28.6	35.1	34.1	29.7	29.2	22.1	32.1	38.9	41.5	32.7	33.5
Mango	6.9	7.1	8.2	9.0	8.2	7.9	7.0	9.9	11.2	13.6	11.3	10.6
Papaya	11.1	9.9	12.8	12.4	10.3	11.3	10.7	12.7	17.3	18.1	14.3	14.6
Avocado	36.9	37.4	41.2	40.7	30.3	37.3	30.9	38.1	40.7	40.7	31.7	36.4
Pepper	9.8	13.5	14.1	16.7	12.5	13.3	9.1	15.0	19.3	18.6	11.7	14.7
Squash	14.0	18.5	24.3	24.8	22.0	20.7	12.6	17.8	20.2	20.8	15.1	17.3
Eggplant	1.9	2.2	2.7	1.8	2.9	2.3	2.8	2.8	4.3	3.5	1.7	3.0
Coffee	9.0	10.9	12.6	12.7	9.1	10.9	8.0	11.7	12.8	13.9	10.1	11.3

Source: EICV1 and EICV2.

Table D.2 Households producing key crops that also sell them, by quintile (%)

Commodity	EICV1						EICV2					
	Expenditure quintile						Expenditure quintile					
	Lowest	2nd	3rd	4th	Highest	Total	Lowest	2nd	3rd	4th	Highest	Total
Corn	10.1	15.6	14.4	21.6	24.2	17.3	13.7	15.5	21.6	23.1	26.9	20.5
Corghum	33.3	41.7	44.2	44.2	43.0	41.2	46.3	49.2	55.4	54.0	51.6	51.4
Manioc	3.8	11.0	11.9	9.8	12.9	9.9	25.1	33.4	37.6	40.7	42.4	36.1
Sweet potato	2.6	7.0	9.7	12.0	13.3	8.8	18.4	26.3	32.3	35.6	37.6	29.7
Irish potato	14.4	20.5	18.7	19.1	26.6	20.0	17.1	31.0	32.5	35.3	31.2	30.2
Beans	12.0	17.8	24.2	28.2	29.6	22.1	13.9	21.8	30.7	30.6	31.3	25.6
Cooking banana	4.1	5.9	9.2	9.3	11.3	8.2	15.9	22.6	24.8	26.9	32.2	24.7
Beer banana	8.8	8.5	11.0	9.2	12.3	9.8	31.3	34.9	34.1	34.8	31.6	33.5
Rengarenga	0.3	0.1	0.6	0.6	0.9	0.5	2.6	1.2	3.4	3.1	3.4	2.8
Sweet banana	4.6	10.2	9.4	7.8	11.8	9.1	31.0	29.8	31.6	34.0	34.5	32.3
Mango	4.0	5.8	6.3	3.9	3.6	4.7	24.7	15.2	22.6	23.3	19.8	21.1
Papaya	1.1	3.2	3.0	1.1	1.6	2.0	6.4	12.3	6.6	7.5	5.7	7.6
Avocado	8.9	8.9	13.3	8.6	14.5	10.7	54.4	54.3	54.0	51.2	48.2	52.5
Pepper	0.0	1.2	3.3	1.3	1.7	1.6	5.0	7.0	5.5	7.4	6.7	6.4
Squash	0.0	0.3	0.4	1.3	0.4	0.6	2.9	1.8	4.9	6.7	9.6	5.2
Eggplant	0.0	0.0	0.0	0.0	0.4	0.1	6.9	1.3	8.0	1.5	0.0	4.2
Coffee	91.5	93.3	95.6	93.2	98.1	94.3	95.6	97.0	96.7	95.9	100.0	97.0

Source: EICV1 and EICV2.

Table D.3 Total production of key agricultural commodities

Commodity	EICV1		EICV2	
	Median household production (kg)	Households producing (thousands)	Median household production (kg)	Households producing (thousands)
Rice	240	14.1	175	63.6
Corn	45	736.3	50	1104.1
Sorghum	60	829.4	100	932.1
Manioc	180	932.8	200	966.9
Sweet potatoes	375	1307.7	450	1375.6
Potatoes	100	575.8	100	764.7
Beans	60	1346.9	70	1597.2
Sweet bananas	100	482.5	100	594.0
Cooking bananas	120	689.4	120	975.8
Beer bananas	300	908.6	360	1001.9
Mangos	180	121.4	90	191.4
Papayas	30	175.8	40	252.9
Avocados	100	605.5	100	640.3
Tea	400	12.4	700	11.5
Coffee	32	141.7	25	187.7

Source: EICV1 and EICV2.

Table D.4 Households using key crop inputs, by province (%)

Input	Survey	City of Kigali	Southern Province	Western Province	Northern Province	Eastern Province	Total
organic fertiliser	EICV 1	4.9	3.2	2.5	3.1	0.9	2.6
	EICV2	5.3	8.6	7.2	10.0	3.3	7.1
chemical fertiliser	EICV 1	4.0	10.1	6.3	5.3	1.4	6.0
	EICV2	8.1	13.6	15.3	13.6	5.7	11.9
labour	EICV 1	30.4	33.5	19.1	21.8	30.7	26.5
	EICV2	54.2	44.4	42.6	42.9	55.1	46.7
seeds	EICV 1	64.8	54.6	31.5	61.2	56.4	51.1
	EICV2	64.6	70.8	66.8	80.1	70.5	71.2
sacks and packaging	EICV 1	7.7	15.8	6.0	28.8	24.2	17.8
	EICV2	28.4	29.7	26.6	44.4	58.6	38.6
insecticide	EICV 1	13.4	8.9	15.6	11.7	11.0	11.8
	EICV2	24.2	22.5	24.6	30.2	29.4	26.2

Source: EICV1 and EICV2.

Table D.5 Households producing key processed agricultural products, by quintile (%)

		Expenditure quintile					Total
		Lowest	2nd	3rd	4th	Highest	
corn flour	EICV 1	12.6	15.2	22.7	21.5	20.2	18.3
	EICV2	8.3	16.3	23.5	24.3	24.1	19.1
sorghum flour	EICV 1	54.3	52.9	52.2	54.2	50.2	52.9
	EICV2	20.9	33.7	41.3	43.7	42.4	36.2
manioc flour	EICV 1	38.8	40.8	41.1	46.5	44.5	42.2
	EICV2	18.4	32.3	38.7	40.1	39.7	33.6
peanut flour	EICV 1	11.3	14.6	17.1	16.4	13.4	14.6
	EICV2	3.8	9.5	12.3	18.9	20.2	12.6
soya flour	EICV 1	6.3	8.3	11.8	15.0	19.1	11.6
	EICV2	13.1	19.4	22.3	24.8	20.8	20.0
banana juice	EICV 1	13.6	19.6	22.3	24.6	24.7	20.7
	EICV2	8.9	18.9	25.1	28.2	29.0	21.7
banana beer	EICV 1	20.7	30.3	33.9	36.7	36.5	31.2
	EICV2	13.7	21.7	28.6	31.6	30.1	24.9
sorghum beer	EICV 1	27.9	31.9	33.1	36.0	33.5	32.4
	EICV2	15.1	22.3	30.6	34.1	30.9	26.4

Source: EICV1 and EICV2.

Annex E Additional tables on economic activity (to accompany section 5)

Table E.1 Economically inactive population (000s), and economic inactivity rate (%), by age

	EICV1			EICV2		
	Student	**Other**	**Total**	**Student**	**Other**	**Total**
Total number (000s)	1,726	589	2,314	2,359	443	2,802
7 to 10	650	230	880	866	165	1,031
11 to 14	703	112	814	816	47	863
15 to 20	327	86	413	576	49	625
21 to 30	45	36	81	97	41	138
31 to 40	1	25	26	3	20	23
41 to 50	*	23	23	0	24	24
51 to 65	*	27	27	*	33	33
66 and over	*	50	50	*	63	63
Economic inactivity rate (%)						
7 to 10	72.1	25.4	97.5	82.9	15.8	98.7
11 to 14	72.0	11.5	83.5	85.0	4.9	90.0
15 to 20	24.4	6.4	30.8	40.3	3.4	43.7
21 to 30	4.2	3.3	7.5	6.1	2.6	8.7
31 to 40	0.1	3.5	3.6	0.4	2.4	2.7
41 to 50	0.0	3.8	3.8	0.0	3.4	3.4
51 to 65	0.0	6.5	6.5	0.0	6.5	6.5
66 and over	0.0	24.7	24.7	0.0	23.5	23.5

Source: EICV1 and EICV2. Note: * denotes cells with too few observations to make an accurate estimate.

Table E.2 Distribution of migrants by age group (%)

Province[1]	**15 to 20**	**21 to 30**	**31 to 40**	**41 to 50**	**51 and over**	**Total**
City of Kigali	37	47	11	2	3	100
Southern Province	18	49	25	4	3	100
Western Province	26	48	15	8	3	100
Northern Province	26	45	9	13	6	100
Eastern Province	29	37	14	12	9	100
All	**29**	**45**	**15**	**7**	**5**	**100**

Source: EICV2 data. Note: (1) 'Province' refers to destination province of migrants.

Table E.3 Migrants' relationship to head of household (% of all migrants aged 15+)

Province[1]	Spouse	Head	Relative of head	Not a relative	Total
City of Kigali	13	21	25	42	100
Southern Province	21	35	28	16	100
Western Province	16	39	32	13	100
Northern Province	22	40	26	13	100
Eastern Province	24	31	32	12	100
All	**19**	**31**	**28**	**22**	**100**

Source: EICV2 data. Note: (1) 'Province' refers to destination province of migrants.

Table E.4 Main job status by secondary job status (%)

Usual job status	Wage farm	Independent Farmer	Unpaid farm worker	Wage non farm	Independent non farm	Unpaid non farm worker	Total
Secondary job status							
Wage farm	1%	46%	56%	3%	6%	10%	33%
Independent farm	49%	5%	4%	53%	50%	22%	22%
Unpaid farm worker	43%	4%	2%	27%	31%	43%	16%
Independent non-farm	3%	21%	12%	6%	7%	13%	12%
Unpaid non farm worker	4%	23%	26%	10%	6%	12%	17%
All	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: All adults 15 years and above.

Table E.5 Primary source of credit in last 12 months by province (%)

Primary source of capital	City of Kigali	Southern Province	Western Province	Northern Province	Eastern Province	Total
Household savings	67	66	63	64	64	65
Loan from commercial bank	1		1		1	0
Loan from parents	11	10	13	11	8	10
Loan from popular bank	1	3	2	1	1	2
COOPEC	2	2	1	1	0	1
Other loans	4	2	3	3	3	3
Tontine (Community Resources)	1	2	3	4	2	2
Other	13	15	14	17	21	16
All	**100**	**100**	**100**	**100**	**100**	**100**

Source: EICV2 those aged 15 years and above running small businesses in previous 12 months.

Table E.6 Major obstacle in creating the enterprise by province (%)

	City of Kigali	Southern Province	Western Province	Northern Province	Eastern Province	Total
No difficulty	30	30	29	50	41	35
Lack of capital	16	25	23	22	16	21
Access to credit	1	2	1	1	0	1
Administrative regulations	8	3	6	4	4	5
Location	14	6	9	2	6	8
Competent personnel	1	1	1	0	0	1
Access to markets	15	19	15	8	15	15
Other	16	14	17	11	17	15
All	**100**	**100**	**100**	**100**	**100**	**100**

Source: EICV2 those aged 15 years and above running small businesses in previous 12 months.

Table E.7 Occupation group of jobs taken in last 5 years

	Non-farm jobs taken in the last 5 years				
	Self-employment		Employment		
	Main Job	Second	Wage	Unpaid	All
Professionals	3,900	4,700	43,100	1,400	53,100
Senior Officials and Managers	0	0	2,200	0	2,200
Office Clerks	200	0	17,300	500	18,000
Commercial and Sales	151,100	182,800	15,500	19,500	368,900
Service Sector	16,700	8,400	152,800	15,100	193,000
Semi-Skilled Operatives	41,000	41,200	76,200		158,400
Drivers and Machine Operators	4,600	0	8,900	4,900	18,400
Unskilled Labourers	11,200	6,600	21,300	1,800	40,900
Inadequately described					1,400
All	**229,500**	**244,300**	**337,300**	**43,200**	**854,300**

Source: Adults over 15 years reporting taking non-farm jobs in last 5 years.

Table E.8 Poverty status by industrial activity category

Activity Group	Share of workers aged 15+	Share of new jobs since 2000/1	Poverty status		
			Poor	Not poor	Total
Agriculture, fishing, forestry	79	27	61	39	100
Mining & quarrying	0	2	56	44	100
Manufacturing	2	7	45	55	100
Utilities	-	-	-	-	-
Construction	2	7	45	55	100
Trade	7	28	32	68	100
Transport & communications	1	5	25	75	100
Financial services	0	0	6	94	100
Government	3	8	17	83	100
Recreation & tourism	0	1	48	52	100
Other Services	5	13	26	74	100
Inadequately described	1	3	58	42	100
All	**100**	**100**	**55**	**45**	**100**

Source: EICV1 and EICV2 data.

Table E.9 Poverty status by occupation

Occupation	% Jobs				
	2005–06	Change since 2000/1	Poor	Not poor	Total
Professionals	2.0	2.5	12	88	100
Senior Officials and Managers	0.1	0.3	9	91	100
Office Clerks	0.6	0.1	5	95	100
Commercial and Sales	5.8	22.6	30	70	100
Skilled Service Sector	5.7	19.3	25	75	100
Agricultural & Fishery Workers	79.5	31.8	61	39	100
Semi-Skilled Operatives	4.8	17.6	45	55	100
Drivers and Machine Operators	0.5	1.2	6	94	100
Unskilled Labourers	1.0	4.7	49	51	100
All	**100.0**	**100.0**	**55**	**45**	**100**

Source: All adults 15 years and above, EICV2.

Annex F Additional tables on demographic changes (to accompany section 6)

Table F.1 Population density at time of census (persons per square kilometre)

Census province	Density
City of Kigali	1,924
Kigali Ngali	287
Gitarama	406
Butare	386
Gikongoro	245
Cyangugu	320
Kibuye	268
Gisenyi	420
Ruhengeri	540
Byumba	415
Umutara	100
Kibungo	236
National	**321**

Source: General census of population and housing (2002). Note: The census data refer to the former provinces.

Table F.2 Province of origin of people aged 15 and over who have migrated within the last five years (%)

	Destination province					
Origin	**City of Kigali**	**Southern**	**Western**	**Northern**	**Eastern**	**National**
City of Kigali	24.8	24.8	13.6	12.5	6.7	17.0
Kigali Ngali	11.5	3.3	4.5	12.1	19.4	11.2
Gitarama	16.7	15.4	5.5	3.4	3.7	10.1
Butare	9.6	20.2	0.8	2.4	1.6	7.7
Gikongoro	2.7	10.4	2.3	1.6	3.3	4.3
Cyangugu	6.6	2.5	23.0	0.0	0.3	5.7
Kibuye	3.7	2.7	9.7	0.6	1.2	3.3
Gisenyi	3.6	2.7	11.7	12.0	1.6	4.6
Ruhengeri	3.6	1.2	8.8	11.7	16.7	8.3
Byumba	3.2	0.0	0.0	15.5	19.6	7.8
Umutara	2.9	1.0	3.1	13.6	5.8	4.2
Kibungo	4.7	2.4	5.4	4.3	10.5	6.0
Abroad	6.3	13.4	11.7	10.4	9.7	9.8
All migrants	**100**	**100**	**100**	**100**	**100**	**100**

Source: EICV2 data.

Table F.3 Destination of people aged 15 and over who have migrated within the last five years (%)

	Destination province					
Origin	**City of Kigali**	**Southern**	**Western**	**Northern**	**Eastern**	**National**
City of Kigali	41.5	30.2	11.1	5.8	11.4	100
Kigali Ngali	29.4	6.2	5.6	8.6	50.2	100
Gitarama	47.5	31.8	7.6	2.7	10.5	100
Butare	35.5	54.7	1.5	2.4	5.9	100
Gikongoro	18.0	49.7	7.3	3.0	22.0	100
Cyangugu	33.0	9.0	56.3	0.0	1.7	100
Kibuye	31.7	16.5	40.4	1.3	10.1	100
Gisenyi	22.3	12.2	35.2	20.6	9.7	100
Ruhengeri	12.6	3.1	14.8	11.3	58.2	100
Byumba	11.9	0.0	0.0	15.8	72.3	100
Umutara	19.7	5.1	10.3	25.5	39.4	100
Kibungo	22.5	8.4	12.6	5.7	50.8	100
Abroad	18.2	28.3	16.6	8.4	28.4	100
All migrants	**28.5**	**20.8**	**13.9**	**8.0**	**28.8**	**100**

Source: EICV2 data.

Annex G Additional tables on access to services (to accompany section 7)

Table G.1 Numbers of schools and teachers, 2000–01 and 2005

Facility	2000–01	2005	% Change
Primary			
Teachers and headteachers	28,698	29,033	1
Qualified teachers	17,995	25,255	40
No. of primary schools	2,142	2,295	7
No. of classrooms	27,339	29,748	9
No. of classes	39,045	36,175	-7
Secondary			
Teachers and headteachers	5,453	7,610	40
Qualified teachers	2,711	3,940	45
No. of secondary schools	376	553	47
No. of classrooms	n/a	4,797	n/a
No. of classes	1,864	n/a	n/a

Source: MINEDUC (2005) 'Enseignement primaire, année scolaire 2005: recensement statistique' and 'Enseignement secondaire, année scolaire 2005: recensement statistique'.

Table G.2 Gross enrolment rate at primary school (%)

	EICV1			EICV2		
	Male	**Female**	**All**	**Male**	**Female**	**All**
Quintile						
Lowest	96.9	97.4	97.2	128.6	127.4	128.0
Second	108.5	104.4	106.5	137.2	146.4	141.7
Third	112.7	113.5	113.1	149.0	142.3	145.6
Fourth	115.4	116.5	116.0	145.9	141.3	143.6
Highest	133.3	125.6	129.4	145.1	146.7	146.0
Stratum						
City of Kigali	107.4	118.3	112.8	129.3	131.7	130.5
Other urban	117.8	112.6	115.2	149.4	149.7	149.6
Rural	111.2	108.7	109.9	140.2	139.6	139.9
National	**111.4**	**109.6**	**110.5**	**140.4**	**140.0**	**140.2**

Source: EICV1 and EICV2 data. Notes: (1) Gross enrolment rate shows students of any age who are reported to be attending primary school, as a proportion of all children aged 7–12. (2) Figures for EICV1 have been recalculated using the denominator of all children aged 7–12, to make them comparable with EICV2. They therefore differ from those in the EICV1 report, for which children aged 13 were also included in the denominator. EICV1 does not include information on children under the age of seven who are enrolled in school.

Table G.3 Reasons for curtailment of studies among primary-age children (%)

Main reason	Frequency
Cost	29.1
Lack of interest	24.1
Health	22.1
Family support	7.4
Other	17.3
All	**100**

Source: EICV2 data. Note: Table refers to primary-age children who were previously enrolled at school but who had not attended for at least a year and who were no longer considered to be in education.

Table G.4 Gross enrolment rate at *tronc commun* level, by quintile (%)

Quintile	EICV1			EICV2		
	Male	Female	All	Male	Female	All
Lowest	2.9	1.6	2.2	8.2	6.2	7.2
Second	8.9	4.8	6.7	19.6	15.8	17.7
Third	6.7	9.7	8.4	20.5	25.7	23.0
Fourth	17.2	25.7	21.3	38.3	39.1	38.7
Highest	31.3	40.0	35.8	56.2	52.9	54.5
National	**12.8**	**14.5**	**13.7**	**26.7**	**26.3**	**26.5**

Source: EICV1 and EICV2 data. Notes: (1) Gross enrolment rate shows students of any age who are reported to be attending the *tronc commun* level (i.e. the first three years of secondary school), as a proportion of all children aged 13–15. (2) Figures do not include students on vocational 'post-primary' courses.

Table G.5 Gross enrolment rate at secondary school, by quintile (%)

Quintile	EICV1			EICV2		
	Male	Female	All	Male	Female	All
Lowest	1.7	1.4	1.5	7.1	3.6	5.3
Second	7.0	4.5	5.6	13.4	10.0	11.7
Third	4.9	6.5	5.8	18.4	17.4	17.9
Fourth	16.0	21.4	18.7	31.7	24.3	28.1
Highest	30.1	32.2	31.2	43.6	46.5	45.1
National	**11.5**	**12.2**	**11.9**	**22.2**	**19.6**	**20.9**

Source: EICV1 and EICV2 data. Notes: (1) Gross enrolment rate shows students of any age who are reported to be attending secondary school, as a proportion of all children aged 13–18. (2) Figures do not include students on vocational 'post-primary' courses.

Table G.6 Percentage of population reporting illness in the last two weeks, by gender and stratum (%)

Strata	EICV1			EICV2		
	Male	Female	All	Male	Female	All
City of Kigali	14.6	20.2	17.6	16.0	18.6	17.3
Other urban	22.4	28.0	25.4	16.1	21.6	19.0
Rural	23.5	26.9	25.4	18.7	21.0	19.9
National	**22.7**	**26.5**	**24.7**	**18.3**	**20.9**	**19.6**

Source: EICV1 and EICV2 data. Note: (1) Data are based on a subjective assessment of what it means to be ill. (2) The strata have been reclassified since the EICV1 survey. This table uses the new strata for both sets of data.

Table G.7 Main source of drinking water (% of households)

Main source of drinking water	EICV1	EICV2
Safe	**64**	**64**
Public water fountain	38	28
Protected spring	16	20
Purchase tap water	8	14
Public utility (Electrogaz)	2	2
Not safe	**36**	**36**
Stream, river, lake (surface water)	19	18
Unprotected spring	9	9
Drilled well	6	6
Ordinary well (hand dug)	2	1
Other	0	1
Total	**100**	**100**

Source: EICV1 & EICV2: All households.

Table G.8 Households whose main source of drinking water is a safe source, by quintile (%)

Quintile	EICV1	EICV2
Lowest	62	59
Second	63	62
Third	62	61
Fourth	60	63
Highest	73	74
All	**64**	**64**

Source: EICV1 and EICV2.