Republic of Rwanda

NATIONAL INSTITUTE OF STATISTICS OF RWANDA

Labour Force Survey Annual Report 2020

March 2021

Republic of Rwanda

NATIONAL INSTITUTE OF STATISTICS OF RWANDA

Labour Force Survey

Annual Report 2020

March 2021

Labour Force survey annual report 2020 is produced by the National Institute of Statistics of Rwanda (NISR).

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Labour Force Survey annual report 2020

Foreword

Labour statistics play an essential role in the efforts of the country to achieve decent work for all. These statistics are needed for the development of policies towards this goal and for assessing progress towards decent work.

The government of Rwanda needs updated information for monitoring progress on programs and policies as stipulated in the first National Strategy for Transformation (NST1) 2017-24, Sustainable Development Goals (SDGs) as well as vision 2050. To monitor progress towards these goals and targets, relevant, reliable, coherent, timely and accessible labour statistics have to be produced.

The National Institute of Statistics of Rwanda introduced the labour force survey (LFS) program to provide key stakeholders, Ministry of Public Service and Labour, Ministry of Finance and Economic Planning, Ministry of Education, International Labour Organization and other users, with needed labour statistics.

The ultimate goal of the labour force survey is to collect data on employment and labour underutilization characteristics of the population on a continuous basis, providing quarterly and annual estimates of the main labour force indicators. The Rwanda Labour Force survey programme begun since 2016 with an annual sample spread into two rounds to provide bi-annual estimates of the main indicators at the National level. Since February 2019, the annual sample was spread into four rounds to provide estimates of the main labour market aggregates on quarterly basis at the National level. This specific report combines four quarters of the years 2020 to provide annual estimates of different indicators, and compares 2020 findings with annual estimates from LFS previously conducted in the years 2017, 2018 and 2019.

NISR congratulates all those who contributed in one way or the other in this exercise. In particular, NISR expresses its sincere gratitude to all survey coordinators, supervisors, team leaders, interviewers and drivers for their commitment in all stages of this survey. NISR is also grateful to all respondents who generously gave their valuable time to provide the information that forms the basis of this report.

The National Institute of Statistics of Rwanda invites policy makers, program managers, researchers and all other users to play an important role in using the valuable data showcased in the Labour Force Survey annual report to contribute to Rwandans' Economic development.

Yusuf MURANGWA
Director General of NISR

Executive summary

The Rwanda Labour Force Survey (LFS) started in 2016 with an annual sample spread into two rounds to provide bi-annual estimates of main labour market indicators at National level. From February 2019, the sample was spread into four rounds to provide estimates of labour market indicators at national level on quarterly basis.

The data collection on the size and characteristics of the labour force, employment, unemployment and other labour market characteristics is carried out through four quarters, specifically in February, May, August and November of each year.

The survey was also designed to measure different forms of work, in particular, own-use production work and other components of labour underutilization including time-related underemployment and potential labour force in line with the new international standards, adopted by the 19th International Conference of Labour Statisticians (ICLS) in 2013.

The annual report is obtained by pulling together different rounds of the labour force survey conducted within a specific year. In addition to the annual results of the year 2020, the current report bring together the annual results of the previous years (2017, 2018 and 2019) to analyze the annual changes of different labour market indicators.

The 2020 annual labour force survey was different compared to other rounds of annual labour force survey. Due to the compliance with preventive measures against the spread of Covid-19, some rounds of LFS were carried out using telephone interview as data collection method. This method was introduced in May 2020 and used again in November 2020. In May 2020 an abridged questionnaire was used to measure main labour force indicators, and due to that reason only few indicators compared to other rounds were covered in May 2020. Thus, the 2020 annual report is limited to covered indicators in May 2020.

The survey covered all persons living in private households, excluding the institutional population permanently residing in places such as hostels, health resorts, correctional establishments etc., as well as persons living at their work-sites and in seasonal dwellings.

The resulting estimates of the main labour force indicators at the national level from the combined datasets have standard errors of about 0.5 percent.

The survey results are analyzed in this report under five headings. The main highlights are described below. Key summary indicators are presented at the end of this section.

Labour force, employment and unemployment

According to the 2020 annual results, the working age population (16 years and above) was 7,472,601 of which 4,212,972 persons (56.4 percent) were in the labour force, while 3,259,630 were outside the labour force. For those in the labour force 3,460,860 were employed, while 752,112 were unemployed. Among those outside the labour force, 1,801,596 were engaged wholly or mostly in subsistence foodstuff production, not classified as employment according to the 2013 international standards on statistics of work, employment and labour underutilization.

The 2020 employment to population ratio was 46.3 percent, 1 percentage point higher than the one of 2019 and the highest since 2017. It was higher among males (55.2 percent) as compared to females (38.5 percent), higher among adults (49.5 percent) than among youth (42.6 percent) and higher in urban areas (54.9 percent) as compared to rural areas (44.0 percent).

The annual unemployment rate stood at 17.9 percent, indicating that roughly for six persons in the labour force there was one person unemployed. The unemployment rate was higher among females (20.3 percent) than among males (15.9 percent) and higher among young people (22.4) than among adults (14.1 percent). It was slightly higher in the urban compared to rural areas of Rwanda (18.1 and 17.7 percent respectively). The registered unemployment rate in 2020 was the highest since 2017 and it was 2.7 percentage points higher than the one found one year earlier (15.2 percent).

Branches of economic activity

The distribution of employment under the three broad branches of the economic activity in 2020 was as follows: the share of industry was 20.4 percent, 40.5 percent for services and 39.1 percent for agriculture. Under the new international standards, employment in agriculture sector includes only those who produce agriculture goods intended mainly for sale or barter and those who work for pay in agriculture. Hence 39.1 percent employment in agriculture represents the new definition. Compared to 2019, the share of employment in services sector decreased by 4.8 percentage points while there has been an increase in agriculture (3 percentage points) and industry sectors (1.8 percentage points). The annual employment increased by 16 percent since 2017 till 2020. During this period, Accommodation and food service activity sector was the fastest in growing in terms of number of workers with an increase of 111 percent, followed by administrative and support

activities sector with an increase of 85 percent, other services sector that increased by 80 percent, construction sector by 60 percent and financial and insurance activities that increased by 59 percent.

Working time

The average number of weekly hours actually worked at the main job remained the same in 2020 as compared to previous year. The total volume of employment in terms of actually worked hours at all jobs in the reference week increased by 5 million from 107 millions of hours in 2019 to 112 millions of hours in 2020. In comparison with 2017, the number of weekly actuals worked hours increased by around 15 million hours in 2020.

Rwanda Labour force survey 2020: Summary labour force indicators

<table>
<tr><td colspan="6">Working age population 16 years old and over 7,472,601 persons</td></tr>
<tr><td colspan="2">Outside the labour force (Not employed nor unemployed)
3,259,630 persons</td><td colspan="4">Labour force (The sum of employed and unemployed)
4,212,972 persons

Labour force participation rate 56.4 %</td></tr>
<tr><td rowspan="2">Subsistence agriculture

55.3 %</td><td rowspan="2">Other outside Labour Force

44.7 %</td><td colspan="3">Employed
(All who worked for pay or profit)
3,460,860 persons
Employment to population ratio: 46.3 %</td><td colspan="2">Unemployed
(All not employed but seeking and available to work for pay or profit)
752,112 persons
Unemployment rate: 17.8 %</td></tr>
<tr><td>Agriculture excluding subsistence foodstuff production

39.1 %</td><td>Industry

20.4 %</td><td>Services

40.5 %</td><td>Unemployed but engaged in subsistence agriculture

53.1 %</td><td>Other unemployed

46.9 %</td></tr>
</table>

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Surveys (LFS), 2020

Trend of Labour force survey Main indicators (Compare 3 years)

Indicators	2017	2018	2019	2020
Labour force participation rate (%)	53.4	54.2	53.4	56.4
Foodstuff production participation rate (outside LF) (%)	25.5	24.4	23.4	24.1
Proportion of labour force who completed at least secondary school education (%)	16.6	16.8	17.4	17.8
Employment to population ratio (%)	44.2	46.0	45.3	46.3
Percentage of employed population in market-oriented agriculture (%)	41.9	39.5	37.4	40.5
Percentage of employed population in industry (%)	16.6	18.8	18.7	20.4
Percentage of employed population in services	41.5	41.7	43.9	39.1
Number of off-farm main jobs (agriculture excluded))	1,692,423	1,902,117	2,023,095	-
Informal employment rate (%)	90.80	89.8	89.5	-
Proportion of informal employment in non-agriculture employment (%)	84.6	83.5	83.5	-
Median weekly hours actually worked	30	30	33	33
Median weekly hours usually worked	36	36	39.0	36
Supplied labour in hours during the reference week (in millions of hours)	97	107	106	111
Unemployment rate (%)	17.3	15.1	15.2	17.9
Unemployment rate among university graduates (%)	16.8	15.7	14.6	15.7
Unemployment rate among secondary school graduates (%)	26.5	26.5	23.9	24.9
Unemployment rate among females (%)	19.2	17.1	17.0	20.3
Unemployment rate among males (%)	15.6	13.5	13.8	15.9
Unemployment rate among TVET graduates (%)	18.7	17.4	15.4	-
Unemployment rate among general education graduates (%)	18.8	17.2	16.9	-
Unemployment rate among persons with disability (%)	17.4	14.1	14.3	-
Youth unemployment rate (%)	21.3	18.7	19.4	22.4
Time related underemployment rate (%)	29.9	32.0	27.1	-
Combined rate of labour underutilization (%)	58.0	55.0	55.7	-

Indicators	2017	2018	2019	2020
Average monthly salary from paid employment (In Frw)	57,262	56,982	57,878	57,306
Average monthly salary in agriculture (In Frw)	21,134	20,352	20,384	20,813
Average monthly salary in industry (In Frw)	67,232	58,509	63,346	61,547
Average monthly salary in services (In Frw)	105,784	108,722	103,694	104,749
Proportion of TVET graduates who are employed	54.2	58.0	59.6	-
Proportion of General education graduates who are employed (%)	42.4	43.9	43.0	-
Share of women in non -agricultural paid employment (%)	31.3	31.2	32.5	-
Share of youth in non-agricultural paid employment (%)	51.3	50.5	49.6	-
Manufacturing employment as a proportion of total employment (%)	5.3	6.4	6.4	5.8

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey series

Contents

List of Tables

Statistical Tables

List of Figures

Chapter 1: Introduction

The Rwanda Labour Force Survey (LFS) started in 2016 with an annual sample spread into two rounds to provide bi-annual estimates of main labour market indicators at National level. From February 2019, the sample was spread into four rounds to provide estimates of labour market indicators at national level on quarterly basis.

The year 2020 was marked by the disturbance in the system of data production not only in Rwanda but also all over the World due to the covid-19 pandemic. The pandemic was identified for the first time in Rwanda in mid-March 2020 and different preventive measures including the general lockdown in April 2020 were taken. Despite the pandemic, the labour force Survey continued to be conducted on quarterly basis with some adjustments to cope with covid19 prevention measures. In May 2020, NISR implemented a quick labour force telephone-based survey using a reduced questionnaire to capture main labour market indicators and monitor the employment throughout COVID-19 pandemic period. The sample of households contacted for this Survey in May was a sub sample of the latest LFS-February 2020 sample (4,608 households) of which the head of the household had a telephone.

In August 2020, the data collection was mainly conducted using face to face interviewing method but the telephone interviewing of the whole questionnaire was used in two clusters which were in lock down. The experience of Phone interviewing of May and the one in 2 clusters in August 2020 shed light on the possibility of planning the online labour force survey using the entire questionnaire in November 2020, which was successful.

The 2020 annual sample size obtained by pooling together all rounds of Labour force conducted in 2020 was 17,308 households; subdivided as following: February (4,608 households), May (3,484 households), August (4,608 households) and November (4,608 households). The annual response rate in 2020 was not different from the one obtained in the previous years (around 97 percent) even though the telephone interview method was used in May and November. Different strategies including the use of the telephone of village leaders or neighboring households were used to reach households without their own phone, especially in rural areas.

The resulting estimates of the main labour force indicators such as labour force participation rate, employment to population ratio and unemployment rate from the combined datasets have standard errors of about 0.5 percent at the national level.

The focus of the present report is the analysis of trends of main indicators covered across all quarters of the year 2020. Due to the shortage of used questionnaire in May, the content of the present reports is limited to the covered variables in May 2020. The report also bring together the annual results of the previous years (2017, 2018 and 2019) to analyze the annual changes of different main labour market indicators.

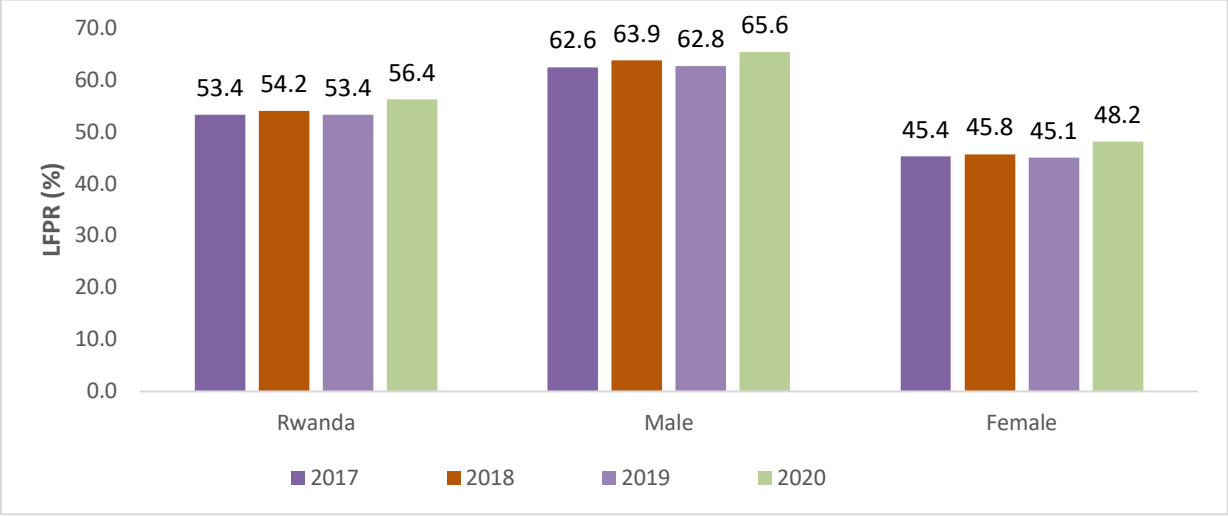
It is presented in five chapters including this introduction. The other chapters deal with labour force participation, employment, unemployment and population outside labour force.

Chapter 2: Labour Force Participation

2.1 Labour force participation rate by sex

The labour force participation rate (LFPR), which is the ratio of the labour force to the working age population expressed in percentage terms was 56.4 percent in 2020 compared to 53.4 percent in 2019. The observed LFPR in 2020 was the highest since 2017. The rise of LFPR in 2020 is partially attributable to the presence of students in the labour market while schools were closed due to preventive measures against covid 19 from March to October 2020. The results show also an increase of the trend of labour force participation rate for both male and female population in 2020 as compared to 2019; however, the labour force participation rate was higher for male population than female population over time. The labour force participation rate gender gap was around 17.4 percentages points in 2020 and it was lower than the one of 2019 (17.7 percent) and 2018 (18.1 percent).

Figure 2. 1: Labour force participation rate by sex



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

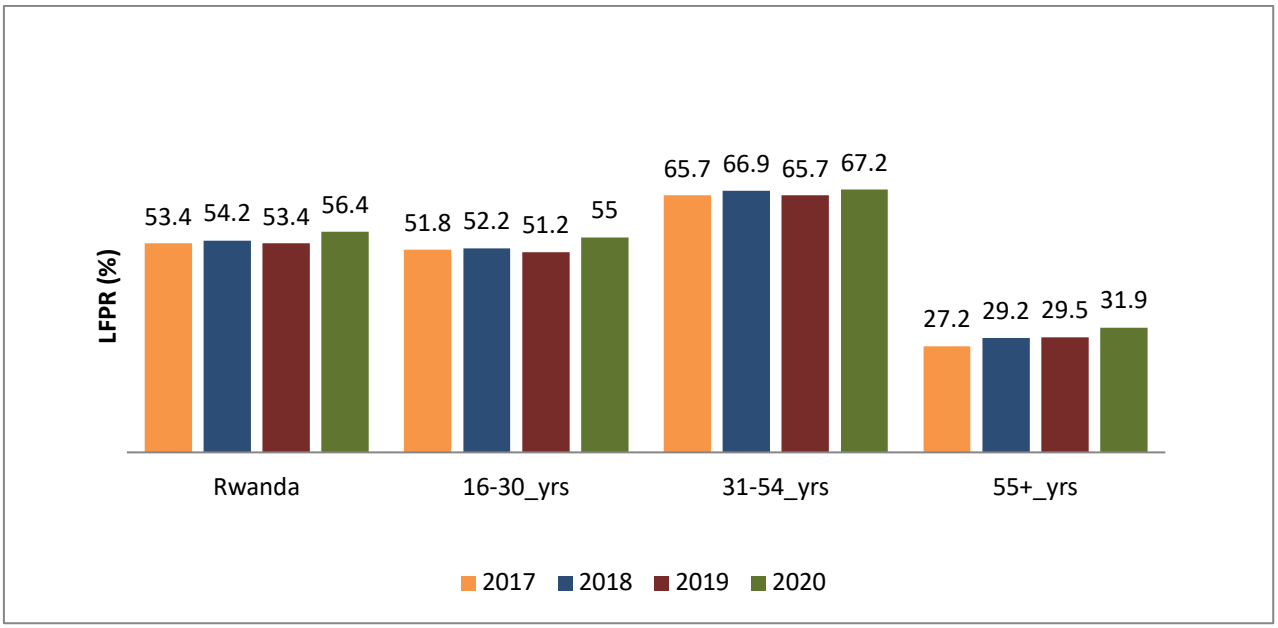
2.2 Labour force participation by age group

As stated earlier, in 2020, the labour force participation was higher compared to all the previous years and the same is observed for all age groups. The labour force participation rate among youth in 2020 (55 percent) increased by almost 3.9 percentage points from 2019 (51.2 percent). The observed LFPR increase from 2019 to 2020 among youth is almost 4 times higher than the change observed between 2018 and 2019 and 10 time higher than the one observed between 2017 and 2018.

The increase in LFPR observed among youth from 2019 to 2020 was higher than the increase observed among age groups for adult population. The labour force participation rate among people in the age group 31 to 54 years old increased by only 1.5 percentage points in 2020 and by 2.4 percentage points among those aged 55 years and above.

The observed high increase of LFPR among youth in 2020 reflects the presence of young students in the labour market during the period of schools closure between March and October 2020 as one of covid-19 preventive measure.

Figure 2. 2: Labour force participation rate by age group



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

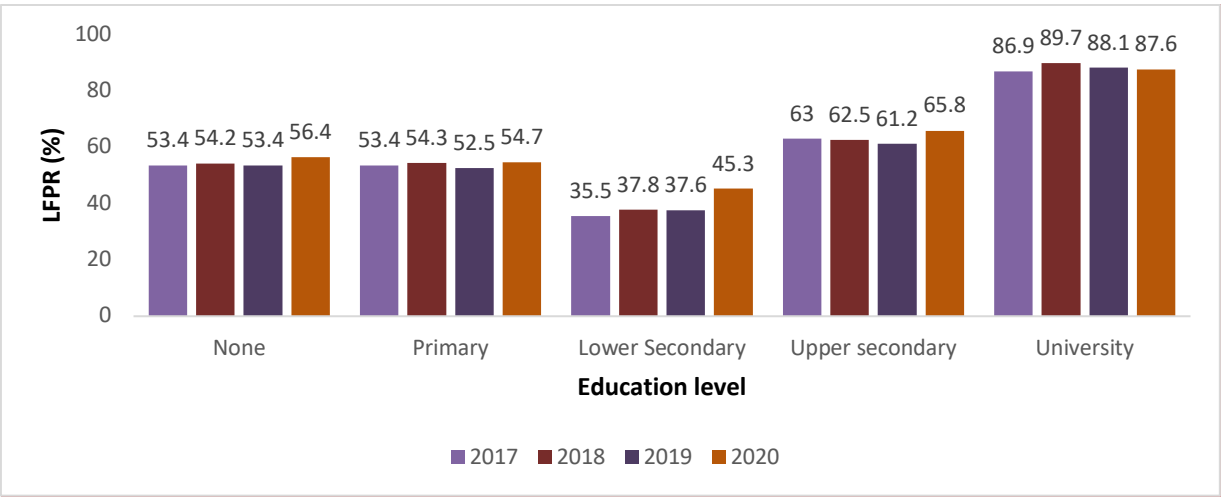
2.3 Labour force participation by level of Education

The analysis of the labour force participation rate (LFPR) by educational attainment of individuals reveals higher labour force participation rate among those with relatively higher levels of education compared to those with lower levels of education. A comparison of 2019 and 2020 shows an increase of LFPR in all levels of education other than university. Lower secondary level is the one that recorded the highest increase of 7.4 percentage points most probably because of the participation of some students in labour market activities as schools were closed due to measures against the spread of covid-19 pandemic. Upper secondary school is the second with an increase of 4.6 percentage points most probably because of the same reason. The labour force participation rate among people with no

education also increased by 3 percentage points as well as among those in primary with an increase of 2.2 percentage points.

The labour force participation rate is the highest among university graduates as compared to other levels of education. It reached 89.7 percent in 2018, but since then it has been slightly declining over time. It decreased by 1.6 percentage points from 2018 to 2019 and by 0.5 percentage point from 2019 to 2020.

Figure 2. 3: Labour force participation rate by level of education

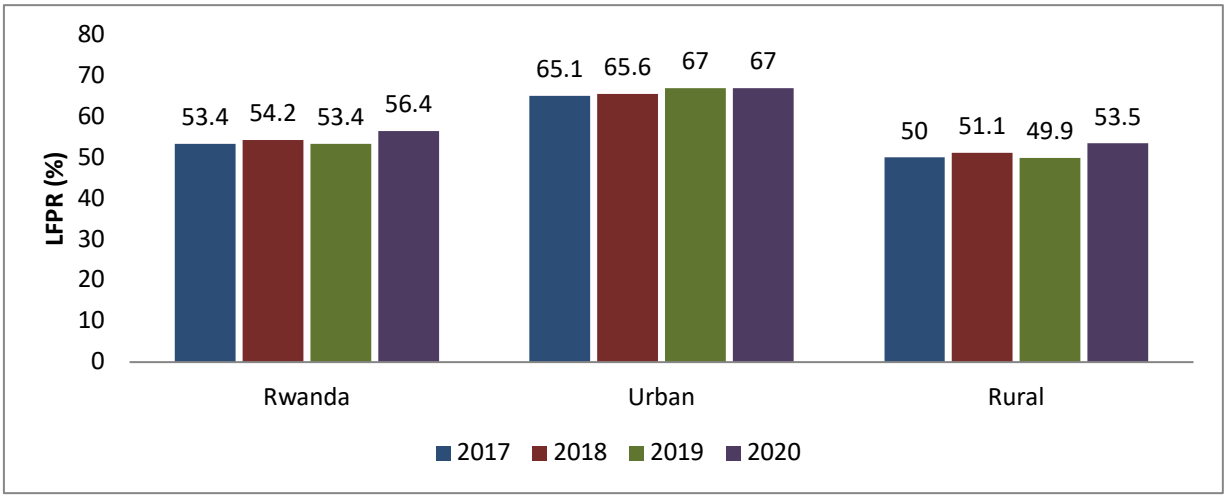


Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

2. 4 Labour force participation and area of residence

The analysis of labour force participation rate by area of residence (urban and rural) reveals that it was higher in urban areas as compared to rural areas. This may be attributed to the diversity of job opportunities in urban areas as compared to rural areas where the number of employment opportunities is limited and most people are involved in subsistence agriculture. The labour force participation rate in urban area has increased since 2017 from 65.1 percent to 67 percent in 2019 and remained unchanged in 2020. While in rural area it first increased from 2017 to 2018 by 1.1 percentage points then declined by almost the same level in 2019. A significant increase of LFPR in rural areas was observed in 2020. It increased by 3.5 percentage points from 49.9 percent in 2019 to 53.5 percent in 2020.

Figure 2. 4: Labour force participation rate by area of residence

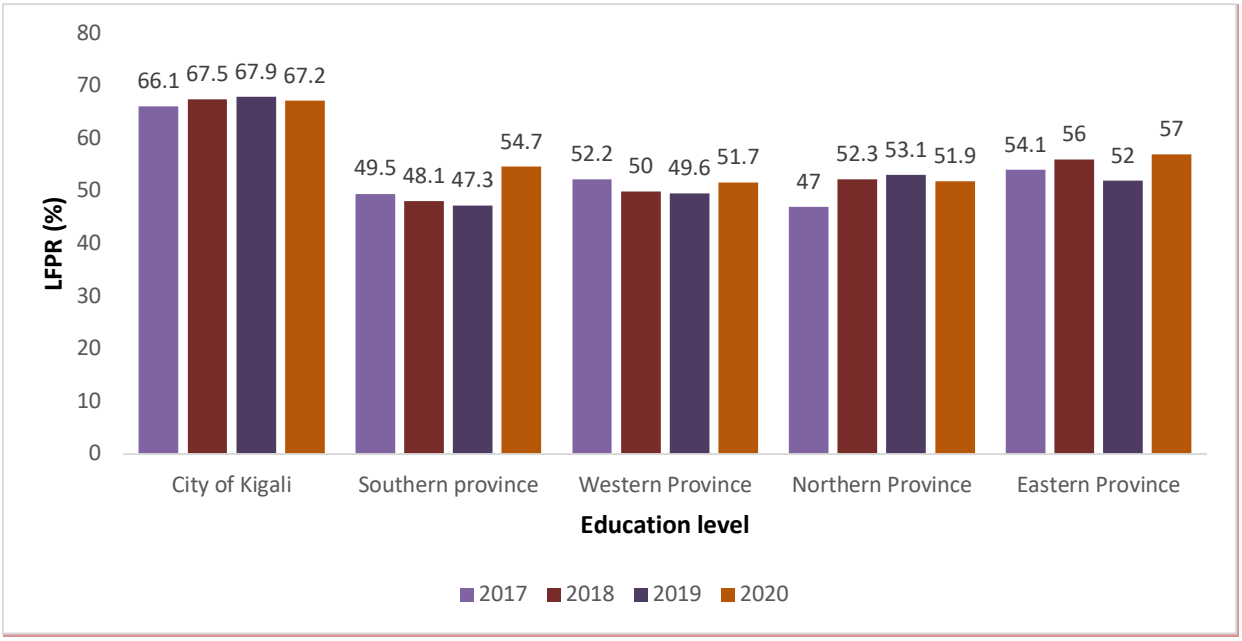


Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

2.5 Labour force participation rate by province

The analysis of the labour force participation rate (LFPR) by Province shows that labour force participation rate was higher in the City of Kigali compared to the other provinces. A comparison of 2020 with 2019 shows an increase of participation in 3 provinces: Eastern, Western and Southern Provinces while in the City of Kigali and Northern Province it decreased by 0 .7 and 1.2 percentage points respectively. The southern province is the one that experienced the highest increase of 7.4 percent compared to 2019 followed by The East province with 5 percent increase and 2.1 percent increase in Southern province.

Figure 2. 5: Labour force participation rate by level of education



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

2.6 Labour force participation rate by District

The analysis of labour force participation by District reveals that the districts of Kigali have the higher labour force participation rates compared to the remaining districts. However, the rate in those districts is almost constant or slowing down over time. Six districts experienced a steady growth in the labour force participation rate over time. These are: Musanze, Gatsibo, Burera Nyaruguru ,Nyamasheke and Huye. On the other side, the labour force participation rate has been constantly decreasing over time in Kamonyi and Ruhango Districts. In the remaining districts, there have been a kind of fluctuation in the annual labour force participation rate over time. Among those, the comparison between 2017 and 2020 results to an increasing trend (Muhanga, Kayonza, Gisagara, Kirehe, Nyamagabe, Ngororero, Gakenke, Nyanza and Rusizi) while the trend for the remaining districts is negative (Karongi, Rwamagana, Rubavu, Rulindo, Rutsiro, Nyabihu, Gicumbi, Bugesera and Ngoma).

The comparison of labour force participation rate between 2019 and 2020 shows that there has been an increase in 19 districts out of 30. The districts that recorded high increases (above 10 percentage points) are: Nyaruguru(16.2 percentage points), Nyamagabe(15.7 percentage points), Kayonza(12.8 percentage points), Kirehe(12.1 percentage points), Muhanga(11 percentage points) and Huye (10.9 percentage points). On the other side, the labour force participation rate significantly decreased in

the following districts: Rurindo (7.9 percentage points), Gakenke(6.3 percentage points) and Ngororero(4.3 percentage points) in the same period

Table 2. 1: Labour force participation rate by District

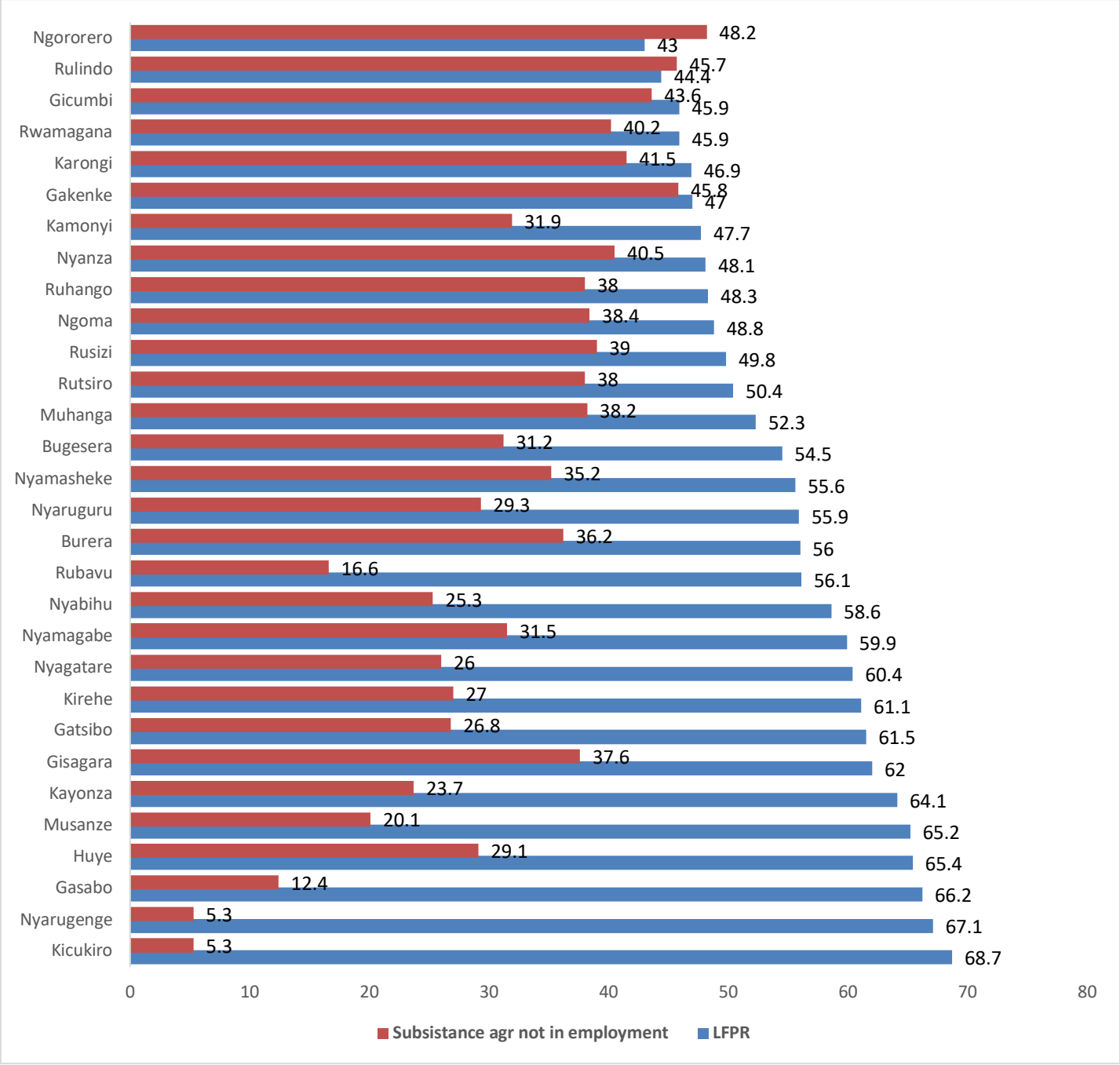
District	2017	2018	2019	2020
Nyarugenge	66.4	66.3	66.5	67.1
Gasabo	65.3	65.8	66.8	66.2
Kicukiro	67	70.7	70.2	68.7
Nyanza	47.7	45.2	42.5	48.1
Gisagara	53.1	49.4	54.5	62
Nyaruguru	32.1	34.1	39.7	55.9
Huye	52.5	52.5	54.5	65.4
Nyamagabe	54.9	53.9	44.2	59.9
Ruhango	54.4	54	49.3	48.3
Muhanga	41.9	42.1	41.3	52.3
Kamonyi	55.1	51.6	50.4	47.7
Karongi	55.6	49.2	49.5	46.9
Rutsiro	54.6	52	52.6	50.4
Rubavu	61.5	53.7	55.8	56.1
Nyabihu	61.9	57	55.6	58.6
Ngororero	38.9	44.5	47.3	43
Rusizi	49.6	50.1	42.8	49.8
Nyamasheke	45.1	45.2	47	55.6
Rulindo	49.4	56.9	52.3	44.4
Gakenke	45	50.8	53.3	47
Musanze	52.6	53.3	61.5	65.2
Burera	38.3	50.9	51.3	56
Gicumbi	48.8	49.5	45.4	45.9
Rwamagana	52.1	54	48.7	45.9
Nyagatare	59.3	68.7	60	60.4
Gatsibo	49	55	55.7	61.5
Kayonza	54.4	54.5	51.3	64.1
Kirehe	53.7	51.7	49	61.1
Ngoma	49.5	51.4	49	48.8
Bugesera	57.1	52.9	49	54.5

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The figure below presents the analysis of labour force participation rate together with the rate of participation in subsistence agriculture by persons not employed for the year 2020. It is revealed that the LFPR is inversely proportional to the substance agriculture participation rate. From the figure

below it can be easily observed that out of 10 districts with the lowest LFPR, 8 had the highest substance agriculture participation rate. Conversely, out of 10 districts with the highest LFPR, 8 of them had the lowest substance participation rate in 2020.

Figure 2. 6: Comparison of LFPR and subsistence agriculture participation rate by district

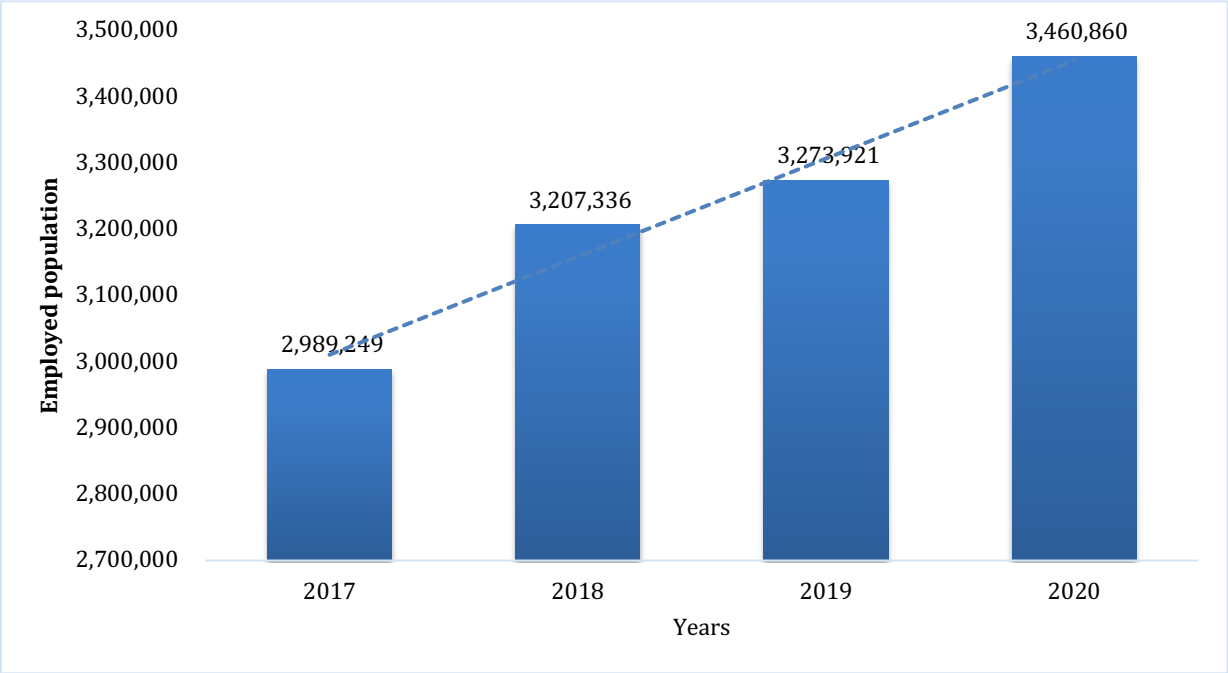


Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2020

Chapter 3: Employed population

The analysis of employment over the past four years shows an increasing trend of employed population from 2017 to 2020. Employed population was 2,989,249 in 2017, it increased to 3,460,860 in the year 2020 representing an increase of 15.8 percentage points. Despite the COVID-19 pandemic arisen in Rwanda in Mid-March 2020 a comparison of employed population for the year 2019 and 2020 shows an increase of 186,939 employed persons. This was mainly due to the higher employment observed in construction sector in 2020 as compared to the previous years.

Figure 3. 1: Trend in employed population from the year 2017 to 2020



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

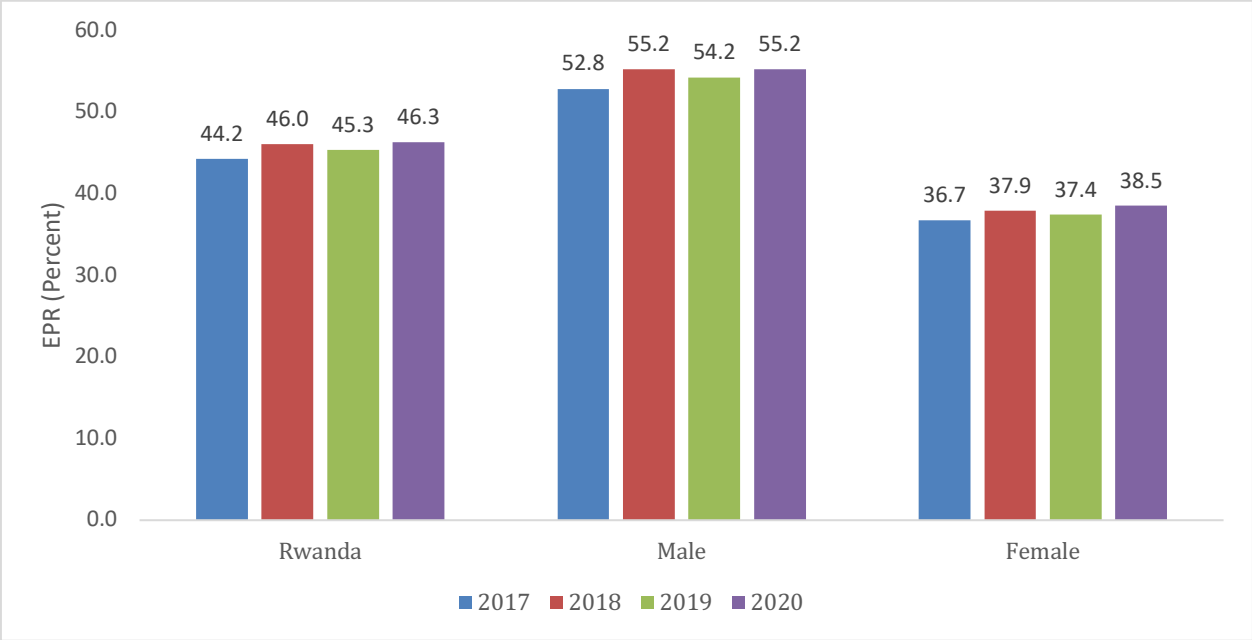
3.1. Employment to population ratio by sex

Figure 3.2 shows the trend in the employment-to-population ratio (EPR) for male and female population separately. In Rwanda, the employment-to-population ratio was slightly increasing over the years. It was 44.5 percent in the year 2017 while it stood at 46.3 percent in the year 2020, representing an increase of 2.1 percentage points.

It is informative to note that there is a high gap between the employment-to-population ratio of males and females over time. The employment-to-population ratio (EPR) for male was 55.2 percent, while the female's was 38.5 percent in the year 2020, representing a gap of 16.7 percentage points, slightly higher than 16.1 percentage points observed in 2017. Compared with 2017 results, the employment-

to-population ratio increased for both males and females in 2020. It increased by 2.4 percentage points from 52.8 percent to 55.2 percent among males, while it increased by 1.8 percentage points from 36.8 percent to 38.5 percent among females. A comparison of the survey results between the year 2019 and 2020 shows that the employment-to-population ratio among both males and females slightly increased by around 1 percentage points.

Figure 3. 2: Employment to population ratio by sex



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

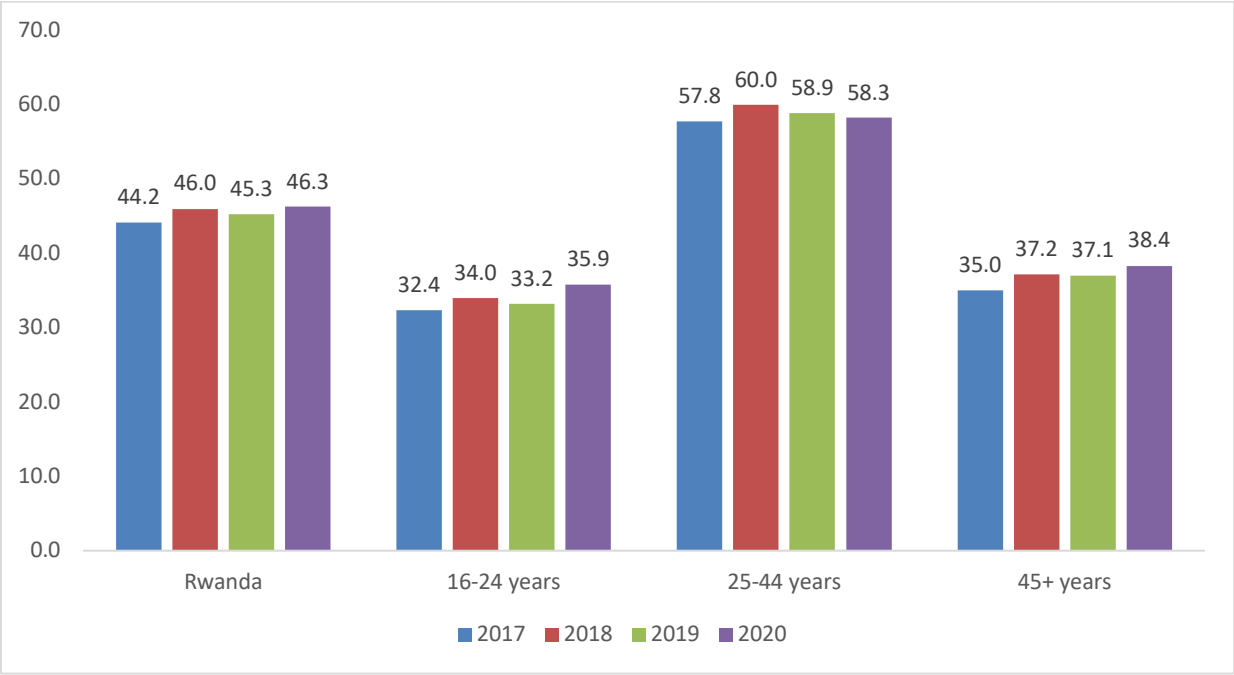
3.2 Employment to population ratio by age group

The figure 3.3 below shows the trend in employment-to-population ratio among the selected age categories. The results show that higher employment-to-population ratio is observed among population aged 25 to 44 years old and it is lower among population in younger ages (16 to 24 years) as well as among the population aged 45 years and above.

A comparison of the survey results for the year 2017 and 2020 shows an increase of the employment-to-population ratio among all age categories; with the highest increase among youth aged 16-24 years old. In this age category, it increased by 3.4 percentage points from 32.4 percent in 2017 to 35.9 percent in 2020 and by 2.9 percentage points when compared 2019 and 2020. The employment-to-population ratio was slightly decreasing among the population aged 25 to 44 years old since 2018 while it was constant or slightly increasing among the population aged 45 years and above.

The significant increase of the employment to population ratio among youth (16-24 years old) in 2020 is mainly attributable to the presence of students in the labour market during the period of schools' closure due to preventive measures against covid-19 happened from March to October 2020.

Figure 3. 3: Employment to population ratio by selected age groups



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

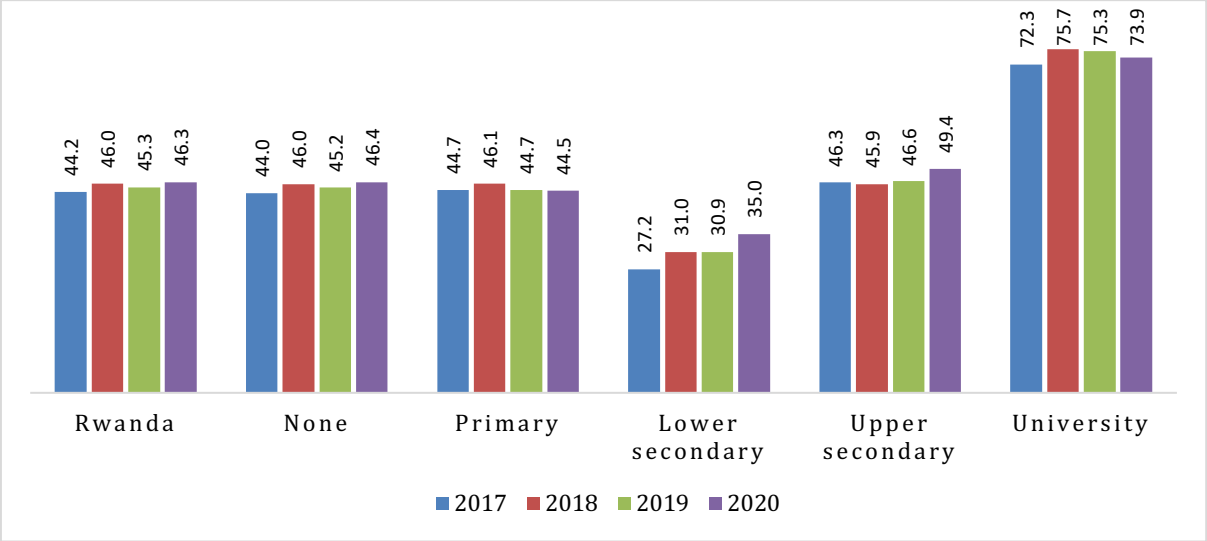
3.3. Employment to population ratio by attained level of education

The results presented in the figure 3.5 below shows the trend of employment-to-population ratio among different levels of educational attainment. The survey results revealed that the share of employed population was higher among people who hold higher educational attainment as compared to those with relatively lower education levels.

The results shows that the employment-to-population ratio in the year 2020 stood at 73.9 percent among University graduates; 49.4 percent among upper secondary holders; 35.0 percent among lower secondary holders; 44.5 percent among primary level holders and 46.4 percent among the population who did not complete any level of education. The ratio is lower among lower secondary holders mainly due to difficulties of finding jobs for those who leave school at this level and the fact that some are still enrolled in education. A comparison between the survey results across different years shows that a significant increase in employment-to-population ratio was observed among holders of lower and upper secondary levels of education in 2020 as compared to 2019. There has

been an increase of 4.1 percentage points for lower secondary level and 2.8 percentage points for upper secondary level of education. On the other hand, the employment to population ratio decreased by 1.4 percentage points among university graduates and remained almost the same for those with the primary level of education.

Figure 3. 4:Employment to population ratio by attained level of education



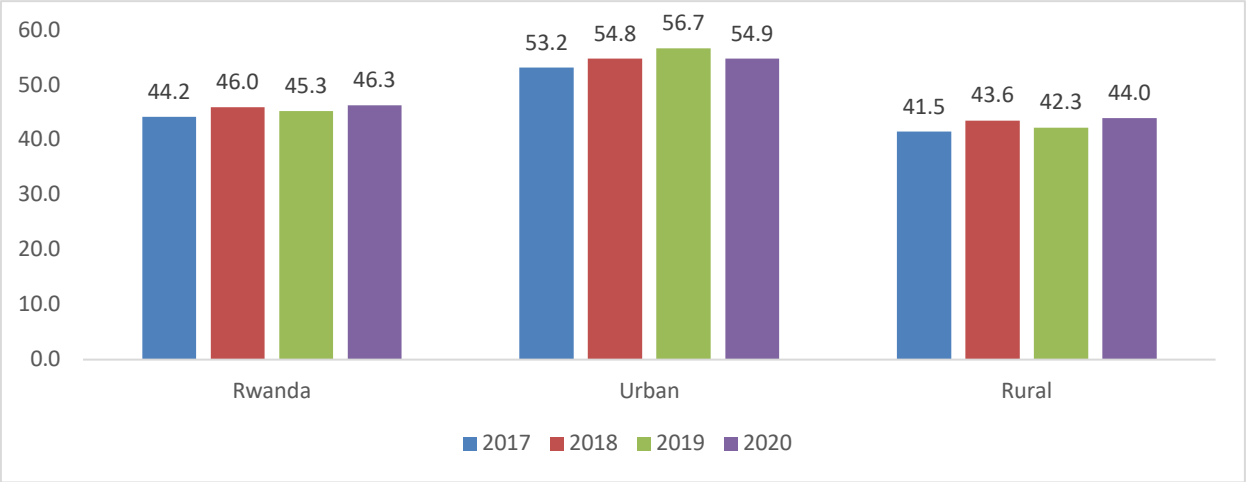
Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

3.4 Employment to population ratio by area of residence

Figure 3.5 presents the employment-to-population ratio by area of residence. It can be observed that urban employment-to-population ratio, that was increasing at almost the same pace since 2017 till 2019, decreased by 1.9 percentage points in 2020 as compared to 2019. In rural areas, the employment to population ratio slightly increased by 1.7 percentage points from 42.3 percent in 2019 to 44.0 percent in 2020.

It is also observed that the employment-to-population ratio was higher in urban areas when compared to rural areas in all rounds of labour force survey. The gap between the employment-to-population ratio between urban and rural areas remained significant in the year 2020 (10.8 percentage points) but it has decreased compared to 14.4 percentage points gap registered in 2019.

Figure 3. 5: Employment to population ratio by area of residence

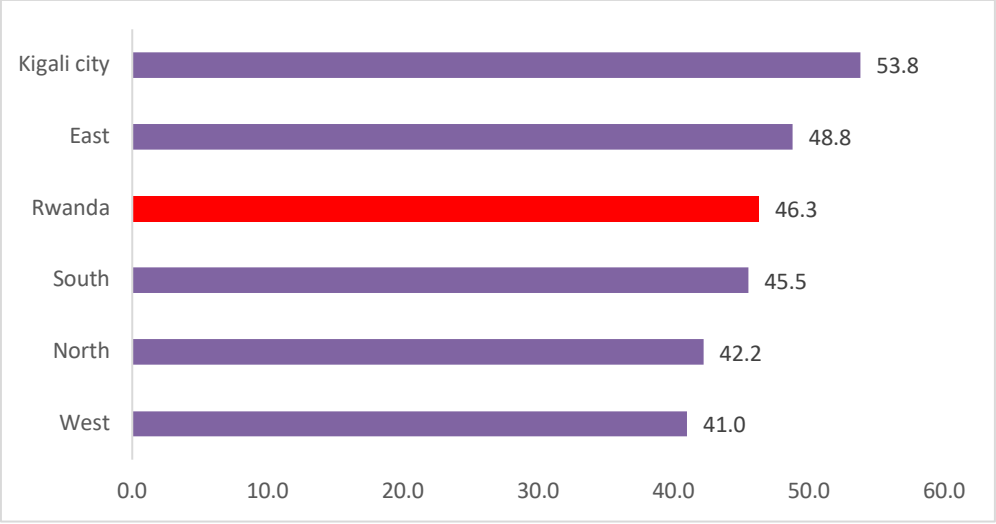


Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

3.5. Employment to population ratio by province

The results presented in the figure 3.6 below shows the Employment to population ratio by province of residence. The survey results in the year 2020, shows that the City of Kigali had the highest employment to population ratio (53.8 percent) which is 7.5 percentage points higher than the national average (46.3 percent); followed by Eastern province (48.8 percent). The lowest employment to population ratio was observed in the western province (41.0 percent) which is 5.3 percentage points lower than national average.

Figure 3. 6: Employment to population ratio by province of residence



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2020

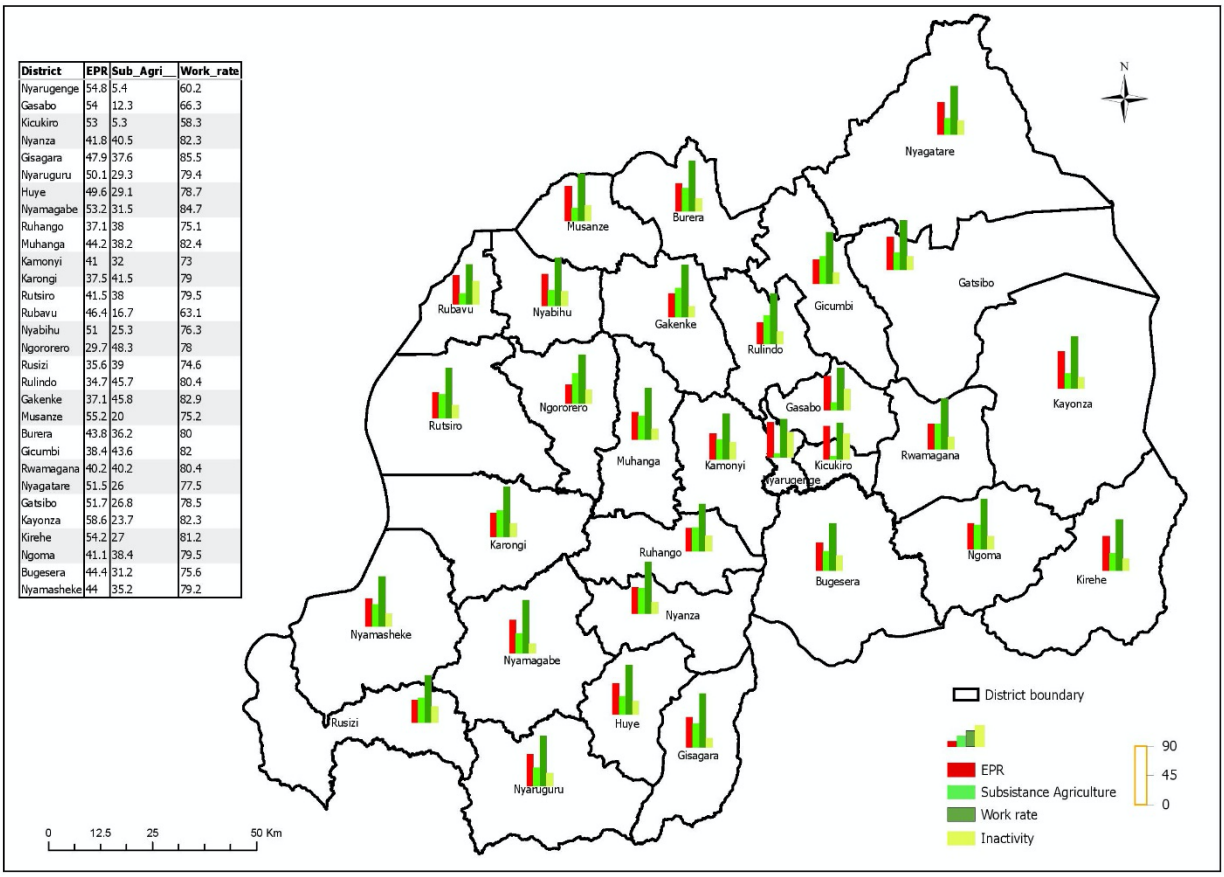
3.6. Employment, work and inactivity by district

Figure 3.7 below illustrate the relationship between employment, substance agriculture and inactivity by district in 2020. The survey results, reveals that only 14 out of 30 districts had the employment to population ratio greater than the national average of 46.3 percent. The highest Employment to population ratio was observed in Kayonza district (58.6 percent) while the lowest was observed in Ngororero district (29.7 percent).

According to the results, the top five districts with higher employment to population ratio were Kayonza (58.6 percent), Musanze (55.2 percent), Nyarugenge (54.8 percent), Kirehe (54.2 percent) and Gasabo (54.0 percent) while the top five districts with lower Employment to population ratio were Ngororero (29.7 percent), Rulindo (34.7 percent), Rusizi (35.6 percent), Ruhango (37.1 percent), Gakenke (37.1 percent). It is worth to note that there is a high gap (28.9 percentage points gap) between the district with highest employment to population ratio and the one with the lowest ratio. However, most of the districts with low employment to population ratio have a high activity rate (employment combined with subsistence agriculture) while some of the districts with high employment rates have at the same time the high inactivity rate. The top five district with higher inactivity rate is: Kicukiro, Nyarugenge, Rubavu, Gasabo and Kamonyi.

It is also important to note that districts having at the same time the high rate of employment to population ratio and the low inactivity rate are those whose the participation in market oriented agriculture by working age population is higher. Those districts are: Kayonza, Kirehe, Gatsibo, Nyaruguru and Nyamagabe.

Figure 3. 7: Employment, work, substance agriculture, and inactivity by district



District	EPR	Sub_Agri_	Work_rate
Nyarugenge	54.8	5.4	60.2
Gasabo	54	12.3	66.3
Kicukiro	53	5.3	58.3
Nyanza	41.8	40.5	82.3
Gisagara	47.9	37.6	85.5
Nyaruguru	50.1	29.3	79.4
Huye	49.6	29.1	78.7
Nyamagabe	53.2	31.5	84.7
Ruhango	37.1	38	75.1
Muhanga	44.2	38.2	82.4
Kamonyi	41	32	73
Karongi	37.5	41.5	79
Rutsiro	41.5	38	79.5
Rubavu	46.4	16.7	63.1
Nyabihu	51	25.3	76.3
Ngororero	29.7	48.3	78
Rusizi	35.6	39	74.6
Rulindo	34.7	45.7	80.4
Gakenke	37.1	45.8	82.9
Musanze	55.2	20	75.2
Burera	43.8	36.2	80
Gicumbi	38.4	43.6	82
Rwamagana	40.2	40.2	80.4
Nyagatare	51.5	26	77.5
Gatsibo	51.7	26.8	78.5
Kayonza	58.6	23.7	82.3
Kirehe	54.2	27	81.2
Ngoma	41.1	38.4	79.5
Bugesera	44.4	31.2	75.6
Nyamasheke	44	35.2	79.2

-Work rate is the proportion of working age population engaged in employment or in subsistence agriculture

-Agriculture Subsistence rate is defined as the proportion of working age population who are not employed but engaged in subsistence agriculture

-Inactivity rate is defined as the proportion of working age population who are neither in employment nor in subsistence agriculture.

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2020

3.7. Employment by main economic activity

According to the results presented in Table 3.1 below, in the year 2020, the bulk of employed population were engaged in Agriculture, forestry and fishing (40.5 percent). Other sectors that employed a substantial number of populations were wholesale and retail trade; repair of motor vehicles and motorcycles (13.5 percent), Construction (12.6 percent), Manufacturing (5.8 percent), Activities of households as employers (4.8 percent); transportation and storage (4.2 percent), Education (3.1 percent), and Accommodation and food service activities (2.6 percent).

The comparison of the survey results between the year 2019 and the year 2020 revealed that the National employment increased by 6 percent. Only 6 out of 21 sectors registered employment growth

in 2020 as compared to 2019. Construction sector increased by 38 percent, followed by other services (33 percent), Human health and social work activities (22 percent), Administrative and support activities (15 percent), Agriculture forestry and fishing (14 percent) and Financial and insurance activities (2 percent).

The comparison of employment in 2020 with the last 3 years earlier reveals that the National employment increased by 16 percent. From 2017 to 2020, the fastest growing sector was accommodation and food service activities that increased by 111 percent. The other sectors that experienced a high employment increase include Administrative and support activities (85 percent), Others services (80 percent), Construction (60 percent), Financial and insurance activities (59 percent) among others.

Table 3. 1: Distribution of employment by main economic activity

ISIC High level	2017	2018	2019	2020	Change_2019-2020	Change_2017-2020
Agriculture forestry and fishing	1,252,214	1,265,361	1,225,151	1,399,907	14%	12%
Mining and quarrying	47,725	62,563	71,205	57,379	-19%	20%
Manufacturing	158,496	205,301	208,956	201,554	-4%	27%
Electricity gas stream and air condition	9,332	6,301	9,237	7,096	-23%	-24%
Water supply, gas and remediation service	9,480	7,862	7,550	7,047	-7%	-26%
Construction	271,506	322,117	315,022	435,720	38%	60%
Whole sale and retail trade; repair of m	469,393	477,164	485,871	466,569	-4%	-1%
Transportationa and storage	124,454	140,339	170,913	146,259	-14%	18%
Accommodation and food service activities	43,414	69,289	96,982	91,495	-6%	111%
Information and communication	11,105	13,669	11,515	8,962	-22%	-19%
Financial and insurance activities	22,416	28,815	35,051	35,728	2%	59%
Real estate activities	3,022	3,710	4,260	4,098	-4%	36%
Professional, scientific and technical a	23,316	25,127	27,111	21,249	-22%	-9%

ISIC High level	2017	2018	2019	2020	Change_2019-2020	Change_2017-2020
Administrative and support activities	37,328	51,814	60,099	69,213	15%	85%
Public administration and defence; compulsory social security	62,359	60,489	68,189	65,349	-4%	5%
Education	111,329	106,339	118,626	107,624	-9%	-3%
Human health and social work activities	49,252	49,072	46,020	55,984	22%	14%
Arts, entertainment and recreation	10,781	9,620	11,371	9,715	-15%	-10%
Other services	53,512	66,321	72,319	96,244	33%	80%
Activities of households as employers	207,812	218,279	207,927	166,587	-20%	-20%
Activities of extraterritorial organizations	11,002	17,784	20,546	7,079	-66%	-36%
Total	**2,989,249**	**3,207,336**	**3,273,921**	**3,460,860**	**6%**	**16%**

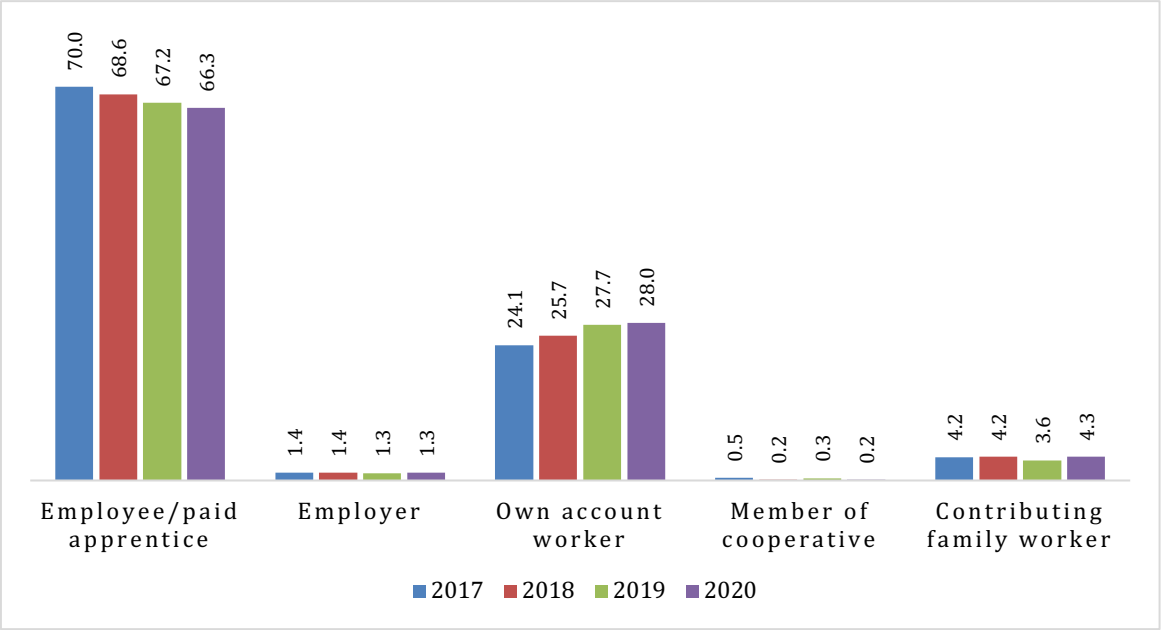
Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

3.8. Employment by status in employment.

Figure 4.3 shows the shares of employed population according to the status of employment. It is observed that the category of employees/paid apprentices recorded the highest share of employment across all rounds of the labour force survey followed by own-account workers, contributing family workers, employers, and member of cooperatives.

The results revealed that there is a declining trend in the share of employees over time, from 70.0 percent in the year 2017 to 66.3 percent in 2020 representing a decline of 3.7percentage points over the past 3 years. Contrary, the share of own account workers in the total employment has been increasing over time from 24.1 percent in 2017 to 28.0 percent in 2020. The shares of other categories remained almost stable over the same period.

Figure 3. 8: Distribution of employment by status in employment.



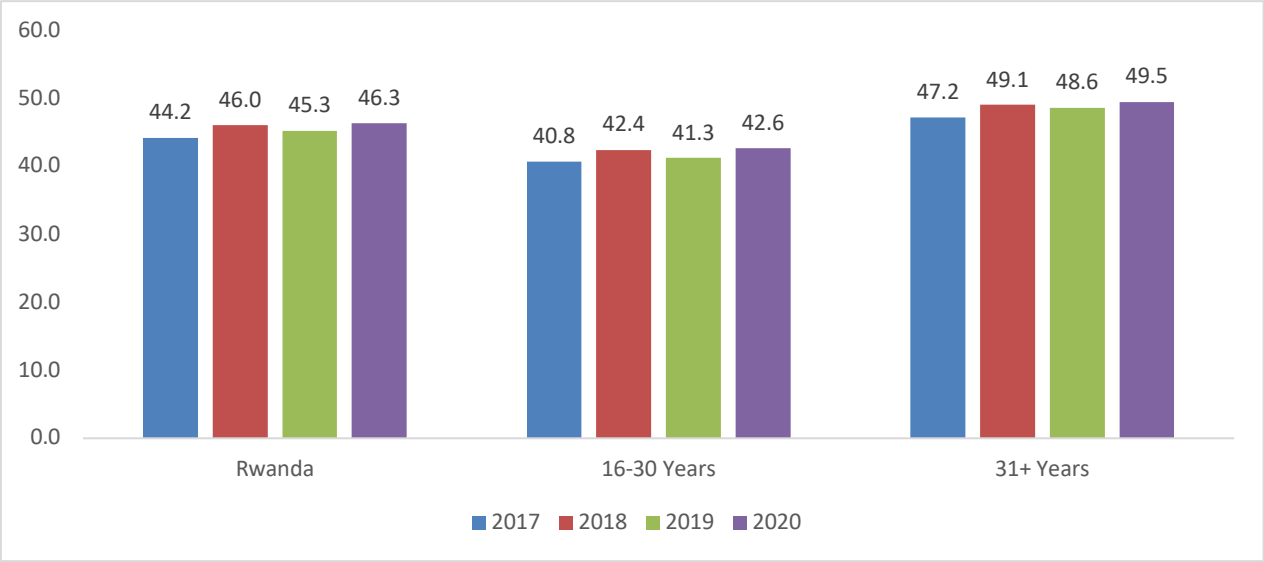
Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

3.9. Youth employment

The figure 3.9 below shows the trend in employment to population ratio among the youth (16-30 years old) and adults (31 years and above). In Rwanda, the youth population is defined as persons with 16 to 30 years of age. The results shows that youth employment to population ratio has been relatively lower than employment to population ratio among adults population over time. The gap between youth employment and adult's employment remained significant over the last 3 years. In 2020, the gap stood at 6.9 percentage points which remained almost unchanged as compared to the gap registered in 2017 (6.5 percentage points).

The comparison between the year 2017 and 2020 shows that the youth employment to population ratio increased by 1.9 percentage points from 40.8 percent to 42.6 percent while adults' employment increased by 2.3 percentage points from 47.2 percent to 49.5 percent over the same period.

Figure 3. 9: Employment to population ratio among youth and adults



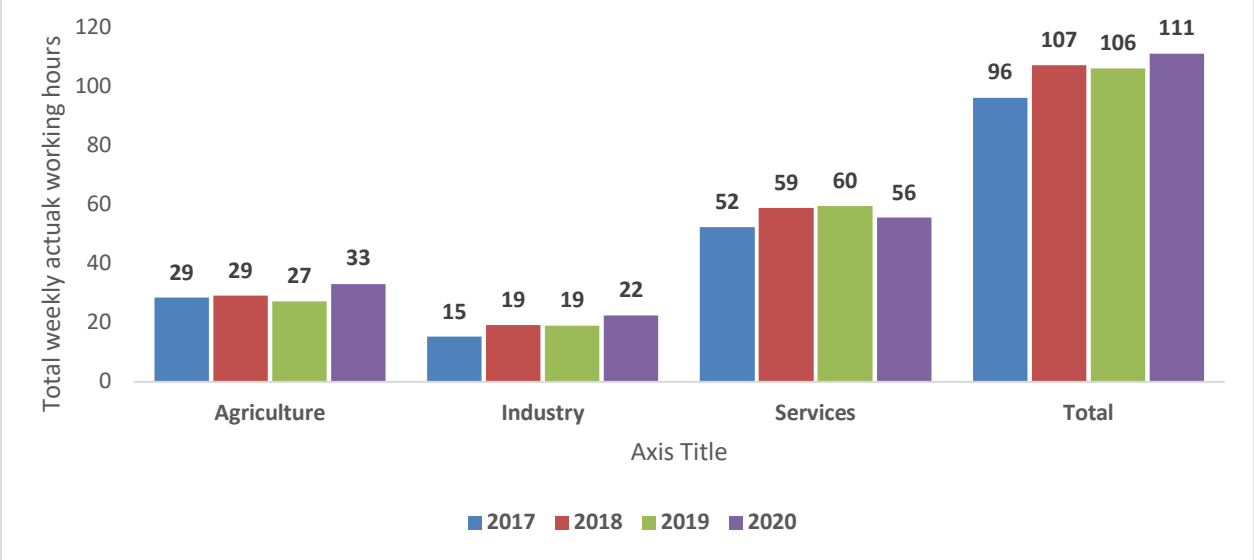
Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

3.10. Hours of employment

The international definition of employment is expansive covering even one hour of work during the reference week. It is thus important to note that employment is analyzed in conjunction with data on hours of work in order to distinguish the various intensities of employment.

Figures 3.10 and 3.11 present the total number and average of weekly hours actually worked by main sectors of economic activities. In 2020 around 111 millions of hours were spent in employment on weekly basis. There has been an increase of around 5 million hours in 2020 as compared to 2019. This increase was contributed by agriculture sector for which the number of worked hours increased from 27 to 33 million and industry for which the number increased from 19 to 22 million. Conversely, the weekly number of hours decreased by around 4 million in services activities.

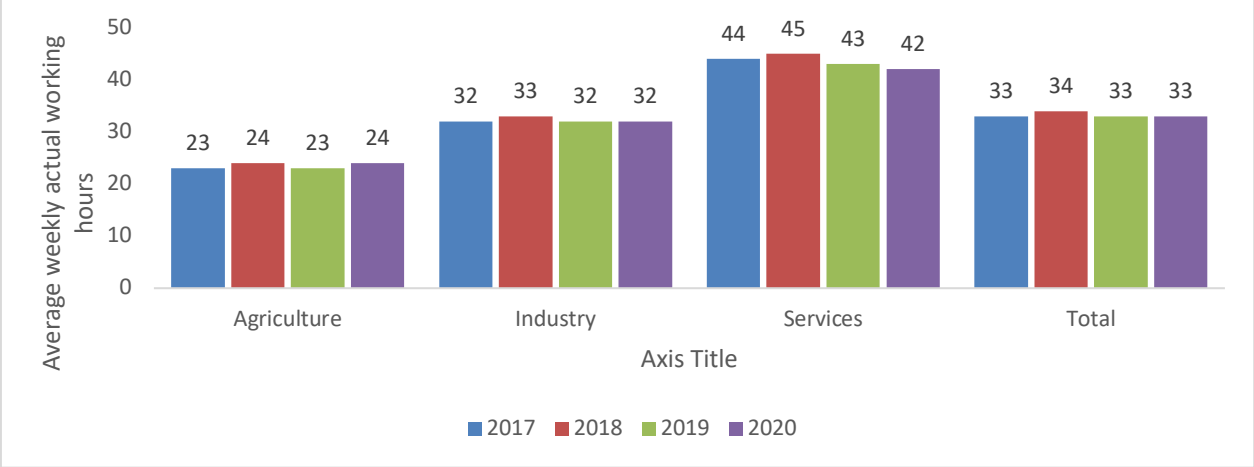
Figure 3. 10: Total number of weekly actual worked hours (in million) by main economic activity



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The average weekly hours actually spent in employment in 2020 remained unchanged compared to the average recorded in 2019 (33 working hours). The average worked hours per week in agriculture sector increased by 1 hour in 2020 as compared to 2019 while it remained the same in industry sector(32 hours) and decreased by 1 hour in service sector(from 43 to 42 hours) in the same period.

Figure 3. 11: Average weekly actual working hours by main economic activity

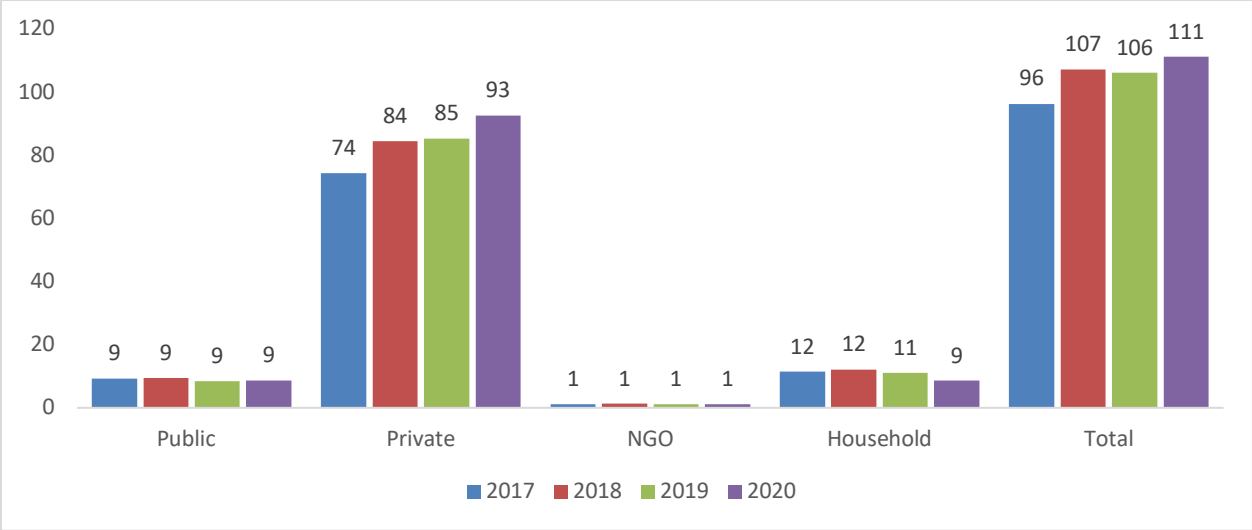


Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

Figure 3.12 and 3.13 present the total number of weekly hours actually worked and the average number of weekly hours worked by institutional sector from 2017 to 2020. The total number of weekly hours actually worked has progressively increased in private sector since 2017 to 2020 while

it has decreased over time for households and remained almost constant for the remaining institutional sectors. Despite the outbreak of covid-19 in Rwanda, the total number of weekly hours actually worked increased by around 7 million in 2020 compared to 2019. The increase in Private sector may be attributable to the increase in the number of employed populations in 2020, especially in construction sector as compared to 2019; while the decrease in household sector was due to the decrease in the number of employed populations by households in 2020 as compared to 2019 (table 3.1).

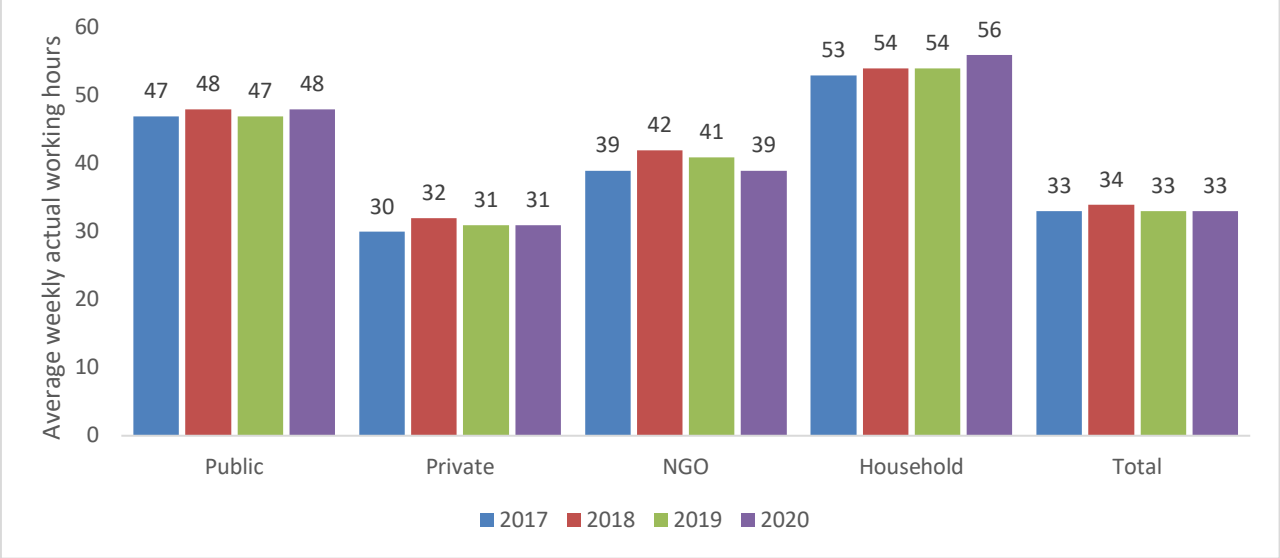
Figure 3. 12: Total number of weekly actual worked hours (in million) by institutional sector



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The average number of weekly hours actually worked remained relatively higher for household sector as compared to other institutional sectors and it increased by 2 hours in 2020 as compared to 2019. In the same way the average number of weekly worked hours increased by 1 hour for Public sector. Conversely, the average number of worked hours decreased by 2 hours for NGOs while it remained the same for private sector.

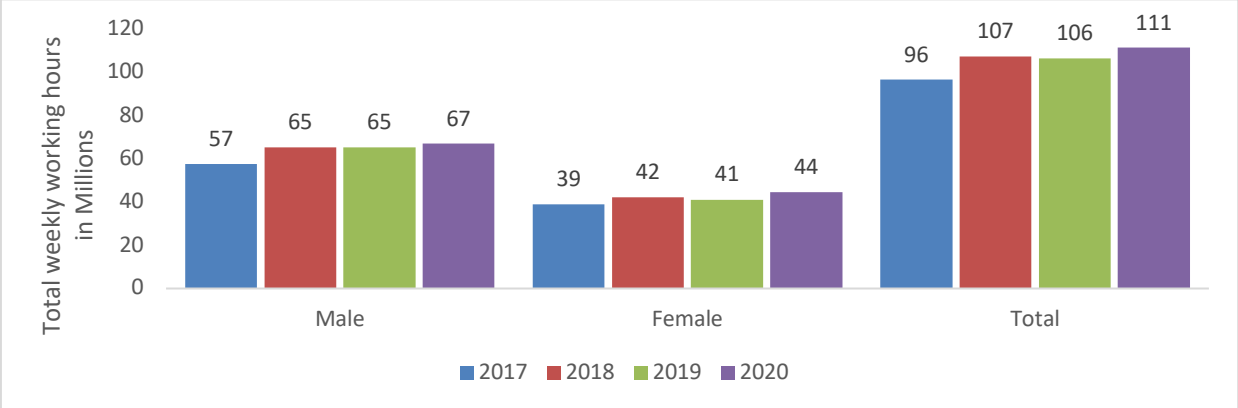
Figure 3. 13: Average weekly actual working hours by institutional sector



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

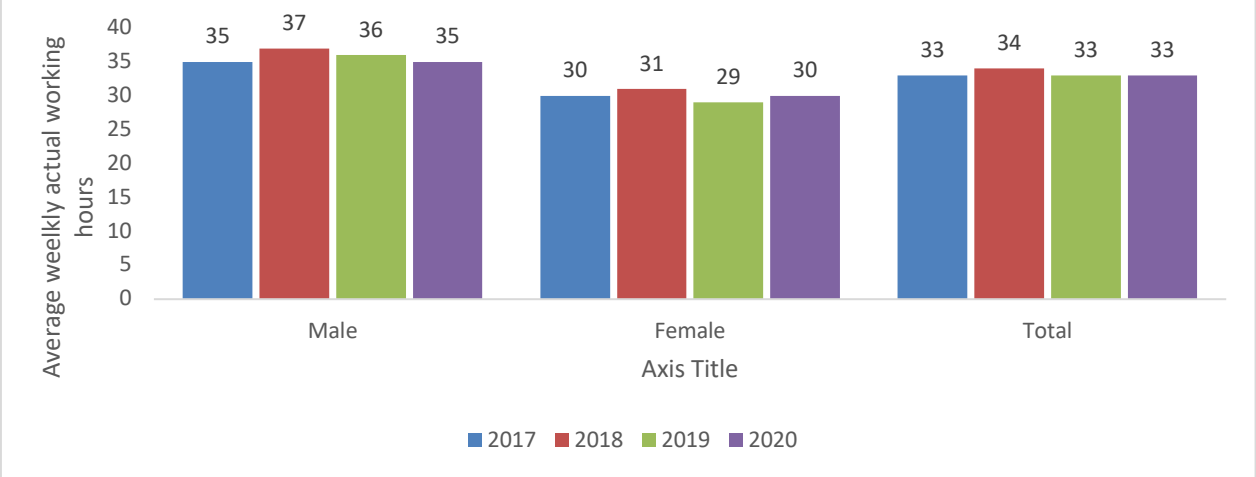
The results presented in figures 3.14 and 3.15 revealed that the total number of weekly hours actually worked increased from 2019 to 2020 by 2 and 3 million of hours among males and females respectively. However, the average number of worked hours among males decreased by one hour while it increased by one hour among females.

Figure 3. 14: Total number of weekly actual worked hours (in million) by sex



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

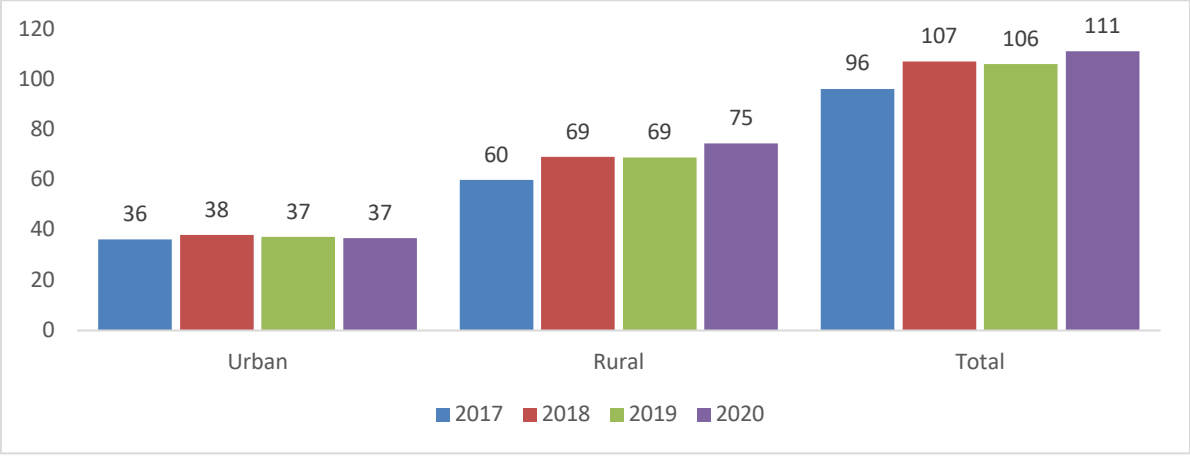
Figure 3. 15:. Average weekly actual working hours by sex



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

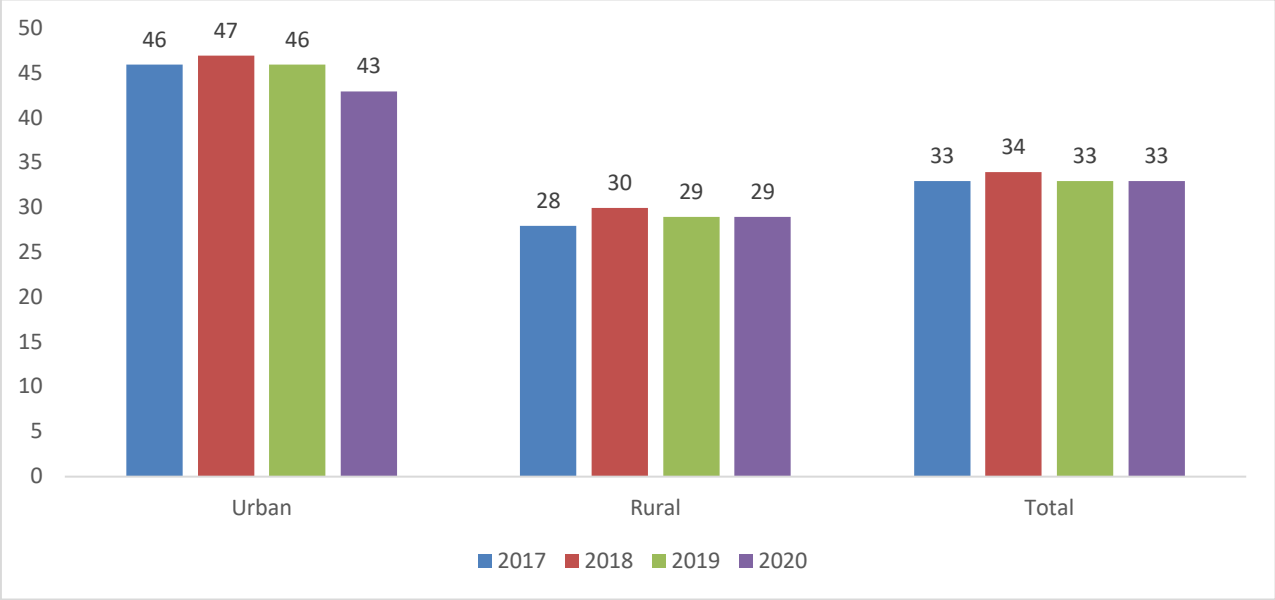
According to the results in figure 3.16 and 3.17 the total number of weekly hours spent in employment in rural areas is twice as higher as the one in urban areas (75 million hours and 37 million hours respectively in 2020). However, the average weekly hours spent by an employed person living in urban areas is significantly higher than the average time spent by those living in rural areas in employment (43 hours and 29 hours in 2020 respectively). The results also shows that the total number of worked hours in 2020 as compared to 2019 significantly increased by around 5 million hours in rural areas while it stayed unchanged in urban areas. Contrarily, the average number of weekly hours spent by employed person in urban areas decreased by 3 hours while the average remained the same in rural areas according to 2020 and 2019 comparison (Figure 3.16).

Figure 3. 16: Total number of weekly actuals worked hours (in million) by area of residence



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

Figure 3. 17:. Average weekly actual worked hours by area of residence



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

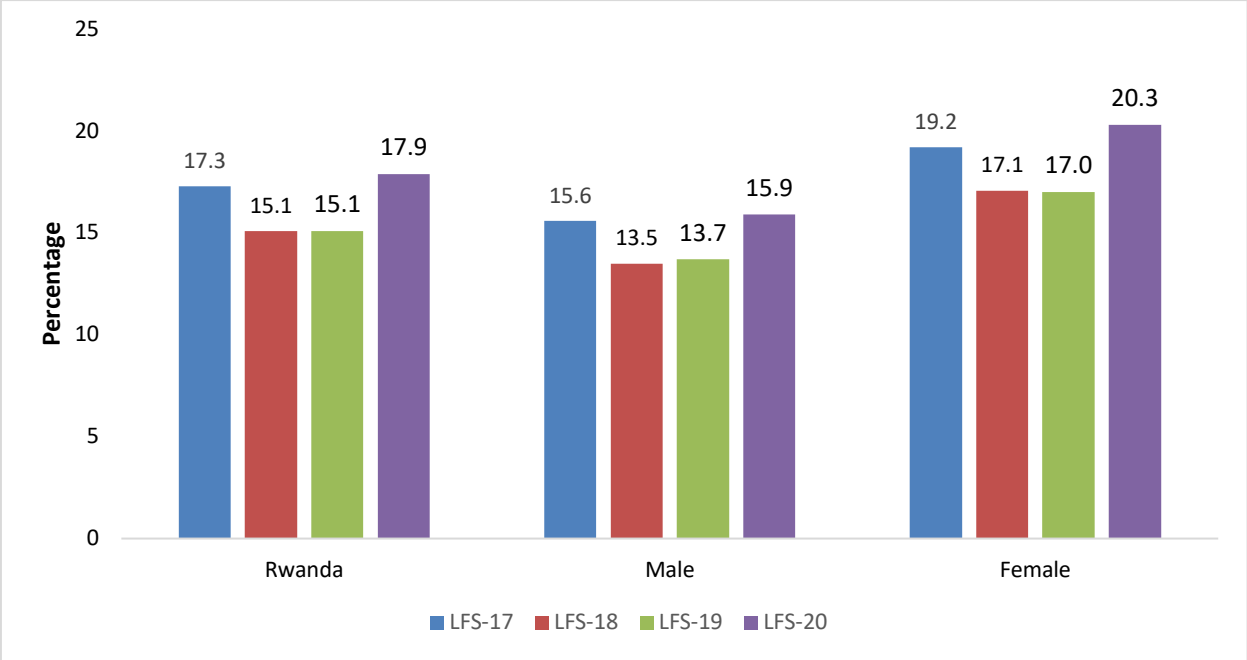
Chapter 4: Unemployment

Unemployment reflects the pressure on the labour market as it is measured in terms of the number of persons without employment, actively seeking and available for employment.

4.1 Unemployment rate

The unemployment rate, defined as the ratio of the number of unemployed persons to the total labour force, is the most commonly used indicator of the labour market. It is sometimes used in a general sense as an indicator of the health of the economy, not just the labour market. According to the results, the unemployment rate had a decreasing trend till 2019, but in 2020, it took a reverse direction mainly due to covid-19 pandemic effects on the labour market. In 2020, the unemployment rate in Rwanda reached 17.9 percent while it was 15.1 percent in 2019 and 17.3 percent in 2017. The unemployment rate increased among both males and females with higher increase among females; reflecting the possible higher negative effects of covid-19 on females' employment than males'. The female unemployment rate passed from 17.0 percent to 20.3 percent from 2019 to 2020 while it passed from 13.7 percent to 15.9 percent for males in the same period.

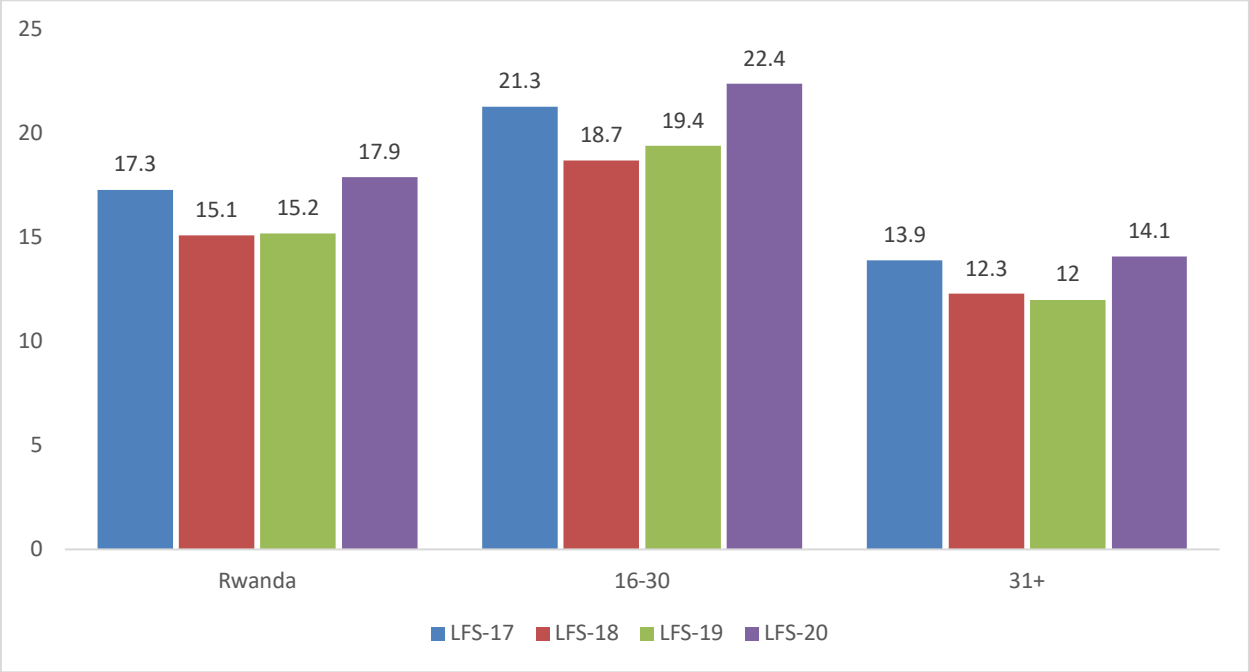
Figure 4. 1: Unemployment rate by sex



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The results in Figure 4.2 about the unemployment rate by selected age groups indicate that generally, the unemployment rate among youth was the highest as compared to adults. In 2020 the youth unemployment rate increased by 3 percentage points as compared to 2019 while adult unemployment rate increased by 2.1 percentage points in the same period.

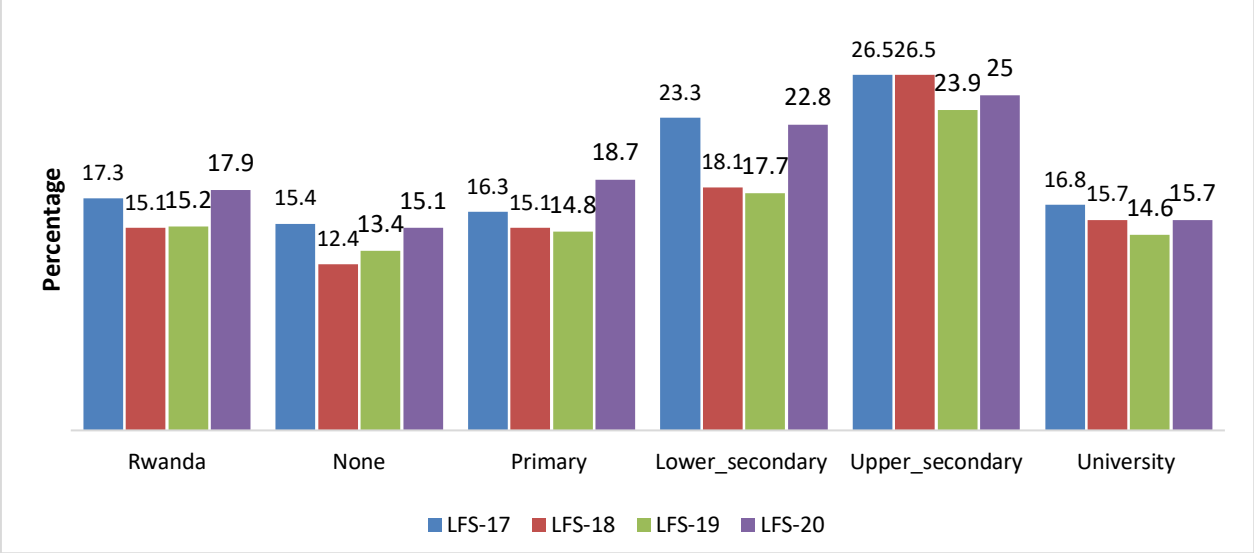
Figure 4. 2: Unemployment by age group



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

In terms of educational attainment, the results in Figure 4.3 indicate that in 2020 the unemployment rate was the highest among persons with upper secondary education (25.0 percent), followed by lower secondary education (22.8 percent), primary level of education (18.7 percent) and those with tertiary level of education (15.1 percent). It was the lowest among persons with no level of education (15.7 percent). In 2020 the unemployment rate significantly increased compared to the previous year (2019) regardless of the level of education, however the level of unemployment rate in 2020 was still lower than the one registered in 2017 in most of levels of education.

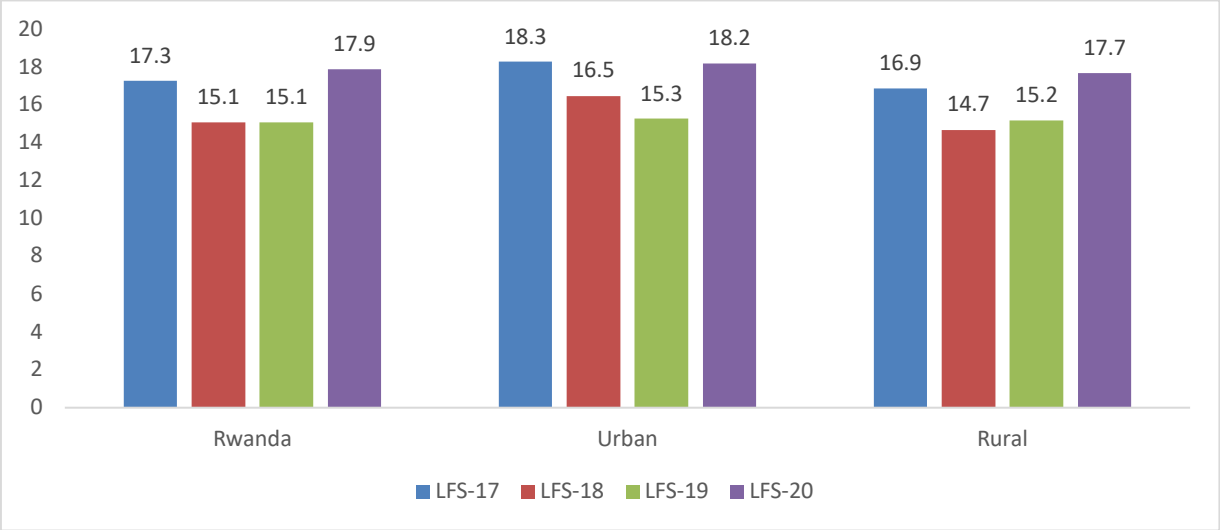
Figure 4. 3: Unemployment rate by educational attainment



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The results in figure 4.4 below compares the unemployment rate in rural and urban areas in different years from 2017. It is remarkable that the unemployment rate in both areas has almost the same trend over time with slightly higher magnitude in urban areas than rural areas. The unemployment rate significantly increased in 2020 as compared to 2019 in both urban and rural areas. It increased to 18.2 percent from 15.3 percent in urban areas and it increased to 17.7 percent from 15.2 percent in rural areas.

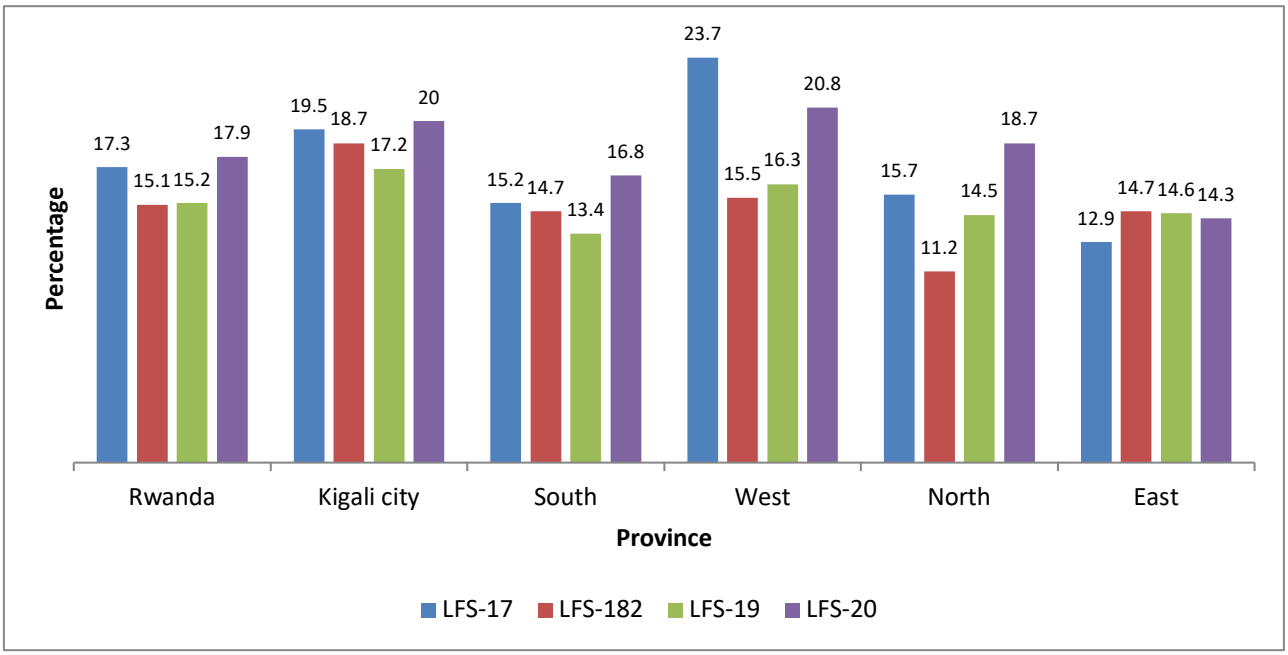
Figure 4. 4: Unemployment rate by area of residence



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

Figure 4.5 below shows that the unemployment rate in 2020 significantly increased in almost all provinces compared to 2019 with the highest increase in West Province (4.5 percentage points) and the lowest increase in the city of Kigali (2.8 percentages points). The unemployment rate in East province stayed almost stable.

Figure 4. 5: Unemployment rate by provinces



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

On average each unemployed person used 3.9 methods for seeking employment during the specified reference period. The most frequent method of job search was applying to employers directly, checking at worksites, farms, factory gates, placement (42.5 percent), followed by seeking the assistance from friends, relatives or other types of intermediaries (21.1 percent) and arranging for financial resources, applying for permits, licenses (9.1 percent). Other methods of job search were placing or answering newspaper or online job advertisements or response to job advertisements (7.0 percent), Placing or updating resumes on professional or social networking (5.5 percent) registering with or contacting public or private employment services (4.6 percent), and looking for land, premises, machinery, supplies, farming inputs (1.7 percent).

Table 4. 1: Searching Method for employment

	Male	Female	Total
Arranging for financial resources, applying for permits, licenses	7.4	11	9.3
Looking for land, premises, machinery, supplies, farming inputs	1.7	1.6	1.7
Seeking the assistance of friends, relatives or other types of intermediaries	22.7	19.6	21.1
Registering with or contacting public or private employment services	5.2	4	4.6
Applying to employers directly, checking at worksites, farms, factory gates, markets	44	41.2	42.5
Placing or answering newspaper or online job advertisements	7.8	6.4	7
Placing or updating resumes on professional or social networking	6	5.1	5.5
Average Search Method	4.0	3.9	3.9

Note: Percentages are not adding up to 100% as there are based to number of responses

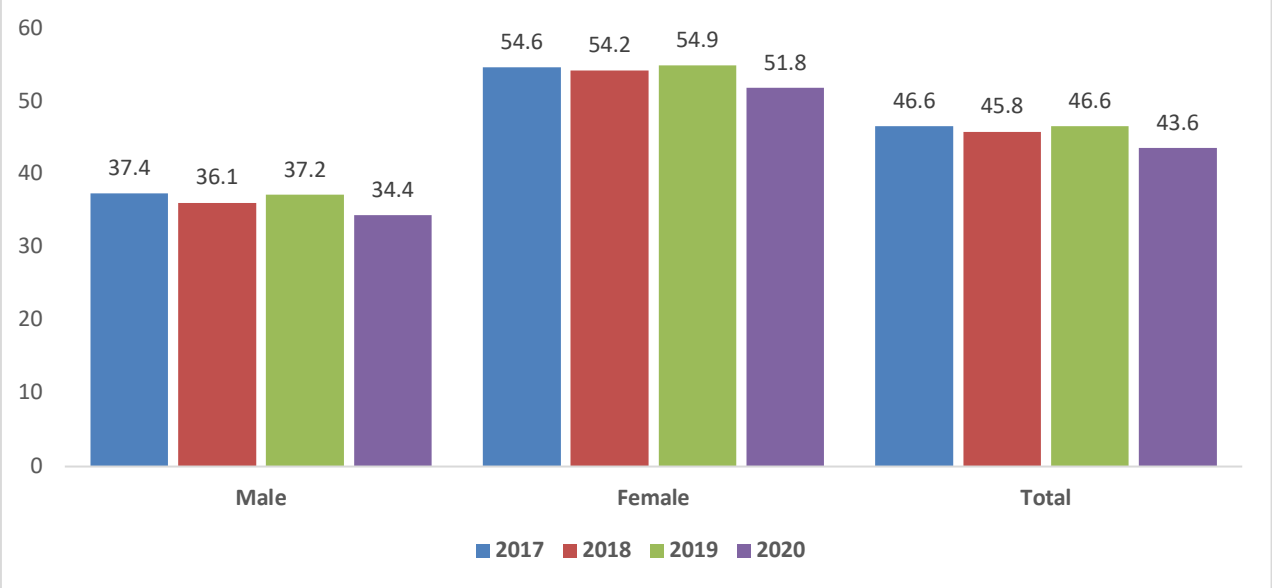
Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS) 2020

Chapter 5: Persons outside the labour force

A particular characteristic of countries with large subsistence foodstuff production is the fact that the size of the working age population outside the labour force may be as big as the size of the labour force itself. In Rwanda, the 2020 LFS shows that the number of working age persons outside the labour force was 3,368,737against 3,862,798 in the labour force. The majority of the persons outside the labour force are subsistence foodstuff producers (50.3 percent).

The results in figure 5.1 reveal that the proportion of working age population who were outside labour force in 2020 was 43.6 percent, a lower proportion compared to 46.6 recorded in 2019. The rate of working age population who are outside labour force is higher among females as among males. It decreased for both sexes in 2020 as compared to 2019 with higher decrease (3.1 percentage points) among females than among males (2.8 percentage points)

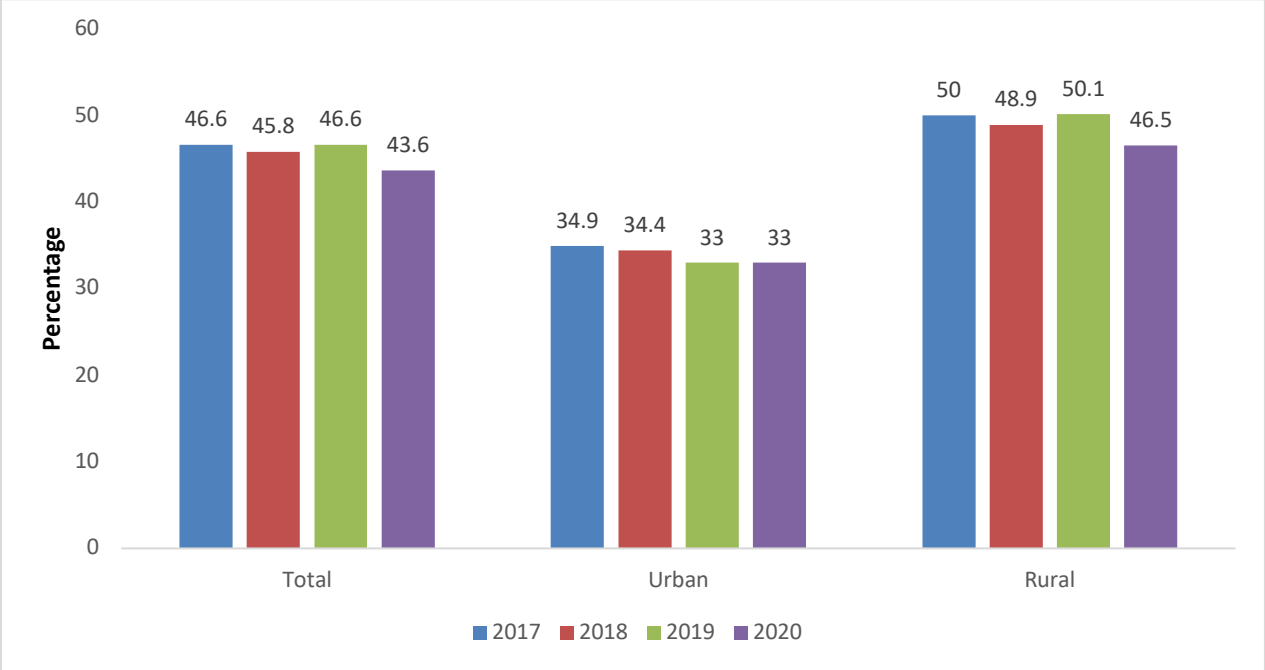
Figure 5. 1: Proportion of working age population outside labour force by sex



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The population outside labour force is higher in rural areas as compared to urban areas due to the important number of working age population involved in subsistence agriculture in urban areas. The rate remained unchanged (33 percent) from 2019 to 2020 in urban areas while it decreased by 3 percentage points (from 46.6 percent to 43.6 percent) in rural areas in the same period.

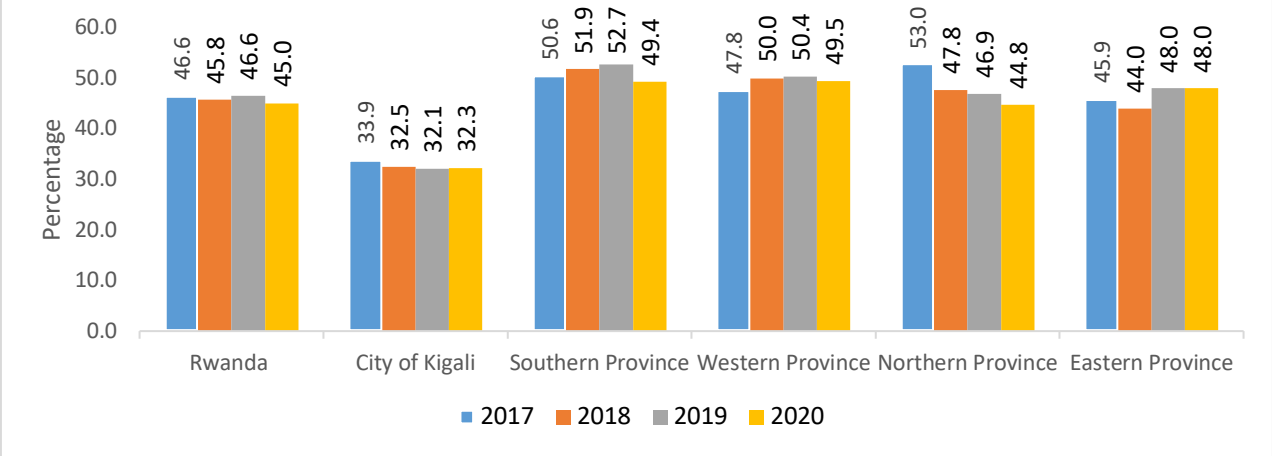
Figure 5. 2: Proportion of working age population outside labour force by areas of residence



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

The proportion of working age population outside labour force by province as presented in figure 5.3 indicates that in all provinces the rate remained the same or decreased from 2019 to 2020. In 2020, the Western Province had the highest proportion of population outside labour force (49.5 percent), followed by Southern Province (49.4 percent), Eastern Province (48.0percent), Northern Province (44.8 percent) and the City of Kigali (32.3 percent).

Figure 5. 3: Proportion of working age population outside labour force by Province



Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey (LFS), 2017-2020

Person outside the labour force were also analyzed according to different characteristics of the population such as education, age and sex. Table 5.2 below shows the distribution of population outside labour force by some demographic characteristics. It is observed that 62.9 percent were females, 62.3 percent had primary education or lower and 48.0 percent were youth people (16 to 30 yrs). The distribution of population outside labour force by the selected characteristics remained almost the same in the last four years.

Table 5. 1: Demographic characteristics of population outside labour force

Characteristics	**2017**		**2018**		**2019**		**2020**	
Sex	**Total**	**%**	**Total**	**%**	**Total**	**%**	**Total**	**%**
Male	1,182,949	37.6	1,179,234	37.0	1,261,485	37.5	1,209,075	37.0
Female	1,964,909	62.4	2,007,866	63.0	2,107,253	62.6	2,050,554	62.9
Education level								
Primary or lower	2,551,333	81.1	2,580,510	81.0	2,700,805	80.2	2,623,075	80.5
Secondary(lower and upper)	559,662	17.8	576,031	18.1	630,276	18.7	594,614	18.2
University	36,864	1.2	30,559	1.0	37,657	1.1	41,942	1.3
Age group								
16-24_yrs	1,186,492	37.7	1,209,163	37.9	1,284,365	38.1	1,229,146	37.7
25-34_yrs	538,134	17.1	499,572	15.7	518,082	15.4	518,029	15.9
35-54_yrs	684,051	21.7	700,643	22.0	766,747	22.8	768,584	23.6
55-64_yrs	352,124	11.2	368,459	11.6	364,964	10.8	345,775	10.6
65+_yrs	387,058	12.3	409,262	12.8	434,579	12.9	398,094	12.2
Youth and adult								
16-30	1,520,806	48.3	1,526,034	47.9	1,608,416	47.8	1,562,463	48.0
31+	1,627,052	51.7	1,661,066	52.1	1,760,322	52.3	1,697,166	52.0
Total	3,147,858	100.0	3,187,100	100.0	3,368,737	100.0	3,259,629	100.0

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey, 2020

Annex A: Main concept and definitions

The main concepts and definitions used in the survey are in line with the international standards on statistics of work, employment, and labour underutilization adopted by the 19th International Conference of Labour Statisticians (Geneva, 2013).1 They are briefly described below.

- **Work**

The starting point of the international standards on statistics of work, employment and labour underutilization is the concept of work defined as:

- "Any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own use" in line with the General production boundary defined in the System of National Accounts 2008.
- Work is defined "irrespective of its formal or informal character or the legality of the activity."
- It excludes "activities not involving production of goods or services (begging, stealing), self-care (personal grooming, hygiene) and activities that cannot be performed by another person on one's own behalf (sleeping, learning, own recreation)."

The international standards recognize different forms of work: Own-use production work (production of goods and services for own final use); employment (work performed for others in exchange for pay or profit); unpaid trainee work (work performed for others without pay to acquire workplace experience or skills); volunteer work (non-compulsory work performed for others without pay); and other forms of work (not defined at this time by the international standards). The RLFS focuses on the measurement of employment and labour underutilization and separately on own-use production work.

- **Working age population**

The working age population in Rwanda is defined as all persons 16 years old and over. For international reporting, the international standards recommend the lowest age bracket starting with 15 years. To enable comparison with the past and to conform to the international standards, the LFS questionnaire collected data on labour force and labour underutilization characteristics of the population 14 years and over. Accordingly, the main indicators presented in this report are based on the 16 years old limit.

[1]ILO, *Resolution concerning statistics of work, employment and labour underutilization*, 19th International Conference of Labour Statisticians, Geneva, October 2013.

- **Employment**

Employment is a particular form of work. Persons in employment are defined as all those above a specified age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit. It excludes persons engaged wholly in activities to produce goods or services for own final use such as producing agricultural, fishing and gathering products for own-consumption or cleaning, decorating, gardening and maintaining one's own dwelling or premises, durables and other goods. Persons in employment comprise: (a) employed persons "at work," i.e., who worked in a job for at least one hour; and (b) employed persons "not at work" due to temporary absence from a job, or to working-time arrangements (such as shift work, flexi-time and compensatory leave for overtime).

This definition of employment differs from the definition used in past surveys and censuses that was based on the previous international standards.[2] The main difference concerns the statistical treatment of subsistence foodstuff producers. According to these earlier standards, "persons engaged in the production of goods and services for own and household consumption should be considered as in self-employment if such production comprises an important contribution to the total consumption of the households." According to the new standards, however, only those are included in employment if the production was "intended mainly for sale or barter, even if part of the output is consumed by the household or family. "

- **Labour underutilization**

Labour underutilization refers to mismatches between labour supply and demand. It reflects the unmet need for employment among the population. Measures of labour underutilization include, but may not be restricted to unemployment; time-related underemployment; and potential labour force.

- **Unemployment**

Persons in unemployment are defined as all those above a specified age who (a) were not in employment; (b) carried out activities to seek employment during a specified recent period; and (c) were currently available to take up employment given a job opportunity. The definition of unemployment provides an exception in the case of *future starters*. They are considered as

[2] ILO, *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment*, adopted by the 13th International Conference of Labour Statisticians, Geneva, 1982.

unemployed even if they did not carry out activities to seek employment during the specified recent period, if satisfy the availability condition.

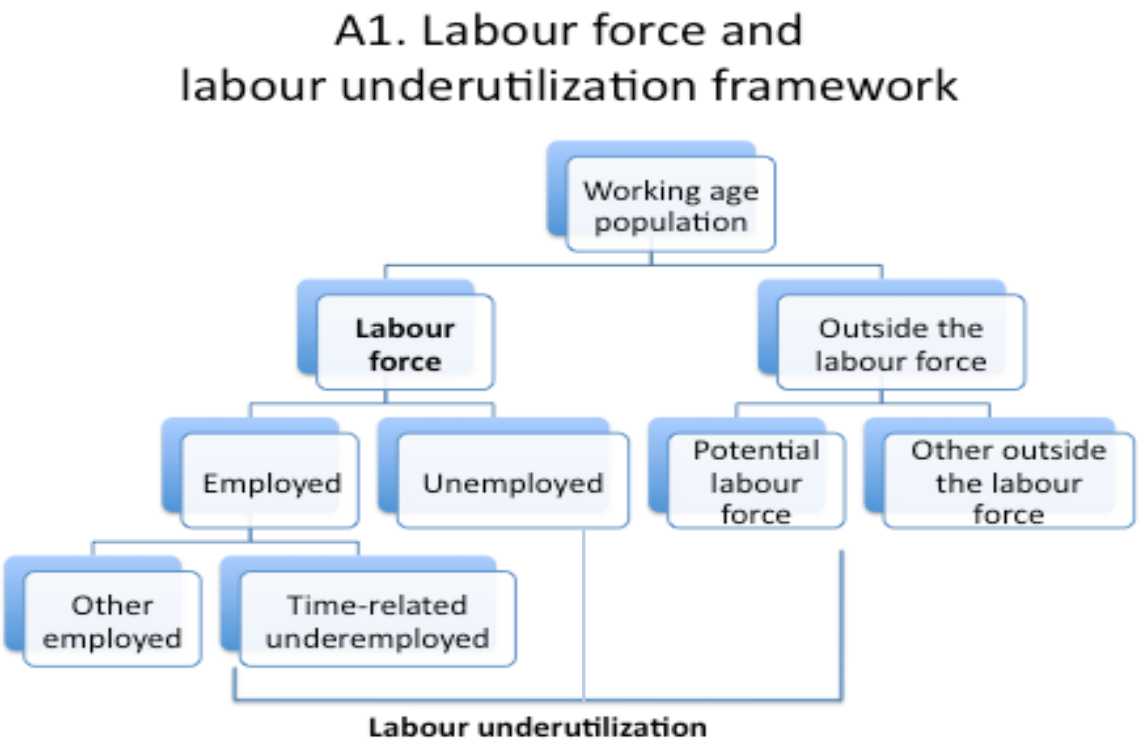
Although this definition of unemployment is essentially the same as the definition used in past surveys and censuses, the resulting statistics differ considerably from each other. This is due to the impact of the change in the definition of employment. Persons who are not classified as employed under the new definition are now subject to classification as unemployed if they satisfy the other two criteria of unemployment.

- **Time-related underemployment**

Persons in time-related underemployment are defined as all persons in employment who, during a specified reference period, (a) wanted to work additional hours, (b) whose working time in all jobs was less than a specified hours threshold, and (c) who were available to work additional hours given an opportunity for more work. The hour-threshold was set at 35 hours of work during the reference week at all jobs. It corresponds to the median value of the distribution of hours actually worked at all jobs during the reference week.

- **Potential labour force**

Potential labour force is defined as all persons above a specified age who, during the short reference period, were neither in employment nor in unemployment but who were considered as either (a) *unavailable jobseekers* (seeking employment but not currently available) or (b) *available potential jobseekers* (currently available for employment but did not carry out activities to seek employment). The relationship among the various concepts is shown in the figure below.



Note: The employed excludes workers engaged in the production of goods or services for own consumption or in other forms of work not regarded as employment.

- **Discouraged jobseekers**

Among the potential labour force, one particular group requires separate attention. These are the discouraged jobseekers. Discouraged jobseekers are persons outside the labour force who wanted employment and were currently available but did not seek employment during the short reference period of measurement for labour market-related reasons as listed below:

- past failure to find a suitable job
- lack of experience
- lack of qualifications or jobs matching the person's skills
- lack of jobs in the area
- considered too young or too old by prospective employers

The discouraged jobseekers are a subset of the potential labour force, or more particularly, a subset of the "available potential jobseekers". During the survey reference period, they wanted and were

available for employment, but were not seeking employment for labour market-related reasons as opposed to personal, family or other non-labour related reasons. They are considered as potential jobseekers because in principle they have been seeking employment in the past but stopped looking for employment after failure or repeated failures to obtain suitable employment due to various reasons related to the unsuitability of their age, qualification, work experience, and similar labour-market reasons. If these obstacles could be overcome, they would presumably be again jobseekers.

- **Others outside the labour force**

The potential labour force is one group of persons outside the labour force. In general, persons outside the labour force include persons of working age population who were neither in employment nor in unemployment during the reference period of measurement. Persons outside the labour force may be classified in terms of their current main activity status as well as the main reason for not being engaged in the labour force and their potential future labour force engagement. The international standards recommend the classification of persons outside the labour force by main activity status, as self-declared, with the following categories:

- own-use production of goods or own-use provision of services;
- unpaid-trainee work;
- volunteer work;
- studies;
- self-care (due to illness or disability);
- leisure activities (social, cultural, recreational).

The main status of the individual is to be determined by the person himself or herself, or in practice by the survey respondent if the survey allows for proxy-response.

Additional classifications of the population outside of the labour force (or more generally, the population not in employment) that may be considered in survey design are past work employment and characteristics of last employment for those who had past employment experience, and main current source of livelihood.

- **Willing non-jobseekers**

One particular group of persons outside the labour force who are not in the potential labour but have some attachment to the labour force are the so-called “willing non-jobseekers”. Willing non-jobseekers are defined as persons who wanted employment but were not seeking employment and

were not currently available for employment during the corresponding specified reference periods of measurement.

The willing non-jobseekers are a subset of the persons outside the labour force, and more particularly, a subset of those persons outside the labour force who are not in the potential labour force. The willing non-jobseekers were not seeking employment, nor were available for employment during the appropriate reference periods and as a result are not classified as unemployed or as potential labour force. However, they wanted employment during the appropriate reference period, and in this sense they are considered as a separate category among the population outside the labour force.

- **Own-use production work**

Persons in own-use production work are defined as all those of working age who, during a short reference period, performed any activity to produce goods or provide services for own final use for a cumulative total of at least one hour. "For own final use" is interpreted as production where the intended destination of the output is *mainly* for final use (in the form of capital formation, or final consumption by household members, or by family members living in other households). In the case of agricultural, fishing, hunting or gathering goods intended mainly for own consumption, a part or surplus may nevertheless be sold or bartered.

Subsistence foodstuff producers constitute an important subgroup of persons in own-use production work. They are defined as all those who performed any of the specified activities to produce foodstuff from agriculture, fishing, hunting or gathering that contribute to the livelihood of the household or family. Excluded are persons who engaged in such production as recreational or leisure activities.

Own-use producers and in particular persons engaged in own-use production of goods such as subsistence foodstuff producers (and for that also matter unpaid trainee workers or volunteer workers) may be engaged, in the same reference period, in other activities, including employment or search for employment. On the basis of their other activity, therefore, certain own-use producers may also be in the labour force and classified as employed, unemployed or other labour underutilization category.

The following table lists the terminology and definitions of the main labour force and labour underutilization indicators used in the survey. The definitions of other concepts used in the survey are described as part of the analysis of the data in the body of the report.

A2. Main labour force and labour underutilization indicators

Concept	**Definition**
Working age population (Pop16+)	E+U+N
Labour force (LF)	LF = E+U
Potential labour force	P
Extended labour force (XLF)	XLF = E+U+P
Employment	E
Unemployment	U
Time-related underemployment	T
Labour force participation rate	LF/Pop16+
Employment-population ratio	E/Pop16+
Unemployment rate (LU1)	U/LF
Combined rate of unemployment and time-related underemployment (LU2)	(U+T)/LF
Combined rate of unemployment and potential labour force (LU3)	(U+P)/XLF
Composite measure of labour underutilization (LU4)	(U+T+P)/XLF

Annex B: Survey methodology and data quality

The ultimate goal of the labour force survey (LFS) programme is to collect data on the employment and labour underutilization characteristics of the population on a continuous basis, providing quarterly estimates of the main labour force aggregates with sufficient precision at the district level. Given this ambitious measurement objective, it has been decided to adopt a gradual approach starting with an annual survey with the sample spread over four points in time. The sample is designed such that the survey provides for:

- Quarter national estimates of employment and labour underutilization with specified precision, and
- Annual district-level estimates by pooling together the data of each quarter of the calendar year.

The timing of the quarter rounds is based on the seasonal variations of labour force activities in Rwanda, in particular, the high and low seasons of agriculture activities, in February May , August, and November respectively. This approach is in line with the international standards that recommend a national data collection strategy that allows reporting "on a quarterly basis, main aggregates of employment, labour force, labour underutilization, including unemployment, in order to monitor short-term trends and seasonal variations."

An annual survey with the sample spread over four points in time has a number of advantages in comparison with an approach that starts with an annual survey conducted at one point in time during the year. The querterly approach allows NISR to put in place a survey management system that oversees survey operations and data processing tasks that cover the entire year. This would make it easier to transit at a later stage into a more frequent reporting system. It will also lessen the number of transitions and inevitable disruptions at each transition toward the final objective of reaching a continuous survey with quarterly reporting.

A qurterly approach also provides the possibility of incorporating a rotation scheme into the sample design. A rotation scheme allows to produce more accurate measurement of employment and labour underutilization trends as well as new statistics on labour force dynamics, in particular, flow data on job gains (number of persons obtaining employment during a given period) and corresponding data on job losses (number of persons losing employment during the period).

1. Sample design

The sample design of the LFS is a two-stage stratified design according to which at the first stage of sampling, a stratified sample of enumeration areas from the latest population census is drawn with probabilities proportional to size measured in terms of the census number of households or census number of household members, and at the second stage of sampling, a fixed number of sample of households is selected with equal probability within each sample enumeration areas. Finally, all household members in the sample households are selected for survey interviewing.

The scope of the survey is all persons living in private households. It excludes the institutional population permanently residing in houses such as hostels; health resorts; correctional establishments etc., as well as persons living in seasonal dwellings not covered in the survey. It also excludes workers living at their work-sites. A household is a group of persons who live together and make common provision for food and other essentials for living. The people in the group may be related or unrelated or a combination of both. A household may consist of only one person or several persons.

- **Sample size**

Sample size determination in most household-based surveys with multi-stage stratified design is based on the principle of first calculating the required sample size for a single «domain» assuming a simple random sample design and no non-response. A domain is a well-defined population group for which estimates with pre-determined accuracy are sought. The results are then extended to allow for non-response and deviation from simple random sampling.

The application of this principle with the choice of parameters described below leads to a sample size requirement of 18,691 households for measuring annual unemployment with margin of errors of +/- 0.3% at 95% confidence level. In these calculations, the main indicator is the ratio of unemployment to the working age population, set at r=0.024 according to the 2012 population census of Rwanda. The design effect (deff) is set at 3, within the range of values (3 to 4) generally used for labour force surveys. The margin of errors (ME = 0.0026) is twice the standard error of the estimate.[3]Similar calculations for employment gave a sample size requirement of 18,792 households.

The Labour Force survey programme begun with a pilot survey conducted in February 2016. The first round of the survey was conducted in August 2016, and continued on bi-annual basis until

[3]For more detail description of the calculations reference is made to: "Labour Force Survey of Rwanda: Proposed survey programme and instruments, FarhadMehran, GIZ Consultant, National Institute of Statistics of Rwanda (NISR), 31 July 2015.

August 2018. Since the year 2019, the survey was re-designed to provide estimates of the labour market aggregates on quarterly basis. The sample size in each quarter is about 4668 households, composed of three rotation groups marked with the symbol r in the table. The proposed rotation design is 1-1-1, that is each sample household is interviewed three times, once every two quarters. Accordingly, a sample household is in the sample in one quarter, leaves the sample in the next quarter, returns in the sample in the following quarter, leaves again the sample in the subsequent quarter, and finally returns in the sample for the third time before leaving the sample altogether.

- **Sample rotation**

The main purpose of sample rotation is to improve the precision of the trend estimates. It also allows obtaining data on labour force flows by matching sample individuals common in different survey rounds.

In May 2020, NISR introduced the telephone interviewing method as mode of data collection in the framework of complying with the preventive measures against Covid-19 pandemic. Given that there was no listing for households for new rotation, the used sample in May 2020 was taken from the previous survey which has been conducted in February 2020. Due to failure of including a new sample rotation in May 2020, the initial design sample rotation was disturbed in subsequent quarters; however, it will be restored from May 2021.

Rwanda LFS: Sample rotation design

Feb-19	**May-19**	**Aug-19**	**Nov-19**	**Feb-20**	**May-20**	**Aug-20**	**Nov-20**	**Feb-21**	**May-21**	**Aug-21**
r1										
	r2									
r3		r3								
	r4		r4							
(8+9) /3		r5		r5	r5					
	(8+9) /3		r6			r6				
		(10+11) /3		r7	r7		r7			
			(10+11) /3			r8		r8		

Feb-19	May-19	Aug-19	Nov-19	Feb-20	May-20	Aug-20	Nov-20	Feb-21	May-21	Aug-21
				(10+11)/3	(10+11)/3		r9		r9	
						(12+13)/3		r10		r10
							(12+13)/3		r11	
								(12+13)/3		r12
									(14+15)/3	
										(14+15)/3

- **Sampling frame and sample allocation among districts**

A primary sampling unit is an enumeration area of the Population and Housing Census 2012. There are altogether 14,784 enumeration areas in the sampling frame constructed by NISR based on the population and housing census.

To ensure adequate geographical distribution of the sample over the different parts of the population, the sample is allocated among the 30 districts of the country. Prior to sample selection, the sampling frame is sorted according to urban and rural areas within districts. This provides an implicit stratification of the population by urban and rural areas. The resulting distribution of the sample is obtained on the basis of the square-root allocation.

It should be mentioned that the square-root allocation rule allocates the sample in proportion to the square-root value of the size of the district. It is a compromise between equal and proportional allocation. Equal allocation gives the same allocation to each district regardless of size. It may be appropriate if each district is to be treated as separate reporting unit (domain) with the same precision requirement as the others. Proportional allocation distributes the sample in proportion to the size of the districts. With proportional allocation, the geographical composition of the population is preserved, but it may lead to very small sample sizes for certain districts.

Selection of sample enumeration areas

The next step in sample design was the selection of the 288 sample enumeration areas in each round. The sample was drawn in each district by probability proportional to size (pps) from the sampling frame.

The sample selection of PSUs has been carried out on the basis of the PSUs already selected under the bi-annual survey design. Thus, a sample of 144 PSUs have been selected from the 146 PSUs already designated for the August 2018 survey and what would have been the bi-annual February 2019 survey (old rotation groups 8 and 9). These PSUs have been randomly divided into three equal parts of each 46 PSUs, to serve for the new sample PSUs for introduction in the three consecutive quarters, August 2018, February 2019, and May 2019. Similarly, another sample of 144 PSUs have been selected from the 146 PSUs already designated for what would have been the bi-annual August 2019 and February 2020 survey (old rotation groups 10 and 11). These PSUs have then been randomly divided into three equal parts of each 46 PSUs, to serve for the new sample PSUs for introduction in the three consecutive quarters, August 2019, November 2019 and February 2020.

- **Selection sample households**

The sample enumeration areas were freshly listed prior to selection of the final sample of households. For each quarter, 16 sample households were selected from the list of households in each sample enumeration area by systematic sampling with equal probability. If the list contained 16 households or less all households in the sample enumeration area were drawn in the sample. If the list contained more than 16 households, a sample of fixed size (16 households) was drawn from the list by systematic random sampling. In order to keep almost the same number of households, the sample size in each quarter was about 4,668 households, composed of three rotation groups marked with the symbol r in the table1.

The purpose of listing was to ensure that every household currently residing in the sample locality has a non-zero probability of selection. Listing permits to update the sampling frame and account population movements and new household formations that have occurred since the last preparation of the sampling frame. It aims at covering the newly constructed buildings with living quarters and taking into account demolished or vacant buildings, or transformed dwellings no longer used as living quarters, such as dwelling addresses turned to stores or workshops, or living quarters used as secondary housing units or for holidays.

The listing form was developed to capture the information categorized in four columns: (1) A three-digit serial number for listing buildings; (2) Another three-digit serial number for listing dwellings within buildings; (3) The name of the head of household residing in the dwelling; and (4) The street address of the household.

- **Sample weights**

Three steps were involved in the calculation of the sample weights: Calculation of the design weight, Adjustment for non-response; and Calibration to known population projections.

The design weight of a given sample household is the inverse of the probability of selection of a sample household. This probability is calculated as the product of two probabilities. The first is the probability of selection of the enumeration area k where the sample household is residing,

$$p_k = \eta \times N_k$$

Where N_k is the number of households in the enumeration area according to the sampling frame and η is the proportionality factor of the pps sampling scheme.

The second is the probability of selection of the sample household within the enumeration area k

$$p(hh_k) = \frac{16}{N_k^1}$$

where 16 is the fixed sample-take in enumeration area k and N_k' is the listed or estimated number of households in the enumeration area k.

The overall design weight is the inverse of the product of these two probabilities,

$$DesignWeight(hh_k) = d_k = \frac{1}{p_k} \times \frac{1}{p(hh_k)}$$

The non-response adjusted weight is then obtained by the dividing the design weight with the response rate,

$$AdjustedWeight(hh_k) = d_k^{'} = \frac{d_k}{r_k}$$

where the response rate r_k in enumeration area k is the percentage number of responding households among the total eligible households in the sample enumeration area.

The sampling weights for the quarterly LFS are calculated as a function of the weights calculated earlier for the bi-annual survey, called here "Oldweight" as described above. The Qweight is obtained from the Oldweight as follows,

$$Qweight = Oldweight \times \frac{3}{4} \times \frac{1}{\frac{144}{146}} \times \frac{1}{\frac{1}{3}} = Oldweight \times \frac{219}{96}$$

where ¾ tales account of the fact that under the old bi-annual design there were 4 rotation groups per round and under the new quarterly design there are 3 rotation groups per round; the ratio 144/146 corresponds to the probability of selection of the new PSUs from the set of old PSUs; and, finally, 1/3 refers to the probability of selection when the new PSUs are randomly divided into three equal parts.

Finally, the adjusted weights were calibrated to known population projections for four demographic groups: Males and females population less than 16 years old and males and females 16 years old and over living on private households

The population projections were derived from the NISR census publication.[4] The projections were adjusted by deducting estimated values for the institutional population not living in private households. The calibration procedure followed the methodology of Deville and Sarndäl.[5] Accordingly, the final calibrated weights were obtained from the formula,

[4] National Institute of Statistics of Rwanda, *Fourth Population and Housing Census, Rwanda, 2012, Thematic Report Population Projections*, January 2014.
[5] Deville, J.C., and Sarndäl, C.E., "Calibration Estimators in Survey Sampling," *Journal of the American Statistical Association*, Vol. 87, 1992, pp. 376-382.

$$CalibratedWeight(hh_k) = w_k = d_k^{'} \times (1 + \lambda x_k^{'})$$

where d_k' is the adjusted weight for non-response, λ is a regression vector obtained from the calibration formula, and xk' is the vector of the count of male less than 16 years old, male 16 years old and over, female less than 16 years old and female 16 years old and over of interviewed households in the enumeration area k. All individuals in the same household are assigned the weight of the household in which they belong.

2. Questionnaire design

The questionnaire of the Rwanda Labour Force Survey 2018 in its present form contains a total of 149 questions organized into 9 sections and a cover page, dealing with following topics:

A Household roster
B Education
C Identification of employed, time-related underemployed, unemployed and potential labour force
D Characteristics of main job/activity
E Characteristics of secondary job/activity
F Past employment
G Own-use production of goods and services
H Subsistence foodstuff production
I Housing and household assets

Not all questions are addressed to every household member. For children below 14 years of age, a minimum number of questions are asked. For older youngsters and adults 14 years of age and above, the number of questions depends on the situation and activities of the person during the reference period. The basic reference period is the last 7 days prior to the date of the interview. For certain questions, however, other reference periods are used. In each case, the relevant reference period is indicated in the text of the question.

The questionnaire was prepared both in Kinyarwanda and in English. An earlier version of the Kinyarwanda questionnaire was tested during the Pilot LFS February 2016. The field test was conducted in selected urban and rural areas with the aim of assessing the integrity of the instrument, such as understanding of question wordings, duration of interviews, coding and data processing. The experience gained was used to finalize the questionnaire.

Experienced gained from the pilot survey led to certain modifications of the questionnaire. The revised questionnaire was again tested prior to the LFS August 2016 and February 2017 through the mock interviews conducted during the training of supervisors and interviewers. Slight modifications were further introduced following the experience gained during the field work of previous LFS rounds.

A specimen of the final version of the questionnaire is presented in Annex C of the present report. It is accompanied with two documents: An extensive manual for interviewers, providing instructions on the role of interviewers, listing of household members, and procedures to be adopted for asking each question and recording the corresponding response;[6] and a set of diagrams and corresponding STATA syntax providing rules for combining the survey responses for constructing the main labour force indicators of the survey. These derived variables included:

Labour force status (STATUS1):
Employed, Unemployed and Outside the labour force
Time-related underemployed (TRU)
Potential labour force (PLF)
Discouraged jobseeker (discourage)
Willing non-jobseeker (willing)
Subsistence foodstuff producer (sub)
Employment in informal and formal sector (IS and FS)
Informal and formal employment (IE and FE)
Monthly cash income from employment of employees at main job (cash)
Not in employment, nor in education or training youth 16-24 years old (NEET youth)
Not in employment, nor in education or training young persons 16-30 years old (NEET young)
Migrant worker (migrant)
Worker with disability (disable)

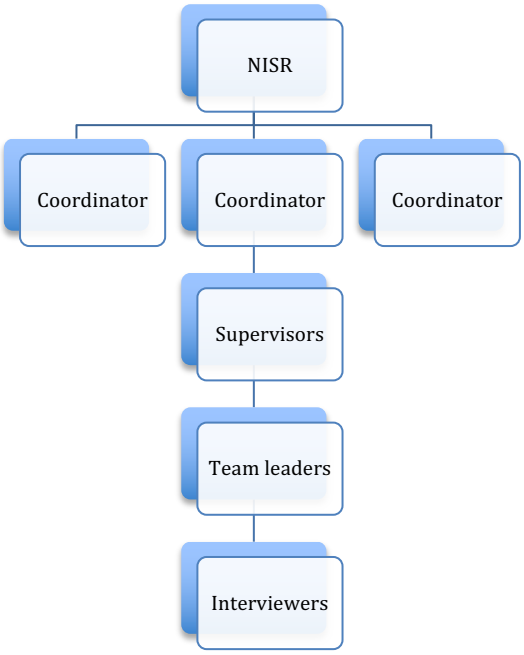
3. Field operations

In February and August 2020 the data collection was done through face to face interviews while in May and November the telephone interview was used as mode of data collection.

[6] NISR, *Rwanda Labour Force Survey, Interviewers Manual (RLFS, 2016)*, National Institute of Statistics of Rwanda, Kigali, December 2015. Revised for the RLFS, August 2016.

For the face to face data collection, the main pre-survey activities conducted in preparation for the field operations included the establishment of the field organization, the recruitment and training of interviewers and the preparation of Tablets.

The following diagram shows the field organization of the survey. It consisted of 2 coordinators, coordinating the work of 10 supervisors, 24 team leaders and 96 interviewers. **Field organization, LFS**



For the telephone interviewing, the same interviewers and team leaders conducted interviews being supervised by NISR supervisors. The interviews were conducted in different big rooms of the NISR training center, where the interviewers were seating with enough distance to avoid interfering each other during the time of call. The interviewers were given by the NISR a telephone with airtime, head phone, tablet and the assignment list containing the names of heads of households and their telephone. Each interviewer was tasked to make at least 8 interviews per day. To carry out the interview, the interviewers had systematically to select an EA, and households and call till someone pick the phone and consent to be interviewed. If after the call, no one picked the phone the interviewer went on to the next person and come back to the same person after 2 hours. The questionnaire for which the telephone was ringing but no one picked it was closed after 6 attempts of calls, with 2 hours interval of time between attempts, during 2 days.

Prior to the interview, a short telephone message was sent to the heads of households in the sample informing them about the survey and asking them to cooperate by providing requested information by the NISR staff through the telephone call.

Some of telephone numbers were not accessible due to different reasons including network problems. Those cases were marked on the assignment paper for the next trial some days later, in order to give the priority to the respondents with accessible phone numbers. After covering the EA, the interviewer went back to the heads of households for which the telephone was not accessible during the first trials and tried to ask the interviewer neighbour living in the same village if he/she know that person. In many cases, especially in rural areas, the respondents were cooperative and accepted to connect interviewers to heads of households for whom the telephone numbers were not accessible. In that case, the household head provided a new telephone number to be used or the interview was conducted using the telephone of that neighbour.

Chiefs of villages played also an important role to minimize the non-response rate, especially in rural areas. Interviewers were provided with the list containing the telephone numbers of chiefs of villages collected during the listing activity in the selected enumeration areas. Chiefs of villages helped in connecting interviewers with the heads of households for whom the telephone numbers were not accessible.

Each group of 6 interviewers was assigned with the NISR supervisors. The supervisors had the responsibility to follow-up the conduct of interview and support the interviewers in solving difficulties uncounted during the data collection process. To follow-up the interviews, the supervisors were requested to pick one interviewer, ask him/her to recode the interview and send it to the supervisor. The supervisor had the responsibility of listening to the interview and providing comments and advice for the improvements in the next interviews.

There were a refraicher training of interviewers prior to each round of LFS. Apart from the February 2020 round, the trainings for other rounds were conducted online using Webex.

4. Data processing

As well as from the previous year, data were collected using computerized assisted interview (CAPI). Data was uploaded to NISR main office from field via wireless network channel by synchronizing every day with the NISR server. It was carried every day to have a daily back up of data. All the activity of codification were also done by interviewers who were trained. Several questions with textual

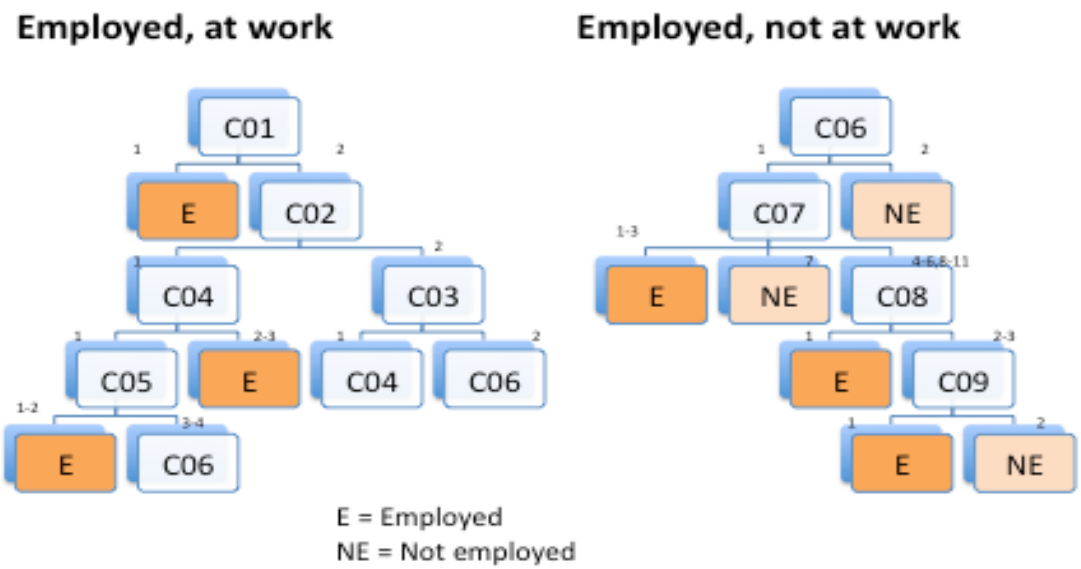
responses were pre-coded and tabled in cascaded way. These concerned education (major field of study in highest qualification attained, and subject of training), occupation and branch of economic activity (at main and secondary job and past employment experience); they were coded into the corresponding national standard classifications using on-screen coding with corresponding dictionaries in Kinyarwanda. 7 Coding of geographic areas and addresses was incorporated in the data entry programme as look-up.

Following coding, responses of each questionnaire were edited for blanks, missing values, duplicates, out-of-range values, and inconsistencies using developed batches of controlling inconsistence in CsPro and Stata. Editing specifications on coverage and demographic characteristics were based on the population and housing census (PHC4 2012). Other edit rules were developed for consistency checks on questions related to the measurement of the main labour force variables, including employment, unemployment, multiple jobholding, total hours usually worked at all jobs, total hours actually worked at all jobs, status in employment at main job, etc. The detected errors were directly sent back to the field for the correction by the interview.

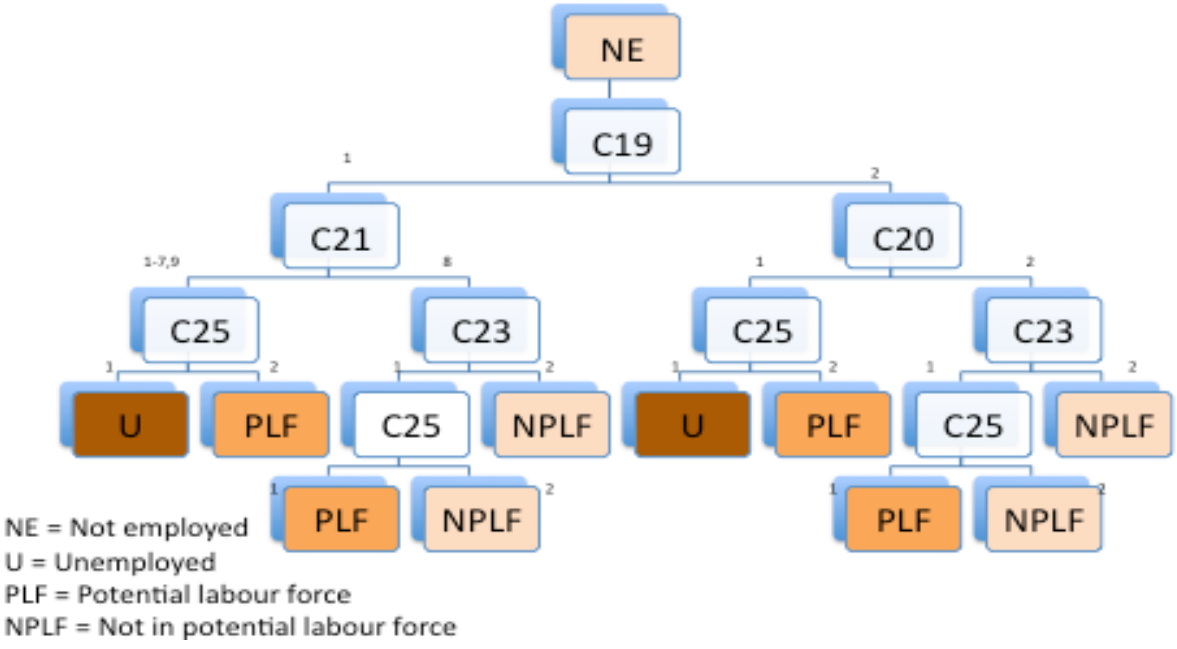
As part of data processing, the data file was augmented by adding a field on sampling weights (weight) and a series of additional fields on derived variables constructed on the basis of the information on each record. Some examples of the construction of the derived variables is schematically shown in diagrams B1 to B5 for employment (E), unemployment (U) and potential labour force (PLF), and monthly cash income from employment of employees at main job (cash). The numbered elements of the diagrams refer to the question numbers and response categories of the LFS questionnaire. The end nodes of the diagrams refer to the derived variable categories, employed, unemployed, etc.

[7] National Institute of Statistics of Rwanda, *Customized International Standard Industrial Classification of all Economic Activities (ISIC Rev. 4)*, The Rwanda Classification Manual, 2012 edition.
National Institute of Statistics of Rwanda, *Customized International Standard Classification for Occupation (ISCO-08)*, The Rwanda Classification Manual, 2012 edition.
National Institute of Statistics of Rwanda, *Customized International Standard Classification of Education (ISCED 97)*, The Rwanda Classification Manual, 2012 edition.

B.1 Derived variable: Employment (E)



B.3 Derived variables: Unemployment (U) and potential labour force (PLF)



B.5 Derived variable: Monthly cash income from employment of employees at main job (INC)

Status in employment		Response	Monthly cash income from employment at main job	
-1	-2	-3	-4	
Employee or Intern or Other	D05=1,2,7	D12=1 Amount	D12A x 1	if D13=1
			D12A x 26/12	if D13=2
			D12A x 52/12	if D13=3
			D12A x 52/2	if D13=4
			D12A /12	if D13=5
		D12=2,3, Refusal, Don't know	2*20,000/3=13,333	if D17=1
			2/(1/20,000+1/30,000)=24,000	if D17=2
			2/(1/30,000 +1/50,000)=37,500	if D17=3
			2/(1/50,000 +1/100,000)=66,667	if D17=4
			2*100,000 = 200,000	if D17=5

Based on these results, it was decided to use the conversion factor 1 for monthly payments, 2 for two-weekly payments, 52/12 for weekly payments, and 26 for daily payments to calculate the monthly income.

Finally, the augmented data file with derived variables and sampling weights was used for producing the survey estimates specified in the tabulation programme of the survey as well as other analytical tables for the body of the report and annex D In order to speed up data processing and ensure better quality data, NISR has introduced tablets for data collection, and incorporated an assisted coding of the questions with textual responses and automated editing procedures for both detection and correction of errors thus minimizing the need for the time-consuming task of making reference to the physical questionnaires.

5. Data quality

Like in all sample surveys, the results of the LFS 2020 are subject to sampling and different forms of measurement errors. This section provides information on different sources of survey errors, namely, sampling errors, coverage errors, non-response errors, response errors and other errors such as coding and data entry errors.

- **Sampling errors**

Sampling errors arise due to the fact that the survey did not cover all elements of the population, but only a selected portion. The sampling error of an estimate is calculated on the basis of the difference between the estimate and the value that would have been obtained on the basis of a complete count of the population under otherwise identical conditions.

Information on sampling errors is used for interpreting the survey results. It provides an assessment of the precision of the estimates and on the degree of confidence that may be attached to them. In the same vein, it allows decision on the degree of detail with which the survey data may be meaningfully tabulated and analyzed. Information on sampling errors is also used for determining whether the survey estimates of change over time or the estimates of differences between two or more population subgroups are statistically significant. Finally, information on sampling errors may be used for future sample design. Rational decisions on the choice of sample size, sample allocation among strata, clustering and estimation procedures, can only be made on the basis of detail knowledge of their effect on the magnitude of sampling errors in the resulting statistics obtained from the survey.

The following table gives the sampling errors of the main labour force estimates obtained from the LFS 2020. They have calculated based on the general principle that in multi-stage sample designs the variance contributed by the later stages of sampling is, under broad conditions, reflected in the observed variation among the sample results for first-stage units. Thus, the sampling variance of a variety of statistics, such as totals, means, ratios, proportions, and their differences can be obtained on the basis of totals calculated for the primary sampling units, here the localities [8]. The calculations took into account the fact that the sampling weights were calibrated and used the residual method proposed by Deville and Sarndäl p. 380. They have been carried out in a special Excel file "RLFS AUG 2018 sampling errors.xlsx" (sheet Sampling errors 2).

[8]Verma, Vijay, *Sampling Methods*, Manual for Statistical Trainers Number 2, Statistical Institute for Asia and the Pacific (SIAP), Tokyo, Revised 2002.

B.6: Sampling errors of estimates of main labour force aggregates

Indicator	Estimate	Standard error	Relative standard error	Confidence interval	
				Lower	Upper
Population 16+ yrs	7,472,601	121,095	1.62%	7,235,002	7,710,200
Labour force	4,212,971	74,927	1.78%	4,065,959	4,359,984
Employment	3,460,860	65,270	1.89%	3,332,794	3,588,925
Unemployment	752,112	22,306	2.97%	708,345	795,879
Outside labour force	3,259,630	65,443	2.01%	3,131,226	3,388,034

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey, 2019

As an illustration of the use of the table, consider the second row of the table on the labour force. The total labour force, 4,212,971 is estimated with a relative standard error of 1.78 percent. The true value at 95 percent confidence level lies within the interval 4,065,959and 4,359,984. Similarly, it can be stated that the total number of unemployed persons, 752,112is estimated with a relative standard error of 2.97percent. The true value at 95 percent confidence level lies within the interval 708,345and 795,879.

The next table gives the estimated sampling errors for the main labour force indicators expressed in rates or percentages. For example, the results indicate that the unemployment rate estimated at 17.9 percent has a standard error of 0.4 percentage points. This may be interpreted to mean that the true unemployment rate lies with 95 percent confidence within the interval, 17.0 to 18.7 percent.

B.7: Sampling errors of estimates of main labour force indicators (percentage)

Indicator	Estimate	Standard error	Confidence interval	
			Lower	Upper
Labour Force Participation Rate	56.4	0.5	55.4	57.3
Employment-Population Ratio	46.3	0.5	45.4	47.2
Unemployment rate	17.9	0.4	17.0	18.7

- Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey, 2019

It is not practical to compute and report sampling errors for every published statistic of a labour force survey. For this purpose, general variance estimates are typically calculated using the approximate relationship between the variance of an estimate and its size, expressed by $var(y)/y^2 = b + a/y$. The results are presented in the following table.

B.8: Approximate sampling errors by size estimates

Size of estimate	Standard error	Relative standard error	Confidence interval	
			Lower	Upper
5,000,000	90,100	1.8%	4819800	5180200
2,500,000	51,500	2.1%	2397000	2603000
1,000,000	26,900	2.7%	946200	1053800
500,000	17,500	3.5%	465000	535000
250,000	11,800	4.7%	226400	273600
100,000	7,200	7.20%	85600	114400
50,000	5,000	10.0%	40000	60000
25,000	3,500	14.0%	18000	32000
10,000	2,200	22.0%	5600	14400

Source: National Institute of Statistics of Rwanda (NISR), Labour Force Survey, 2020

Thus, an estimate about 5,000,000 has an approximate standard error of 90,100 with a confidence interval at 95% level between 4,819,800 and 5,180,200. Similarly, an estimate of about 500,000 has an approximate standard error of 17,500with a confidence interval between 465,000and 535,000. It can be observed that the relative standard error sharply increases as the size of the estimate decreases. Estimates as low as 10,000 have very high relative standard errors, more than 20 percent. The table can be used to decide on the size of estimates that can be meaningfully considered or more as statistically significant for analysis. For size of estimates that are not listed in the table, the approximate standard errors can be obtained by interpolation or extrapolation of the values given in the table.

- **Non-response errors**

Non-response occurs due to failure to obtain the required information from the units selected in the sample (unit non-response) or to failure to obtain some items of information for the selected unit (item non-response). Unit non-response may occur due to incorrect address of the sample household, or inaccessibility of certain dwellings or refusal of the sample household to be interviewed, or because no one was at home when the interviewer contacted the household, or for other reasons.

Absence and refusal are considered as non-response while vacant demolished or out-of-scope housing units are considered as non-coverage. The non-response rates for all February, May, August and November round 2020 was around 3 percent.

- **Response errors**

Response errors refer to errors originating at the data collection stage. In relation to an individual respondent, response errors may occur because the respondent was unwilling to divulge certain information or because the respondent did not know the answer to the question asked or did not fully understand the meaning of the question. Response errors can also occur due memory lapses, for example by forgetting to report an event, or incorrectly reporting the timing. Response errors may also occur because of errors made by the interviewer or by the instrument used for measurement. Interviewers may introduce errors because of haste and misreporting the responses, or because of misunderstanding of the survey concepts and procedures, or preconceptions and subjective biases. The questionnaire itself may be faulty, with wrong question wordings and incorrect skipping patterns.

The measurement of response errors is one of the most difficult parts of quality assessment of survey data. It generally requires carefully designed re-interview programmes. In the absence of such data, the quality of survey responses may be assessed by comparing the survey results with corresponding information from more reliable external sources such as administrative sources, for example, reconciling the LFS estimate of employment with the corresponding estimate obtained from the Integrated Business Enterprise Survey.[9] More detailed assessment may be carried out by comparing the LFS estimates of employment in specific occupations such as primary and secondary school teachers, nurses, and civil servants with corresponding statistics from the line ministries. Other indicators of response errors may be obtained by measuring the degree of self-response against proxy-response, or by testing the internal consistency of certain sets of inter-related responses. The assessment of response errors along the lines described here should be considered in future rounds of the survey when the survey programme has been stabilized.

[9]National Institute of statistics of Rwanda, *Integrated Business Enterprise Survey*, NISR 2014.

Annex C: Statistical tables

Table C. 1: Summary labour force indicators, RLFS 2020

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Population 16 years old and over	7,472,602	3,512,697	3,959,903	1,581,476	5,891,125	3,633,108	3,839,493
Labour force	4,212,972	2,303,622	1,909,349	1,060,077	3,152,894	1,831,512	2,381,459
- Employed	3,460,860	1,938,268	1,522,592	867,565	2,593,295	1,432,516	2,028,344
- Unemployed	752,112	365,354	386,757	192,512	559,599	398,996	353,115
Outside labour force	3,259,630	1,209,075	2,050,554	521,399	2,738,231	1,801,596	1,458,034
- Unemployed	752,112	365,354	386,757	192,512	559,599	398,996	353,115
- Potential labour force	1,694,786	628,771	1,066,015	242,951	1,451,836	1,158,506	536,281
Labour force participation rate (%)	56.4	65.6	48.2	67.0	53.5	50.4	62.0
Employment-to-population ratio (%)	46.3	55.2	38.5	54.9	44.0	39.4	52.8
LU1 - Unemployment rate (%)	17.9	15.9	20.3	18.2	17.7	21.8	14.8
Youth unemployment rate (16-30 yrs) (%)	22.4	19.7	25.7	22.6	22.4	27.5	19.2
Median monthly earnings at main job	26,000	30,000	20,800	52,000	20,800	20,800	31,200

Table C. 2: Population 16 years old and over by labour force status, sex, age group, and urban/rural area, RLFS 2020

15	Total	Labour force status				Labour force participation rate (%)	Employment-population ratio (%)	Unemployment rate (%)
		Labour force	Employed	Unemployed	Outside labour force			
Total Population 16 yrs and over	**7,472,601**	**4,212,972**	**3,460,860**	**752,112**	**3,259,630**	**56.4**	**46.3**	**17.9**
16-24 yrs	2,309,913	1,080,767	828,459	252,308	1,229,146	46.8	35.9	23.3
25-34 yrs	1,874,035	1,356,005	1,098,949	257,056	518,030	72.4	58.6	19.0
35-54 yrs	2,195,647	1,427,063	1,230,818	196,245	768,584	65.0	56.1	13.8
55-64 yrs	617,306	271,530	233,426	38,104	345,775	44.0	37.8	14.0
65+ yrs	475,700	77,605	69,206	8,399	398,095	16.3	14.5	10.8
		-						
Male Pop. 16+ yrs	**3,512,698**	**2,303,622**	**1,938,268**	**365,354**	**1,209,075**	**65.6**	**55.2**	**15.9**
16-24 yrs	1,132,034	573,371	456,983	116,388	558,663	50.6	40.4	20.3
25-34 yrs	905,580	755,696	631,419	124,277	149,883	83.4	69.7	16.4
35-54 yrs	1,009,973	782,467	684,302	98,165	227,507	77.5	67.8	12.5
55-64 yrs	267,154	145,126	123,234	21,892	122,028	54.3	46.1	15.1
65+ yrs	197,957	46,963	42,331	4,632	150,994	23.7	21.4	9.9
Female Pop. 16+ yrs	**3,959,903**	**1,909,349**	**1,522,592**	**386,757**	**2,050,554**	**48.2**	**38.5**	**20.3**
16-24 yrs	1,177,879	507,396	371,476	135,920	670,483	43.1	31.5	26.8
25-34 yrs	968,455	600,309	467,530	132,779	368,146	62.0	48.3	22.1
35-54 yrs	1,185,674	644,597	546,517	98,080	541,077	54.4	46.1	15.2
55-64 yrs	350,152	126,405	110,193	16,212	223,747	36.1	31.5	12.8
65+ yrs	277,743	30,642	26,875	3,767	247,100	11.0	9.7	12.3

15	Total	Labour force status				Labour force participation rate (%)	Employment-population ratio (%)	Unemployment rate (%)
		Labour force	Employed	Unemployed	Outside labour force			
Urban Pop. 16+ yrs	**1,581,477**	**1,060,077**	**867,565**	**192,512**	**521,399**	**67.0**	**54.9**	**18.2**
16-24 yrs	501,826	248,767	191,104	57,663	253,060	49.6	38.1	23.2
25-34 yrs	493,474	399,957	321,737	78,220	93,516	81.0	65.2	19.6
35-54 yrs	445,849	357,316	310,082	47,234	88,532	80.1	69.5	13.2
55-64 yrs	78,623	42,609	34,597	8,012	36,014	54.2	44.0	18.8
65+ yrs	61,705	11,428	10,045	1,383	50,277	18.5	16.3	12.1
						0.0	0.0	0.0
Rural Pop. 16+ yrs	**5,891,125**	**3,152,894**	**2,593,295**	**559,599**	**2,738,231**	**53.5**	**44.0**	**17.7**
16-24 yrs	1,808,087	832,000	637,355	194,645	976,086	46.0	35.3	23.4
25-34 yrs	1,380,561	956,048	777,212	178,836	424,513	69.3	56.3	18.7
35-54 yrs	1,749,799	1,069,747	920,736	149,011	680,052	61.1	52.6	13.9
55-64 yrs	538,683	228,922	198,830	30,092	309,761	42.5	36.9	13.1
65+ yrs	413,995	66,177	59,162	7,015	347,818	16.0	14.3	10.6

Table C. 3 : Population 16 years old and over by labour force status, sex, level of educational attainment, and urban/rural area, RLFS 2020

	Total	Sex		Area of residence		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Total	**7,472,601**	**3,512,698**	**3,959,903**	**1,581,477**	**5,891,125**	**3,633,108**	**3,839,493**
None	3,459,655	1,567,642	1,892,013	358,145	3,101,510	1,934,932	1,524,723
Primary	2,330,159	1,098,233	1,231,926	408,037	1,922,122	1,238,911	1,091,248
Lower secondary	658,593	309,478	349,115	222,690	435,903	231,065	427,528
Upper secondary	685,265	338,360	346,905	336,253	349,011	189,432	495,833
University	338,930	198,986	139,943	256,351	82,579	38,769	300,161

Table C. 4: Employed population by sex, age group, and urban/rural area, RLFS 2020

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Employed population 16+	**3,460,860**	**1,938,268**	**1,522,592**	**867,565**	**2,593,295**	**1,432,516**	**2,028,344**
16-19 yrs	289,890	152,694	137,196	50,678	239,212	111,706	178,184
20-24 yrs	538,569	304,288	234,281	140,426	398,144	190,325	348,244
25-29 yrs	533,157	303,151	230,005	162,414	370,743	188,271	344,886
30-34 yrs	565,793	328,268	237,525	159,323	406,469	234,214	331,578
35- 39 yrs	481,383	284,356	197,027	122,057	359,326	214,548	266,835

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
40-44 yrs	323,625	176,244	147,381	91,327	232,298	145,205	178,420
45-49 yrs	243,359	124,119	119,240	60,948	182,411	113,665	129,694
50-54 yrs	182,451	99,583	82,868	35,750	146,701	87,500	94,951
55-59 yrs	133,645	72,300	61,346	18,470	115,175	65,681	67,964
60-64 yrs	99,781	50,934	48,847	16,126	83,655	52,152	47,629
65-69 yrs	39,823	23,076	16,747	4,790	35,033	16,998	22,825
70-74 yrs	20,703	15,592	5,111	4,283	16,420	9,367	11,337
75+	8,680	3,662	5,018	971	7,709	2,884	5,796

Table C. 5: Employed population by sex, level of educational attainment, and urban/rural area, RLFS 2020

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Employed population	3,460,860	1,938,268	1,522,592	867,565	2,593,295	1,432,516	2,028,344
None	1,605,034	873,668	731,366	205,296	1,399,738	807,755	797,279
Primary	1,036,826	591,902	444,924	222,864	813,962	448,366	588,459
Lower secondary	230,378	127,552	102,826	93,379	136,999	71,327	159,051
Upper secondary	338,314	191,498	146,816	156,127	182,188	76,709	261,605
University	250,308	153,649	96,659	189,899	60,409	28,358	221,950

Table C. 6: Employed population by sex, branch of economic activity, and urban/rural area, RLFS 2020

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Employed population	**3,460,860**	**1,938,268**	**1,522,592**	**867,565**	**2,593,295**	**1,432,516**	**2,028,344**
Agriculture, forestry and fishing	1,399,907	650,361	749,546	67,752	1,332,156	761,629	638,278
Mining and quarrying	57,379	50,842	6,537	2,510	54,869	26,686	30,693
Manufacturing	201,554	119,607	81,947	57,026	144,528	78,650	122,904
Electricity, gas, steam and air conditioning supply	7,096	6,229	866	4,500	2,595	2,185	4,911
Water supply, sewerage and waste management	7,047	3,273	3,774	2,722	4,324	3,183	3,864
Construction	435,720	351,559	84,162	91,594	344,126	200,214	235,506
Wholesale, retail trade, repair of motor vehicles, motorcycles	466,569	212,857	253,711	173,006	293,563	176,714	289,855
Transportation and storage	146,259	139,343	6,917	52,848	93,412	42,458	103,801
Accommodation and food service activities	91,495	45,034	46,461	35,637	55,858	26,372	65,123
Information and communication	8,962	6,697	2,265	7,295	1,667	959	8,004
Financial and insurance activities	35,728	20,503	15,225	21,010	14,718	2,461	33,267
Real estate activities	4,098	2,917	1,180	2,971	1,127	690	3,408
Professional, scientific and technical activities	21,249	15,698	5,551	17,021	4,227	2,385	18,864
Administrative and support service activities	69,213	51,373	17,841	30,897	38,317	16,153	53,060
Public administration and defense	65,349	47,668	17,681	40,880	24,469	7,793	57,556

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Education	107,624	55,189	52,435	44,621	63,003	35,971	71,653
Human health and social work activities	55,984	24,812	31,172	37,694	18,290	8,378	47,606
Arts, entertainment and recreation	9,715	7,965	1,750	7,685	2,030	1,058	8,657
Other service activities	96,244	57,361	38,883	43,338	52,907	26,458	69,787
Activities of households as employers	166,587	64,620	101,967	120,788	45,799	10,900	155,686
Activities of extraterritorial organizations and bodies	7,079	4,359	2,719	5,770	1,308	1,218	5,860

Table C. 7: Employed population by sex, status in employment, and urban/rural area, RLFS 2020

	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Employed population	3,460,860	1,938,268	1,522,592	867,565	2,593,295	1,432,516	2,028,344
Employee, Paid apprentice/intern	2,292,976	1,316,104	976,871	578,750	1,714,226	1,081,476	1,211,500
Employer	46,221	29,874	16,348	24,724	21,498	8,624	37,597
Own-account worker	968,858	555,954	412,904	237,402	731,456	316,842	652,016
Member of cooperative	5,792	3,689	2,102	1,383	4,409	1,760	4,031
Contributing family worker	147,013	32,646	114,366	25,307	121,706	23,812	123,200

Table C. 8: Employed population by sex, branch of economic activity and status in employment, RLFS 2020

	Total	Employee, Paid apprentice/intern	Employer	Own-account worker	Member of cooperative	Contributing family worker
Employed population	**3,460,860**	**2,292,976**	**46,221**	**968,858**	**5,792**	**147,013**
Agriculture, forestry and fishing	1,399,907	1,048,570	14,644	245,082	1,860	89,752
Mining and quarrying	57,379	37,121	236	19,108	594	321
Manufacturing	201,554	88,408	3,039	103,152	780	6,176
Electricity, gas, steam and air conditioning supply	7,096	6,281	98	717	0	0
Water supply, sewerage and waste management	7,047	4,985	0	2,062	0	0
Construction	435,720	396,603	2,200	34,222	254	2,442
Wholesale, retail trade, repair of motor vehicles, motorcycles	466,569	78,014	12,550	338,250	834	36,920
Transportation and storage	146,259	53,997	1,690	89,265	940	367
Accommodation and food service activities	91,495	34,875	4,595	42,767	0	9,258
Information and communication	8,962	7,421	152	1,318	0	72
Financial and insurance activities	35,728	17,724	537	16,654	258	555
Real estate activities	4,098	1,947	65	2,086	0	0
Professional, scientific and technical activities	21,249	10,083	1,667	9,258	0	241
Administrative and support service activities	69,213	63,449	187	5,440	0	137
Public administration and defense	65,349	65,212	123	14	0	0
Education	107,624	105,186	852	1,513	0	74
Human health and social work activities	55,984	53,979	395	1,513	98	0
Arts, entertainment and recreation	9,715	6,788	196	2,642	0	89
Other service activities	96,244	40,030	2,996	52,586	175	457
Activities of households as employers	166,587	165,225	0	1,210	0	152
Activities of extraterritorial organizations and bodies	7,079	7,079	0	0	0	0

MALE

	Total	Employee, Paid apprentice/intern	Employer	Own-account worker	Member of cooperative	Contributing family worker
Employed population (Male)	**1,938,268**	**1,316,104**	**29,874**	**555,954**	**3,689**	**32,646**
Agriculture, forestry and fishing	650,361	466,161	10,497	155,667	365	17,672
Mining and quarrying	50,842	33,588	138	16,670	445	0
Manufacturing	119,607	65,215	2,375	49,566	780	1,671
Electricity, gas, steam and air conditioning supply	6,229	5,414	98	717	0	0
Water supply, sewerage and waste management	3,273	2,657	0	616	0	0
Construction	351,559	318,298	1,724	31,503	0	35
Wholesale, retail trade, repair of motor vehicles, motorcycles	212,857	58,508	7,662	136,347	834	9,507
Transportation and storage	139,343	48,887	1,690	87,459	940	367
Accommodation and food service activities	45,034	23,881	1,332	17,191	0	2,630
Information and communication	6,697	5,434	152	1,111	0	0
Financial and insurance activities	20,503	9,208	415	10,428	258	194
Real estate activities	2,917	1,223	0	1,695	0	0
Professional, scientific and technical activities	15,698	7,064	1,576	6,891	0	167
Administrative and support service activities	51,373	46,743	50	4,580	0	0
Public administration and defense	47,668	47,546	123	0	0	0
Education	55,189	53,650	531	935	0	74
Human health and social work activities	24,812	24,006	0	806	0	0
Arts, entertainment and recreation	7,965	5,973	98	1,805	0	89
Other service activities	57,361	24,344	1,416	31,294	67	240
Activities of households as employers	64,620	63,947	0	673	0	0
Activities of extraterritorial organizations and bodies	4,359	4,359	0	0	0	0

FEMALE

	Total	Employee, Paid apprentice/intern	Employer	Own-account worker	Member of cooperative	Contributing family worker
Employed population(Female)	**1,522,592**	**976,871**	**16,348**	**412,904**	**2,102**	**114,366**
Agriculture, forestry and fishing	749,546	582,409	4,147	89,415	1,495	72,080
Mining and quarrying	6,537	3,533	98	2,437	148	321
Manufacturing	81,947	23,193	665	53,586	0	4,504
Electricity, gas, steam and air conditioning supply	866	866	0	0	0	0
Water supply, sewerage and waste management	3,774	2,328	0	1,445	0	0
Construction	84,162	78,305	476	2,719	254	2,408
Wholesale, retail trade, repair of motor vehicles, motorcycles	253,711	19,506	4,888	201,904	0	27,413
Transportation and storage	6,917	5,110	0	1,807	0	0
Accommodation and food service activities	46,461	10,994	3,263	25,576	0	6,628
Information and communication	2,265	1,987	0	206	0	72
Financial and insurance activities	15,225	8,516	122	6,226	0	361
Real estate activities	1,180	724	65	391	0	0
Professional, scientific and technical activities	5,551	3,019	91	2,367	0	74
Administrative and support service activities	17,841	16,706	137	860	0	137
Public administration and defense	17,681	17,666	0	14	0	0
Education	52,435	51,536	321	578	0	0
Human health and social work activities	31,172	29,973	395	707	98	0
Arts, entertainment and recreation	1,750	815	99	836	0	0
Other service activities	38,883	15,686	1,580	21,292	108	217
Activities of households as employers	101,967	101,278	0	537	0	152
Activities of extraterritorial organizations and bodies	2,719	2,719	0	0	0	0

Table C. 9: Average number of hours actually worked during reference week by sex, by urban/rural area, RLFS 2020

	Rwanda			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Average number of hours actually worked during reference week	**33.0**	**35.0**	**30.0**	**43.0**	**44.0**	**42.0**	**29.0**	**32.0**	**25.0**

Table C. 10: Employed population by sex, hours usually worked per week, by urban/rural area, RLFS 2020

	Rwanda			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Employed population	**3460860**	**1938268**	**1522592**	**867565**	**480934**	**386631**	**2593295**	**1457334**	**1135961**
less than 24 hours	956937	445313	511624	114814	54930	59884	842122	390383	451740
25-34 hours	497330	263495	233835	58824	30273	28551	438506	233222	205284
35-40 hours	660877	345952	314925	119444	65369	54075	541433	280583	260850
41-48 hours	570566	355065	215501	225026	127562	97464	345540	227503	118037
49-61 hours	411112	279101	132011	183042	108401	74641	228069	170700	57370
62-79 hours	279922	188242	91680	126419	68244	58176	153503	119998	33504
80 hours+	84116	61101	23015	39995	26156	13839	44121	34945	9176

Table C. 11: Unemployed population 16 years old and over by sex, age group, and urban/rural area, RLFS 2020

Unemployed population 16+	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
	752112	**365354**	**386757**	**192512**	**559599**	**398996**	**353115**
16-24 yrs	252,308	116,388	135,920	57,663	194,645	120,889	131,420
25-34 yrs	257,056	124,277	132,779	78,220	178,836	125,843	131,213
35-54 yrs	196,245	98,165	98,080	47,234	149,011	121,268	74,977
55-64 yrs	38,104	21,892	16,212	8,012	30,092	25,874	12,230
65+ yrs	8,399	4,632	3,767	1,383	7,015	5,122	3,276

Table C. 12: Unemployed population and unemployment rate by sex, age group, and urban/rural area, RLFS 2020

Unemployed population	Total	Unemployment rate (%)	Sex		Residencial area		Participated in subsistence agriculture	Not participated in subsistence agriculture
			Male	Female	Urban	Rural		
Total	752,112	17.9	15.9	20.3	18.2	17.7	21.8	14.8
16-24 yrs	252,308	23.3	20.3	26.8	23.2	23.4	28.6	20.0
25-34 yrs	257,056	19.0	16.4	22.1	19.6	18.7	23.0	16.2
35-54 yrs	196,245	13.8	12.5	15.2	13.2	13.9	17.8	10.1
55-64 yrs	38,104	14.0	15.1	12.8	18.8	13.1	18.0	9.6
65+ yrs	8,399	10.8	9.9	12.3	12.1	10.6	14.9	7.6

Table C. 13: Unemployed population and unemployment rate by sex, and level of educational attainment, RLFS 2020

Unemployed population	Total	Unemployment rate (%)	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
			Male	Female	Urban	Rural		
Total	752,112	17.9	15.9	20.3	18.2	17.7	21.8	14.8
None	286,473	15.1	14.2	16.2	13.1	15.4	18.0	12.0
Primary	238,406	18.7	15.6	22.5	17.5	19.0	24.3	13.8
Lower secondary	67,919	22.8	19.6	26.3	20.6	24.2	29.6	19.3
Upper secondary	112,633	25.0	22.0	28.5	26.3	23.8	35.1	21.4
University	46,680	15.7	14.4	17.7	15.4	16.7	18.1	15.4

Table C. 14: Youth population old by sex, age group, labour force status, and urban/rural area, RLFS 2020

15	Total	Labour force status				Labour force participation rate (%)	Employment-population ratio (%)	Unemployment rate (%)
		Labour force	Employed	Unemployed	Outside labour force			
Total Youth Population 16 yrs and over	**3,470,684**	**1,908,221**	**1,479,940**	**428,281**	**1,562,464**	**55.0**	**42.6**	**22.4**
16-24 yrs	2,309,913	1,080,767	828,459	252,308	1,229,146	46.8	35.9	23.3
16-30 yrs	3,470,684	1,908,221	1,479,940	428,281	1,562,464	55.0	42.6	22.4
Male Pop. 16+ yrs	**1,681,266**	**1,025,690**	**823,877**	**201,813**	**655,576**	**61.0**	**49.0**	**19.7**
16-24 yrs	1,132,034	573,371	456,983	116,388	558,663	50.6	40.4	20.3
16-30 yrs	1,681,266	1,025,690	823,877	201,813	655,576	61.0	49.0	19.7
Female Pop. 16+ yrs	**1,789,419**	**882,530**	**656,063**	**226,467**	**906,888**	**49.3**	**36.7**	**25.7**
16-24 yrs	1,177,879	507,396	371,476	135,920	670,483	43.1	31.5	26.8
16-30 yrs	1,789,419	882,530	656,063	226,467	906,888	49.3	36.7	25.7
Urban Pop. 16+ yrs	**824,243**	**502,407**	**389,057**	**113,350**	**321,836**	**61.0**	**47.2**	**22.6**
16-24 yrs	501,826	248,767	191,104	57,663	253,060	49.6	38.1	23.2
16-30 yrs	824,243	502,407	389,057	113,350	321,836	61.0	47.2	22.6
						0.0	0.0	0.0
Rural Pop. 16+ yrs	**2,646,442**	**1,405,814**	**1,090,883**	**314,931**	**1,240,628**	**53.1**	**41.2**	**22.4**
16-24 yrs	1,808,087	832,000	637,355	194,645	976,086	46.0	35.3	23.4
16-30 yrs	2,646,442	1,405,814	1,090,883	314,931	1,240,628	53.1	41.2	22.4

Table C. 15: Youth population years old by sex, level of educational attainment, and urban/rural area, RLFS 2020

Youth population	Total	Sex		Residential area		Participated in subsistence agriculture	Not participated in subsistence agriculture
		Male	Female	Urban	Rural		
Total	3,470,684	1,681,266	1,789,419	824,243	2,646,442	1,430,836	2,039,849
None	1,140,811	600,688	540,123	138,074	1,002,736	538,963	601,848
Primary	1,222,670	556,384	666,286	220,262	1,002,408	576,855	645,815
Lower secondary	516,960	233,098	283,863	159,535	357,425	177,452	339,508
Upper secondary	483,440	232,680	250,760	226,959	256,481	128,089	355,351
University	106,803	58,417	48,386	79,412	27,391	9,476	97,327

Table C. 16: Trend of employment by Economic activity and by sex, RLFS 2020

	2018			2019			2020		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Employed population	**3207336**	1802628	1404708	**3273921**	1838353	1435568	**3460860**	1938268	1522592
Agriculture, forestry and fishing	1265361	573968	691393	1225151	563414	661737	1399907	650361	749546
Mining and quarrying	62563	58931	3631	71205	64553	6652	57379	50842	6537
Manufacturing	205301	114427	90874	208956	109653	99304	201555	119607	81947
Electricity, gas, steam and air conditioning supply	6301	5187	1114	9237	8582	655	7096	6229	866
Water supply, sewerage and waste management	7862	4838	3024	7550	5111	2440	7047	3273	3774
Construction	322117	275005	47113	315022	261402	53619	435720	351559	84162
Wholesale, retail trade, repair of motor vehicles, motorcycles	477164	232142	245022	485871	230492	255379	466569	212858	253711
Transportation and storage	140339	136109	4230	170913	165498	5416	146260	139343	6917
Accommodation and food service activities	69289	36691	32598	96982	49085	47896	91495	45034	46461
Information and communication	13669	10182	3487	11515	7923	3592	8962	6697	2265
Financial and insurance activities	28815	14438	14378	35051	18869	16182	35728	20503	15225
Real estate activities	3710	3083	627	4260	3641	619	4098	2918	1180
Professional, scientific and technical activities	25127	17314	7813	27111	18324	8787	21249	15698	5551

	2018			2019			2020		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Administrative and support service activities	51814	33799	18015	60099	41669	18430	69214	51373	17841
Public administration and defense	60489	44876	15613	68189	49557	18632	65349	47668	17681
Education	106339	57787	48552	118626	60497	58129	107624	55189	52435
Human health and social work activities	49072	22601	26471	46020	22426	23594	55984	24812	31172
Arts, entertainment and recreation	9620	6276	3344	11371	7273	4099	9715	7965	1750
Other service activities	66322	46504	19818	72319	45269	27051	96244	57361	38883
Activities of households as employers	218279	97250	121029	207927	93622	114305	166587	64620	101967
Activities of extraterritorial organizations and bodies	17784	11222	6563	20546	11494	9052	7079	4359	2719

Table C. 17: Average monthly earnings from employment activity by sex, age group, Education in urban/Rural, RLFS 2020

	Rwanda			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total (16+ yrs)	63,291	75,415	47,126	147,432	173,798	111,277	35,121	41,947	26,104
Age group									
16-24 yrs	29,442	33,383	24,559	39,955	52,014	30,460	25,901	28,708	21,838
25-34 yrs	72,530	83,961	56,398	153,880	168,144	130,914	39,388	47,002	29,197

	Rwanda			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
35-54 yrs	81,174	97,269	59,351	213,826	231,228	182,846	39,379	48,586	27,891
55-64 yrs	65,151	86,150	40,687	257,907	318,931	171,094	32,777	42,821	21,456
65+yrs	47,007	61,904	19,010	188,848	221,186	36,036	25,694	30,388	17,813
Education level									
None	27,671	33,686	20,538	35,901	46,908	23,597	26,567	31,968	20,113
Primary	35,561	44,752	22,538	48,657	67,107	26,291	32,010	39,184	21,398
Lower secondary	54,769	66,426	34,546	74,290	94,988	39,161	40,152	45,338	31,006
Upper secondary	80,334	87,812	69,110	103,299	111,017	90,040	59,382	64,378	52,732
University	338,030	368,854	289,413	394,594	441,360	326,217	170,805	177,611	157,258

Table C. 18: Summary labour force indicators by District, RLFS 2020

	Employed	Unemployed	Outside labour force	Labour force participation rate	Employment-to-population ratio	Unemployment rate
City of Kigali	**690,907**	**172,276**	**420,663**	**67.2**	**53.8**	**20**
Nyarugenge	145,683	32,793	87,313	67.1	54.8	18.4
Gasabo	311,979	70,428	195,511	66.2	54	18.4
Kicukiro	233,245	69,055	137,839	68.7	53	22.8
South province	**774,139**	**156,828**	**769,459**	**54.7**	**45.5**	**16.8**
Nyanza	81,922	12,349	101,658	48.1	41.8	13.1
Gisagara	86,642	25,477	68,673	62	47.9	22.7
Nyaruguru	89,682	10,409	78,982	55.9	50.1	10.4
Huye	101,955	32,504	71,189	65.4	49.6	24.2
Nyamagabe	131,661	16,625	99,235	59.9	53.2	11.2
Ruhango	81,786	24,715	113,917	48.3	37.1	23.2
Muhanga	100,460	18,443	108,269	52.3	44.2	15.5
Kamonyi	100,031	16,306	127,535	47.7	41	14
West Province	**602,631**	**157,863**	**709,230**	**51.7**	**41**	**20.8**
Karongi	66,282	16,739	93,902	46.9	37.5	20.2
Rutsiro	95,167	20,288	113,803	50.4	41.5	17.6
Rubavu	112,597	23,344	106,523	56.1	46.4	17.2
Nyabihu	91,547	13,738	74,306	58.6	51	13

	Employed	Unemployed	Outside labour force	Labour force participation rate	Employment-to-population ratio	Unemployment rate
Ngororero	51,491	23,032	98,652	43	29.7	30.9
Rusizi	87,269	34,808	122,919	49.8	35.6	28.5
Nyamasheke	98,277	25,914	99,124	55.6	44	20.9
North Province	**513,439**	**118,308**	**584,564**	**51.9**	**42.2**	**18.7**
Rulindo	80,160	22,256	128,457	44.4	34.7	21.7
Gakenke	86,171	22,964	122,878	47	37.1	21
Musanze	155,611	28,280	98,207	65.2	55.2	15.4
Burera	86,434	24,164	86,888	56	43.8	21.8
Gicumbi	105,063	20,644	148,133	45.9	38.4	16.4
East province	**879,744**	**146,837**	**775,715**	**57**	**48.8**	**14.3**
Rwamagana	81,993	11,592	110,260	45.9	40.2	12.4
Nyagatare	132,139	22,862	101,803	60.4	51.5	14.7
Gatsibo	166,390	31,725	123,881	61.5	51.7	16
Kayonza	127,106	11,989	77,755	64.1	58.6	8.6
Kirehe	125,105	15,767	89,761	61.1	54.2	11.2
Ngoma	86,981	16,303	108,254	48.8	41.1	15.8
Bugesera	160,030	36,598	164,000	54.5	44.4	18.6

Appendix D : Labour Force Survey Personnel

NATIONAL COORDINATOR

MURANGWA Yusuf, DG, NISR

MURENZI Ivan, DDG, NISR

TECHNICAL DIRECTOR

NDAKIZE RUGAMBWA Michel

BYIRINGIRO James

DATA COLLECTION

Survey Coordinators

NDAKIZE RUGAMBWA Michel

BYIRINGIRO James

MUKUNDABANTU Jean Marc

Survey Supervisors

TUYISENGE Methode

NGIRINSHUTI Fidele

MUGENZI Gilbert

AYINGENEYE Seraphine

UWAMAHORO Pacifique

TUYISHIME Sadi

DATA ANALYSIS & REPORT WRITING

LFS Data Analysts

BYIRINGIRO James

MUKUNDABANTU Jean Marc

TUYISENGE Methode

UWAMAHORO Pacifique

NGIRINSHUTI Fidele

AYINGENEYE Seraphine

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TUYISHIME Sadi

Data Processing

MUKANSHIMIYE Peruth

HARELIMANA Massoud

Report Editing & Design

KABERA Jean Luc

MUKUNDABANTU Jean Marc