



INTERNATIONAL  
FOOD POLICY  
RESEARCH  
INSTITUTE

SFS4YOUTH WORKING PAPER #3

NOVEMBER 2024

# The changing demographics in food systems and implications for future youth engagement in Rwanda



Fantu Bachewe, Harriet Mawia, and Josue Niyonsingiza

---

# CONTENTS

- Executive summary ..... 1**
- Résumé Analytique ..... 2**
- Incamake y’Ubushakashatsi ..... 3**
- 1. Introduction ..... 4**
- 2. Data and methodology ..... 5**
  - 2.1 Methods ..... 5**
    - Conceptual framework ..... 5
    - Definitions ..... 7
    - Computing employment in food systems and agrifood systems ..... 8
  - 2.2 Data sources and description ..... 9**
    - The EICV household survey data ..... 9
    - WDI and ILO datasets ..... 9
- 3. Rwandan Economy and population ..... 10**
  - 3.1 Economy ..... 10**
  - 3.2 Population ..... 11**
  - 3.3 Urbanization ..... 13**
- 4. Employment in agrifood systems ..... 14**
  - 4.1 Labor force and unemployment in Rwanda ..... 14**
  - 4.2 Employment in the agrifood system ..... 16**
  - 4.3 Sustainable Development Goals ..... 21**
- 5. Summary and policy implications ..... 23**
- About the Authors ..... 25**
- Acknowledgments ..... 25**
- Annexes ..... 28**

---

## TABLES

TABLE 1: UNEMPLOYMENT RATE (%).....	16
TABLE 2: DETAILED AGRIFOOD SYSTEM AND ALL OTHER EMPLOYMENT, BY GENDER AND AGE (%) ...	18
TABLE 3: AGRIFOOD SYSTEM AND ALL OTHER EMPLOYMENT, BY GENDER AND AGE (%).....	20
TABLE 4. PERFORMANCE IN SUSTAINABLE DEVELOPMENT GOALS.....	22
ANNEX TABLE 1. PERFORMANCE OF AGGREGATE ECONOMY AND IMPORTANCE OF MAJOR SECTORS .....	28
ANNEX TABLE 2. POPULATION AND DEMOGRAPHIC STRUCTURE TRENDS IN RWANDA, 2001-2022 .....	29
ANNEX TABLE 3. PERFORMANCE IN EDUCATION IN RWANDA, 2001-2022.....	30
ANNEX TABLE 4. URBANIZATION AND ACCESS TO SERVICES .....	31
ANNEX TABLE 5: LABOR FORCE PARTICIPATION RATE (%).....	32
ANNEX TABLE 6: SKILL LEVELS OF WORKERS.....	33
ANNEX TABLE 7: PROPORTION OF INFORMAL EMPLOYMENT IN TOTAL EMPLOYMENT, SDG 8.3.1 (%).	34
ANNEX TABLE 8. SUMMARY OF LABOR AND AGRIFOOD SYSTEM EMPLOYMENT VARIABLES ACROSS ALTERNATIVE DEFINITION OF THE YOUTH (15-35).....	35

---

## FIGURES

FIGURE 1. FRAMEWORK FOR ACHIEVING SUCCESSFUL YOUTH ENGAGEMENT IN FOOD SYSTEMS .....	6
FIGURE 2. GDP AND SECTORAL GROWTH RATE IN RWANDA, 2001–2022 .....	11
FIGURE 3. AGE STRUCTURE OF POPULATION IN RWANDA, 2001 AND 2022 .....	12

## EXECUTIVE SUMMARY

Food systems are critically important for food security and employment in Sub-Saharan Africa (SSA). Moreover, expansion of nonfarm components of food systems (FS) reinforces efforts to transition out of agriculture. FS, particularly off-farm segments of food value chains, must grow rapidly to guarantee food and nutrition security for growing populations and to provide the quantity and variety of food demanded as a result of increases in urbanization and income, as well as to accommodate accompanying technological and other changes. The impact, inevitability, and amenability to policy interventions of these factors and the extent of FS transformation needed differs across countries. Future FS also face several emerging challenges. Employment and job creation are among the areas that are significantly affected by FS transformation. Demographic changes that accompany expanding FS employment are also critical for gender equity and youth inclusion. The extent, speed, and complementarity of the FS transformation and increased employment varies across countries. However, there is currently no system in place to monitor the extent of FS transformation or its interactions with other aspects of the economy, such as employment.

This study of Rwanda uses secondary data from the International Labour Organization (ILO) (2023), World Bank (2023), and Integrated Household Living Conditions Survey (EICV) (2023) to investigate demographic trends in overall FS employment and who is and is not engaging in FS; and to document sectoral and overall economic growth, population and demographic changes, and urbanization trends—all which influence and are influenced by FS growth. The study contributes to the literature by testing the predicted patterns of employment growth and inclusiveness in agrifood systems, and by pointing to the nodes of employment in FS where gender- and age-based inequities exist, thereby facilitating policymaking and interventions to ameliorate the problems. In addition, tracking performance in employment-related Sustainable Development Goals (SDGs) in Rwanda contributes to our understanding of the progress made in SSA toward inclusiveness, efficiency, and poverty reduction, particularly progress that benefits women and the youth.

Rwanda's economy grew remarkably during the two decades covered in the study (2001–2022). Agriculture contributed significantly to gross domestic product (GDP) as well as to overall and FS employment. Per capita income more than doubled, although it still is about half the average GDP per capita of SSA. The population, three-quarters of whom are under 35 years of age, increased by 70% during the period. There have been great strides in education, particularly for girls and women. However, urbanization has been slow, and half of the country's urban residents live in the capital city. The unemployment rate in Rwanda has been twice the SSA average and has generally been increasing. More than half of the workers are employed in agriculture, although this share declined considerably during the period. Farming contributes significantly to FS employment. However, the share of overall FS employment declined during the period, due to a decline in farming employment accompanied by stagnant employment in non-farm FS.

Relative to men, women's overall labor force participation rate is considerably lower and their unemployment rate higher. A larger share of women work in low-skill jobs and this gap increased during the period; a relatively larger share of women are employed in FS, but a smaller share work in the nonfarm component of FS and this gender gap widened. Similarly, relative to mature adults, youth are less advantaged. The labor force participation rate of youth is considerably lower, and the rate of unemployment is higher and increasing relatively faster among youth. However, differences in FS employment among youth and mature adults were considerably lower and shown no clear trend. Findings of this study point to several short- and long-run policy implications.

## RÉSUMÉ ANALYTIQUE

Les systèmes alimentaires sont d'une importance cruciale pour la sécurité alimentaire et l'emploi dans l'Afrique subsaharienne (ASS). De plus, l'expansion des activités non agricoles des systèmes alimentaires (SA) renforce les efforts visant à sortir de l'agriculture. Les SA, en particulier les segments hors-ferme des chaînes de valeur alimentaires, doivent croître rapidement pour garantir la sécurité alimentaire et nutritionnelle de la population croissante, de répondre à la quantité et à la variété des aliments demandés en raison de l'urbanisation et d'augmentations de revenus, ainsi qu'aux changements technologiques et autres changements. L'impact, l'inévitabilité et la facilité d'adaptation de ces facteurs aux changements de politique, ainsi que l'ampleur de la transformation des SA nécessaire, varient d'un pays à l'autre. Les futurs SA feront également face à plusieurs défis émergents. L'emploi et la création d'emplois figurent parmi les aspects qui sont considérablement affectés par la transformation des SA. Les changements démographiques accompagnant l'expansion de l'emploi dans les SA sont également cruciaux pour l'équité des sexes et l'inclusion des jeunes. L'ampleur, la vitesse et la complémentarité de la transformation des SA et de l'emploi varient d'un pays à l'autre. Malgré la transformation anticipée et indispensable des SA, il n'existe actuellement aucun système en place pour surveiller l'ampleur de cette transformation et ses interactions avec d'autres aspects de l'économie, tels que l'emploi.

Cette étude utilise des données secondaires de l'OIT (2023), de la Banque mondiale (2023) et de l'EICV (2023) pour enquêter les tendances de l'emploi global dans les SA et identifier qui participe ou non aux SA, en éclairant les changements démographiques observés dans l'emploi des SA ; et pour documenter la croissance sectorielle et économique globale, les changements démographiques et de population, ainsi que les tendances de l'urbanisation, qui influencent et sont influencés de manière importante par la croissance des SA. L'étude contribue à la littérature en testant si les schémas prédits de croissance de l'emploi et d'inclusivité dans les systèmes agroalimentaires se vérifient; en identifiant les points de concentration de l'emploi dans les SA où se trouvent des inégalités liées au sexe et à l'âge, facilitant ainsi l'élaboration de politiques et d'interventions pour résoudre ces problèmes. En outre, en suivant les performances des ODD liés à l'emploi au Rwanda, l'étude contribue également à notre compréhension des progrès réalisés en Afrique subsaharienne en matière d'inclusivité, d'efficacité et de réduction de la pauvreté, en particulier ceux qui bénéficient aux femmes et aux jeunes.

L'économie du Rwanda a connu une croissance remarquable au cours des deux décennies (2001 à 2022) couvertes par l'étude. L'agriculture a contribué de manière significative au PIB ainsi qu'à l'emploi global et l'emploi dans les SA. Le revenu par habitant a plus que doublé au Rwanda, bien qu'il représente encore environ la moitié de la moyenne du PIB par habitant de l'ASS. La population, dont trois quarts ont moins de 35 ans, a augmenté de 70 % au cours de cette période. D'énormes progrès ont été réalisés dans le domaine de l'éducation, en particulier pour les filles et les femmes. Cependant, l'urbanisation est lente et la moitié des habitants des zones urbaines vivent dans la capitale. Le taux de chômage au Rwanda a été deux fois supérieur à la moyenne de l'ASS et a généralement augmenté. Plus de la moitié des travailleurs sont employés dans l'agriculture, bien que cette part ait considérablement diminué au cours de cette période. L'agriculture reste extrêmement importante pour l'emploi dans les SA. Cependant, la part de l'emploi dans les SA a diminué au cours de cette période, en raison du déclin de l'emploi agricole accompagné d'une stagnation de l'emploi dans les composantes non agricoles des SA.

Par rapport aux hommes, le taux d'activité des femmes est considérablement plus faible et le taux de chômage plus élevé. Une plus grande proportion de femmes travaille dans des emplois peu qualifiés, et cet écart s'est accru au cours de la période; une part relativement plus élevée de femmes sont employées dans les SA, mais une faible part travaillent dans les composantes non agricoles des SA, et cet écart entre les sexes s'est élargi. De même, par rapport aux adultes, les jeunes sont moins avantagés. Le taux d'activité des jeunes est considérablement plus faible, et le taux de chômage est plus élevé et augmente plus rapidement parmi les jeunes. Cependant, les différences dans l'emploi des SA entre les jeunes et les adultes étaient considérablement plus faibles et n'ont pas montré de tendance claire. Les conclusions de cette étude soulèvent plusieurs implications politiques.

## INCAMAKE Y'UBUSHAKASHATSI

Sisiteme z'ibiribwa- uruhererekane rw'ibikorwa n'ibigize iterambere ry'ibiribwa- zifite akamaro kanini mu kwihaza mu biribwa ndetse no gutanga imirimo muri Afurika yo munsu y'ubutayu bwa Sahara. Kwagura ibindi bikorwa bya sisteme z'ibiribwa byongera imbaraga zikoreshwa mu kuyoboka ibindi bikorwa bitari ubuhinzi. Ujyendeye k'ubwiyongere, bw'abaturage, ubw'amikoro, ubw'abatuye mu mijyi, ndetse n'iterambere mu ikoranabuhanga n'izindi mpinduka, birakwiye ko sisiteme z'ibiribwa, cyane cyane ibice byazo bitari iby'ubuhinzi, byongererwa imbaraga n'umuvuduko kugira ngo harebwe uko ukwihaza mu biribwa byabungabungwa. Impinduramatwara kuri politiki ya sisiteme z'ibiribwa zikenewe zitandukana bitewe n'igihugu. Ahazaza ha sisiteme z'ibiribwa naho hagaragara imbogamizi nshya. Imirimo no guhanga akazi biri mu bigirwaho ingaruka zigaragara n'impinduramatwara muri izi sisiteme z'ibiribwa. Impinduka mu mibereho y'abaturage bitewe no kwiyongera kw'imirimo yo muri iyi sisiteme nazo ni ingenzi mu guteza imbere uburinganire no kudahaza urubyiruko. Uburemere, umuvuduko, ndetse n'imikorere y'izi mpinduramatwara za sisiteme z'ibiribwa hamwe n'imirimo biratandukanye bitewe n'igihugu. Uretse impinduramatwara (impinduka) zikenewe kandi zihuse zitegerejwe muri sisiteme z'ibiribwa, kugeza ubu nta buryo bwashyizweho bwo gukurikirana urugero n'uburemere bw'izo mpinduka n'uburyo zikorana n' izindi ngamba z'ubukungu, nk'umurimo.

Ubu bushakashatsi bwakoresheje amakuru yakusanyijwe n'ishami ry'umurimo ku isi (ILO, 2023), Banki y'Isi (2023), na EICV (2023) kugira ngo bugaragaze impinduka mu miterere y'imirimo yo muri sisiteme z'ibiribwa, hamenyekane abashishikarira n'abadashishikariye gukora muri iyi sisiteme, bityo imiterere y'imibereho n'imirimo muri sisiteme z'ibiribwa igaragare; inakurikiranire hafi iterambere ry'ubukungu rusange, impinduka z'ubwiyongere bw'abaturage, ndetse n'ukwaguka kw'imigi, n'uruhare rwabyo mu iterambere rya sisiteme z'ibiribwa. Ubu bushakashatsi bugira uruhare mu kugaragaza niba iterambere ry'imirimo ryarakurikije uko ryajyenwe mu bushakashatsi bwabanje no kudahaza mu buryo bwo kubona ibiribwa; bukagaragaza aho imbogamizi k'uburinganire n'ikigero cy'imyaka bigaragara mu mirimo ya sisiteme z'ibiribwa, bityo bigafasha gushyiraho ingamba n'amategeko bigamije gukemura ibyo bibazo. Byongeye kandi, mu gukurikirana iterambere ry'umurimo mu ntego z'iterambere rirambye (SDGs) mu Rwanda, bugira uruhare mu gusobanukirwa impinduka zabaye mu bihugu biri munsu y'ubutayu bwa Sahara aho zigeze ku bijyane no kudahaza, imikorere inoze, no kugabanya ubukene, by'umwihariko imirimo ifitiye inyungu abagore n'urubyiruko.

Ubukungu bw'u Rwanda bwateye imbere cyane mu gihe cy'imyaka makumyabiri (2001-2022) yibanzweho muri ubu bushakashatsi. Ubuhinzi bwagize uruhare runini ku musaruro mbumbe w'igihugu (GDP) n'itangwa ry'imirimo muri rusange no muri sisiteme z'ibiribwa. Umusaruro mbumbe ku muturage wikubye kabiri, nubwo ukiri munsu y'icyakabiri cy'umusaruro mbumbe ku muturage wo munsu y'ubutayu bwa Sahara. Umubare w'abaturage wiyongereyeho 70% muri icyo gihe, ¼ byabo bakaba bari munsu y'imyaka 35. Hatwe intambwe ikomeye mu burezi, cyane cyane ku burezi bw'abana b'abakobwa. Icyakora, imigi irakura buhoro kandi ugasanga kimwe cya kabiri cy'abatuye imigi bari mu murwa mukuru. Igipimo cy'ubushomeri mu Rwanda cyikubye kabiri k'ucy'ibihugu biri munsu y'ubutayu bwa Sahara kandi ikinyuranyo cyakomeje kwiyongera. Kimwe cya kabiri cy'abakora bari mu buhinzi, nubwo icyo kigereranyo cyagabanutse cyane muri icyo gihe. Ubuhinzi bufite akamaro kanini mu itangwa ry'imirimo muri sisiteme z'ibiribwa. Icyakora, igipimo cy'imirimo muri sisteme z'ibiribwa cyaragabanutse kubera kugabanuka kw'imirimo yo mu buhinzi hamwe n'imirimo itari iy'ubuhinzi muri sisiteme z'ibiribwa itariyongereye.

Ugereranyije n'abagabo, umubare w'abagore binjira ku isoko ry'umurimo uri hasi cyane, n'uw'ubushomeri ukaba hejuru. Umubare munini w'abagore bakora imirimo iciriritse, kandi icyo kinyuranyo cyakomeje kwiyongera mu gihe cyakozweho ubushakashatsi. Igipimo kinini cy'abagore gisangwa mu mirimo ya sisiteme z'ibiribwa, ariko umubare muto wabo uri mu bice bitari iby'ubuhinzi byo muri sisiteme, kandi ikinyuranyo hagati y'abagabo n'abagore cyakomeje kwiyongera. Ugereranyije n'abantu bakuze, ibipimo by'urubyiruko nabyo biri hasi. Igipimo cy'urubyiruko ku isoko ry'umurimo kiri hasi cyane, n'ubushomeri bwabo buri hejuru kandi bwiyongera vuba. Icyakora, itandukanirwo ry'imirimo ya sisiteme z'ibiribwa hagati y'urubyiruko n'abantu bakuze ryari rito kandi ridafite n'impinduka igaragara. Ibyavuye muri ubu bushakashatsi biragaragaza ingingo nyinshi zikwiye kwitabwaho mu ngamba za politiki.

# 1. INTRODUCTION

Food systems are “the sum of actors and interactions along the food value chain—from input supply and production of crops, livestock, fish, and other agricultural commodities to transportation, processing, retailing, wholesaling, and preparation of foods to consumption and disposal. Food systems also include the enabling policy environments and cultural norms around food” (IFPRI 2020).<sup>1</sup> Food systems are critically important in low- and middle-income countries (LMICs), and particularly in Sub-Saharan Africa (SSA), where food systems account for a significant share of the gross domestic product (GDP) and provide livelihoods for the majority of the population (Davis et al. 2023; Christiaensen et al. 2021; Dolislager et al. 2021; IFPRI 2020; Townsend et al. 2017). Furthermore, production and service activities in nonfarm components of food systems also provide the predominantly agrarian SSA economies with an opportunity to transition into other economic activities.

Food systems (FS) are expected to grow in importance in terms of the absolute quantity of production and labor employed, as well as in comparison with other subsectors. Several push and pull factors contribute to this growth. The unprecedentedly rapid increase in SSA’s population calls for equally unprecedented changes in food systems, particularly in the downstream segment of value chains, which includes transportation, storage, processing, and marketing, in a region where such infrastructure is weak. This is critical to guarantee the food and nutrition security of future populations in SSA (Marivoet 2024; AGRA 2022; Kalibata 2021; SWAC/OECD 2021; IFPRI 2020). Urbanization and per capita income changes in SSA, which are often accompanied by changes in dietary patterns, composition of food demanded, and extent of processing, are also expected to contribute to growth in FS in the region. In addition to a rapid increase in food production, these changes require an increasingly well-developed marketing infrastructure, including storage systems and cold chains, transportation, and markets (Marivoet 2024; Mockshell 2023; de Bruin et al. 2021; Ambler, et al. 2019; World Bank 2017; Tefft et al. 2017; HLPE 2017; Seto and Ramankutty 2016; Tschirley 2015; Mergenthaler et al. 2009). Growth in FS may also follow transformations in the rest of the economy, including input use intensification, changes in the mode of production, and increased productivity of labor and other factors. Although the impact of these factors and the extent of changes in FS needed differs across SSA countries and at what stage of transformation each country stands, overall, they have a transformational impact on FS (Jayne et al. 2014).

Employment and job creation patterns are perhaps among the most important areas that are positively affected by FS transformation and vice versa. Historical patterns in growing economies show that FS transformation, particularly growth in the off-farm segments of food value chains, provides ample employment and livelihood opportunities, particularly for women and youth. However, the extent, speed, and complementarity of the FS transformation and employment generation vary across countries, depending on investments made toward FS transformation, skill levels of workers, and institutional capacity, among other factors, all of which can be influenced by policies appropriate for transforming FS (SWAC/OECD 2021; Fanzo et al. 2021; Dolislager et al. 2021; Allen et al. 2016; Tschirley et al. 2015).

This study documents the trends in FS employment observed in the past two decades in Rwanda, focusing on changes in the demographic structure of employment and investigating how inclusive these changes were. The study also explores factors that influence the trajectory of changes in food systems

---

<sup>1</sup> In this definition the “...other agricultural commodities” part may include forestry and logging and thus make the definition more apt for agri-food systems than food systems. We distinguish between the food and agrifood systems in our analyses by excluding nonfood agricultural production, processing, trade, and transportation from food systems.

substantially—trends in economic performance in Rwanda, demographic changes in the overall population, and trends in urbanization. The description of employment-related Sustainable Development Goals (SDGs) in the study (such as rate of informal employment, share of women in managerial positions, working poverty rate, and share of youth not in education, employment, or training) also contributes to our understanding of the progress made in Rwanda toward inclusiveness, efficiency, and poverty reduction, particularly in ways that benefit women and the youth. The study contributes to the literature by testing the predicted patterns of employment growth and inclusiveness in agrifood systems in Rwanda—a country that has been growing rapidly in the past two decades. The study also points to the nodes of employment where gender- and age-based inequities have persisted over this period, and thereby facilitates policymaking and interventions that can ameliorate the problems in Rwanda and, more broadly, in SSA. Furthermore, this study, which was conducted as part of the Strengthening Food Systems to Promote Increased Value Chain Employment Opportunities for Youth project (SFS4Youth), is intended to contribute to strategic knowledge on current and future trends in FS development in Africa and on potential entry points for sustainable and equitable transformation and aims to answer critical macro-level questions on the trends and recent developments in FS and their impacts on the continent.

Rwanda is a landlocked country in the Great Rift Valley of East-Central Africa, with a population of about 14 million in 2023. Rwanda's economy grew remarkably during the two decades (2001 to 2022) covered in this study. GDP per capita more than doubled, with a significant contribution from agriculture. However, GDP per capita in Rwanda remains low at about half the average GDP per capita of SSA, which is reflected in relatively higher levels of poverty in the country. Rwanda's population, which is quite young with three out of every four people under 35 years of age, increased by nearly 70% during the period, putting Rwanda among those countries with relatively high population growth. There have been great strides in education, particularly for girls and women. However, urbanization is low (18% in 2022), has progressed slowly (less than 2% growth in two decades), and most growth has been in Kigali, where half of the country's urban residents lived in 2022 (World Bank 2023).

This paper is organized as follows: Section 2 discusses the methods and materials used in the study. Section 3 describes trends in the important drivers of FS: the economy of Rwanda, its population, and urbanization observed during the period. Section 4 provides an overview of the labor market in Rwanda and takes a detailed look at those engaged in the particular activities within the agrifood system by gender and age. The last section concludes.

## 2. DATA AND METHODOLOGY

This section first describes the conceptual framework and methodology used in the study. This is followed by a description of the datasets used.

### 2.1 Methods

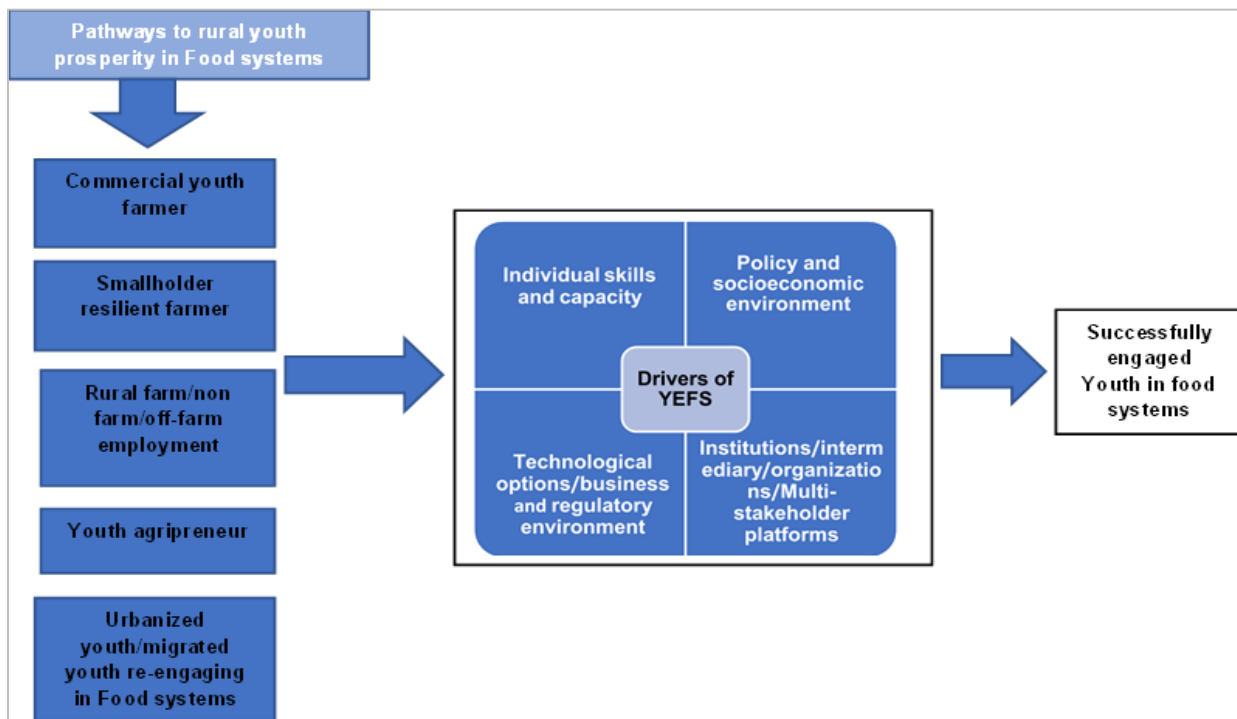
#### *Conceptual framework*

Despite the rapid decline in the share of workers engaged in farming in SSA, a considerable share are still farming, and farming will continue to be a major source of employment for the near future (IFPRI 2020; Ambler et al. 2019; Allen et al. 2016; Jayne et al. 2014). Furthermore, expansion of employment in the nonfarm component of the agrifood system (AFS) derives mainly from increased agricultural

productivity (Townsend et al. 2015; Tschirley et al. 2015). However, Kangondo et al. (2023) also argue that in Rwanda, agriculture is a necessary but not sufficient livelihood strategy to sustain the rural youth's welfare. Rwandan youth often lack interest in agriculture and are more interested in securing jobs in other sectors. At the same time, they are often viewed as not mature enough to farm or run businesses (PSDAG 2018). In addition, youth opportunities in agriculture are constrained by land fragmentation (MINAGRI 2018a). Franzel et al. (2019) indicate that youth lack access to land, capital, and knowledge, and employment opportunities are scarce. Young women also face challenges because of unequal power relations that leave women with more limited decision-making power and fewer resources than young men.

Franzel et al. (2019) suggest that one of the key drivers for engaging youth in FS and agriculture is coming up with a youth-in-agriculture strategy that can bring the role of youth in FS to the forefront of overall government policies. In particular previous studies have shown that harmonizing the policy system, including national youth policies, and having focused policies on gender mainstreaming drives rural youth engagement in agriculture and FS/AFS (Babu et al. 2020; Saab and Shakhovskoy 2019). Figure 1 indicates specific pathways that a rural youth could follow to move toward success in FS. These possible pathways include working on building a current farming system into a more resilient one; further developing the commercial potential of existing farming operations; engaging in rural entrepreneurial activities that involve FS rural enterprises; employment in other farm, nonfarm, or off-farm enterprises in rural areas; and, lastly, re-engaging youth who have migrated out of agriculture and rural areas back into agriculture (Saab and Shakhovskoy 2019). In addition, youth groups can be an important institutional support mechanism for accessing finance and inputs, exchanging information among members, and marketing products, all of which can facilitate youth engagement in agriculture in Rwanda (Franzel et al. 2019).

**Figure 1.** Framework for achieving successful youth engagement in food systems



**Source:** Adapted from Babu et al. (2020) and Saab and Shakhovskoy (2019).

**Note:** YEFS = youth engagement in food systems.

Access to finance and inputs is a key driver of youth engagement in FS and agriculture. For example, a partnership between the United Nations Development Programme (UNDP) and the Ministry of Agriculture and Animal Resources (MINAGRI) provides grants and supports youth-led climate-resilient agricultural projects across Rwanda. Through this partnership, young farmers can transform the agriculture sector and contribute to sustainable development amid climate change challenges (UNDP 2023). By 2023, the partnership had supported 57 young men and 51 young women (a total of 108) leading agriculture projects.

Creation of jobs across the FS is a vital driver of youth engagement. Rwanda's Strategic Plan for Agriculture Transformation for 2018-2024 champions augmented agricultural productivity that could create more jobs across food value chains, including in food processing, food trade, and food preparation (MINAGRI 2018b). Accordingly, the strategy suggests the following interventions: 1) development of subsectors with a high potential for employment creation, such as agroprocessing and meat and dairy processing; 2) provision of support for entrepreneurship among women and youth; 3) technical and vocational education and training skills development; and 4) the prioritization of digital literacy for all youth and the development of innovations, among other things (GoR 2017).

Despite some successful programs and projects in Rwanda, such as those supported by the International Fund for Agricultural Development (IFAD) and the German Federal Ministry for Economic Cooperation and Development (BMZ) (Kilimo Trust 2024), much more needs to be done to engage youth and women fully in FS. Responding to this need, training for youth in "agri-preneurship" is becoming common, usually covering topics such as developing a business plan, enterprise budgeting, record-keeping, and marketing. However, a weakness of many of the training programs is their lack of integration into a broader strategy of increasing employment or linking youth to the other support services needed to start a business, such as coaching or credit (Babu et al. 2021). Thus, rural youth will continue pursuing agriculture as a reliable source of livelihood for food self-sufficiency and for ensuring adequate return to their labor as long as other AFS employment opportunities are made available.

## ***Definitions***

This section provides definitions of employment-related concepts, largely derived from ILO definitions (2024).

**Working-age population** includes people above the legal working age, which varies from country to country based on national laws and practices. However, to promote international comparability, ILO (2024) defines the working-age population as "all persons aged 15 and older."

**Labor force participation rate** is defined as the proportion of a country's working-age population that engages actively in the labor market, either by working or looking for work. It is calculated as "the number of persons in the labor force as a percentage of the working-age population" (ILO 2024). The sum of the number of persons employed and the number of persons unemployed constitutes the **labor force**.

**Number of employed** constitutes all persons of working age who, during a specified brief period, were in paid employment (whether at work or with a job but not at work); or in self-employment (whether at work or with an enterprise but not at work).

**Number of unemployed** comprises all persons of working age who were without work (not in paid employment or self-employment) during the reference period but available for paid employment or self-employment and seeking work (have taken specific steps in a specified recent period to seek paid employment or self-employment).

**Unemployment rate** is the number of unemployed people as a share of the labor force.

**Youth** are young people in a given age bracket. Different countries use different age brackets to categorize youth (e.g., ages 15–24, 15–30, 15–35, and so on). For comparability reasons, ILO defines youth as those in the 15 to 24 age category. However, the African Union (AU) uses the 15 to 35 age bracket. We could not use the AU categorization in this study, as most of the data we used (i.e., ILO 2023) identify youth as 15 to 24 years old. However, to complement these figures, we provide a summary of the NISR (2023) dataset for youth (15 to 35) and mature people (36 to 65).

**Youth not in education, employment, or training (NEET)** is the percentage of the total youth population not in education, training, or employment. Thus, NEET serves as a broader measure of potential youth labor market entrants than youth unemployment, since it also includes young persons outside the labor force not in education or training. The NEET data are obtained from ILO (2023).

### *Computing employment in food systems and agrifood systems*

Computing employment in FS and AFS requires, among other things, identifying those engaged in the production, processing, transporting, and marketing of agricultural and food items as well as those engaged in the supply of agricultural inputs and services in foods for consumption (IFPRI 2024). Typically, employment data is unavailable at this disaggregated level.

To estimate both FS and AFS employment, Davis et al. (2023) recommend a methodology that uses ILO's International Standard Industry Classification (ISIC) two-digit aggregated employment data. Davis et al. (2023) approach categorizes crop and livestock production along with fishing and aquaculture as food production. Furthermore, manufacture of food products, manufacture of beverages, food and beverage service, and undifferentiated goods and services production activities of households are categorized as the food manufacturing and services component of FS. In addition to these components of FS employment, AFS employ activities ment also includes those employed in forestry and logging (nonfood production) and manufacture of nonfood agricultural items, notably tobacco products, textiles, leather and related products, wood and products, and paper and paper products.

As laid out above, both FS and AFS employment are underestimations because they do not include those engaged in transportation, wholesaling, retailing, or in the supply of inputs for FS/AFS or disposal of food and agricultural wastes. In ILO (2023) and other databases that use two-digit ISIC classification, employment in trade and transportation is aggregated (that is, including non-agricultural sectors). So, to isolate employment in FS/AFS transportation and trade, Davis et al. (2023) this method applies the share of (the underestimated) FS/AFS employment in total employment to calculate the FS/AFS share of transportation and trade employment and then adds those values to the (underestimated) sums above. We follow this procedure to get to total share of FS/AFS employment. However, these employment shares still miss some other categories of workers (e.g., input suppliers). In other words, they are underestimations of FS/AFS, and therefore, caution is needed when interpreting the results. In section 4 of this report, Table 2 shows trends in the share of those employed in 14 AFS categories and Table 3 provides a summary of the aggregated (FS and AFS) employment categories.

This study relies on descriptive analyses to show trends in different labor-related variables and characterize employed people across different dimensions. We also investigate patterns of employment across population categories, including women, men, youth, and mature adults. We conduct t-tests to investigate the statistical significance of the differences and relationships that exist across different population groups. Results of the t-tests confirm the statistical significance of observed trends and that policymakers can take statistical significance as a sign of credibility of observed changes, for instance the rapid increase in low-skill employment for women workers.

## **2.2 Data sources and description**

The study covers 2001 to 2022. However, data are unavailable for a number of employment-related variables for some of years during the period studied. Consequently, we use economywide and sector-level data series obtained from the World Bank (World Bank 2023) and from the ILO (ILO 2023) together with household-level data from the Integrated Household Living Conditions Survey (Enquetes Integrales sur les Conditions de Vie – EICV) (NISR 2023).

### ***The EICV household survey data***

The database of the National Institute of Statistics of Rwanda (NISR 2023) includes a series of surveys implemented by the Institute. These surveys measure the overall well-being of the population under multiple themes of health, education, housing and dwelling characteristics, access to services, economic activity patterns, household access to credits and savings, and consumption. These surveys were conducted over a period of 12 months and the first was implemented in 2000–2001. For purposes of this study, we consider EICV2 (data collected from October 2005 to October 2006, referred to as 2006) and EICV3 (data collected from November 2010 to November 2011, referred to as 2011).

An overview of the households included in the two surveys indicates that the average household size decreased from 5 members in 2006 to 4.8 members in 2011. An average household in the surveys is headed by a 44.5 year old, monogamously married man. The share of youth-headed households decreased from 7.1% in 2006 to 5.5% in 2011. The share of women-headed households decreased from 28.6% in 2006 to 27.7% in 2011.

### ***WDI and ILO datasets***

The ILO, as the United Nations agency responsible for promoting decent work and setting labor standards, compiles aggregated data on a number of variables related to the labor force and (un)employment. For Rwanda, the data cover the 2017 to 2022 period. Therefore, we complement the ILO (2023) data with the NISR (2023) data, which cover 2006 and 2011. Note that, given differences in definitions and in methods through which the datasets are collected and compiled, there may be differences in some of the values.

The World Bank’s World Development Indicators (WDI) database provides aggregate/economywide measures for a large number of variables. To provide an overall background to the investigation of employment in section 4, section 3 of this study employs World Bank (2023) data to highlight the performance of the aggregate economy and the importance of major sectors in the Rwandan economy; trends in Rwanda’s population and movements in the demographic structure; and trends in urbanization, which are among factors that contribute to the transformation in FS.

The ILO (2023) and NISR (2023) datasets are used in section 4 to provide brief descriptions of the labor force, unemployment, and characteristics of the employed, among other things. More importantly, section 4 describes trends in employment in FS/AFS and its components across gender and age, which is a central objective of this study.

### 3. RWANDAN ECONOMY AND POPULATION

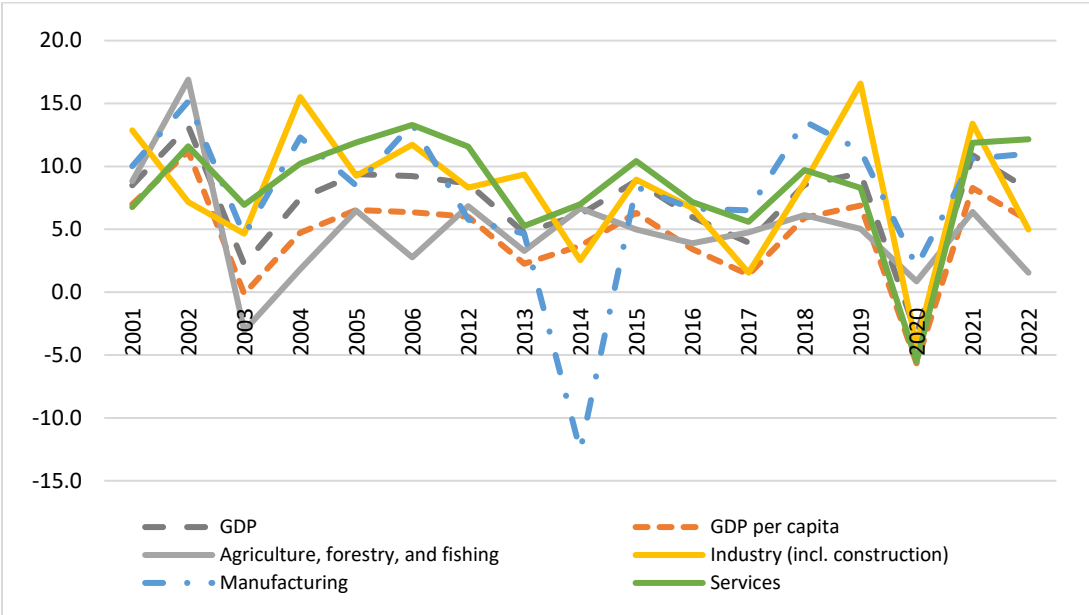
This section reviews trends and background information on important drivers of FS/AFS employment in Rwanda using the WDI data (World Bank 2023). The section includes three subsections. The first focuses on the economy and importance of its major subsectors. This is followed by a description of demographic trends, including population growth and other related issues. The third subsection describes urbanization in Rwanda.

#### 3.1 Economy

Rwanda's economy grew more than fourfold (by 336%) from a GDP of US\$3 billion dollars (constant 2015 US dollars) in 2001 to US\$13 billion in 2022. Most of the growth was concentrated in the first decade of that period (Annex Table 1). Services is the most important sector in the economy while agriculture is least important. The direction of change in the contribution of these sectors to GDP is largely as expected, although the decline in the importance of agriculture in Rwanda is slow relative to other countries (e.g., ILO 2020; Bachewe et al. 2020). This could be either because the change in agriculture began from a lower base in 2001 or because economic transformation has been slow or likely, a combination of the two factors. Annual growth in GDP averaged 7.6% during the period (Figure 2). Figure 2 also shows the significant decline in economic growth in Rwanda following the COVID-19 pandemic in 2020. Figure 2 and Annex Table 1 show that, despite its large share in the country's GDP, the services sector grew relatively rapidly while growth in agriculture was slowest at 4.9%. Relative to the first half of the period (2001–2012), GDP and sectoral growth rates were slower in the second half (2012–2022) (Annex Table 1).

Per capita GDP in Rwanda in 2022 was US\$940 (constant 2015 US dollars). This is 160% higher than the US\$362 per capita income in 2001. Annual growth in per capita GDP averaged 4.7% from 2001 to 2022, and growth was slightly lower from 2012 to 2022. The low levels and poor performance in per capita income in Rwanda are also reflected in the poor performance of the country in standard poverty measures. Most of Rwanda's population (52%) lived under the US\$2.15 (2017 PPP) cutoff point in 2016, the latest year with this data. The poverty headcount ratio at this cutoff point was 66% of the population in 2005 and 53.7% in 2013. Using the national poverty line of 159,375 Rwandan francs per adult equivalent per year (in January 2014 prices), the poverty headcount ratio was 39% in 2013 and 38.2% in 2016 (NISR 2016). These numbers indicate not only that a significant proportion of Rwandans live in poverty but also that poverty is declining slowly, implying income growth may have contributed to observed growth in FS in Rwanda.

**Figure 2.** GDP and sectoral growth rate in Rwanda, 2001–2022



Source: Authors' analyses using World Bank (2023) data.

### 3.2 Population

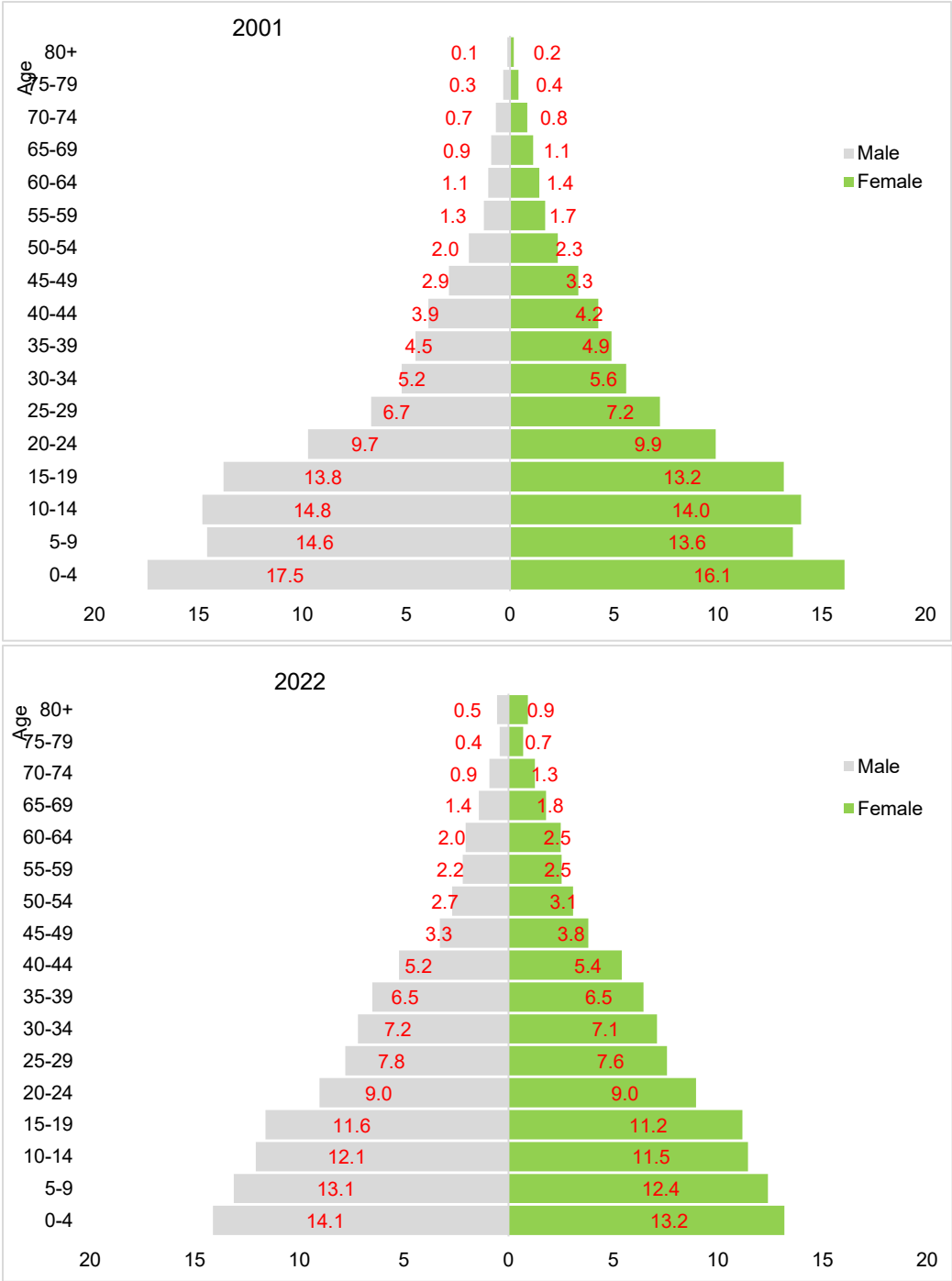
The population of Rwanda was 8.3 million in 2001 and 13.7 million in 2022, with women accounting for about 51% (UNDP 2024). That is, there were 67.5% more people in Rwanda in 2022 than in 2001 (Figure 3). Growth in population was 2.3% in an average year from 2001 to 2022 and slightly faster in the second decade (2.4%) than in the first decade (2.2%). Population growth reached a peak of 2.7% in 2006 but began declining after 2012. The trend in the population growth rate observed in Rwanda seems to be consistent with trends in the rest of SSA, where population growth rates were increasing until about a decade ago (World Bank 2023). The crude death rate declined from 14.3 persons per 1,000 people in 2001 to 6.3 people in 2021; that is, the crude death rate was more than halved (-58%) during the period (Annex Table 2). Similarly, life expectancy at birth increased by 34%, from 49 years in 2001 to 66 years in 2021. The decline in the crude death rate and increase in life expectancy were faster in the first half of the period than in the second.

In 2022, old people (65+) accounted for 3.7% of the total population, which is significantly higher than 2.3% in 2001 (Figure 3 and Annex Table 2). Young women and young men (ages 15–24) accounted for a similar proportion at slightly higher than 10% of the total population. At 20%, the proportion of mature women (ages 25–64) is higher than their male counterparts (18%). Rwanda's population is quite young: in 2022, 38.5% of the total population was under 15 years of age; 59% of the population under 25 years; and 73.4% under 35.

Figure 3 also shows that the proportion of young people under age 15 declined considerably. Similarly, the proportion of working-age youth (15 to 24 years old), both men and women, declined, all of which occurred in the first decade. The proportion of mature people (25 to 64) increased the most. Mature women constituted 16% of the population while mature men accounted for 13.2% in 2001; their respective proportions increased to nearly 20% and 18% in 2022. Most of the increase in the shares of these

demographic groups occurred during the first decade. Finally, the proportion of old people (65+) also increased slightly, from 2.6% to 3.2%, most of it in the first half of the period.

**Figure 3.** Age structure of population in Rwanda, 2001 and 2022



Source: Authors' analyses using UNDP (2024) data.

The trends in population structure discussed above have implications for the dependency ratio in Rwanda. The last three columns of Annex Table 2 summarize the data on dependency ratio. The dependency ratio of young people (below age 15), that is the ratio of young people to working-age people,

declined significantly during the period, from 86% in 2001 to 66% in 2022. This is an advantage that follows from an increasing share of young people reaching working age. In contrast, the dependency ratio of old people remained between 5% and 5.5% during the period. Consequently, the total dependency ratio declined from 91% to 71% during the period. The steady decline of the dependency ratio in Rwanda implies that with appropriate economic policies and investments in place, the country could take advantage of what is called “the demographic dividend.”

Annex Table 3 provides a summary of education participation and literacy rates. Three observations can be made about these numbers. First, there have been great strides in literacy in Rwanda over the past 20 years. The proportion of literate adults (15 years or older) increased to 76% in 2021 from 65% in 2001. Similarly, the share of literate youth (15–24 years old) increased considerably, from 70.5% in 2001 to 87% in 2021. Second, the trend in education indicates that a higher proportion of young people have achieved more formal education than older Rwandese. This holds also among children in elementary and secondary schools (Annex Table 3). Participation and completion rates in these schools are higher among younger pupils than the older group. Third, literacy rates improved more rapidly among women than men. There has been a considerable increase in the proportion of literate women (15+). The improvement in women’s literacy (by 23%) is more than twice the improvement in men’s (15+) literacy (10%). Similarly, the increase in young women’s (15–24) literacy rate, which is up 13.4 percentage points from 77% in 2001 to over 90% in 2021, is three times the increase in young men’s literacy rate. The data also show improvements in other aspects of women’s education, including participation in primary and secondary education, school completion rates, and the share of women primary and secondary school teachers

### 3.3 Urbanization

Urbanization, employment and income growth, and innovations in the retail sector are altering food environments, and, as a result, dietary patterns (Mockshell 2023). The transformation of food systems is also shaped by changes in consumer preferences and spatial patterns of food demand (Tefft et al. 2017; Seto and Ramankutty 2016). Given the lifestyle of urban residents, urban consumers and those with rising incomes demand foods that are more protein- and nutrient-rich, processed, and conveniently packaged. Furthermore, urban residents are concentrated in small areas, which requires a well-developed infrastructure including food packaging facilities, transportation, and food markets/stores. Thus, the transformation of food systems is a multifaceted process that changes market linkages and relations among food system actors (Mergenthaler et al. 2009; HLPE 2017; de Bruin et al. 2021). More generally, urbanization creates opportunities for employment in FS beyond the farm, through creation of agriculture-related jobs, particularly in food logistics, food processing, food marketing, and services. While these changes occur, jobs on the farm typically become more remunerative and competitive even as they shrink dramatically in terms of share and number (Christiaensen et al. 2021; IFPRI 2020).

Kigali city expanded from 2.1 to 100.2 square kilometers between 1984 and 2016 (Mugiraneza et al. 2019). High rural-to-urban migration from the surrounding provinces rapidly increased the population of the city (Nduwayezu et al. 2021). Urbanization was also boosted by the refugees who fled Rwanda during the genocide in 1994 for neighboring countries, and later returned to Rwanda and settled in the urban areas, especially in Kigali (Gazel et al. 2010). The city is currently growing at 3.2% per year, and the population reached about 1.3 million in 2024 (Republic of Rwanda 2020). Despite the rapid growth of Kigali city, Rwanda has a relatively low level of urbanization (Annex Table 4). Urban areas accounted for just 16% of the total population in 2001 and for 18% in 2022 (a 2 percentage point increase over two

decades). Both the level and speed of urbanization in Rwanda are low relative to the rest of SSA, where the rate of urbanization averaged 4.1% during the period (World Bank 2024). Furthermore, half of Rwanda's urban residents lived in Kigali in 2022, and this concentration of the urban population puts pressure on the city's social, housing, infrastructural, and other services. Furthermore, a highly concentrated urban agglomeration is less effective in stimulating local economies than towns and small cities. In this regard, the slow urbanization in Rwanda calls for planned urbanization and expansion in agrifood systems, which accelerates the move from agrarian to industry and services dominated economic transformation.

## 4. EMPLOYMENT IN AGRIFOOD SYSTEMS

This section uses labor force and employment data from ILO (2023) for the 2017 to 2022 period and NISR (2023) data covering 2006 and 2011. The section has two subsections. The first briefly describes labor market-related variables that provide a context for the description of employment in the FS/AFS, which is provided in the second subsection. In our discussions below we refer only to differences that are statistically significantly different from zero.

The ILO (2023) dataset defines youth as those in the 15 to 24 age group. Accordingly, in Tables 1 to 3 as well as in Annex Tables 5 to 7, youth refers to the 15 to 24 age group. However, we also provide a summary of the relevant variables using an alternative definition of youth (15 to 35 years old) in Annex Table 8.<sup>2</sup> Finally, we study the trends in the employment variables across years by dividing the period studied into two subperiods. Accordingly, the average for 2006 and 2011, obtained from the NISR (2023) data, represents the first half of the period while the average for the 2017 to 2022 period, obtained from the ILO (2023) data, represents the second period.

### 4.1 Labor force and unemployment in Rwanda

The labor force participation rate in Rwanda averaged less than 40% of the working-age population in the first half of the period (2006–2011) while it averaged 60% in the second half (2017–2022). Annex Table 5 summarizes the labor force participation rate for the working-age population as a whole and for each population category. For instance, 54.8% of working-age women were in the labor force in 2017 (or 45.2% of women were out of the labor force).<sup>3</sup> Several observations can be made from the summary in Annex Table 5.

First, labor force participation rates were generally higher in the second half of the period than in the first. Second, the share of men in the labor force is considerably higher than the share of women. While women's lower labor force participation rate has received researchers' attention in the developed country context, it needs proper investigation in such a predominantly rural context. Factors that may contribute to women's lower rate of participation include the disproportionate burden of care and domestic work, indicating that interventions that support women's roles in the home may allow them to seek more paid work opportunities.

---

<sup>2</sup> The African Union as well as the Mastercard Foundation define youth as those in the 15 to 35 age category.

<sup>3</sup> The same is true for the shares in Annex Tables 5 through 7 as well as in Tables 1 and 2. The shares for the subpopulations are calculated out of the total number for the respective subpopulation. For instance, the share of women engaged in low-skill work is calculated out of the total number of women employed; the unemployment rate of men is calculated out of the total number of men in the labor force; the share of youth engaged in agrifood systems is calculated out of the total number of youth employed, and so forth.

Third, there is a wide gap between labor force participation rates of youth and mature people. This gap doubled from 13.4% in the first half of the period to 26.6% in the second half. Some of this change may arise from the increasing opportunity cost of being educated now (being employed later) as opposed to being employed now, while it could also be associated with improvements in living conditions that reduce pressure on youth to seek employment. Fourth, the labor force participation rate of people with disabilities declined considerably during the period. This decline could likewise reflect increased support for people with disabilities that may have been provided by the government and other agencies. However, it could also reflect increases in the number of discouraged people with disabilities who leave the labor force.

The first row of Table 1 below provides the unemployment rate in the total population. The unemployment rate was highest in 2006, lowest in 2011, and it spiked in 2021 during the COVID-19 pandemic. The average unemployment rate in the second half of the period (12.8%) was slightly higher than the average in the first half (11.7%). These rates of unemployment observed in Rwanda were 97% and 103% higher than unemployment rates for SSA as a whole, which averaged 6% and 6.2% during the respective periods (World Bank 2023). The pattern in the unemployment rate observed in the total population also held for most subpopulation categories in Table 1. Moreover, the unemployment rate has been higher for women than men in all years, although the gender gap in this rate declined slightly during the period. Likewise, the unemployment rate for youth has been consistently higher than for mature people. However, the unemployment rate gap between youth and mature people is larger than the gender gap in unemployment rate, and youth unemployment increased considerably faster than unemployment among mature people, indicating a widening of this gap.

ILO (2023) defines three levels of skills of the jobs in which workers were employed (low, medium, and high) – summarized in Annex Table 6. Nearly three-quarters of Rwanda's workers are employed in low-skill jobs, about 17% are engaged in medium-skill jobs, and 9% in high-skill jobs. There have been only slight changes in skill levels of jobs across the aggregate population. However, the data reveal important gender disparities. The share of women workers in low-skill jobs is considerably higher than men's share, and it increased over the period, implying an increase in the gender gap among workers in low-skill jobs. The share of women working in medium-skill jobs is low and declined considerably over time, implying that women were disadvantaged in terms of these jobs. The share of women engaged in high-skill jobs was close to the share of men in that skill category; and women's share increased faster than men's share. That the ratio of women working in low-skill jobs is higher and increasing and the ratio working in medium-skill jobs is low and declining clearly shows that women face a disadvantage in the types of jobs they can obtain and hence in the income they generate. However, it is encouraging to see high-skill jobs are better distributed between men and women and gender equity is improving there. This is a steppingstone to reducing the gender gap in medium- and low-skill jobs.

**Table 1: Unemployment rate (%)**

Variable (%)	NISR (2023)				ILO (2023)				t-test (significance)
	2006	2011	2017	2018	2019	2020	2021	2022	
<b>Total</b>	17.1	6.3	11.9	10.8	11.2	11.8	15.8	15.1	
<b>Gender</b>									
<b>Women</b>	18.7	7.8	12.6	11.3	12.1	12.9	17.4	16.6	***
<b>Men</b>	16.5	4.9	11.2	10.2	10.5	10.9	14.3	13.7	
<b>Age</b>									
<b>Youth</b>	18.1	7.4	16.7	16.2	16.0	15.9	23.2	22.1	***
<b>Mature</b>	16.5	5.9	10.4	9.1	9.7	10.4	13.7	13.0	
<b>Education</b>									
<b>Less than basic</b>	16.4	3.4	8.1	6.2	6.1	6.9	10.7	9.9	
<b>Basic</b>	16.7	6.2	10.6	9.5	10.2	10.7	15.2	13.8	
<b>Intermediate</b>	22.3	18.1	21.8	20.6	20.5	20.0	23.3	26.5	
<b>Advanced</b>	23.4	13.2	18.9	17.8	16.5	17.2	17.8	18.8	
<b>Disability status</b>									
<b>With disability</b>	-	6.8	7.6	6.7	11.3	14.6	10.1	10.4	NS
<b>Without disability</b>	-	6.3	12.0	10.9	11.2	11.8	15.8	15.1	
<b>Area type</b>									
<b>Rural</b>	12.8	4.6	10.3	9.3	10.2	10.5	14.8	14.0	***
<b>Urban</b>	30.0	14.6	16.7	15.6	14.9	16.2	19.2	19.0	

**Source:** Authors' analyses using NISR (2023) and ILO (2023) data.

**Notes:** \*\*\*, \*\*, and \* signify that the two groups t-tested for difference are statistically significantly different at 1%, 5%, and 10% levels. NS indicates that the differences are not statistically significant. Tests are not conducted when groups are three or more.

## 4.2 Employment in the agrifood system

The summary in Table 2 below indicates the considerable importance of employment in FS/AFS employment as well as in the overall Rwandan economy. During the 2006 to 2022 period, agricultural production accounted for 80.4% to 90.5% of AFS employment. Among the population categories, agricultural production was least important for men, although it accounted for at least 75% of men's AFS employment, while it was most important for women, followed by mature people. Similarly, food production is the most important component of FS employment, accounting for 82% to 91% of FS employment, and its order of importance across categories of workers is similar to the importance of agriculture for AFS.

The share of both FS and AFS employment declined considerably during the period (Table 3).<sup>4</sup> AFS employment on average accounted for 89% of total employment in Rwanda during the first half of the period, but fell to an average of 68% in the second half. The trend in FS employment is similar. FS employment averaged 87.5% and 67% in the first and second halves of the period, respectively. This trend is mainly due to the considerable decline in the share of those employed in the farming component (agricultural/food production) of AFS observed in Rwanda, which is consistent with predicted trends for this sector in an economy under transformation. However, the decline in farming employment was not accompanied by growth in the share employed in the nonfarm component of AFS (i.e., those engaged in agricultural/food processing, food services, trade, and transportation), which is expected to grow in transforming economies (Davis et al. 2023; AGRA 2022; SWAC/OECD 2021; IFPRI 2020). The share of those employed in the nonfarm component of AFS increased only marginally during the period. It accounted for 10.7% of total employment during the first half of the period (2006–2011) and only 11.3% during the second half (2017–2022).

The summary in Table 3 also indicates that the share of women working in FS/AFS is always higher than the share of men (by at least 13% in all years except 2006). This is mainly due to the higher share of women working in the farming sector – with the share of women employed in the nonfarming component of FS/AFS as well as in non-AFS (all other sectors) always less than the share of men working in those sectors. The gender gap in the share employed in FS/AFS has increased over the period, mainly because of the relatively rapid decline in the share of men employed in agriculture (Table 2).

Differences in FS/AFS employment between youth and mature people were considerably smaller. The share of youth employed in FS/AFS was larger than the corresponding share of mature people in the first half of the period, while the reverse held in the second half. Moreover, unlike the gender comparison, this narrowing or reversal of the youth–mature gap in FS/AFS employment is primarily the result of a large increase (23%) in mature people engaged in the nonfarming component of the AFS, accompanied by a considerable decline (27%) in youth engaged in that component (Table 3). This differs from what Marivoet (2024) observed in Senegal, which indicated that more youth (than mature people) are attracted to the nonfarming component of the AFS, which suggests that further study is required to identify the factors that push youth out of nonfarming AFS in Rwanda.

The data also show that the share of the labor force engaged in non-food agricultural production was quite low and declined during the period. Moreover, the share employed in food products manufacturing and services declined from 4.1% in the first half to 2.7% in the second, while employment in non-food agricultural processing stagnated at about 1% of total employment during both periods. The share of employment in AFS trade increased during the period (from 4.7% in the first half to 5.6% in the second), while the share employed in transportation of AFS more than doubled from 0.9% in the first half to 2.1% in the second (Table 2).

---

<sup>4</sup> The numbers in Table 2 are aggregated according to the description in the methodology section into fewer employment categories and provided in Table 3.

**Table 2:** Detailed agrifood system and all other employment, by gender and age (%)

		Food production		Non-food production	Food manufacturing & servicing			Agricultural (nonfood) processing					Transport and trade		Non-AFS	
		Crops and livestock	Fishing and aquaculture	Forestry and logging	Manufacture of food products	Manufacture of beverages	Food and beverage service activities	Undifferentiated goods for HH own use	Manufacture of tobacco products	Manufacture of textiles	Manufacture of leather and related products	Manufacture of wood and wood products	Manufacture of paper and paper products	Trade	Transport	All others
<b>Total</b>	2006	75.6	0.1	0.2	0.2	0.2	1.3	2.2	0.0	0.3	0.2	0.8	0.0	6.9	1.0	10.9
	2011	78.7	0.2	0.4	0.5	0.0	0.7	3.0	0.0	0.2	0.0	0.5	0.0	2.5	0.9	12.5
	2017	52.3	0.7	0.1	0.5	0.4	0.9	0.1	0.0	1.1	0.1	0.6	0.0	6.6	1.8	34.8
	2018	49.3	0.6	0.2	1.0	0.8	1.4	0.0	0.0	0.1	0.1	0.7	0.0	6.2	1.9	37.7
	2020	49.4	0.6	0.2	0.7	0.4	2.2	0.0	0.0	0.1	0.1	0.6	0.1	5.6	1.9	38.2
	2021	55.7	0.5	0.1	0.6	0.3	1.1	0.1	0.0	0.1	0.1	0.4	0.0	4.8	2.3	33.9
	2022	54.7	0.5	0.1	0.7	0.2	1.4	0.2	0.0	0.0	0.1	0.6	0.0	4.7	2.7	34.0
<b>Women</b>	2006	80.7	0.1	0.1	0.2	0.1	1.1	2.1	0.0	0.3	0.1	0.2	0.0	6.8	0.8	7.4
	2011	87.8	0.0	0.2	0.4	0.0	0.5	2.5	0.0	0.2	0.0	0.1	0.0	2.1	0.2	6.1
	2017	63.5	0.3	0.0	0.3	0.4	0.9	0.1	0.0	1.8	0.0	0.2	0.0	7.2	0.2	25.1
	2018	61.4	0.1	0.0	0.6	1.0	1.4	0.0	0.0	0.2	0.0	0.5	0.0	7.0	0.1	27.7
	2020	60.4	0.1	0.0	0.5	0.4	2.4	0.0	0.0	0.2	0.2	0.2	0.0	6.8	0.1	28.8
	2021	65.9	0.2	0.0	0.6	0.3	1.1	0.1	0.0	0.1	0.0	0.1	0.0	6.1	0.1	25.4
	2022	65.1	0.1	0.0	0.6	0.1	1.2	0.2	0.0	0.1	0.1	0.2	0.0	6.1	0.2	26.1
<b>Men</b>	2006	73.8	0.2	0.2	0.2	0.2	1.4	2.3	0.0	0.3	0.3	1.0	0.0	6.9	1.1	12.1
	2011	69.0	0.3	0.7	0.7	0.0	0.9	3.5	0.0	0.1	0.0	0.9	0.0	3.0	1.6	19.3
	2017	42.3	1.1	0.1	0.7	0.4	0.8	0.2	0.0	0.4	0.2	1.0	0.0	6.1	3.3	43.4
	2018	38.5	1.1	0.4	1.4	0.7	1.4	0.0	0.0	0.0	0.1	0.9	0.1	5.5	3.5	46.4
	2020	39.7	0.9	0.5	1.0	0.4	2.0	0.0	0.0	0.0	0.1	0.9	0.1	4.5	3.5	46.5
	2021	46.8	0.8	0.3	0.7	0.3	1.1	0.1	0.0	0.0	0.1	0.6	0.0	3.7	4.2	41.2
	2022	45.5	0.8	0.3	0.9	0.3	1.5	0.2	0.0	0.0	0.1	0.9	0.0	3.5	4.9	40.9

		Food production		Non-food production	Food manufacturing & servicing				Agricultural (nonfood) processing				Transport and trade		Non-AFS	
		Crops and live-stock	Fishing and aqua-culture	Forestry and log-ging	Manufac-ture of food products	Manufac-ture of bever-ages	Food and bev-erage service activities	Undifferenti-ated goods-for HH own use	Manufac-ture of to-bacco products	Manufac-ture of textiles	Manufacture of leather and related products	Manufac-ture of wood and wood prod-ucts	Manufac-ture of pa-per and pa-per prod-ucts	Trade	Transport	All others
Youth	2006	75.3	0.2	0.2	0.3	0.1	0.9	5.3	0.0	0.3	0.2	0.6	0.0	6.7	1.5	8.6
	2011	73.5	0.3	0.5	0.7	0.0	1.1	7.1	0.0	0.3	0.0	0.4	0.1	3.3	1.0	11.6
	2017	47.2	0.6	0.1	0.6	0.4	1.1	0.2	0.0	1.1	0.0	0.5	0.0	6.0	2.0	40.2
	2018	44.7	0.6	0.2	1.5	0.6	1.6	0.0	0.0	0.1	0.1	0.4	0.1	5.3	2.1	42.7
	2020	47.3	0.7	0.6	0.9	0.4	2.1	0.0	0.0	0.2	0.2	0.3	0.0	4.8	1.8	40.7
	2021	53.2	0.5	0.4	0.7	0.2	1.2	0.1	0.0	0.0	0.1	0.2	0.0	3.4	2.9	37.0
	2022	48.6	0.6	0.4	0.9	0.3	1.8	0.4	0.0	0.0	0.1	0.3	0.0	3.8	3.5	39.3
Mature	2006	75.7	0.1	0.2	0.2	0.3	1.5	0.8	0.0	0.4	0.3	0.9	0.0	7.0	0.8	12.0
	2011	80.5	0.1	0.4	0.5	0.0	0.6	1.6	0.0	0.1	0.0	0.5	0.0	2.2	0.8	12.6
	2017	53.9	0.8	0.1	0.5	0.4	0.8	0.1	0.0	1.0	0.1	0.6	0.0	6.8	1.8	33.1
	2018	50.6	0.6	0.2	0.9	0.9	1.4	0.0	0.0	0.1	0.1	0.8	0.0	6.4	1.8	36.1
	2020	50.1	0.5	0.1	0.7	0.3	2.2	0.0	0.0	0.1	0.1	0.7	0.0	5.8	1.9	37.3
	2021	56.4	0.5	0.1	0.6	0.3	1.1	0.1	0.0	0.1	0.1	0.4	0.0	5.2	2.2	33.0
	2022	56.3	0.5	0.1	0.7	0.2	1.3	0.2	0.0	0.0	0.0	0.6	0.0	5.0	2.5	32.5

Source: Authors' analyses using NISR (2023) and ILO (2023) data.

On average, a larger share of youth are employed in food manufacturing and servicing, followed by men and mature people. In contrast, the share of women engaged in manufacture of non-food agricultural items is the highest, followed by the share of mature people engaged in those activities. Overall, manufacturing and servicing of agricultural items was most important for youth (at 5.3%) and least important for mature people (at 5%), indicating that differences in the share of distinct categories engaged in manufacturing and servicing of agricultural items were insignificant. On average, the share of men engaged in trade of agrifood items (4%) is the highest followed by mature people and youth. Transportation was most important for men followed by youth. The data reveal that women rarely engage in transportation of agricultural products (Table 2).

**Table 3: Agrifood system and all other employment, by gender and age (%)**

	NISR (2023)			ILO (2023)				t-test (significance)
	2006	2011	2017	2018	2020	2021	2022	
<b>Agri-food system</b>								
<b>Total</b>	89.1	87.5	65.2	62.3	61.8	66.1	66.0	
<b>Women</b>	92.6	94.1	74.9	72.3	71.2	74.6	73.9	***
<b>Men</b>	87.9	80.6	56.6	53.6	53.5	58.8	59.1	
<b>Youth</b>	91.4	88.1	59.8	57.3	59.3	63.0	60.7	*
<b>Mature</b>	88.0	87.3	66.9	63.9	62.7	67.0	67.5	
<b>Food system</b>								
<b>Total</b>	87.5	86.4	62.7	60.8	60.4	65.1	64.8	
<b>Women</b>	91.8	93.5	72.5	71.4	70.5	74.2	73.5	***
<b>Men</b>	86.1	79.0	53.9	51.3	51.5	57.2	57.2	
<b>Youth</b>	90.1	87.0	57.5	56.0	57.8	62.1	59.6	*
<b>Mature</b>	86.3	86.3	64.3	62.2	61.3	65.9	66.2	
<b>Non-farm agri-food</b>								
<b>Total</b>	13.2	8.3	12.1	12.2	11.7	9.8	10.6	
<b>Women</b>	11.8	6.0	11.1	10.8	10.8	8.5	8.8	***
<b>Men</b>	13.7	10.7	13.1	13.6	12.5	10.8	12.3	
<b>Youth</b>	15.7	14.0	11.9	11.8	10.7	8.8	11.1	*
<b>Mature</b>	12.1	6.3	11.6	12.4	11.8	10.1	10.5	
<b>All others</b>								
<b>Total</b>	10.9	12.5	34.8	37.7	38.2	33.9	34.0	
<b>Women</b>	7.4	6.1	25.1	27.7	28.8	25.4	26.1	***
<b>Men</b>	12.1	19.3	43.4	46.4	46.5	41.2	40.9	
<b>Youth</b>	8.6	11.6	40.2	42.7	40.7	37.0	39.3	*
<b>Mature</b>	12.0	12.6	33.1	36.1	37.3	33.0	32.5	

Source: Authors' analyses using NISR (2023) and ILO (2023) data.

Notes: \*\*\*, \*\*, and \* signify that the two groups t-tested for difference are statistically significantly different at 1%, 5%, and 10% levels.

Table 3 indicates that nonfarm FS/AFS on average contributed 10.7% to total employment in the first half of the period and 11.3% in the second half. The share of employment in manufacturing and servicing agricultural items was in the range of 2.7% to 5.3% and the share of transportation and trade together ranged between 3.4% and 8.4% of total employment. Together with this, the insignificant contribution of non-food agricultural production, which accounted for less than 0.5% in any given year, implies food production/farming is still the most important source of AFS employment in Rwanda. What is more concerning is that the shares of non-food production and manufacturing as well as food manufacturing and servicing have been declining.

The share of AFS in total employment in Rwanda estimated in this study is close to what Davis et al. (2023) obtain in Africa overall. They find that agricultural production has on average accounted for nearly 50% of total employment but its share has been declining in Africa over time. They also find that AFS employment (without trade and transportation) accounted for 53% of total employment and for about 62% when including trade and transportation. Most of the differences between this study and Davis et al. (2023) are explained by the higher contribution of agriculture to total employment in Rwanda.

### 4.3 Sustainable Development Goals

This subsection looks at Rwanda's progress in employment-related targets of the UN Sustainable Development Goals (SDGs). SDG 8 seeks to "Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all," including women and men, young people and persons with disabilities, and equal pay for work of equal value by 2030 (UN 2024). The indicator for this target is the unemployment rate (SDG 8.5.2). As we have seen above, Rwanda is a long way from full employment and, more importantly, unemployment appears to have increased over time. Further study is required to investigate whether there is movement toward equal pay for work of equal value. The discussion below looks at Rwanda's progress toward achieving other employment-related SDGs.

Annex Table 7 provides data on another SDG indicator: proportion of informal employment in total employment (SDG 8.3.1). The stated goals and targets of this SDG are "promoting development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services" (UN 2024). Annex Table 7 indicates that the share of informal employment in Rwanda ranged between 83% and 87% of total employment during the 2017 to 2022 period, and this share generally increased during the period, from an average of 83.8% 2017–2019 to 86.6% in 2020–2022. This indicates a move toward a more informal economy and away from achieving the SDG target. The same pattern in informal employment held across women and men, although the share of women has always been higher. Similarly, the share of youth working in the informal sector was considerably higher than the share of mature people, and the gap increased during the period. The share of people without disabilities employed in the informal sector was less than the share of people with disabilities, although the gap between these shares declined over the period.

Trends in indicators of two other targets under SDG 8, together with indicators of other employment-related SDG targets, are summarized in Table 4. SDG 8.2 has a target to "achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high value added and labor-intensive sectors." Annual growth rate of output per worker (SDG 8.2.1) is an indicator of this SDG target. In Rwanda, annual growth in this indicator averaged 5% during the period (Table 4). The average was 9.4% for 2017 to 2019 and 0.6% for 2020 to 2022. The slow

growth in the second half of the period reflects the large decline in productivity in 2020 related to the COVID-19 pandemic. Without this interruption, the average in the second half (7.2%) would also be considerable. However, regardless of the severe decline in 2020, growth in output per worker in Rwanda has been erratic — ranging from 1% to 19% — with no consistent trend.

SDG 8.6 has a target to “by 2020 substantially reduce the proportion of youth not in employment, education or training.” The data on indicator 8.6.1 of this target, “Proportion of youth (aged 15–24 years) not in education, employment, or training (%)” (NEET), is summarized in Table 4 for men and women. The data (not tabulated) indicate that overall, NEET averaged 27.4% and increased slightly during the period. Among women, NEET averaged nearly 31%, compared with 24% among men, and the maximum share for men NEET (27%) was less than the minimum share of women NEET (29.5%) in any of the years during the period. However, the NEET gender gap declined due to the fairly stable share of women and the considerable increase in the share of men NEET.

**Table 4.** Performance in Sustainable Development Goals

Year	Women in managerial positions, SDG 5.5.2 (%)	Women in senior and middle management positions, SDG 5.5.2 (%)	Manufacturing employment (% of total employment), SDG 9.2.2	Annual growth rate of output per worker, SDG 8.2.1	Working poverty rate, SDG 1.1.1	NEET (women), SDG 8.6.1	NEET (men), SDG 8.6.1
2017	36.3	36.3	4.3	3.5	52.2	30.1	21.0
2018	31.9	33.2	5.3	1.0	48.9	30.9	21.6
2019	28.6	-	5.4	19.0	45.3	32.8	24.2
2020	33.4	34.2	5.0	8.3	46.3	29.5	22.7
2021	35.0	35.4	4.0	-12.5	42.5	30.8	27.3
2022	23.6	25.0	4.4	10.2	40.3	30.6	27.0

Source: Authors’ analyses using ILO (2023) data.

The extent of women’s participation in managerial positions is often used as an indicator of the gender gap in societies. SDG 5.5 has a target to “ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.” Two indicators are used to measure this target, one of which is related to employment/labor. We summarize the data on two versions of this indicator in Table 4. One is the share of managerial positions held by women. This indicator averaged about 32% during both the first and second half of the period. While these averages are influenced by higher and lower shares during both periods, it is important to note that the share in the last year, 23%, is the lowest and the one at the beginning of the period, 36%, is the highest. The second indicator, the share of senior and middle management positions held by women, showed a slightly higher share of about 35% in the second half of the period than in the first (about 33%). However, the value of this indicator was also the highest at the beginning and lowest at the end of the period. These numbers imply that there is a long way to go in improving the participation of women in decision-making

SDG 9.2 has a target to “promote inclusive and sustainable industrialization and, by 2030, significantly raise industry’s share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.” The share of manufacturing employment (in total employment), which is summarized in Table 4, is one of the indicators of this target which, consistent

with economic orthodoxy, considers increased manufacturing employment as an important signal for economic transformation. The summary indicates that, on average, the manufacturing sector employed 4.7% of the total workers in Rwanda during the period. Manufacturing employment rates in the first half of the period averaged 5% and 4.5% in the second half. Although employment in manufacturing declined only slightly during the period, this trend is worrisome since it moves Rwanda away from the SDG target.

SDG 1.1 has a target to “by 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day.” The working poverty rate is the share of people in the labor force who are working but are still living in poverty. In Rwanda, the working poverty rate, which ILO (2023) defines as “the proportion of the employed population below the international poverty line of US\$2.15 (2017 PPP) per day” averaged 46% across the period and declined consistently from nearly 49% in the first half of the period to 43% in the second half the period, despite a temporary increase during the COVID-19 pandemic in 2020. This measure, together with the decline, albeit slow, in poverty in the overall population, is encouraging. However, further investigation is required on the causes of this success and how to hasten it.

## 5. SUMMARY AND POLICY IMPLICATIONS

The study finds that labor force participation in Rwanda averaged more than half of the working-age population and increased during the period. The unemployment rate in Rwanda has been double the SSA average and has generally been increasing. More than half of Rwanda’s workers work in agriculture, although this share declined considerably during the period. Farming is an important component of FS/AFS employment. However, the share of FS/AFS employment declined during the period, mainly due to a decline in farming employment. While the decline in the share of farming observed in Rwanda is consistent with predicted trends for this sector in an economy under transformation, employment in the nonfarm component of the AFS stagnated, contrary to the trend expected in transforming economies.

The proportion of women in Rwanda’s working-age population is larger than men’s, although women’s labor force participation rate is considerably lower. A comparison of women’s and men’s employment patterns indicates that a larger share of women work in low-skilled jobs and this gap is increasing; a larger share of women are employed in agriculture as well as in FS/AFS and this gender gap has widened across the period; and the share of women employed in the non-farming component of FS/AFS has always been less than the share of men. Similarly, relative to mature people, youth are disadvantaged. The share of youth in the working-age population is lower than that of mature people, and this share declined during the period. Moreover, youth’s labor force participation rate is considerably lower, and the gap is widening. This could reflect higher and relatively faster increases in youth unemployment. Differences in FS/AFS employment between youth and mature people were considerably smaller (relative to the corresponding gender gap) and show no clear trend.

Findings of this study point to several short- and long-run policy implications.

First, although it is encouraging to see high-skill jobs are better distributed across genders, generally, the gender gap is increasing to the disadvantage of women. While achievements in women’s education in Rwanda may slowly lead to improvements, deliberate action is needed to establish gender equity in terms of skill levels of jobs. Policies enacted in Rwanda to achieve near gender-equity in high-skill

jobs provide a good steppingstone to reduce the gender gap in medium-skill jobs. Second, interventions that support women's roles in the home can ameliorate some of the factors that contribute to women's lower rate of participation in labor force.

Third, youth, particularly young women, find it difficult to access different factor inputs such as land and credit because of inexperience, lack of collateral, and unequal power relations that leave women with limited decision-making powers and fewer resources (Mugo and Kinyua 2023). Supporting youth to overcome these difficulties while also providing them with practical training can help unlock their potential. The studies surveyed also point to such trainings that focus on managing youth's employment expectations (Saab and Shakhovskoy 2019; Babu et al. 2021). Furthermore, ensuring youth and women are included in dignified and fulfilling work will require transforming the FS/AFS to ensure these systems are sustainable, profitable, and marketable for these population categories. The identification of specific needs of youth and women is crucial as it can aid in identifying interventions that ensure meaningful participation in FS/AFS.

Finally, the discussion above indicates that a considerable share of Rwandese are engaged in farming, and farming will continue to be crucial for employment in the near future. Therefore, policymakers must reimagine agricultural policies to address current and future problems, to increase agricultural productivity and income through investments in agricultural intensification, commercialization, and rural value-addition activities, and thereby increase rural household income. Such increases in agricultural income will serve as a catalyst for agrifood employment, by increasing the demand for non-farm goods and services, the growth of which serves as a bridge between growing farming, nonfarm FS/AFS, and non-AFS employment. Growth in services, in particular, is a sustainable source of employment, because most are non-tradable goods that face little competition.

---

## ABOUT THE AUTHORS

**Fantu Bachewe**, Research Coordinator, Development Strategies and Governance Unit, International Food Policy Research Institute

**Harriet Mawia**, Research Officer, Development Strategies and Governance Unit, International Food Policy Research Institute

**Josue Niyonsingiza**, Senior Research Analyst, Development Strategies and Governance Unit, International Food Policy Research Institute

---

## ACKNOWLEDGMENTS

The authors would like to thank Samuel Benin, Jessica Heckert, Kalyani Raghunathan, and Suresh Babu for their valuable feedback and comments on this report. The authors would also like to thank Pamela Stedman-Edwards and other members of IFPRI's Communications and Public Affairs Division for copyediting and related publication services.

# REFERENCES

- AGRA. 2022. *Africa Agriculture Status Report. Accelerating African Food Systems Transformation* (Issue 10). Nairobi, Kenya: Alliance for a Green Revolution in Africa (AGRA).
- Allen, A., Howard, J., Kondo, M., Jamison, A., Jayne, T., Snyder, J., Tschirley, D.L. & Yeboah, F.K. 2016. *Agrifood Youth Employment and Engagement Study*. East Lansing, Michigan State University. [https://www.isp.msu.edu/files/4814/7249/7008/AgYees\\_Report\\_FINAL\\_web.pdf](https://www.isp.msu.edu/files/4814/7249/7008/AgYees_Report_FINAL_web.pdf).
- Ambler, K., Sylvan, H., Ricardo, L., Mywish, M., and Phoebe, S. 2019. *Measuring employment in the agri-food system: Existing data and directions for future research*. Project Note. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/p15738coll2.133542>
- Aragie, E., Diao, X., Spielman, D. J., Thurlow, J., Mugabo, S., Rosenbach, G., & Benimana, G. 2022. *Public investment prioritization for Rwanda's inclusive agricultural transformation: Evidence from rural investment and policy analysis modeling*. Rwanda Strategy Support Program, Working paper 3. International Food Policy Research Institute.
- Babu, S. C., Franzel, S., Davis, K. E., & Srivastava, N. 2021. *Drivers of youth engagement in agriculture: insights from Guatemala, Niger, Nigeria, Rwanda, and Uganda* (Vol. 2010). International Food Policy Research Institute.
- Bachewe, F., Berhane, G., Minten, B., & Taffesse, A.S. 2020. Crop Productivity and Potential. Chapter 3 in Dorosh, P. and Minten, B. Eds. *Ethiopia's agri-food system: Past trends, present challenges, and future scenarios*. International Food Policy Research Institute (IFPRI), Washington, DC.
- Christiaensen, L., Rutledge, R., and Tylor, E. 2020. Viewpoint: The future of work in agri-food. *Food Policy* 99 (2021) 101963. <https://doi.org/10.1016/j.foodpol.2020.101963>.
- Davis, B., Mane, E., Gurbuzer, L.Y., Caivano, G., Piedrahita, N., Schneider, K., Azhar, N., Benali, M., Chaudhary, N., Rivera, R., Ambikapathi, R. and Winters, P. 2023. *Estimating global and country-level employment in agrifood systems*. FAO Statistics Working Paper Series, No. 23-34. Rome, FAO. <https://doi.org/10.4060/cc4337en>.
- de Bruin, S., Dengerink, J., & van Vliet, J. (2021). Urbanization as driver of food system transformation and opportunities for rural livelihoods. *Food Security*, 13(4), 781-798.
- Dolislager, M., Reardon, T., Arslan, A., Fox, L., Liverpool-Tasie, S., Sauer, C., and Tschirley, D.L. 2021. Youth and Adult Agrifood System Employment in Developing Regions: Rural (Peri-urban to Hinterland) vs. Urban, *The Journal of Development Studies*, 57:4, 571-593, DOI: 10.1080/00220388.2020.1808198.
- Fanzo, J., Haddad, L., Schneider, K., R., et al. 2021. Viewpoint: Rigorous monitoring is necessary to guide food system transformation in the countdown to the 2030 global goals. *Food Policy* 104, 102163. <https://doi.org/10.1016/j.foodpol.2021.102163>.
- FAO, IFAD, UNICEF, WFP, and WHO. 2022. *The State of Food Security and Nutrition in the World 2022: Repurposing food and agricultural policies to make healthy diets more affordable*. Rome, FAO. <https://doi.org/10.4060/cc0639en>.
- FAO, IFAD, UNICEF, WFP and WHO. 2021. *The State of Food Security and Nutrition in the World 2021: Transforming food systems for food security, improved nutrition, and affordable healthy diets for all*. Rome, FAO. <https://doi.org/10.4060/cb4474en>.
- Franzel, S., Kinyua, H., Rucibigango, M., Davis, K., and Makh, S. 2019. *Youth in Extension and Advisory Services: Rwanda*. Developing Local Extension Capacity Project. USAID, Washington D.C.
- Gazel, H., Harre, D., and Moriconi-Ebrard, F. 2010. *L'urbanisation en Afrique centrale et orientale*. Rapport général de l'étude Africapolis II.
- Government of Rwanda (GoR). 2017. *7 Years Government Programme: National Strategy for Transformation (NST1) 2017– 2024*. Kigali: GoR.
- HLPE. 2017. *Nutrition and food systems Rome: A report by the high-level panel of experts on food security and nutrition of the committee on world food security*.
- International Food Policy Research Institute (IFPRI). 2024. *Food Systems*. Accessed on 13 Feb 24 from: <https://www.ifpri.org/topic/food-systems>.
- IFPRI. 2020. *2020 Global Food Policy Report: Building Inclusive Food Systems*. Washington, DC: International Food Policy Research Institute. <https://doi.org/10.2499/9780896293670>.
- International Labor Organization (ILO). 2024. *ILOSTAT database description: Labor force statistics (LFS, STLFS, RURBAN databases)*. Accessed in June 2024; accessed from: <https://ilostat.ilo.org/resources/concepts-and-definitions/description-labour-force-statistics/>.
- ILO. 2023. *ILOSTAT database*. Accessed from: <https://ilostat.ilo.org/data/#>. Accessed on 4 December 2023.
- ILO. 2020. *Report on employment in Africa (Re-Africa): Tackling the youth employment challenge*. Accessed in May 2024, accessed from: <https://www.ilo.org/publications/report-employment-africa-re-africa-tackling-youth-employment-challenge#:~:text=This%20report%20provides%20vital%20information,work%20and%20projecting%20future%20trends>.
- Jayne, T.S., Ferdinand, M., and Traub, L. N. 2014. *Africa's Evolving Food Systems: Drivers of change and the scope for influencing them*. IIED Working Paper. IIED, London.
- Kalibata, A. 2021. Transforming food systems is within reach. *Nature Food*, 2, 313–314. <https://doi.org/10.1038/s43016-021-00291-z>
- Kangondo, A., Ndyetabula, D.W., Mdoe, N., and Mlay, G.I. 2023. Rural youths' choice of livelihood strategies and their effect on income poverty and food security in Rwanda. *African Journal of Economic and Management Studies*, Vol. 14 No. 4, 643-662. <https://doi.org/10.1108/AJEMS-05-2022-0190>.
- Kilimo ,T. 2024. *R-yes project deploy transparent and inclusive approach for youth on-boarding*. Accessed in May 2024; accessed from: <https://kilimotrust.org/vocational-training-breeds-new-rwanda-agripreneurs/>.

- Marivoet, W. 2024. *Implications of urbanization, consumer awareness, and income trends on future food supplies in Senegal*. SFS4YOUTH WORKING PAPER 1. International Food Policy research institute. Washington DC.
- Mergenthaler, M., Weinberger, K., and Qaim, M. 2009. The food system transformation in developing countries: A disaggregate demand analysis for fruits and vegetables in Vietnam. *Food Policy*, 34(5), 426-436.
- Ministry of Agriculture and Animal Resources (MINAGRI). 2018a. *National Agricultural Policy*. Kigali: MINAGRI.
- MINAGRI. 2018b. *Strategic Plan for the Transformation of Agriculture in Rwanda – Phase IV: 2018–2024*. Kigali: MINAGRI.
- Jonathan, J. 2023. *Rapidly urbanizing food environments in Africa: Policies for achieving food and nutrition security*. Accessed in May 2024; accessed from: <https://www.welthungerhilfe.org/global-food-journal/rubrics/agricultural-food-policy/unhealthy-africas-cities-consume-an-unbalanced-diet>.
- Mugiraneza, T., Ban, Y., and Haas, J. 2019. Urban land cover dynamics and their impact on ecosystem services in Kigali, Rwanda using multi-temporal Landsat data. *Remote Sensing Applications: Society and Environment*, 13, 234-246.
- Mugo, V., & Kinyua, I. (2023). Youth engagement in agriculture and food systems transformation in Kenya. *Food Systems Transformation in Kenya*, 357.
- National Institute of Statistics of Rwanda (NISR). 2018. *Rwanda Poverty Profile Report, 2016/17*. Kigali, Rwanda
- National Institute of Statistics of Rwanda (NISR) 2021. *Rwanda. Agricultural Household Survey 2020 report*. Kigali, Rwanda.
- NISR. 2023. *Rwanda - Integrated Household Living Conditions Survey: Rounds 2005/06 (EICV2), and 2010/11 (EICV3)* [Reports and datasets]. Kigali, Rwanda.
- Nduwayezu, G., Manirakiza, V., Mugabe, L., and Malonza, J. M. 2021. Urban growth and land use/land cover changes in the post-genocide period, Kigali, Rwanda. *Environment and Urbanization ASIA*, 12(1\_suppl), S127-S146.
- PSDAG. 2018. *Gender and Social Inclusion Learning Event*. Kigali: USAID Feed the Future Project: Private-Sector Driven Agricultural Growth.
- Newfarmer, R., and Twum, A. 2022. *Employment creation potential, labor skills requirements and skill gaps for young people – A Rwanda case study*. Africa Growth Initiative at Brookings (AGI Working Paper No. 39).
- Republic of Rwanda. 2020. *National Land Use and Development Master Plan. NLUDEMP 2020-2050*. Republic of Rwanda, Rwanda.
- Saab, W. and Shakhovskoy, M. 2019. *Pathways to Prosperity-Understanding youth's rural transitions and service needs*. Washington, D.C.: ISF Advisors. [https://pathways.rafllearning.org/wpcontent/uploads/2019/11/2019\\_RAF-State-of-the-Sector\\_YouthDeepDive.pdf](https://pathways.rafllearning.org/wpcontent/uploads/2019/11/2019_RAF-State-of-the-Sector_YouthDeepDive.pdf).
- Seto, K. C., and Ramankutty, N. 2016. Hidden linkages between urbanization and food systems. *Science*, 352(6288), 943-945.
- Schmidt, E. and Kedir, M. 2009. *Urbanization and spatial connectivity in Ethiopia: Urban growth analysis using GIS*. ESSP DP 3, International Food Policy Research Institute (IFPRI), Addis Ababa.
- SWAC/OECD 2021. Food system transformations in the Sahel and West Africa: implications for people and policies. *Maps & Facts*, no. 4. April 2021.
- Tefft, J., Jonasova, M., Adjao, R., and Morgan, A. 2017. *Food Systems for an Urbanizing World*. World Bank Group and the Food and Agricultural Organization of the United Nations.
- Tschirley, D.L., Snyder, J., Dolislager, M., Reardon, T., Haggblade, S., Goeb, J., Traub, L., Ejobi, F. and Meyer, F. 2015. Africa's unfolding diet transformation: implications for agrifood system employment. *Journal of Agribusiness in Developing and Emerging Economies*. 5, 102–136. <https://doi.org/10.1108/JADEE-01-2015-0003>.
- Townsend, R., Benfica, R., Prasann, A., and Lee, M. 2017. *FUTURE of FOOD: Shaping the Food System to Deliver Jobs. International Bank for Reconstruction and Development*. The World Bank. Washington, D.C.
- Townsend, R.F. 2015. *Ending Poverty and Hunger by 2030: An Agenda for the global food system*. The World Bank Group. Washington D.C. Accessed in May 2023, accessed from: <http://documents.worldbank.org/curated/en/700061468334490682/Ending-poverty-and-hunger-by-2030-an-agenda-for-the-global-food-system>.
- United Nations. 2024. *Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development*. Accessed on 19 Feb 2024, Accessed from: [https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202023%20refinement\\_Eng.pdf](https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202023%20refinement_Eng.pdf).
- UNDP. 2023. *Rwandan Youth Leading the way in Agricultural Resilience*. Accessed from: <https://www.undp.org/rwanda/blog/rwandan-youth-leading-way-agricultural-resilience>; accessed in May 2024.
- United Nations, Department of Economic and Social Affairs, Population Division (2024). *Data Portal*, custom data acquired via website. United Nations: New York. Available from <https://population.un.org/DataPortal/> (accessed 17 September 2024).
- World Bank. 2024. *Food System Jobs: Development news, research, data*. Accessed in May 2023, accessed from: <https://www.worldbank.org/en/topic/food-system-jobs#:~:text=off%20the%20farm>.
- World Bank. 2023. *World Development Indicators*. Accessed from: <https://databank.worldbank.org/source/world-development-indicators/>. Accessed on 24 November 2023.
- World Bank Group. 2017. *Reshaping Urbanization in Rwanda: Economic and Spatial Trends and Proposals*. World Bank.
- Worldometer. 2023 *Rwanda Demographics*. Accessed from: <https://www.worldometers.info/demographics/rwanda-demographics/>; accessed in May 2024.

## ANNEXES

**Annex Table 1.** Performance of aggregate economy and importance of major sectors

Year	GDP (billion constant 2015 US\$)	GDP per capita (constant 2015 US\$)	Value added in sector (as % of GDP)				Annual % growth					
			Agriculture, forestry, and fishing	Industry (incl. construction)	Manufacturing	Services	GDP	GDP per capita	Agriculture, forestry, and fishing	Industry (incl. construction)	Manufacturing	Services
2001	3.0	361.2	31.8	16.4	9.1	43.4	8.5	7.0	8.8	12.9	10.0	6.8
2002	3.4	401.6	30.2	16.4	9.8	44.4	13.2	11.2	16.9	7.2	15.2	11.6
2003	3.4	401.1	33.0	14.3	8.9	43.7	2.2	-0.1	-3.1	4.7	4.5	6.9
2004	3.7	420.0	33.9	14.6	8.9	42.5	7.4	4.7	1.8	15.5	12.3	10.2
2005	4.0	447.4	33.8	15.0	8.7	42.5	9.4	6.5	6.5	9.3	8.5	11.9
2006	4.4	475.9	30.0	15.8	9.0	45.2	9.2	6.4	2.8	11.7	13.4	13.3
2012	7.1	651.2	24.8	18.2	8.3	48.8	8.6	6.0	6.8	8.3	5.8	11.6
2013	7.4	665.9	24.9	17.6	6.8	49.8	4.7	2.3	3.3	9.4	4.6	5.3
2014	7.8	690.4	24.7	17.6	6.8	49.2	6.2	3.7	6.7	2.5	-12.6	7.0
2015	8.5	733.8	24.0	17.5	6.8	49.7	8.9	6.3	5.0	8.9	8.4	10.4
2016	9.1	758.9	25.2	16.8	6.7	49.3	6.0	3.4	3.9	6.7	6.6	7.2
2017	9.4	769.4	26.3	17.3	7.7	47.9	3.9	1.4	4.7	1.5	6.5	5.6
2018	10.2	815.1	24.6	17.3	7.6	49.7	8.5	5.9	6.1	8.7	13.6	9.7
2019	11.2	871.1	23.6	18.8	8.4	49.1	9.5	6.9	5.0	16.6	11.3	8.3
2020	10.8	821.8	26.7	18.6	8.7	46.6	-3.4	-5.7	0.9	-4.2	2.0	-5.5
2021	12.0	889.8	24.1	20.3	9.2	47.7	10.9	8.3	6.4	13.4	10.6	11.9
2022	13.0	940.4	24.9	21.2	9.9	46.5	8.2	5.7	1.6	5.0	11.0	12.2

Source: Authors' analyses using World Bank (2023) data.

**Annex Table 2.** Population and demographic structure trends in Rwanda, 2001-2022

Year	Population (millions)	Population growth (annual %)	Proportion out of total population (%)								Death rate, crude (per 1,000 people)	Life expectancy at birth, total (years)	Dependency ratio (% of working-age pop.)	Dependency ratio, old (% of working-age pop.)	Dependency ratio, young (% of working-age pop.)
			Women	Men	Ages 0-14	Ages 15-24, women	Ages 15-24, men	Ages 25-64, women	Ages 25-64, men	Ages 65 and above					
2001	8.22	1.40	52.0	48.0	45.1	11.8	11.1	16.0	13.4	2.6	14.83	49.0	91.1	5.00	86.1
2002	8.37	1.79	52.0	48.0	44.3	11.9	11.2	16.2	13.6	2.8	13.93	51.0	88.9	5.29	83.6
2003	8.57	2.31	52.0	48.0	43.7	12.0	11.3	16.4	13.8	2.9	12.79	53.4	87.0	5.37	81.7
2004	8.79	2.58	51.9	48.1	43.2	12.0	11.4	16.5	13.9	2.9	11.55	55.5	85.5	5.34	80.2
2005	9.03	2.63	51.9	48.1	42.9	11.9	11.4	16.7	14.2	2.9	10.55	57.3	84.6	5.35	79.2
2006	9.27	2.66	51.8	48.2	42.8	11.6	11.2	17.0	14.5	2.9	9.80	58.7	84.1	5.40	78.7
2012	10.84	2.46	51.5	48.5	41.7	10.4	10.0	18.4	16.3	3.2	7.60	64.0	81.5	5.72	75.7
2013	11.10	2.38	51.5	48.5	41.6	10.3	9.9	18.6	16.6	3.1	7.29	64.4	80.7	5.54	75.1
2014	11.37	2.38	51.4	48.6	41.4	10.1	9.8	18.8	16.8	3.0	6.95	64.9	79.9	5.41	74.5
2015	11.64	2.39	51.4	48.6	41.2	10.1	9.8	19.0	17.0	3.0	6.72	65.3	79.1	5.33	73.7
2016	11.93	2.44	51.3	48.7	40.9	10.1	9.8	19.1	17.2	3.0	6.49	65.7	78.0	5.29	72.8
2017	12.23	2.48	51.3	48.7	40.5	10.1	9.8	19.3	17.4	3.0	6.37	65.9	77.0	5.28	71.7
2018	12.53	2.44	51.2	48.8	40.1	10.1	9.9	19.4	17.5	3.0	6.23	66.3	75.9	5.30	70.6
2019	12.84	2.39	51.2	48.8	39.8	10.1	9.9	19.5	17.6	3.1	6.14	66.4	74.9	5.34	69.5
2020	13.15	2.40	51.1	48.9	39.3	10.2	10.0	19.6	17.8	3.1	6.00	66.8	73.7	5.39	68.3
2021	13.46	2.37	51.1	48.9	38.9	10.2	10.1	19.7	17.9	3.1	6.28	66.1	72.5	5.42	67.1
2022	13.78	2.31	51.1	48.9	38.5	10.3	10.2	19.8	18.1	3.2	..	..	71.4	5.48	65.9

Source: Authors' analyses using World Bank (2023) data.

**Annex Table 3.** Performance in education in Rwanda, 2001-2022

Year	Participation in education							Literacy rate*						
	Primary education, pupils (% women)	Primary completion rate, total (%)	Primary completion rate, women (%)	Secondary education, pupils (% women)	Lower secondary completion rate, total (%)	Lower secondary completion rate, women (%)	Youth women (out of women ages 15-24)	Youth men (out of men ages 15-24)	Youth total (out of people ages 15-24)	Youth (ages 15-24), gender parity index	Adult women (out of women ages 15+)	Adult men (out of men ages 15+)	Adult total (out of people ages 15+)	Adult (ages 15+), gender parity index
2001	50.0	24.1	22.3	50.2	..	..	76.9	78.5	77.6	1.0	59.8	71.4	64.9	0.8
2002	50.3	30.9	29.5	50.1	..	..	..	..	..	..	..	..	..	..
2003	50.5	41.9	40.8	47.5	..	..	..	..	..	..	..	..	..	..
2004	50.8	41.5	40.6	47.7	..	..	..	..	..	..	..	..	..	..
2005	50.9	..	..	47.2	..	..	68.2	72.7	70.5	0.9	..	..	..	..
2006	51.3	..	..	47.8	..	..	..	..	..	..	..	..	..	..
2012	50.7	70.9	74.9	52.2	35.9	37.6	..	..	..	..	..	..	..	..
2013	50.7	67.4	72.7	52.1	..	..	..	..	..	..	..	..	..	..
2014	50.8	59.8	64.7	52.5	36.2	38.3	86.3	83.8	85.1	1.0	66.1	76.1	70.8	0.9
2015	50.5	60.2	65.5	52.2	34.6	36.4	85.7	84.3	85.0	1.0	..	..	..	..
2016	50.1	65.4	71.7	52.5	34.4	36.4	..	..	..	..	..	..	..	..
2017	49.9	73.4	83.0	53.1	35.7	37.8	..	..	..	..	..	..	..	..
2018	49.7	81.5	88.7	53.2	34.9	37.2	88.5	84.3	86.5	1.0	69.4	77.6	73.2	0.9
2019	..	92.4	99.4	..	40.2	43.6	..	..	..	..	..	..	..	..
2020	..	..	..	..	..	..	92.7	92.1	92.5	1.0	..	..	..	..
2021	..	87.8	94.4	..	41.0	44.7	90.3	83.4	86.9	1.1	73.3	78.7	75.9	0.9
2022	..	65.0	72.4	..	37.0	40.9	..	..	..	..	..	..	..	..

**Source:** Authors' analyses using World Bank (2023) data.

**Note:** \* Literacy rate numbers for 2001 are 2000 numbers.

**Annex Table 4.** Urbanization and access to services

	Urban							Rural				
	Population (% total)	Population in largest city (% of urban)	Population growth rate	Access to electricity (% of urban)	Access to basic drinking water (% of urban)	Access to clean cooking fuels and technologies (% of urban)	Access to basic sanitation services (% of urban)	Population growth rate	Access to electricity (% of rural)	Access to basic drinking water (% of rural)	Access to clean cooking fuels and technologies (% of rural)	Access to basic sanitation services (% of rural)
<b>2001</b>	15.8	41.8	7.3	35.9	70.8	0.4	61.6	0.3	.	40.9	0.1	43.6
<b>2002</b>	16.8	42.5	7.6	38.2	71.6	0.4	61.2	0.7	.	41.7	0.1	45.3
<b>2003</b>	16.9	43.0	3.1	40.5	72.4	0.4	60.9	2.2	0.6	42.6	0.1	47.1
<b>2004</b>	16.9	43.4	2.6	42.9	73.2	0.4	60.5	2.6	1.8	43.5	0.1	48.8
<b>2005</b>	16.9	43.7	2.7	25.1	74.0	0.5	60.2	2.6	0.7	44.3	0.1	50.5
<b>2006</b>	16.9	44.1	2.7	47.6	74.8	0.5	59.8	2.7	4.0	45.2	0.1	52.2
<b>2012</b>	16.9	46.6	2.5	67.6	79.8	1.7	57.5	2.5	7.3	50.7	0.2	62.6
<b>2013</b>	16.9	47.1	2.4	61.5	80.7	2.2	57.1	2.4	5.8	51.7	0.2	64.3
<b>2014</b>	17.0	47.6	2.5	71.8	81.5	2.9	56.7	2.4	9.2	52.6	0.3	66.0
<b>2015</b>	17.0	48.1	2.6	72.9	82.4	3.9	56.2	2.3	12.5	53.6	0.3	67.8
<b>2016</b>	17.1	48.4	2.7	80.0	83.3	5.3	55.8	2.4	19.0	54.5	0.4	69.5
<b>2017</b>	17.1	48.8	2.9	84.8	84.1	7.3	55.4	2.4	23.6	55.5	0.4	71.2
<b>2018</b>	17.2	49.0	2.9	85.8	85.0	9.9	54.9	2.3	28.0	56.5	0.5	73.0
<b>2019</b>	17.3	49.3	3.0	86.4	85.9	13.5	54.5	2.3	38.3	57.5	0.5	74.7
<b>2020</b>	17.4	49.4	3.1	93.9	86.8	18.1	54.0	2.3	34.9	58.5	0.6	76.4
<b>2021</b>	17.6	49.5	3.1	98.0	87.6	23.8	53.6	2.2	38.2	59.5	0.7	78.2
<b>2022</b>	17.7	49.5	3.2	.	88.1	..	53.6	2.1	.	60.1	..	78.2

**Source:** Authors' analyses using World Bank (2023) data.

**Annex Table 5: Labor force participation rate (%)**

Variable (%)	NISR (2023)				ILO (2023)				t-test (significance)
	2006	2011	2017	2018	2019	2020	2021	2022	
<b>Total</b>	34.6	44.3	60.5	60.4	58.5	62.7	58.1	60.2	
<b>Gender</b>									
<b>Women</b>	33.9	39.0	54.8	54.3	51.9	56.7	52.6	54.8	***
<b>Men</b>	34.8	50.6	66.9	67.4	65.8	69.3	64.4	66.2	
<b>Age</b>									
<b>Youth</b>	29.8	32.5	43.3	42.6	41.9	47.8	38.7	39.9	***
<b>Mature</b>	37.9	51.1	68.8	69.2	66.8	70.2	67.9	70.6	
<b>Education</b>									
<b>Less than basic</b>	36.3	48.1	54.9	53.5	50.9	53.7	50.1	51.0	
<b>Basic</b>	32.9	44.6	62.2	62.0	60.0	63.6	59.1	61.4	
<b>Intermediate</b>	47.2	37.3	50.9	51.4	50.7	58.6	52.8	54.7	
<b>Advanced</b>	71.6	-	71.0	72.3	70.7	77.8	74.2	75.9	
<b>Disability status</b>									
<b>With disability</b>	27.2	32.5	32.9	31.6	25.0	29.0	19.0	23.4	***
<b>Without disability</b>	35.0	45.4	61.7	61.8	59.3	63.2	58.9	60.8	
<b>Area type</b>									
<b>Rural</b>	31.6	43.3	59.0	59.0	56.6	61.0	56.8	58.9	***
<b>Urban</b>	48.6	50.0	65.5	65.3	65.9	68.5	62.9	65.1	

**Source:** Authors' analyses using NISR (2023) and ILO (2023) data.

**Notes:** \*\*\*, \*\*, and \* signify that the two groups t-tested for difference are statistically significantly different at 1%, 5%, and 10% levels. Tests not conducted when groups are three or more.

**Annex Table 6: Skill levels of workers**

	NISR (2023)				ILO (2023)				t-test (signifi- cance)
	2006	2011	2017	2018	2019	2020	2021	2022	
<b>Skill level 1 (low)</b>									
<b>Total</b>	79.8	69.3	73.0	72.0	71.0	71.6	76.2	75.8	
<b>Women</b>	84.3	76.8	83.3	82.3	80.3	82.3	84.4	84.1	***
<b>Men</b>	78.3	61.4	65	64.1	63.9	63.6	69.9	69.2	
<b>Skill level 2 (medium)</b>									
<b>Total</b>	14.9	24.9	15.6	16.6	17.4	17.3	13.4	13.7	
<b>Women</b>	11.7	18.8	7.0	7.4	8.8	7.7	5.7	6.1	***
<b>Men</b>	16.0	31.4	22.3	23.7	23.9	24.5	19.3	19.6	
<b>Skill levels 3 and 4 (high)</b>									
<b>Total</b>	3.9	5.8	10.5	11.4	11.6	10.4	9.4	9.8	
<b>Women</b>	2.8	4.4	9.6	10.3	10.8	9.9	9.8	9.7	**
<b>Men</b>	4.3	7.2	11.2	12.2	12.2	10.8	9.1	9.9	
<b>Not elsewhere classified</b>									
<b>Total</b>	1.4	0.1	0.8	-	0	0.7	1	0.7	
<b>Women</b>	1.3	0.1	-	-	0	-	0.1	0.1	
<b>Men</b>	1.5	0.2	1.4	-	0	1.1	1.8	1.2	

**Source:** Authors' analyses using NISR (2023) and ILO (2023) data.

**Notes:** \*\*\*, \*\*, and \* signify that the two groups t-tested for difference are statistically significantly different at 1%, 5%, and 10% levels.

**Annex Table 7: Proportion of informal employment in total employment, SDG 8.3.1 (%)**

	2017	2018	2019	2020	2021	2022
<b>Total</b>	84.3	83.8	83.2	85.8	87.1	86.8
<b>Gender</b>						
<b>Women</b>	88.1	87.6	86.8	88.4	89.1	89.2
<b>Men</b>	80.8	80.4	80.1	83.5	85.4	84.7
<b>Age</b>						
<b>Youth</b>	94.8	93.8	93.4	94.7	95.8	95.7
<b>Mature</b>	81.3	81	80.3	83	84.9	84.5
<b>Education</b>						
<b>Less than basic</b>	97.5	96.9	96.8	97	98.8	98.1
<b>Basic</b>	90.7	90.3	90.3	93	94.5	93.7
<b>Intermediate</b>	59.2	61.6	58.6	64.7	64.3	64.9
<b>Advanced</b>	17.9	18.8	20.3	27.3	23.1	20.9
<b>By disability status</b>						
<b>With disability</b>	95.2	94.4	92.8	94.1	98	95.6
<b>Without disability</b>	84	83.6	83.1	85.8	87.1	86.7
<b>Area type</b>						
<b>Rural</b>	90.3	89.7	89.4	91.6	92.7	92.1
<b>Urban</b>	64.3	63	61.2	66.3	67.5	66.7

Source: Authors' analyses using ILO (2023) data.

**Annex Table 8.** Summary of labor and agrifood system employment variables across alternative definition of the youth (15-35)

	Youth (15-35)		Mature (35+)	
	2006	2011	2006	2011
<b>Working-age population</b>	64.6	62.9	35.4	37.1
<b>Labor force participation rate</b>	34.5	43.5	34.8	45.5
<b>Unemployment rate</b>	6.0	3.2	5.7	2.2
<b>Skill levels of workers</b>				
<b>Skills levels 1</b>	78.9	65.5	81.9	74.5
<b>Skills levels 2</b>	15.5	27.4	13.7	21.4
<b>Skills levels 3 -4</b>	3.8	7.0	3.7	4.0
<b>Employment by status in employment</b>				
<b>Employees</b>	29.2	41.8	24.3	32.4
<b>Employers</b>	1.3	3.5	1.6	5.1
<b>Own-account workers</b>	26.8	26.4	54.1	47.4
<b>Members of producers' cooperatives</b>	0.1	0.0	0.0	0.0
<b>Contributing family workers</b>	42.6	28.3	19.9	15.2
<b>Agrifood system employment</b>				
<b>Agrifood system</b>	89.3	86.2	89.4	89.3
<b>Food system</b>	87.8	85.0	88.0	88.0

Source: Authors' analyses using NISR (2023) data.

This publication has been prepared in the context of the Strengthening Food Systems to Promote Increased Value Chain Employment Opportunities for Youth partnership with the Mastercard Foundation. It is a five-year initiative running between 2022 and 2027 to gain insight into the latest trends and challenges in agrifood systems, and how addressing market inclusion and post-harvest losses can enable dignified and fulfilling livelihoods for young women and men. The views expressed do not necessarily represent those of the Foundation, its staff, or its Board of Directors. This publication has not been independently peer reviewed. Any opinions expressed here belong to the author(s) and are not necessarily representative of or endorsed by IFPRI.

**INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE**

*A world free of hunger and malnutrition*

**IFPRI is a CGIAR Research Center**

1201 Eye Street, NW, Washington, DC 20005 USA | T. +1-202-862-5600 | F. +1-202-862-5606 | Email: [ifpri@cgiar.org](mailto:ifpri@cgiar.org) | [www.ifpri.org](http://www.ifpri.org) | [www.ifpri.info](http://www.ifpri.info)

© 2026, copyright remains with the author(s). All rights reserved.