Food and Agriculture Organization of the United Nations

THE STATUS OF YOUTH IN AGRIFOOD SYSTEMS

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SCENES FROM NISHIKI MARKET, DOWNTOWN KYOTO.

FOREWORD

Youth are at the center of a rapidly changing world. There are more youth today than at any other point in human history. If adequately nourished, educated, and equipped with the requisite resources, transparent information and opportunities to build up hopes and to access decent work, young people can drive economic transformation and global prosperity. The Status of Youth in Agrifood Systems report provides a timely and evidence-based assessment of how decent jobs and food security for youth can be achieved through agrifood systems transformation, and how empowered youth can act as catalysts for broader agrifood systems transformation. Youth need agrifood systems and agrifood systems need youth.

This report marks FAO's first comprehensive evidence-based assessment of youth engagement in agrifood systems on a global scale. It explores the multiple dynamics that shape youth experiences in agrifood systems and derives actionable and policy-oriented recommendations based on programmes, initiatives, and regulatory measures that have worked in the past.

Agrifood systems employ 44 percent of working youth and remain a key entry point for youth employment, especially in low- and lower-middle income countries, where nearly 85 percent of the 1.3 billion global youth population resides. As agrifood systems transition, off-farm agrifood system employment becomes progressively more important for working youth compared to adults and this transition to

employment outside agrifood systems occurs more quickly for young men than young women.

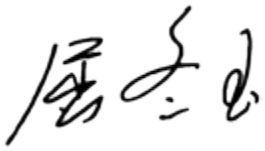
However, the distribution of rural youth and available opportunities varies with country's stage of agrifood systems transition. Some regions are experiencing a bulging youth population, while others experience scarcity of youth in rural areas. The policy priorities for youth in these two contexts are distinct. Countries with large youth populations need policies to increase employment prospects and productivity. Low youth population contexts require policies that can attract youth to agrifood systems work and rural areas. The climate crisis adds another layer of complexity, with an estimated 395 million rural youth living in areas expected to experience declines in agricultural productivity potential, making agrifood system employment a less attractive livelihood option.

Ensuring youth integration and benefits from agrifood systems requires deliberate efforts rooted in evidence-based policies and approaches that have proven successful on two fronts. First, expanding youth economic prospects by promoting inclusive productivity growth, accelerated transformation of agrifood food systems, and overall rural and structural transformation in ways that increase the supply of decent jobs, nutritious foods, and resilience to shocks and stresses. Second, empowering youth with agency, skills, and productive resources - including educational opportunities, land, finance, and digital technologies - to influence the agrifood systems transformation processes and partake in the outcomes. The potential payoff from such efforts is enormous: for instance, if all youth had access to decent jobs, the agrifood sector alone could add an estimated USD 670 billion to global GDP.

This report supports FAO's commitment, under its Strategic Framework 2022-31, to prioritize youth as a cross-cutting theme across all of FAO's work in transforming agrifood systems, and in fulfilling our aspiration of the Four Betters: better production, better

nutrition, a better environment and a better life - leaving no one behind. FAO is unconditionally committed to stepping up its work with and for youth to ensure their voices are heard, and that their participation in and contribution to sustainable and inclusive agrifood systems are fully harnessed.

By joining forces as governments, the international development community, international organizations, private sector, civil society and of course youth themselves, we can Move Food Forward and build more efficient, inclusive, resilient, and sustainable agrifood systems for youth today, and for generations to come.



Dr QU Dongyu, *FAO Director-General*

© VISIONTIME/MELANIE BOUTROS YOUTH GATHERING AT CENTRAL PARK, ON THE SIDELINES OF THE ECOSOC INFORMAL YOUTH SUMMIT OF THE FUTURE AND LOCAL PACTS FOR THE FUTURE, NEW YORK, 2024.

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ABBREVIATIONS

ABS	Access to basic services
AC	Adaptive capacity
AFA	Asian Farmers Association for Sustainable Rural Development
AI	Artificial intelligence
API	Application programming interface
BLMA	Bilateral Labour Migration Agreement
CGAP	Consultative Group to Assist the Poor
CRPD	Convention on the Rights of Persons with Disabilities
DFS	Digital financial services
D4Ag	Digitalization for Agriculture
DHD	Demographic Health Surveys
DVA	DigiFarm Village Advisor
EAS	Extension and advisory services
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
FPIC	Free, prior and informed consent
FSP	Financial service provider
GAEZ	Global Agro-Ecological Zone
GDP	Gross domestic product
GPS	Global Positioning System
GSMA	Global System for Mobile Communications
HALC	High agricultural potential and low connectivity
HAMC	High agricultural potential and medium connectivity
HHH	Household head
ICT	Information and communication technology
IDP	Internally displaced person
IFAD	International Fund for Agricultural Development
ILO	International Labour Organization
ILS	International Labour Standards
IOM	International Organization for Migration
IoT	Internet of Things
LAHC	Low agricultural potential and high connectivity
LAMC	Low agricultural potential and medium connectivity
LMIC	Low- and middle-income country
LSMS	Living Standard Measurement Study
MFI	Microfinance institution
MALC	Medium agricultural potential and low connectivity
MAMC	Medium agricultural potential and medium connectivity
MNO	Mobile network operator
MRC	Migrant resource centre
MSE	Mean squared error
NEET	Not in employment, education or training
NGO	Non-governmental organization
NTFP	Non-timber forest products
OLS	Ordinary least squares
OSH	Occupational safety and health
PPP	Purchasing power parity
PSNP	Productive Safety Net Program
R&D	Research and development
RAS	Rural advisory services
RIMA	Resilience Index Measurement and Analysis
RuLIS	Rural Livelihoods Information System
SERS	Subjective self-Estimated Resilience Score
SSN	Social safety nets
SUA	Setting up Aid
TVET	Technical and vocational education and training
URCA	Urban-rural catchment area
WIND	Work improvement in neighbourhood development

YOUTH MOVE FOOD FORWARD

© FAO/ANIS MILI
BEJA, TUNISIA, YOUNG AGRI-ENTREPRENEUR SABRINE BELHOUANE INSPECTS A LAMB.

01 INTRODUCTION

© FAO GAVIN GOSBERT AND JE
IN ZANZIBAR, UNITED REPUBLIC OF TANZANIA, LYDIA THOBIAS CARRIES WATER TO HER FARM, AN ESSENTIAL PART OF SUSTAINING HER CASSAVA CROPS AND ENSURING A RELIABLE FOOD SOURCE FOR HER HOUSEHOLD AND COMMUNITY.

BACKGROUND

Youth are at the centre of key changes shaping the world. With approximately 1.3 billion individuals aged 15–24[1] making up 15.9 percent of the global population, today's youth cohort is the largest in history.[2] Nearly 85 percent reside in lower income countries, particularly in Asia and sub-Saharan Africa, where their numbers continue to rise.[2] This demographic shift presents both opportunities and challenges. If adequately nourished, educated and engaged in productive activities, young people have the potential to drive economic transformation and global prosperity. However, without meaningful opportunities, their potential could remain untapped, deepening vulnerabilities and social inequalities.

Youth are also growing up in an era of profound global disruptions. Economic downturns, rapid technological shifts and structural barriers continue to exacerbate employment challenges, with youth joblessness rates 3.5 times higher than those of adults.[3] Over 25 percent of the world's youth are not in employment, education or training (NEET).[3] Climate change is intensifying natural disasters, threatening livelihoods and agrifood systems that are already struggling to meet rising demands for nutritious and healthy diets in a sustainable manner.[4, 5, 6] These overlapping challenges profoundly shape the economic, social and political realities of today's youth, influencing their transition to adulthood and long-term well-being.

Despite these challenges, young people remain essential drivers of change. By their sheer numbers, youth consumption patterns, advocacy and labour will critically shape poverty reduction, job creation and food security outcomes.[7] Even in regions with smaller youth populations, their energy and innovation are crucial for sustaining local economies and the social fabric of rural communities.[8] In the absence of youth, labour shortages, a slowdown in agricultural and entrepreneurial activities, and weakened intergenerational knowledge transfer could hinder the transformation of agrifood systems.

> **"TODAY'S YOUTH COHORT CAN DRIVE ECONOMIC TRANSFORMATION IF ADEQUATELY SUPPORTED.**

Agrifood systems hold immense potential to boost youth livelihoods and drive rural economic transformation.[9—11] However, youth face significant challenges in transitioning to decent employment and sustainable livelihoods in agrifood systems. These challenges are particularly severe in lower-income countries, where rural and structural transformation have been slow and uneven, as well as distinct from the historical experiences of higher-come countries. In these contexts, the persistence of low-productivity, labour-intensive agriculture, coupled with resource access constraints, often limits youth opportunities, restricting them to low-paid and precarious jobs in agrifood systems.[12] Yet, even in advanced economies with strong labour protections, agrifood job opportunities for youth remain low-paying, seasonal and vulnerable. Young entrepreneurs face additional barriers, including high prices for land and startup costs, as well as strict sustainability regulations.[13, 14] These constraints are especially critical for rural youth, who compared to their urban counterparts are disproportionately affected by vulnerable employment,[12] lower literacy rates[15] and lower returns to education,[7] which hinder their successful transition into adulthood.

Recognizing these challenges, the 2030 Agenda for Sustainable Development[16] underscores the importance of young people as a crucial driver of inclusive economic growth, poverty reduction and food security. However, effective policymaking to fully harness the synergies between agrifood systems and youth is hindered by a lack of robust empirical evidence on youth engagement, contributions and challenges within agrifood systems. This includes gaps in understanding youth's productive engagement subsequent to the COVID-19 pandemic and how evolving demographic, socioeconomic shifts and environmental stresses may shape youth livelihoods in agrifood systems.

The Status of Youth in Agrifood Systems report provides a comprehensive evidence-based assessment of the dynamics of youth engagement on a global scale. It examines not only how enhancing decent jobs and food security outcomes for youth can be achieved through transformed agrifood systems, but also how empowered youth can act as catalysts for broader agrifood systems transformation. Simply put, youth need agrifood systems and agrifood systems need youth.

The report builds on the 2019 Rural Development Report[7] of the International Fund for Agricultural Development (IFAD) as well as existing state-of-the-art research and offers new insights into critical aspects of youth and agrifood systems. The report examines the status of youth in agrifood systems focusing on their ability to secure both decent jobs and food security and nutrition. The resilience of youth in the face of various shocks, their adaptive strategies and their potential contributions to mitigating these shocks to promote a resilient and inclusive agrifood systems are also explored. Furthermore, the report investigates how decent and productive youth engagement in agrifood systems and food security outcomes intertwine with human mobility, climate change and economic shocks. It also brings to light the significant role of intersectional factors such as gender and socioeconomic status in determining these outcomes and identifying the enabling factors and challenges that different types of youth face in accessing opportunities in agrifood systems. Finally, the report provides an extensive review of interventions and policies, assessing which have worked and why, and makes specific recommendations concerning the way forward.

© FAO/MARIO ARAUJO IN CASERÍO LA PEÑA,EL SALVADOR, A COMMUNITY PROMOTER CHECKS THE RESULTS OF SOIL MANAGEMENT

YOUTH-INCLUSIVE AGRIFOOD SYSTEMS: LEVERAGING SYNERGIES BETWEEN YOUTH AND AGRIFOOD SYSTEMS

AGRIFOOD SYSTEMS OFFER OPPORTUNITIES FOR YOUTH

Agrifood systems encompass a network of actors and interlinked activities involved in agricultural production, processing, distribution and consumption (Figure 1.1), that delivers over 11 billion tons of food each year. Agrifood systems employ approximately 1.23 billion people or one-third of the global workforce;[17] however, the number of people living in households connected to agrifood systems livelihoods is over three times that figure, reaching approximately 3.83 billion.[17,18] Employment in this sector is particularly crucial in lower-income countries, which account for over 60 percent of agrifood systems jobs.[17] Even in high-income countries where agrifood systems employment shares have declined, due to structural transformation, agrifood systems still represent about 11 percent of total employment.[17]

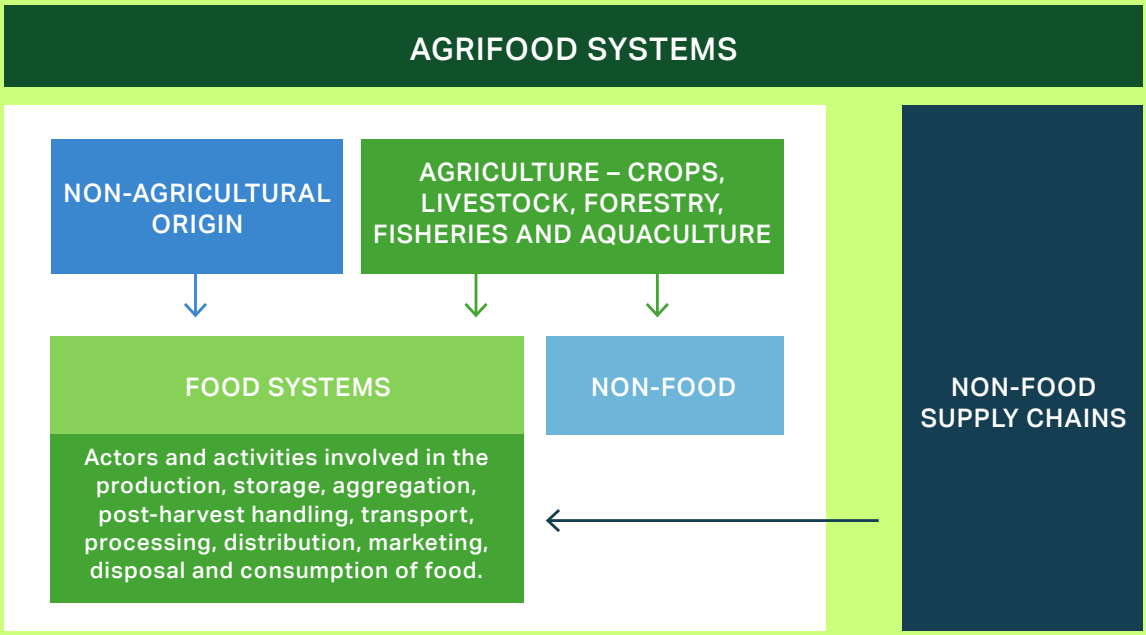
Access to different segments of agrifood systems varies for youth. Capital-intensive sectors like transportation and food processing require substantial investment, making entry difficult for young people with limited financial resources. In contrast, lower-cost segments such as small-scale trading and retailing have fewer barriers, providing more accessible opportunities for youth to engage in agrifood systems.

Agrifood systems represent a significant opportunity to address both employment and food security challenges facing rural youth in the present and future. As global population growth, urbanization and rising incomes drive demand for diverse and high value-added agricultural products, agrifood systems are poised for expansion.[19] Projections across five plausible scenarios indicate that global food demand is expected to increase between 35 percent and 56 percent between 2010 and 2050, particularly in low- and middle-income countries (LMICs) where populations are growing rapidly.[5]

In lower-income countries with large young populations, a large majority of youth depend on agriculture and related activities (Chapter 4). In these countries, many rural youth engage in agricultural production through small-scale farming,[20, 21] which is essential for their employment and food security. In less dynamic rural areas in particular, agriculture is seen as vital for young people's future aspirations.[20] In these contexts, agrifood systems remain the largest employer of rural youth, a phenomenon that is likely to persist.[11, 22] In middle- and high-income countries, the food service sector within agrifood systems functions as a significant source of jobs for youth.[22] Work in agrifood systems often serves as a stepping-stone, providing young people with initial work experience, skills and capital before transitioning to other sectors. Hence, enhancing the productivity and profitability of agrifood systems is vital for improving youth livelihoods both inside and out of agrifood systems and for fostering inclusive economic growth.

FIGURE 1.1

AGRIFOOD SYSTEMS ARE COMPLEX AND DYNAMIC AND INVOLVE A NETWORK OF ACTORS AND INTERLINKED ACTIVITIES



Source: FAO. 2023. *The status of women in agrifood systems*. Rome. https://doi.org/10.4060/cc5343en

To unlock the potential of agrifood systems for youth employment and broader poverty reduction and food security, it is essential to address the economic, social, environmental and institutional challenges that hinder their efficiency and sustainability. Jobs in agrifood systems are often characterized by low wages, informality, seasonal instability, lack of social protection, and poor health and safety standards.[12, 23, 24] Globally, one-third of informal economy labourers work in agriculture, rising to 62 percent in low-income countries.[25] The situation is particularly acute in rural areas, exacerbated by inadequate infrastructure and weak labour law compliance. Agrifood systems are also highly susceptible to environmental degradation and climate change, with significant associated threats including increased

> **ENHANCING THE PRODUCTIVITY AND JOB QUALITY IN AGRIFOOD SYSTEMS IS VITAL FOR IMPROVING YOUTH LIVELIHOODS.**

water scarcity, pest and disease outbreaks, saltwater intrusion, droughts, floods and extreme temperature events. Combined, low profitability and unfavourable working conditions contribute to negative perceptions of agrifood systems, making it difficult to attract and retain young workers.

For youth, such social, economic and environmental factors afflicting agrifood systems present both challenges and uncertainties, as the opportunities available to them will differ significantly from those available to previous generations. In some cases, migration may become a necessary adaptation strategy, as fewer agrifood systems-related activities remain viable. However, youth mobility is increasingly constrained not only by anti-migration sentiments towards international migrants but also by concerns about overcrowding, limited employment and inadequate housing in urban centres for internal migrants (Chapter 2).[26, 27]

YOUTH ARE KEY TO THRIVING AND SUSTAINABLE AGRIFOOD SYSTEMS

Young people represent the next generation of producers, processors, service providers and consumers in agrifood systems. Their actions and choices will determine the nature of agrifood systems transformation. Youth involvement is particularly vital in regions facing challenges such as an aging workforce and ongoing labour shortages.[8, 28]

Young people can be crucial drivers of change and adoption of innovation within agrifood systems, which are under growing ecological stress. Young individuals have a longer time horizon and are less constrained by past experiences, making them more open to experimenting with novel approaches that may yield long-term benefits.[29] Youth are also well-positioned to drive the development and widespread adoption of digital innovations that ensures a sustainable future for agrifood systems.

© FAO/SAIKAT MOJUMDER IN SUNAMGANJ, BANGLADESH, MOHAMAYA BAGCHI, THE PRESIDENT OF A COMMUNITY-BASED FISH FARMING ORGANIZATION IS HOLDING FISH HARVESTE FROM THE FIELD.

As consumers, today's youth represent a significant present and future market for agricultural products and services, making them essential to the transformation towards sustainable agrifood systems. Their large numbers and purchasing power allow young people to shape consumption patterns and drive demand for agrifood systems' goods and services.[30] With the right support, including education, exposure and incentives, young people can develop strong values and preferences favouring sustainably produced agrifood products, creating demand for ethical and environmentally friendly products.[7]

Transforming agrifood systems sustainably is a shared intergenerational responsibility. Actively engaging youth in these systems facilitates the intergenerational transfer of assets, knowledge and technology, laying a foundation for long-term resilience and adaptation. As young people collaborate with both peers and elders to strengthen local agrifood systems, they develop a sense of ownership and agency, which not only bolsters their personal growth but also reinforces community bonds.[7, 31] Additionally, when youth have a personal stake in their future, they are more likely to become stewards of sustainable and resilient agrifood systems, fostering a culture of inclusivity and collective action essential for building communities that can navigate evolving challenges.[32] However, as highlighted in Spotlight 1.1, demographic, sociocultural, psychological, economic and institutional barriers can hinder a country's ability to attract and retain youth in agriculture and rural areas. When these constraints persist, generational renewal is compromised, threatening the long-term viability of agrifood systems and the rural communities they sustain.

Youth inclusion in agrifood systems is a fundamental aspect of "leaving no one behind". Historically, youth have often been excluded from policy dialogues, resulting in a disconnect between their needs and the policies that govern agrifood systems.[33] By actively engaging youth in agrifood systems, their right to participate in decisions that impact their lives and futures is upheld, ensuring they are not overlooked in the quest for sustainable development.

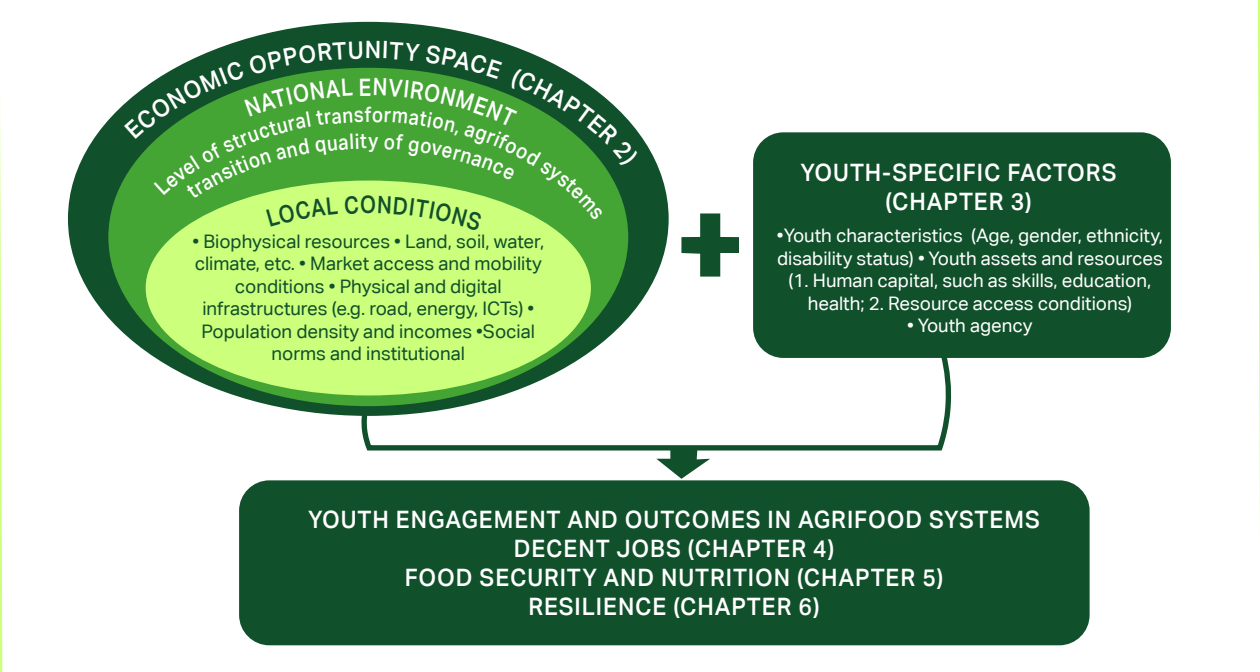
CONCEPTUAL FRAMEWORK

The ability of young people to participate in and effectively contribute to transformed agrifood systems that are inclusive of youth needs and aspirations is influenced by two primary factors: the economic opportunity space and youth-specific characteristics.[1, 2] Rural youth engagement in agrifood systems is shaped not only by individual attributes and capacities but also by the broader opportunities present in their national and local environments. Indeed, many determinants of youth outcomes reflect systemic factors external to youth rather than youth-specific constraints.[1, 2] Consequently, improving youth engagement and outcomes in agrifood systems demands a twofold strategy: investing in the expansion of opportunity within their communities and empowering young people to effectively leverage these opportunities (Figure 1.2).

> **"YOUTH ENGAGEMENT IN AGRIFOOD SYSTEMS DEPENDS ON THEIR CAPACITIES AND OPPORTUNITIES AROUND THEM.**

FIGURE 1.2

YOUTH ENGAGEMENT AND OUTCOMES IN AGRIFOOD SYSTEMS DEPEND ON THE SET OF ECONOMIC OPPORTUNITIES THEIR ENVIRONMENT OFFERS AND YOUTH-SPECIFIC CHARACTERISTICS



Source: Author's own elaboration.

Historically, agrifood systems have contributed to feeding growing populations, reducing poverty and improving welfare, at the risk of negative health outcomes, environmental degradation and inequality.[23, 34] Current agrifood systems transitions have contributed to climate change, biodiversity loss and the marginalization of vulnerable groups.[23, 34] Hence, while this report organizes its analyses around countries' positions in the agrifood systems transition, it places greater emphasis on actions that need to be taken to move towards a youth-inclusive agrifood systems transformation. It also advances a normative vision for sustainable agrifood systems that balances sustainability, healthy diets and inclusion with the creation of decent livelihoods, aiming to achieve three key outcomes:

1. Expanded access to decent jobs and sustainable livelihoods in agrifood systems, ensuring young women and men can seize emerging opportunities (Chapter 4).

2. Improved food security and nutrition through increased productivity, innovation, and better access to and consumption of healthy foods (Chapter 5).

3. Stronger resilience of agrifood systems and youth to adapt to and withstand shocks such as climate change, economic disruptions and conflict (Chapter 6).

ECONOMIC OPPORTUNITY SPACE DEFINES THE RANGE OF ENGAGEMENT OPTIONS ACCESSIBLE TO YOUTH

The economic opportunity space for youth refers to the set of viable economic opportunities that young people can harness to improve their livelihood.[35] These opportunities have strong spatial dimensions, reflecting variations in the structure of agrifood systems and the degree of structural and rural transformation within the country and local areas where youth reside.[7]

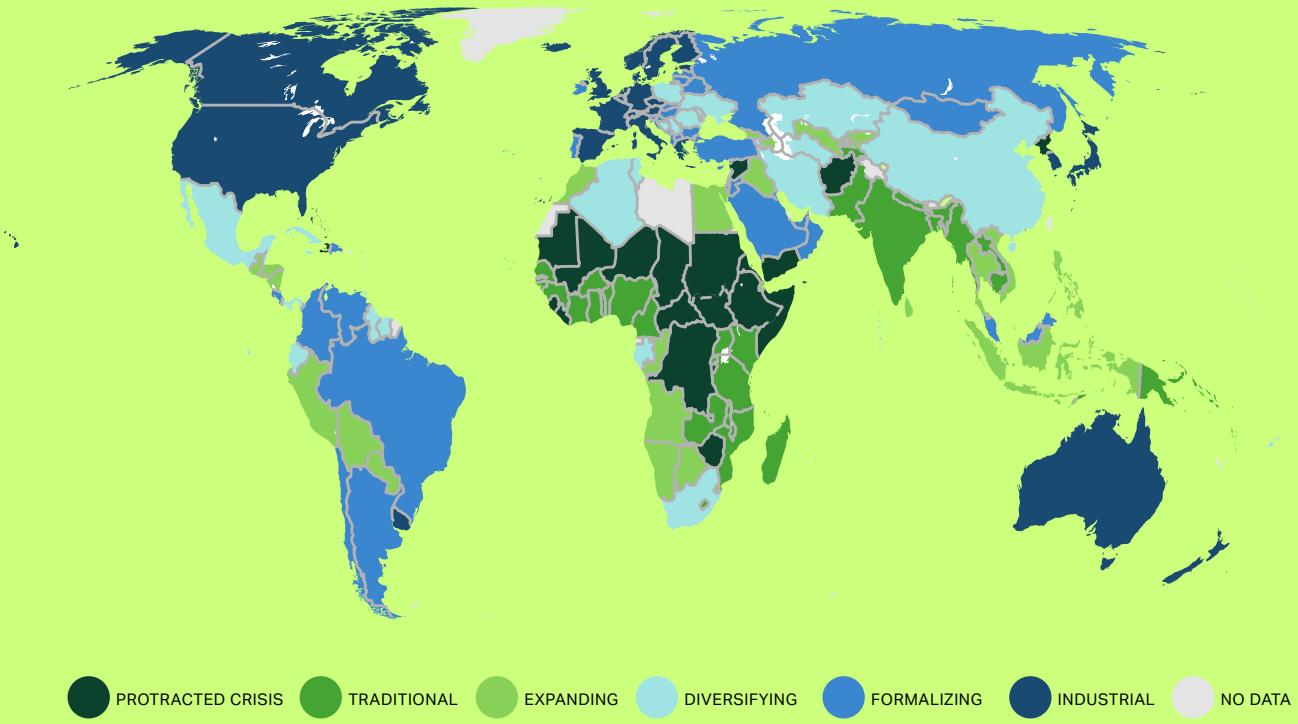
Agrifood systems are dynamic and continuously evolving, shaped partly by the interconnected processes of rural and structural transformation. Rural transformation, marked by changes in agricultural productivity, labour dynamics and infrastructure development, directly influences how food and agricultural products are produced, processed and distributed.[36, 37] At the same time, structural transformation, characterized by broader economic shifts such as industrialization, urbanization and changing employment patterns, alters the demand for agrifood products and services, further reshaping agrifood systems.[38, 39] Together, rural and structural transformation create feedback loops that affect agrifood systems transition, while technological advances, market expansion, policy reforms and demographic shifts add further layers of complexity,[38, 40] presenting both economic opportunities and challenges, including for youth. Hence, understanding a country's agrifood systems transition offers insights into the array of opportunities and challenges it may offer its young residents.

Within national boundaries, however, opportunities may vary across regions, influenced by the biophysical and socioeconomic context.[7, 41] In resource-based sectors like crop and livestock production, agroecological conditions (including soil type, climate and altitude) determine what can be produced, while marketability depends on factors like proximity to markets, population density and rural infrastructure.[7, 42] These factors create localized "economic opportunity spaces" that shape opportunities and constraints for rural youth, subject to the country's overall economic development.[41] That is, even in countries where agrifood systems transition is limited, favourable local agroecological conditions and strong market access can still generate opportunities for youth.[43] Hence, the report examines youth opportunities, engagement and outcomes in agrifood systems at the national level, shaped by the extent of agrifood systems transition and, where data permits, at the subnational level, determined by agricultural potential and market access conditions (see Chapter 2).

This report relies on the agrifood systems typology developed for the State of Food and Agriculture 2024,[44] which is based on Marshall et al. (2021),[38] to gauge the status of agrifood systems transition and the implications for youth economic prospects. The typology uses measures of productivity, dietary diversity, urbanization and modern retail infrastructure coverage to assess the degree of agrifood systems transition, classifying countries into six categories highlighting relative variations in structure, practices and levels of market integration: Protracted Crisis, Traditional, Expanding, Diversifying, Formalizing and Industrial.[44] These six agrifood systems categories do not imply a unidirectional progression from a "less desired" traditional state to a "fully desired" industrial state; rather, it helps establish where countries are located in their agrifood systems transition, each facing unique opportunities and challenges related to productivity, inclusivity, sustainability and resilience[34, 38] (see Box 1.1 on the trade-offs associated with agrifood systems transition). Covering 171 countries and territories and representing 99 percent of the world's population in 2020 (see Figure 1.3 for a global map), the typology provides a framework for analysing the opportunities and constraints that rural youth face under different agrifood systems contexts.

FIGURE 1.3

AGRIFOOD SYSTEMS TYPOLOGY ALLOWS FOR CROSS-COUNTRY COMPARISON



Notes: Refer to the disclaimer on the copyright page for the names and boundaries used in this map. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Source: Adapted from FAO. 2024. *The State of Food and Agriculture 2024 – Value-driven transformation of agrifood systems*. Rome. https://doi.org/10.4060/cd2616en

Within agrifood systems, the quality of institutions and governance structures influence youth economic opportunities. Institutions establish the rules, norms and enforcement mechanisms that govern resource access, economic participation and the distribution of benefits within agrifood systems.[1,2] Through their influence on market access, trade policies and infrastructure development such as roads and storage facilities, institutions determine the overall functioning of agrifood systems. Regulatory frameworks play a pivotal role in defining whether youth can secure essential resources like land, credit and agricultural inputs. Meanwhile, local governance structures, such as inheritance laws and land tenure regimes, as well as social norms, similarly influence how resources are managed within communities and, consequently, youth engagement in agrifood systems.[45, 46] Weak enforcement of labour regulations, for instance, can lead to exploitative practices like child labour or substandard wages for young workers. Conversely, robust enforcement of minimum wage laws, workplace safety standards and anti-discrimination policies ensures that youth have access to decent work and fair employment conditions in the agrifood sector.[3]

YOUTH-SPECIFIC FACTORS ENABLE OR INHIBIT YOUTH FROM CAPITALIZING ON AGRIFOOD SYSTEMS OPPORTUNITIES

Youth-specific factors encompass unique characteristics, constraints or opportunities disproportionately affecting young people during this transitional life stage.[47, 7] Youth represents a dynamic, formative phase between childhood and adulthood, marked by critical life transitions, including completing education, building assets, entering the workforce and establishing families. While some aspects of the transition to adulthood are tied to biological age, others are influenced by social constructs such as socioeconomic status, gender, education, independence and employment situation.[47, 7] Youth-specific factors include demographic characteristics (e.g. gender, ethnicity and disability status), skill levels, agency, and access to productive resources and assets (e.g. land, finance or technology). The intersection of these characteristics forms overlapping identities, shaped by sociocultural norms and generational power dynamics, which significantly shape young people's capacity to seize economic opportunities in agrifood systems (see Chapter 3).

Youth agency and young people's ability to translate this agency into social capital plays a large role in determining the ability to capitalize on opportunities afforded by their environment and agrifood systems. Agency allows young people to participate actively and engage civically in the world around them, improving the status and situation of themselves and others. It is also an important determinant of empowerment.[48] Gaining agency includes acquiring knowledge, skills (e.g. critical awareness, problem solving and communication) and capabilities to envision valued goals or futures and to pursue them by making free and informed decisions.[49] Youth agency and aspirations may often clash with the everyday reality of the social and economic environment and this misalignment may have an influence on youth's ability to fully harness agrifood systems opportunities[50] (see Box 1.2).

© FAO/ALISA SUWANRUMPHA IN SAKON NAKHON PROVINCE, THAILAND, A WOMAN WORKING IN THE AGRIFOOD SECTOR OBSERVES THE VACUUM PACKING OF GERMINATED HANG RICE AT A COMMUNITY ENTERPRISE.

BOX 1.1 TRADE-OFFS IN AGRIFOOD SYSTEMS TRANSITIONS

The agrifood systems typology comprises six categories,[i, ii] reflecting a transition from traditional to more formalized and industrialized systems. This progression is not strictly linear and does not seek to suggest that industrialized systems are most desirable. The categories also do not equate agrifood system transformation with a normative vision balancing sustainability, healthy diets, inclusion and decent livelihoods. Instead, each category presents distinct opportunities and challenges concerning environmental sustainability, nutrition and inclusion.

Protracted crisis and *traditional agrifood systems* represent the early stages of agrifood systems transition. They are dominated by small-scale and subsistence farming, reliance on local inputs and minimal market integration. While these systems may have better preserved local knowledge, biodiversity and cultural heritage, they face persistent challenges related to market access, low technological investment, and widespread poverty and malnutrition, which constrain opportunities for youth.[i] In protracted crisis contexts, prolonged conflicts, economic instability and environmental shocks further disrupt food production and livelihoods, making it even harder for young people to secure sustainable opportunities.[ii, iii]

Expanding, *diversifying* and *formalizing agrifood systems* encompass the three key intermediate stages of agrifood systems transition, each marking a shift towards greater productivity, market integration and structural transformation.

Expanding agrifood systems are characterized by the adoption of improved technologies and scaled-up production, boosting yields and incomes. These systems increasingly stimulate off-farm employment in processing, logistics and input supply, creating new economic opportunities for youth. However, barriers such as limited access to capital, land and technology can exclude youth, while unchecked intensification may degrade natural resources.[i, ii]

Diversifying agrifood systems blend traditional and modern agricultural practices, broadening the production and encouraging the growth of non-farm rural enterprises. This diversity helps to mitigate risks associated with market and climate shocks while providing rural households, including youth, with alternative income streams. However, unequal access to resources and markets can disadvantage marginalized youth, as diversification often favours those with better capital and connections.[i, ii]

Formalizing agrifood systems feature the development of more structured and regulated agrifood markets, marked by improved quality standards, labour protections and more stable supply chains. These systems can increase returns for agrifood system actors, including youth, by ensuring better land tenure security, enforcing fair labour practices and creating more predictable market conditions. However, if policy enforcement is uneven or overly restrictive, formalization may marginalize small-scale producers and businesses, making it harder for young, resource-constrained entrepreneurs to compete in increasingly consolidated markets. Without the necessary skills or access to capital, youth may find it difficult to transition into formal employment or establish enterprises within these systems.[i, ii]

Notes: Refer to the Notes section for full citations.

BOX 1.2 YOUTH AGENCY

Agency, the ability to define one's goals and act upon them,[i] is a critical factor in enabling young people to participate effectively in transforming agrifood systems, to reflect their needs and aspirations. When youth have greater agency, they are better equipped to make informed decisions, identify opportunities and optimize the resources, skills and assets available to them. Agency exists on spectrum, ranging from a limited ability to make choices in restrictive environments, to conditions in which actors have greater autonomy and the freedom to make decisions within a more supportive context.[ii] Youth agency is socially embedded and constructed, and is profoundly influenced by the broader sociocultural, economic, institutional and political environment where youth live.

Youth agency and engagement with agrifood systems can be analysed through generational, life course and intersectional perspectives,[ii] each of which offers unique insights into how young people navigate their roles, exert their agency and respond to structural constraints. The generational perspective views youth as a distinct social group with a shared identity shaped by the time and place in which they grow up. Being part of a younger generation can create both challenges and opportunities, as relationships with older generations often involve power dynamics.[ii] Older generations typically hold more power and influence, while youth people may struggle to have their voices heard and contributions valued.[iii] The life course perspective recognizes youth as a transitional phase between childhood and adulthood, during which young people take on new responsibilities in areas like food production, employment and nutrition. These transitions are influenced by cultural norms, economic opportunities and structural barriers, with some youth experiencing prolonged dependency due to limited job prospects or educational barriers.[iv] The intersectional perspective emphasizes how youth experiences are shaped by multiple overlapping social factors such as gender, class, ethnicity and disability. These factors create different challenges and opportunities with the result that not all youth experience agrifood systems in the same way.

The concept of the "intergenerational contract" explores how family relationships shape youth agency. The idea refers to both explicit and implicit expectations that family members have towards one another, balancing dependence, interdependence and autonomy.[v] In rural Bangladesh, for example, youth navigate familial networks where their aspirations align with and sometimes diverge from those of their family members. Their agency is not exercised in isolation but is profoundly influenced by familial obligations and economic realities.[vi]

Youth agency is dynamic and evolves along the process of personal growth, with the individual becoming more capable of renegotiating their agency space as they gain more education, experience, exposure and independence, acting and interacting within their own environment.[ii] The relationship between agency and aspirations is thus reciprocal: as young people develop a stronger sense of agency, they gain new skills and knowledge, build greater confidence and, as a result, set higher goals and strive for more in their lives. Additionally, for some young people, agency is enhanced through pathways such as migration, education or employment, which open up opportunities to build new relationships and expand their social networks over time.[vii]

As such, youth agency is inherently complex both to define and measure.[viii] Young people's aspirations often intersect and at times clash with the socioeconomic realities of their environments, a misalignment that may have an influence on youth's ability to effectively dictate the course of their life.[iii] For instance, a study on youth in Indonesia[ix] demonstrated that the mismatch between youth education qualifications and employment opportunities in the formal sector affects youth's sense of agency and their ability to shape their future.

Notes: Refer to the Notes section for full citations.

To account for the diverse and overlapping identities of youth, the analytical framework of this report incorporates an intersectionality lens to examine engagement in agrifood systems. For the purposes of statistical comparison, the report adopts the United Nations definition of youth as individuals aged 15–24 years; however, in the interest of policy relevance, it also examines how youth compare with young adults (25–34 years) and adults (35 years or more). Where data allow, the youth category is further disaggregated into younger youth (15–17 years or 15–19 years, depending on data availability) and older youth (18–24 years), and additional intersecting variables (e.g. gender, socioeconomic status and geographic location) are used to explore how these factors shape youth experiences. Table 1.1 presents definitions of the different age cohorts examined in the report. A strong gender lens is applied throughout, incorporating sex-disaggregated data and acknowledging the distinct social norms that influence the risks and opportunities faced by young women and men. Finally, the report pays special attention to vulnerable groups such as Indigenous Youth, migrant youth, youth from low-income households and youth with disabilities.

TABLE 1.1 DEFINITIONS OF YOUTH ADOPTED IN THE REPORT

AGE	0–17			18+	
	0–14	15–24		25+	
	0–14	15–17	18-24	25-34	35+
UN CONVENTION LEGAL DEFINITION BASED ON AGE	CHILD		ADULT (LEGAL AGE OF MAJORITY)		
TERMINOLOGIES IN THE REPORT	CHILD	YOUTH		ADULT	
	CHILD	YOUNGER YOUTH	OLDER YOUTH	YOUNGER ADULT	OLDER ADULT

Source: Author's own elaboration.

STRUCTURE OF THE REPORT

This report consists of seven chapters, structured into three parts, which examine key dimensions of youth engagement in agrifood systems. Together, they provide a comprehensive picture of the demographic, socioeconomic and environmental factors shaping youth participation and outcomes from agrifood systems, as well as opportunities, challenges and policy pathways towards transformed agrifood systems that deliver decent jobs, food security and nutrition, and resilience.

Part I (Chapters 2 and 3) lays the foundation for understanding youth engagement and outcomes in agrifood systems across diverse contexts by examining

available opportunities and young people's ability to leverage them. Chapter 2 focuses on youth economic opportunities in agrifood systems. It explores how youth demographics and mobility patterns intersect with agrifood systems and sub-national biophysical resource and market access to determine youth opportunities. Chapter 3 examines factors that enable or inhibit youth from seizing these opportunities, focusing on assets and resources youth need, such as human, natural, financial, physical and social capital, and how generational, gendered and social inequalities affect access.

Part II (Chapters 4, 5 and 6) evaluates key youth outcomes essential for agrifood systems transformation. Chapter 4 analyses youth employment in agrifood systems, exploring the types and quantities of jobs young men and women hold and the conditions under which they work. It assesses intergenerational and sectoral mobility, following labour shifts from primary agriculture to higher productivity sectors and their impacts on youth welfare. Chapter 5 focuses on food security and nutrition, assessing youth's unique dietary needs, prevalence of food insecurity, and the effect of inadequate diets and malnutrition on youth's health, productivity and agrifood systems engagement. Chapter 6 explores youth resilience to economic disruptions, climate change and conflicts. It examines how shocks and crises shape opportunities in agrifood systems and how young people cope, adapt and contribute to mitigating their effects on themselves, their communities and broader agrifood systems.

Part III concludes the report by examining policies and strategies that support youth-inclusive agrifood systems transformation. Chapter 7 reviews youth-focused interventions and programmes to identify approaches and design features that effectively expand youth's economic prospects in agrifood systems and enable young people to engage meaningfully in agrifood systems. It highlights strategies for improving outcomes in decent jobs, food security and nutrition, and resilience to shocks, alongside measures that strengthen youth voice and agency, skills development and access to essential resources. By detailing key design elements and presenting best practices, Chapter 7 offers policymakers, practitioners and stakeholders clear guidance on how to foster a supportive environment for youth and ensure that they become pivotal actors in agrifood systems transformation.

©FAO/PETER SAFARI IN KITUI, KENYA, BONIFACE MWINI COLLECTS DATA AT MIAMBANI WARD WHILE WORKING WITH LOCAL FARMERS TO WEIGH AND RECORD LIVESTOCK FEED INPUTS. THE ACTIVITY IS PART OF A COMMUNITY-BASED INITIATIVE TO IMPROVE SMALLHOLDER PRODUCTIVITY AND STRENGTHEN DATA-DRIVEN DECISION-MAKING IN AGRICULTURAL PRACTICES.

SPOTLIGHT 1.1 GENERATIONAL RENEWAL IN AGRICULTURE: CHALLENGES AND OPPORTUNITIES FOR DECLINING YOUTH POPULATIONS

As a result of structural transformation and demographic transitions, most high- and many middle-income countries face the dual challenges of an aging and declining rural population.[i] In Europe, for example, 58 percent of farm managers were over the age of 55, while only 12 percent were less than 40 years old in 2020.[ii] Similarly, in Thailand, the share of farm managers over the age of 65 rose from 17 percent in 2016 to 25 percent in 2022, while those under the age of 45 declined from 29 percent to 18 percent over the same period.[iii] The lack of generational renewal in agriculture poses a serious threat to the future viability of agrifood systems in many countries and the rural communities they support.[iv–vi]

While demographic trends and broader changes in the structure of economies that occur as countries develop are key contributors to the aging of rural populations, they are not the only factors impeding generational renewal in rural areas. Evidence on the challenges inherent in attracting young people to rural places and agrifood systems work — and motivating them to remain – highlight a range of mediating factors including sociocultural, psychological, economic and institutional constraints.

Sociocultural constraints are an important barrier to attracting and maintaining youth in agriculture and rural spaces. Multiple studies have shown that older farmers are reluctant to cede management control or decision-making to the next generation until they are no longer physically able to continue farming.[vii, viii] As a result, younger generations are not effectively integrated into critical farm management decisions and feel unable to contribute ideas and innovations.[ix] Various factors mediate older farmers' decisions regarding when to stop farming and what to do with the farm. There is also evidence that the ways in which older generations prepare possible successors have changed. In Norway, for example, farmers no longer work closely with their children on farm management activities to prepare them to take over the farm.[x] Instead, farmers prefer that their children dedicate more time to learning the skills and competencies necessary for modern society. This lack of effective coaching and mentorship of young people by older generations leaves potential young farmers less psychologically and practically prepared or willing to take over their parent's farms.[vi]

Research shows that youth perceptions of agricultural work affect their willingness to become farmers. Younger rural generations have higher levels of education than previous generations and a greater capacity to access non-farm employment (see Chapter 3).[iv, xi] This change has coincided with a growing perception of farming and

agriculture as a "dirty" profession, suited for uneducated and unskilled people.[v, xii–xiv] A study from India found that even young, progressive farmers who are economically well-off were perceived as having a lower social status – affecting their marriage prospects – compared with youth in low-paid, informal urban jobs.[xv] Parents, teachers and mentors can reinforce this perception, discouraging young people from considering farming as a viable career.[xv] Education plays a crucial role in shaping young people's identities, yet school systems frequently exhibit a bias against farming, promoting career aspirations that are often unattainable for most rural youth[xvi, xvii] (see Chapter 3). Changing perceptions of farm work, combined with increasing non-farm opportunities, act as an important physiological barrier to retaining young people in agriculture.

Economic concerns are also an important barrier to retaining and attracting young people to agricultural work. As economies grow, the earning gap between agriculture and non-agriculture work typically grows. Yet these gaps are often exacerbated by additional factors. First, non-farm employment typically offers more secure and predictable earnings, and higher levels of economic security, such as pensions and retirement accounts, unemployment benefits and health insurance[iii, xviii, xix] In China, for example, pension payments for urban labours are significantly higher than those for rural people.[iv] Second, growing recognition of the adverse effects of climate change on agriculture is adding additional economic uncertainty to an already uncertain profession, making agriculture a less desirable profession for the younger generation. Evidence from Ghana and India shows that the risks posed by climate change demotivates young people from working in agriculture.[xx, xxi]

Access to and availability of land of sufficient size and quality to sustain a livelihood is a key challenge preventing youth from engaging in agriculture (see Chapter 3). The challenge of acquiring land is complex and multidimensional. Prices for land in many places, including in the European Union, the United States of America and some Asian countries, are high and often prohibitive for new entrants.[xxii–xxiv] High land prices and low land availability are exacerbated by a range of institutional and administrative factors that further constrain youth from engaging in agriculture. A key issue is that older generations often hold on to land and remain in farming due to a lack of adequate pension or retirement security.[xii, xx] A study from Thailand found that farmers who received rice subsidies were more likely to continue farming and to transfer their land within the family. Conversely, older farmers with access to pensions were more likely to exit farming and to transfer their land outside the family.[v] In many cases, no or meagre old-age social security (pensions) force aging farmers to continue farming or to lease out their land as a way to supplement their limited income rather than transfer it to family members.[xxvi, xxvii] Older farmers are also reluctant to exit farming or part with their land because they consider farming to be a way of life and not simply an occupation.[xxii] Moreover, because of the precarity of some off-farm employment, land is seen as an important source of livelihood security, incentivizing farmers to hold onto land even when these farms are small or unproductive.[xxviii] Finally, land transfers and sales can be administratively burdensome and costly. In Spain, for example, land succession processes have led to land fragmentation, increasing the transactions costs per land unit to acquire and cultivate land and contributing to high rates of land abandonment.[xxix] In some countries in Europe, land leasing policies seeking to protect tenants from losing control over their property have had the side effect of limiting the transfer of land from older to younger people.[vi]

Addressing the challenges of generational renewal in agriculture will require multidimensional policy approaches. These approaches must tackle the barriers hindering young people from entering the sector and the challenges older farmers face when deciding to retire. They must also create incentives that draw in new entrants and foster farm succession. The factors impeding generational renewal are not merely economic; they consist of interdependent interactions of economic, social, psychological and institutional factors, and often involve competing interests and trade-offs across generations.

© FAO / SIRACHAI ARUNRUGSTICHAI
IN SATUN, THAILAND, A YOUNG URAK LAWOI COMPRESSOR DIVER GENTLY HANDLES A HIGHLY VENOMOUS REEF STONEFISH BEFORE RELEASING IT BACK TO THE SEAFLOOR DURING A FISHING TRIP IN THE ADANG-RAWI ARCHIPELAGO.

OPPORTUNITIES MOVE FOOD FORWARD

© FAO / LUIS TATO
YOUNG FARMERS VISITING A PIG FARM IN GATANGA, KENYA.

02 THE CHANGING LANDSCAPES OF YOUTH OPPORTUNITY: DEMOGRAPHY, MIGRATION AND AGRIFOOD SYSTEMS TRANSITIONS

© FAO / MATEO ALFEREZ
A YOUNG COCOA FARMER IN CUBARÁ, COLOMBIA.

KEY MESSAGES

- Nearly 85 percent of the world's 1.3 billion youth live in lower-income countries, particularly in sub-Saharan Africa and Southern Asia, where their numbers continue to rise.
- Despite rapid urbanization, rural areas still accommodate 46 percent of the youth population. Inclusive rural transformation remains critical to improving youth welfare.
- Most rural youth live in regions with traditional and protracted crisis agrifood systems. Transforming these systems through inclusive productivity growth is crucial to improving their economic prospects.
- Countries with industrial agrifood systems, predominantly in Eastern Asia, Europe and Northern America, have lower shares of rural youth. These regions face labour shortages, necessitating strategies to attract and retain youth in the agrifood sector.
- Most rural youth live and work in areas with high agricultural productivity potential and moderate to high market access, offering varied opportunities for engagement in agrifood systems. However, 36 percent live and work in areas with strong agricultural productivity potential but weak market access, suggesting that in some contexts, improving infrastructure and market access may be more critical to enhancing youth livelihoods than boosting agricultural productivity alone.
- About 395 million rural youth live in areas facing climate change-induced declines in agricultural productivity potential. Climate resilience, social protection and migration options are pivotal to safeguarding their economic prospects.
- Youth are highly mobile, with higher rates of migration than adults, particularly within their own countries. Most youth migrants do not cross international borders. Nonetheless, international migration among youth aged 15 to 24 grew over the last decades from 22.1 million in 1990 to 31.7 million in 2020. Youth represent 16.2 percent of migrants in sub-Saharan Africa, and 15.2 percent in Latin America and the Caribbean.
- Youth migration is closely linked to other life transitions such as entering the workforce, pursuing higher education and marriage, with these transition patterns varying significantly by gender. Across all agrifood system types, female youth migrate internally at higher rates than their male peers, primarily for marriage and to join a family.
- Youth migration, particularly from rural to urban areas, is often temporary or seasonal, allowing youth to keep ties with rural areas, while exploring different livelihoods options.

INTRODUCTION

Youth engagement in agrifood systems and its outcomes are shaped by both the availability of opportunities and young people's ability to access and leverage them effectively (see the conceptual framework in Chapter 1). These opportunities vary across context and are influenced by an area's biophysical and socioeconomic conditions, the structure of agrifood systems and broader rural and structural transformation processes. Consequently, youth encounter a diverse set of challenges and possibilities related to participation in agrifood systems, depending on where they live. This chapter draws on data from multiple sources to map where young people live and examine the agrifood systems transitions that have taken place in these areas, in order to identify contextual opportunities for and constraints on youth engagement. It also discusses how the geographic distribution and migration patterns of youth influence labour availability for agrifood system transformation and explores the extent to which opportunities are susceptible to climate-induced shocks.

Youth are highly mobile, often moving within and across regions in search of better economic opportunities. This mobility enables them to access diverse opportunity spaces, including urban and international job markets, higher education institutions and environments that support emerging and growing agrifood enterprises.[1] Youth movement patterns can affect the redistribution of labour,[1, 2] knowledge and financial capital,[1] which in turn can have implications for the resilience and sustainability of agrifood systems. Remittances from young migrants abroad often support agribusiness initiatives in their origin communities, while returning migrants bring new ideas, skills and technologies that can boost agricultural productivity and innovation.[1] Youth migrants also play a crucial role in agrifood systems, especially in regions where the agriculture sector faces labour shortages.[3–6] Evidence shows that both rural-bound[7] and (peri-) urban-bound[8, 9] migration convey important welfare benefits. To fully capture youth opportunities, the chapter also investigates the extent of youth mobility across geographies, the characteristics of mobile youth, the factors driving their migration and the constraints they encounter. Through this analysis, the chapter lays the foundation for understanding youth realities across different contexts and highlights how patterns of residence and mobility shape youth economic prospects and agrifood systems outcomes.

MAPPING WHERE YOUTH LIVE

This section draws on analyses integrating population data with high-resolution geospatial datasets to map where youth live. It applies the Urban–Rural Catchment Area (URCA) framework,[10] which classifies rural and urban areas based on their travel time to urban centres and the population sizes of those centres. This approach enables cross-country comparability and offers a more nuanced view of market access and connectivity[10, 11] (see

Appendix 1 for details of the methodology). In addition, this section employs the agrifood systems typology (see Spotlight 1.1) and adapts the concept of *rural opportunity space* used in IFAD's *2019 Rural Development Report*[12] to highlight how countries' positions in terms of agrifood systems transition, together with local biophysical and socioeconomic conditions, shape contextual opportunities and challenges for youth engagement in agrifood systems.

DISTRIBUTION OF YOUTH POPULATION

Globally, an estimated 1.3 billion individuals are between the ages of 15 and 24 years, the largest youth cohort in human history. While their proportion as a share of the global population is projected to decline in the coming decades (Figure 2.1), their absolute numbers will continue to rise, reaching approximately 1.4 billion by the early 2030s.[13] However, youth demographic trajectories vary significantly across regions, reflecting differences in economic development, fertility rates and migration patterns. Two broad, divergent trajectories are evident. The first is found primarily in lower-income countries of regions such as sub-Saharan Africa and Southern Asia. Here, youth populations remain large and continue to grow due to high fertility rates and declining child mortality. Nearly 85 percent of the world's youth live in these lower-income countries.[13] Sub-Saharan Africa, in particular, has a higher-than-average share of youth among its population, and is expected to see a 65 percent increase, reaching around 400 million by 2050 (Figure 2.2).[13] Similarly, youth make up one in six people in regions such as Latin America and the Caribbean, North Africa, Southeast Asia, and Western and Central Asia. By the middle of the century, youth populations are expected to grow by 50 percent in Central Asia and 24 percent in North Africa.[13]

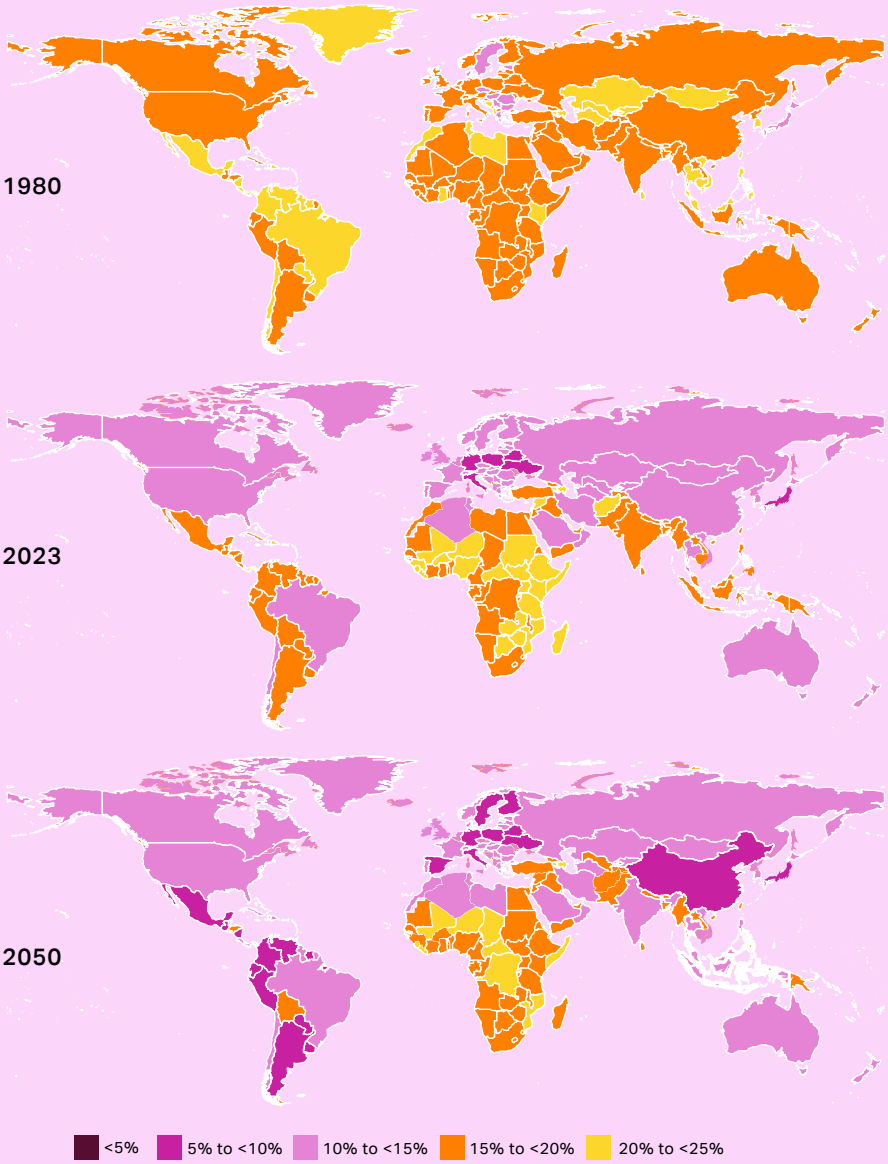
> **EIGHTY-FIVE PERCENT OF THE WORLD'S 1.3 BILLION YOUTH LIVE IN LOWER INCOME COUNTRIES.**

The second demographic trajectory is evident in high and upper middle-income countries, primarily in East Asia, Europe, Northern America and parts of Latin America, where youth populations are shrinking and make up a smaller share of the total population (about 10 percent or less). This decline is driven largely by persistently low fertility rates, which in some cases have fallen below replacement levels. In these regions, immigration is expected to become a key driver of future population growth.[14]

© FAO/EDUARDO SOTERAS IN KAPOETA, SOUTH SUDAN, A YOUNG FARMER COLLECTS VEGETABLES AT A FARM.

FIGURE 2.1

YOUTH SHARES IN POPULATIONS ARE DECLINING OVER TIME ALTHOUGH ABSOLUTE NUMBERS CONTINUE TO RISE

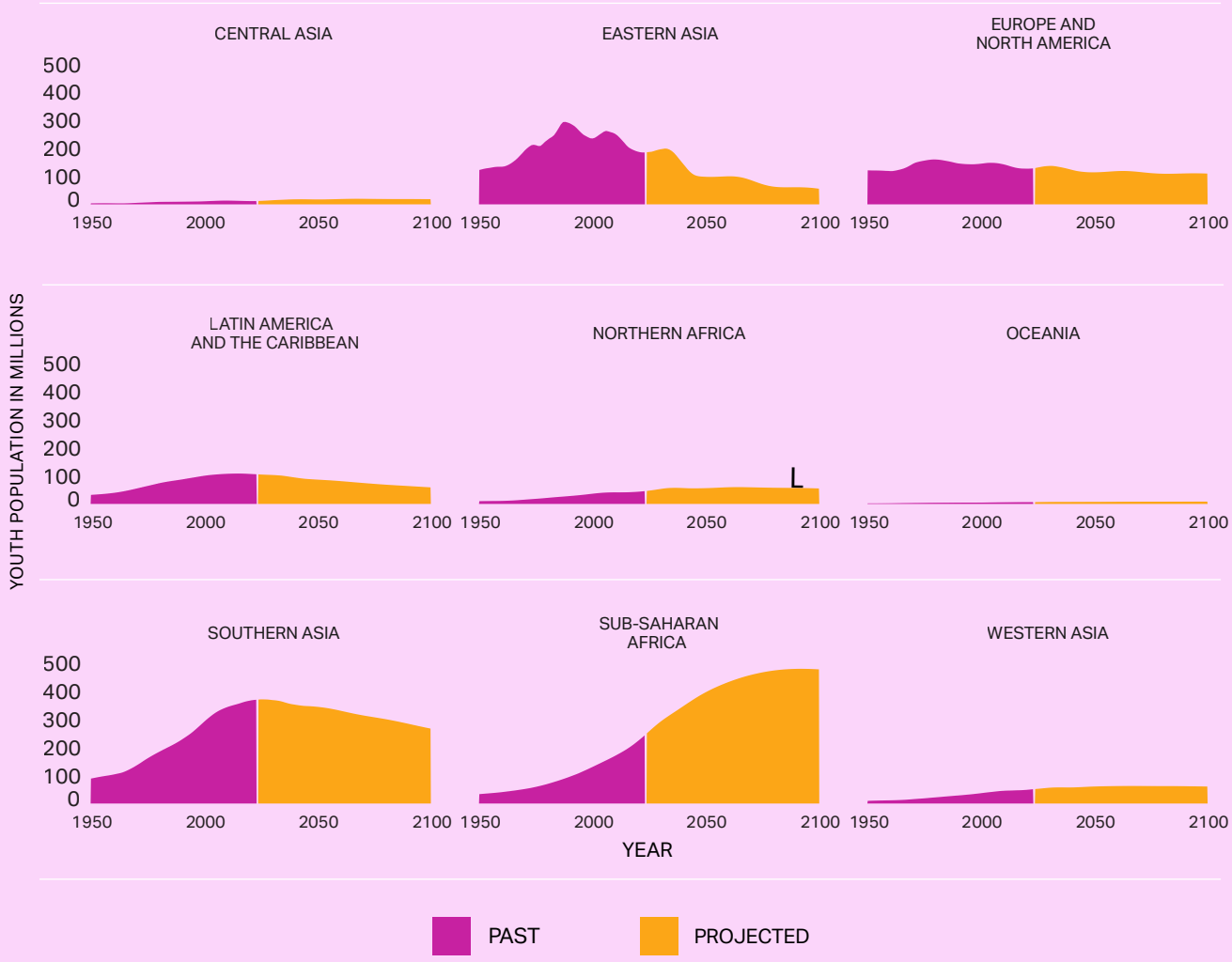


Notes: Refer to the disclaimer on page on the copyright for the names and boundaries used in this map. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Source: Author's own elaboration using population data from UNDESA. 2024. *World Population Prospects – Population Division – United Nations*. New York, NY. [Cited 1 January 2023]. https://population.un.org/wpp/downloads
National borders are based on United Nations Geospatial data. 2023. Map geodata [UN Geodata]. New York, USA, United Nations.

FIGURE 2.2

YOUTH POPULATION TRENDS VARY ACROSS REGIONS



Source: Author's own elaboration using population data from UNDESA. 2024. *World Population Prospects – Population Division – United Nations*. New York, NY. [Cited 1 January 2023]. https://population.un.org/wpp/downloads.

RURAL-URBAN DISTRIBUTION OF YOUTH

Urban areas host 54 percent of the global youth population, reflecting rising urbanization trends worldwide (see Appendix 1 for a definition of urban and rural spaces).[15] This shift is driven by natural population increases, the expansion of small towns into urban areas, and rural-to-urban migration as young people seek better education and livelihoods, social mobility and cultural opportunities.[15, 16] The shares of youth residing in urban areas are highest in South-eastern Asia (67 percent), North Africa (62 percent), Western Asia (61 percent), Europe and Northern America (61 percent), and Latin America and the Caribbean (61 percent). This trend reflects advanced urbanization and contexts in which youth engagement in agrifood systems will likely be more closely tied to off-farm segments of agrifood systems, especially retailing, food processing and services within urban and peri-urban areas, rather than primary agriculture.

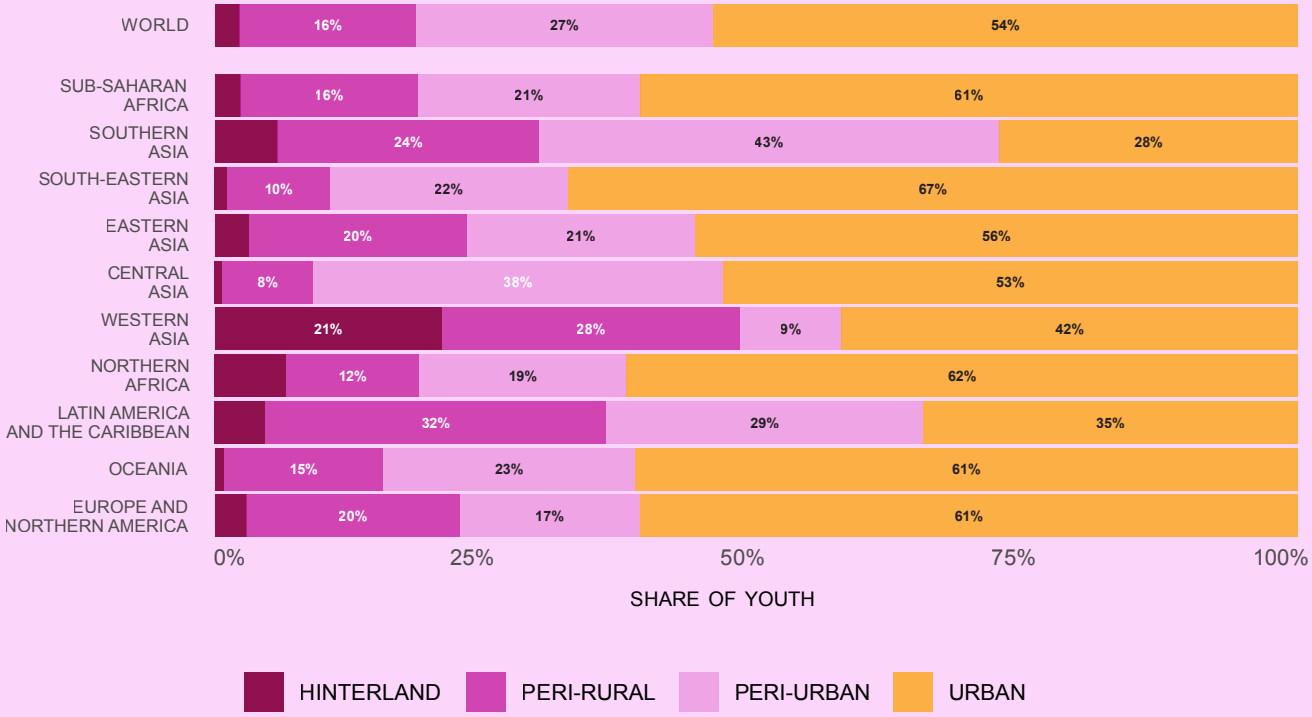
Despite rapid urbanization, rural areas (consisting of peri-urban, peri-rural and rural hinterlands) still accommodate 46 percent of the global youth population. Although the proportions of rural populations and rural youth are expected to decline over time, projections indicate that about a third of the global population will continue to live in rural areas by the middle of the century.[15] The allure of improved employment opportunities and services draws youth to urban centres, but a substantial share will likely stay and seek livelihood opportunities in rural areas due to factors such as family ties, cultural connections and opportunities in agriculture and entrepreneurship, and/or a variety of constraints that may limit mobility.[17, 18] Young people may migrate temporarily to urban and peri-urban areas for work, but they often return to rural areas.[19]

> **NEARLY HALF OF ALL YOUTH (46 PERCENT) STILL LIVE IN RURAL AREAS.**

More than half of rural youth (58.7 percent), representing about 27 percent of youth worldwide, are located in peri-urban areas, situated outside of city limits but within an hour's travel to urban centres. These zones often blend urban and rural life,[20] offering diverse economic activities, from agriculture to services and small industries.[21, 22] Peri-rural areas host the second largest share of rural youth (35.4 percent), followed by rural hinterlands (5.8 percent). These areas are home to about 16 percent and 5 percent of the global youth population, respectively (Figure 2.3). Youth in peri-rural areas benefit from proximity to rural resources and urban markets, although their access to the latter is more limited than their peri-urban peers.[23] Those in rural areas, and especially rural hinterlands, tend to maintain strong ties to their communities and traditional agricultural practices. This connection coupled with familiarity with local ecosystems positions them to innovate solutions that integrate traditional knowledge with modern technology in ways that are environmentally sustainable and socially acceptable.[24] As demand for sustainable and locally sourced food continues to grow, youth in peri-rural and rural hinterlands are well-placed to capitalize on emerging opportunities in niche markets, such as organic farming.[25, 26]

FIGURE 2.3

A SUBSTANTIAL SHARE OF YOUTH RESIDE IN RURAL AREAS DESPITE RAPID URBANIZATION



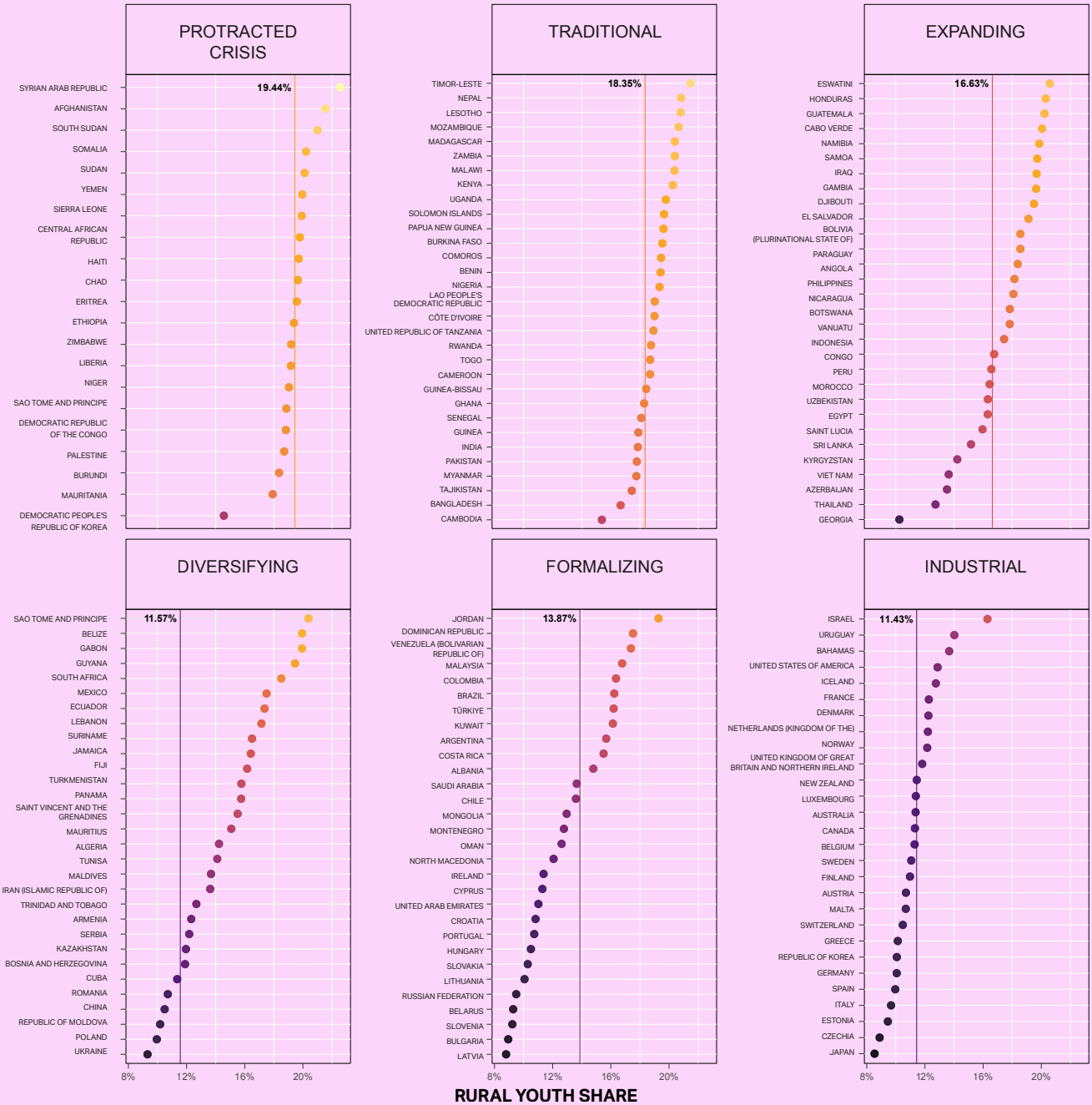
Source: Author's own elaboration based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton; the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project, funded by the Bill and Melinda Gates Foundation (OPP1134076) (https://dx.doi.org/10.5258/SOTON/WP00647); and Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset (https://doi.org/10.6084/m9.figshare.12579572.v4).

RURAL YOUTH DISTRIBUTION ACROSS AGRIFOOD SYSTEM TYPES

Agrifood systems transition is closely intertwined with youth demographic shifts, which present both challenges and opportunities for the long-term viability and resilience of agrifood systems. As countries transition from traditional, labour-intensive agriculture towards more diversified and industrialized agrifood systems, the share of youth in rural populations (Figure 2.4) and of rural youth and children in total population (Figure 2.5) declines. In the early stages of agrifood systems transition, as exemplified by countries with traditional and protracted crisis agrifood systems, youth make up a higher share of the rural population. Rural youth, on average, account for 19.4 percent and 18.3 percent of the rural population in countries with protracted crisis and traditional agrifood systems, respectively (Figure 2.4). These countries, mainly in Southern Asia and sub-Saharan Africa, collectively represent over half (55.3 percent) of the world's rural youth.[13] For countries with protracted crisis agrifood systems, rural children and youth below the age of 25 comprise 47 percent of

FIGURE 2.4

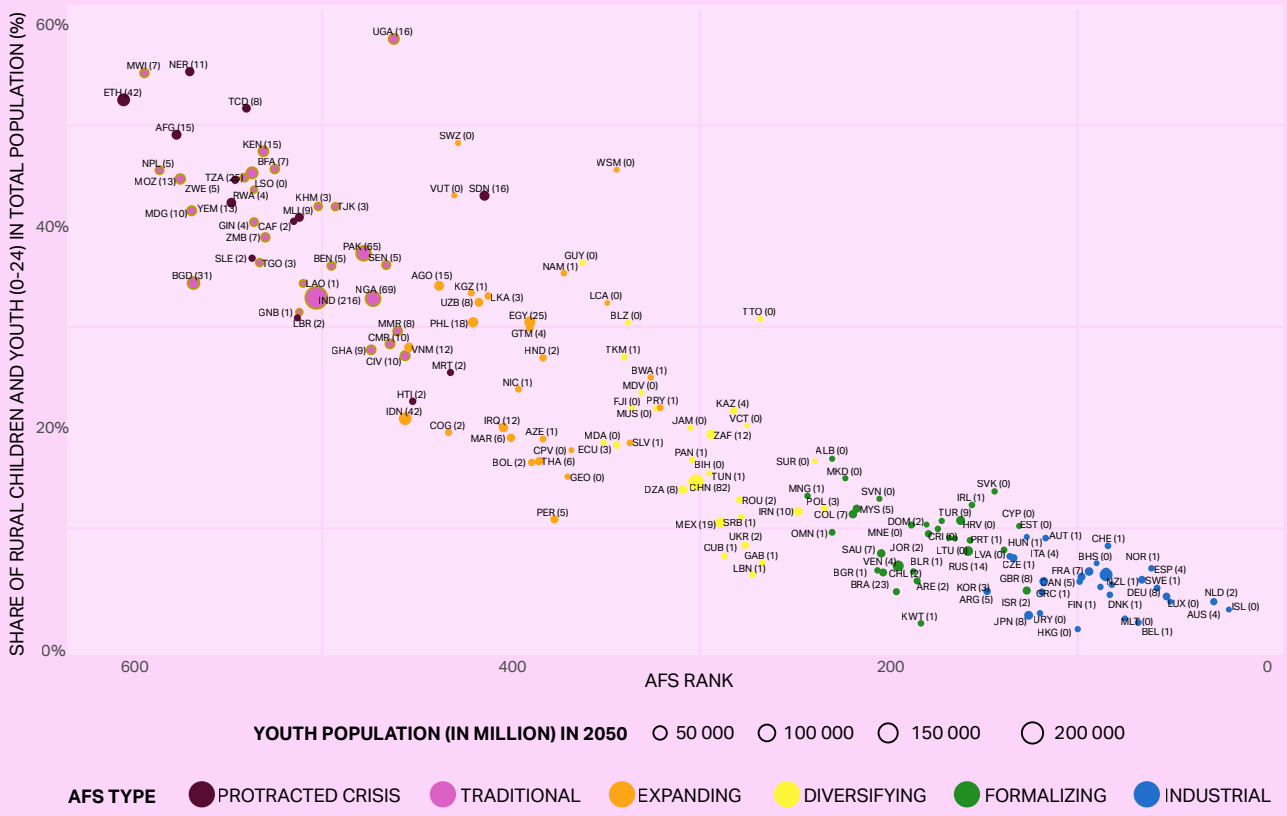
YOUTH SHARES IN RURAL POPULATION ARE HIGHEST IN COUNTRIES WITH PROTRACTED CRISIS AND TRADITIONAL AGRIFOOD SYSTEMS



Note: Numbers indicated in black at the top of each panel refer to the average population of youth for the respective agrifood system type.
Source: Author's own elaboration based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton; the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project, funded by the Bill and Melinda Gates Foundation (OPP1134076) (https://dx.doi.org/10.5258/SOTON/WP00647); Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset (https://doi.org/10.6084/m9.figshare.12579572.v4)

FIGURE 2.5

COUNTRIES IN EARLY STAGES OF AGRIFOOD SYSTEMS TRANSITION HAVE LARGE SHARES OF RURAL YOUTH IN THEIR POPULATIONS



Notes: Three letter abbreviations are ISO Alpha-3 codes. For a full list please see: https://unstats.un.org/unsd/methodology/m49/

Source: Author's own elaboration based on data on the share of rural population aged 0–24 out of the total population in 2015 from ILOSTAT ("Population by sex, age and rural/urban areas – UN estimates, July 2024 (thousands)")[27] and the agrifood systems ranking from Quinn et al.[28] Data on the youth population in 2050 is indicated into parentheses and come from UNDESA. 2024. *World Population Prospects – Population Division – United Nations*. New York, USA. [Cited 19 February 2025]. https://population.un.org/wpp/downloads A value of zero indicates that the youth population in 2050 is less than 1 million. Design adapted from IFAD's 2019 Rural Development Report.[12]

the total population. Given their demographic profiles, these countries are unlikely to face labour shortages in the near term and instead have the potential to harness their large youth populations to drive agrifood systems innovation and rural transformation.

In contrast, countries in the later stages of agrifood systems transition, largely in Europe, Northern America and parts of East Asia and Latin America, collectively account for about 37 percent of the world's rural youth, a relatively lower proportion averaging 11.5 percent, 13.9 percent and 11.4 percent in diversifying, formalizing and industrial agrifood systems, respectively (Figure 2.4). These substantially lower shares reflect broader trends of urbanization and increasing off-farm and non-agrifood system employment opportunities as agrifood systems transition.

Meanwhile, in countries with industrial agrifood systems, rural children and youth below 25 years of age account for only 5 percent of the total population, leading to growing risks of labour shortages and aging rural workforces. These economies, having undergone significant diversification, also offer more non-agrifood system employment opportunities, increasing competition for the shrinking pool of youth labour (see Spotlight 1.1). Without deliberate strategies to make agricultural careers more appealing, these countries will struggle with labour shortages, rising production costs and declining productivity, increasing the strain on existing workers. They also risk stagnation, higher dependence on migrant labour and potential disruptions in food supply chains, which could hinder the sector's ability to adapt to evolving consumer demand, respond to environmental challenges and ensure sustainable food production. These challenges are particularly concerning for labour-intensive agricultural sectors such as horticulture, where mechanization is not always feasible. Evidence from industrialized and formalizing economies suggests that agricultural labour shortages are already emerging as a pressing issue in some countries, with the agriculture sector relying on migrant workers to address these shortages.

> **MANY RURAL YOUTH LIVE IN AREAS WITH HIGH AGRICULTURAL POTENTIAL BUT POOR MARKET ACCESS.**

OPPORTUNITIES FOR RURAL YOUTH BY AGRIFOOD SYSTEMS TYPE AND LOCAL CONTEXT

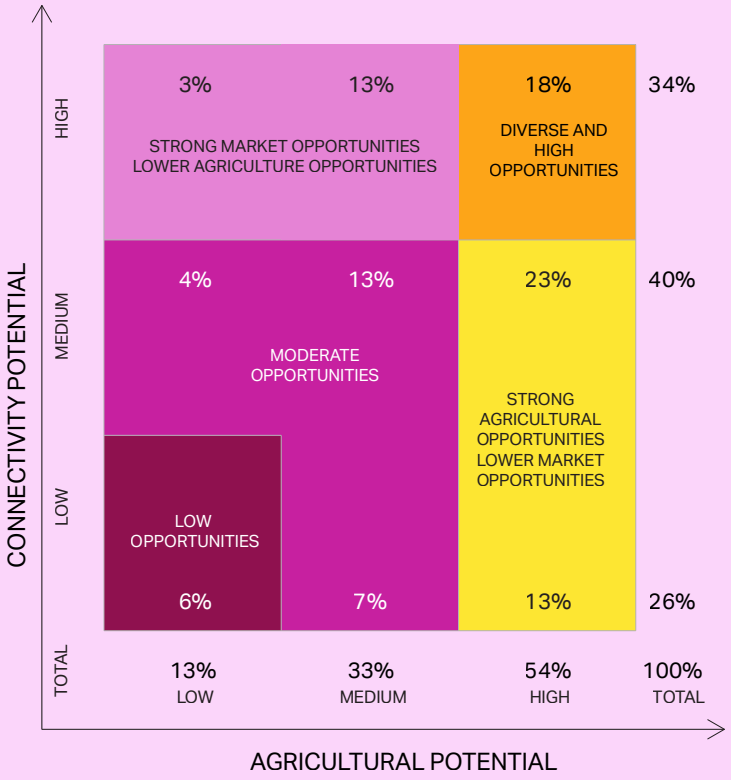
The nature of agrifood systems transition in the areas where youth live influences the opportunities available to them. These distinct opportunities reflect a complex interplay of economic, social, institutional and environmental factors. As agrifood systems evolve, both new opportunities and challenges for youth arise at different stages of the transition. This dynamic is particularly apparent when examining how youth are distributed across agrifood system types and sub-national "opportunity spaces" delineated by varying combinations of agricultural productivity potential and market access conditions (connectivity potential) (see Figure 2.6 and Appendix 1 for the methodology).

Most rural youth are located in areas with favourable agricultural productivity potential. About 54 percent live in high potential zones, 33 percent in medium potential zones and 13 percent in low potential zones (Figure 2.6). This distribution reflects historical migration patterns, with populations gravitating towards areas offering better prospects for agriculture-based livelihoods.[13, 15] However, residing in areas with high potential agricultural productivity – measured solely on biophysical and climatic conditions – does not necessarily translate into access to or benefit from that land, given prevailing barriers such as restrictive social norms and inheritance regimes, land rights and financial constraints (see Chapter 3).[12]

While most rural youth live in areas with strong agricultural potential, connectivity, defined by access to market, infrastructure and services, poses a greater constraint. Only 34 percent reside in high connectivity areas compared with 40 percent in medium connectivity areas and 26 percent in low connectivity areas – twice the proportion of those in low agricultural productivity potential zones (Figure 2.6). The largest single share of rural youth (36 percent) is found in areas with strong agricultural productivity potential but weak market

FIGURE 2.6

MOST RURAL YOUTH LIVE IN AREAS WITH STRONG AGRICULTURAL POTENTIAL AND MODERATE CONNECTIVITY



Notes: Rural areas include peri-urban areas, peri-rural areas and hinterlands.

Source: Author's own elaboration adapting the rural opportunity space framework[12] and based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton); the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project – funded by the Bill and Melinda Gates Foundation (OPP1134076). https://dx.doi.org/10.5258/SOTON/WP00647); Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset. https://doi.org/10.6084/m9.figshare.12579572.v4); cell tower (OpenCelliD, https://opencellid.org) and crop cultivation potential (FAO and IIASA. Global Agro Ecological Zones version 4 (GAEZ v4) www.fao.org/gaez).

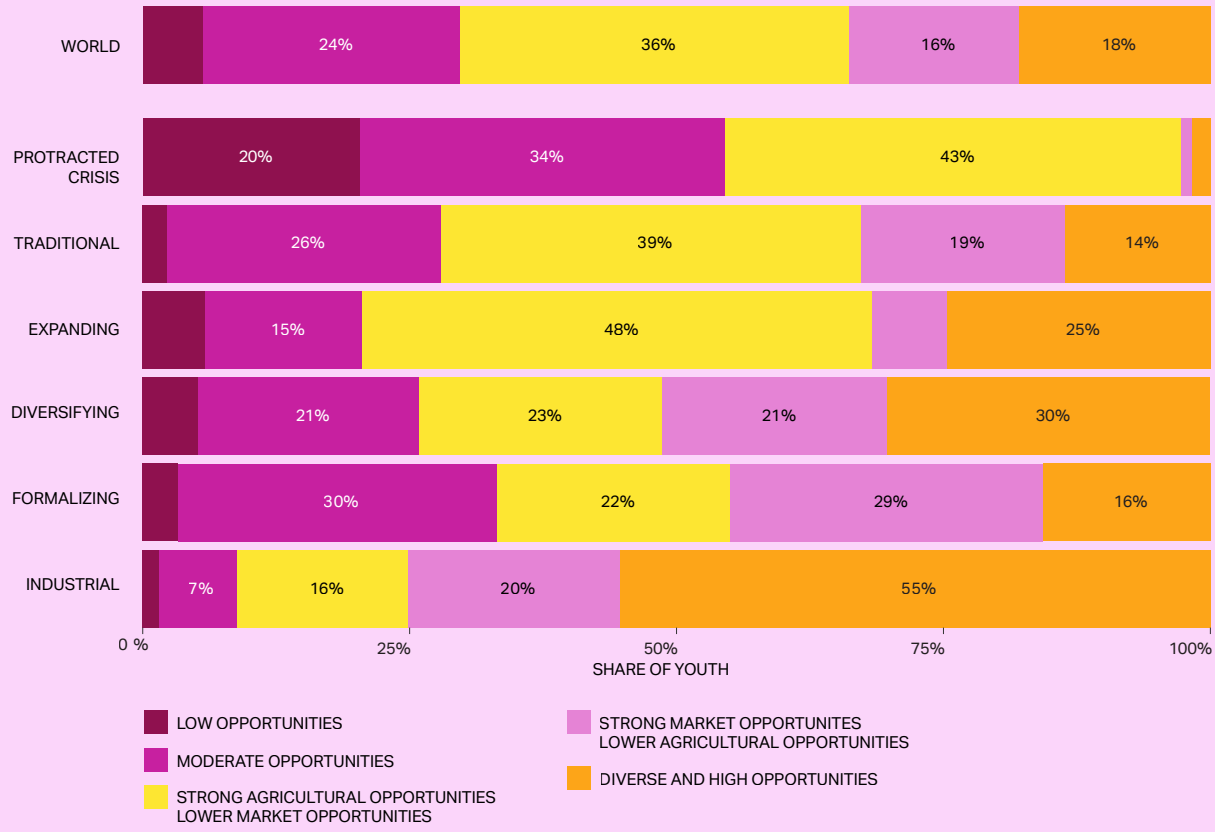
access (Figure 2.7). These findings suggest that addressing infrastructure and market access challenges may be more critical to enhancing youth livelihoods than agricultural potential alone.

Across agrifood system types, opportunities for rural youth vary significantly, reflecting different stages of transition and broader structural conditions. Countries in advanced stages of agrifood systems transition offer the most diverse and high-quality opportunities for their rural youth. In industrial agrifood systems, 55 percent of rural youth reside in areas with both high agricultural productivity potential and strong market access conditions, while only 2 percent live in areas with low opportunities (Figure 2.7).

In contrast, youth living in countries in the early stages of agrifood systems transition (protracted crisis and traditional agrifood systems) face the most severe constraints.[28] These include most countries in sub-

FIGURE 2.7

RURAL YOUTH OPPORTUNITIES ARE HIGHEST IN INDUSTRIAL AGRIFOOD SYSTEMS AND MOST CONSTRAINED IN PROTRACTED CRISIS AND TRADITIONAL SYSTEMS



Source: Authors' own elaboration adapting the rural opportunity space framework[12] and based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton); the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project – funded by the Bill and Melinda Gates Foundation (OPP1134076). https://dx.doi.org/10.5258/SOTON/WP00647); Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset. https://doi.org/10.6084/m9.figshare.12579572.v4); cell tower (OpenCelliD, https://opencellid.org) and crop cultivation potential (FAO and IIASA. Global Agro Ecological Zones version 4 (GAEZ v4) www.fao.org/gaez).

Saharan Africa, North Africa and Western Asia. In protracted crisis contexts, about 20 percent of rural youth reside in low opportunity areas characterized by limited agricultural productivity potential and market access. Only 2 percent live in areas offering diverse and high opportunities. Most youth (43 percent) inhabit and work in areas with strong agricultural productivity potential but limited market access, often exacerbated by conflict,

instability and resource constraints.[12, 29] Countries with traditional agrifood systems present similar patterns, but with a larger share of youth (14 percent) living in areas with diverse and high opportunities (Figure 2.7).[30–32]

Countries at intermediate transition stages characterized by expanding, diversifying and formalizing agrifood systems offer a more mixed picture. Predominantly located in Latin America, South-eastern, Southern and Eastern Asia, these contexts have higher shares of rural youth in areas with diverse and high opportunities and may offer a broader range of livelihood options across on-farm and off-farm segments of agrifood systems relative to traditional or protracted crisis agrifood systems.[3]

CLIMATE CHANGE AND RURAL YOUTH PROSPECTS

Agrifood systems are highly susceptible to environmental degradation and the multifaceted impacts of climate change,[33,34] both of which are expected to amplify variability in agricultural production and affect agricultural productivity (see also Chapter 6).[24] These changes could adversely impact economic opportunities in rural spaces.

To understand how variability in climate would affect young people's economic prospects, current agricultural productivity potentials in the areas where youth live were compared with future projections derived from climate models. The analysis first identified regions undergoing climate change induced shifts in agricultural productivity potential. The total land cover and number of rural youth residing in these areas and their relative shares were then estimated for each of these regions.

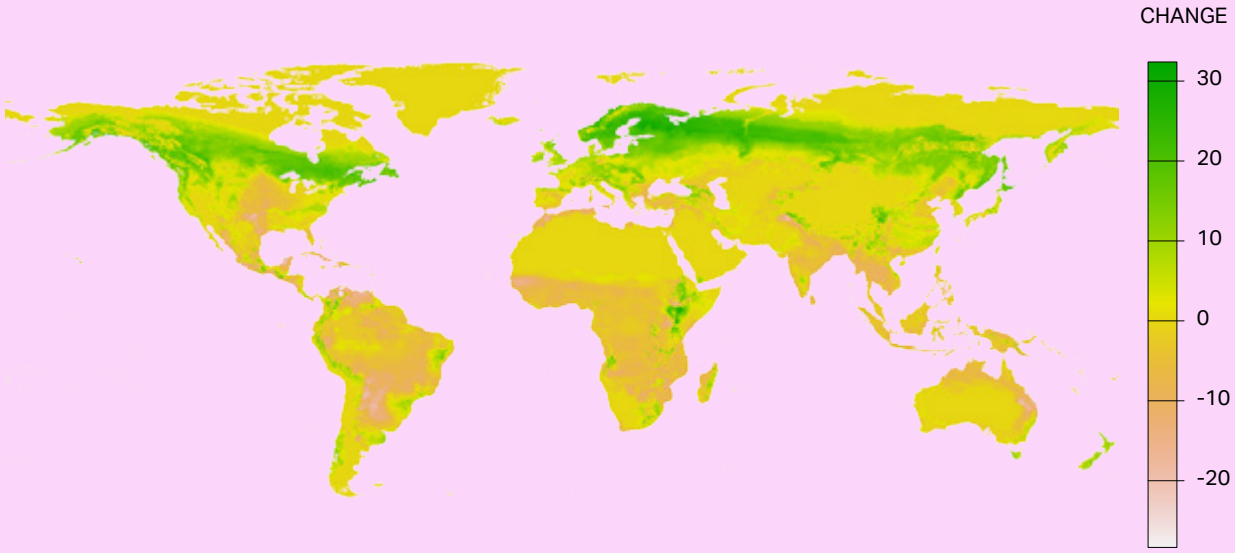
CLIMATE CHANGE UNEVENLY SHAPES GLOBAL AGRICULTURAL POTENTIAL

While projected shifts in agricultural productivity suggest that climate change will reshape food production potential worldwide, the benefits will be unevenly distributed. The modelled scenario projects a net gain of approximately 182.6 million hectares of land with improved productivity potential. However, this net increase does not account for associated risks, including extreme weather events, prolonged droughts and widespread wildfires, which could undermine the reliability of existing and newly viable agricultural lands for long-term food production.[33,34]

Significant regional disparities will emerge. The northern hemisphere, particularly Europe and Northern America, is expected to see productivity gains, with localized decreases in parts of the eastern coast of Australia, the Mediterranean coastline and the central United States of America (Figure 2.8). In contrast, large declines are projected across Latin America and the Caribbean, South America, sub-Saharan Africa, South Asia and Southeast Asia. While new areas may become more viable for agriculture[35] these are often sparsely populated, whereas declines will affect regions that currently sustain large populations, intensifying food security challenges.

FIGURE 2.8

CLIMATE CHANGE IS EXPECTED TO IMPACT AGRICULTURAL PRODUCTIVITY POTENTIAL UNEVENLY ACROSS THE GLOBE



Notes: Refer to the disclaimer on the copyright page for the names and boundaries used in this map. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined. A dispute exists between the Governments of Argentina and theUnited Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Source: Authors' own elaboration using historical and estimated crop cultivation potential based on the IPSL-CM5A-LR model and the RCP 8.5 scenario – a high-emissions trajectory – spanning 2040 to 2070 (FAO and IIASA. Global Agro Ecological Zones version 4 (GAEZ v4) www.fao.org/gaez).[47] Climate change projections simulate the effects of anticipated climatic changes, highlighting the potential challenges posed to agricultural systems under continued high emissions.

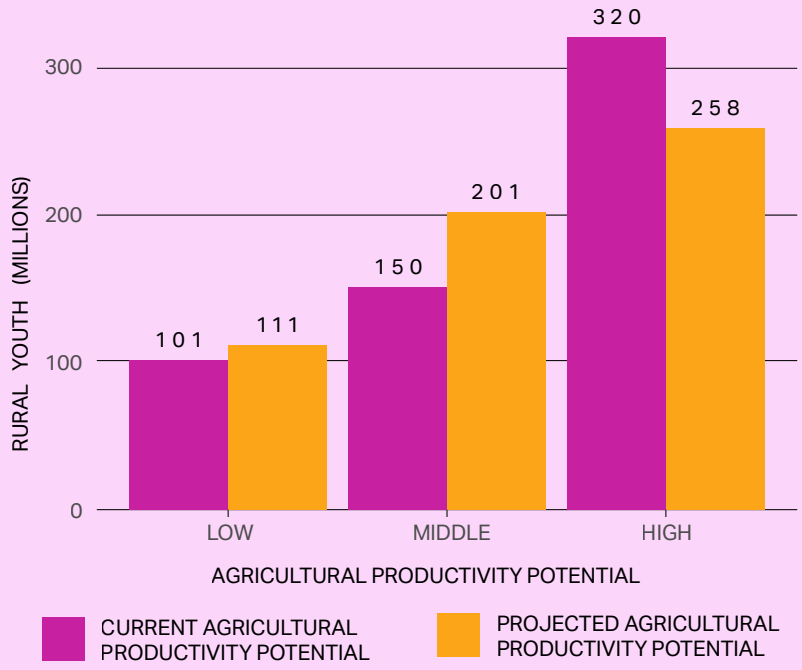
CLIMATE-DRIVEN PRODUCTIVITY DECLINES AND RURAL YOUTH OPPORTUNITIES

An estimated 395 million rural youth, representing about 69 percent of the global rural youth population, currently reside in regions projected to experience declines in agricultural productivity potential due to the adverse effects of climate change. Among them, about 111 million live in areas expected to experience low agricultural productivity potential – a 10 percent increase from a scenario without climate change. At the same time, the number of rural youth in high productivity areas is projected to decline by 19 percent due to climate change (Figure 2.9).

> **AROUND 395 MILLION RURAL YOUTH ARE EXPECTED TO FACE CLIMATE-INDUCED DECLINES IN AGRICULTURAL PRODUCTIVITY.**

FIGURE 2.9

MANY RURAL YOUTH LIVE IN AREAS PROJECTED TO EXPERIENCE DECLINES IN AGRICULTURAL PRODUCTIVITY POTENTIAL DUE TO CLIMATE CHANGE

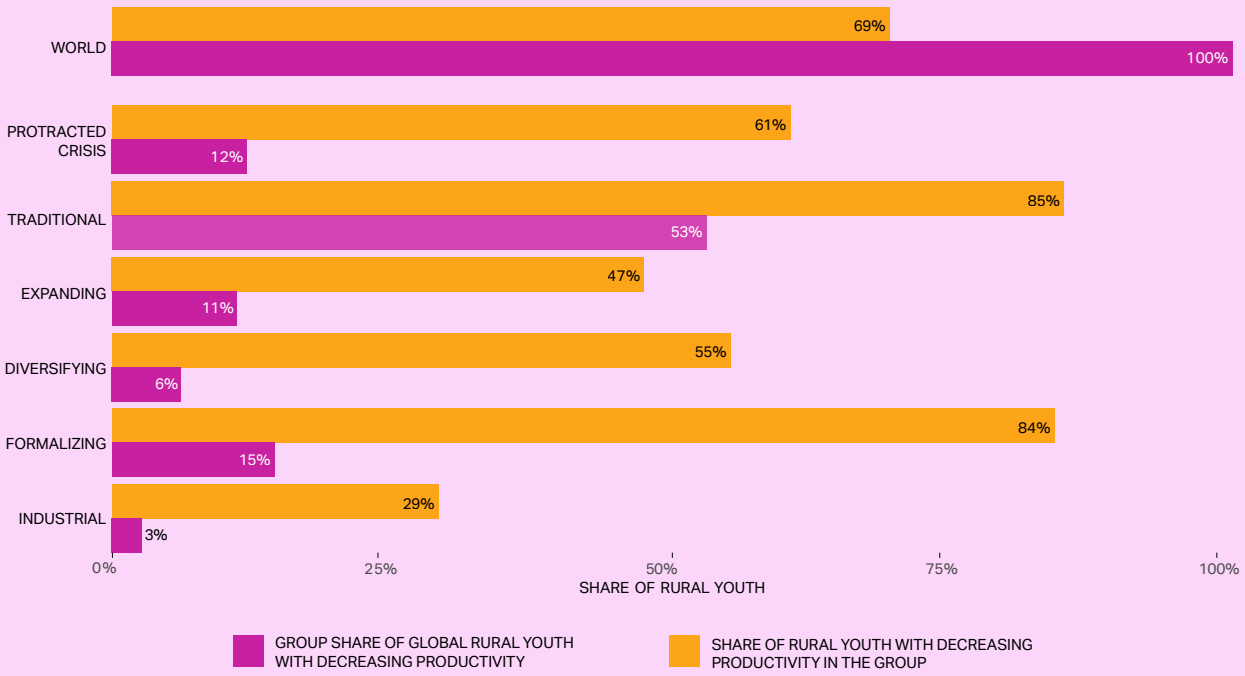


Source: Authors' own elaboration based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton; the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project, funded by the Bill and Melinda Gates Foundation (OPP1134076) (https://dx.doi.org/10.5258/SOTON/WP00647); Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset (https://doi.org/10.6084/m9.figshare.12579572.v4); and crop cultivation potential (FAO and IIASA. Global Agro Ecological Zones version 4 (GAEZ v4) www.fao.org/gaez).

Disaggregated analysis by agrifood systems typology reveals stark disparities in rural youth vulnerability to climate-induced declines in agricultural productivity potential. These differences reflect the interaction of climate risks, weaknesses in how agrifood systems operate and resource inequalities across different regions. Traditional agrifood systems are the most vulnerable, with 85 percent of rural youth in these systems – representing 53 percent of the global rural youth population – facing declining agricultural productivity potential (Figure 2.10). Two-thirds of rural youth in sub-Saharan Africa and 82 percent in Western Asia reside in areas projected to experience significant declines (Figure A5.1 in Appendix 5). In sub-Saharan Africa, in particular, limited infrastructure, outdated technologies and restricted access to adaptation resources leave rural youth ill-equipped to adapt.[12, 37] In such circumstances, migration – whether voluntary or forced – can become inevitable.[38] Over 9 million additional rural youth living in areas with low agricultural potential will further exacerbate these challenges. Rural youth in agrifood systems at intermediate stages of transition also face heightened vulnerability. Approximately 84 percent of youth in formalizing

FIGURE 2.10

FIGURE 2.10 RURAL YOUTH LIVING IN TRADITIONAL AGRIFOOD SYSTEMS ARE MOST IMPACTED BY EXPECTED DECLINING PRODUCTIVITY FROM CLIMATE CHANGE



Source: Author's own elaboration based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton; the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project, funded by the Bill and Melinda Gates Foundation (OPP1134076) (https://dx.doi.org/10.5258/SOTON/WP00647); Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset (https://doi.org/10.6084/m9.figshare.12579572.v4); crop cultivation potential (FAO and IIASA. Global Agro Ecological Zones version 4 (GAEZ v4) www.fao.org/gaez); and Agrifood System Typology (FAO. 2023. The State of Food and Agriculture 2023. Revealing the true cost of food to transform agrifood systems. Rome. https://doi.org/10.4060/cc7724en).

and 55 percent in diversifying agrifood systems are projected to experience declining productivity potential.

In contrast, rural youth in industrial agrifood systems, primarily in Europe and Northern America and parts of East Asia, are the least affected. Only 29.1 percent of youth in these systems are projected to experience impacts, representing 2.7 percent of the global total of affected youth. In some areas, climate change may improve agricultural productivity potential, reducing the number of youth in low-productivity regions.[35] The disparities in youth vulnerability across regions and agrifood systems typologies underline systemic inequality in exposure to climate risks.

UNPACKING YOUTH MOBILITY

Youth are historically willing to migrate in search of better opportunities and/or for reasons related to work, education or family decisions.[39] This mobility enables them to access new areas, livelihoods and resources,[40] particularly when opportunities in their place of origin are limited or declining.[41, 42] However, many young people face significant challenges to migration, including high financial costs, constraining social norms, lack of information, and limited access to networks or support systems in destination areas. Youth may also be reluctant to leave due to cultural and social ties.[43] Youth migration can bring valuable skills and help fill labour gaps in destination areas, but when movements are unmanaged, they can strain the infrastructure and services of host communities, limiting young migrants' access to decent employment. Understanding the potential and the limitations of youth mobility is key to designing inclusive policies and programmes – both at origin and destination – that can expand youth opportunities and support resilient and inclusive agrifood systems transition (see Chapter 7).

Youth engage in various types of migration including temporary, cyclical or seasonal movements. Migration can be internal (within their own country) or international (abroad) and undertaken alone or with family, and through regular or irregular channels. Many migrants move multiple times throughout their lives.[44] Internal and international migration are often linked, as migrants tend to move in phased steps, from villages to towns or cities, and then internationally.[45] This section examines patterns of youth migration – defined as the movement of young people away from their place of usual residence, either across an international border or within a state,[46] exploring its types, drivers and associated opportunities and challenges.

INTERNATIONAL AND REGIONAL MIGRATION

Over recent decades, the number of international migrants has increased significantly, reaching 304 million in 2024,[47] with corresponding increases in remittances to low- and middle-income countries projected to reach USD 685 billion in the same year.[48] Youth migration has also grown, with the number of international migrants aged 15–24 rising from 22.1 million in 1990 to 31.7 million in 2020. However, their share out of total migrants declined from 14.4 percent to 11.3 percent over the same period,[49] due in part to longer life expectancy among older migrants and migration policies that restrict access for lower-skilled migrants, who tend to be younger.[14, 50, 51]

The share of youth among international migrants varies across regions. Youth account for 16.2 percent of the total migrant population in sub-Saharan Africa and 15.2 percent in Eastern and Southeastern Asia and Latin America and the Caribbean, but only 9.2 percent in Europe and Northern America. Youth aged 20–24 account for the majority of migrants (19 million or 6.8 percent of the total migrant population), compared to those aged 15–19 (12.5 million or 4.5 percent).[49] Young women represent nearly half of international youth migrants (48 percent), with higher shares in sub-Saharan Africa (52 percent) and Eastern and Southeastern Asia, as well as Latin America and the Caribbean (51 percent).[49]

The share of international youth migrants residing in low- and middle-income countries (43 percent) is larger than that of older migrants (37 percent aged 25–34 and 30 percent aged 35–44).[50] This trend may reflect in part the broader demographic reality that the majority of the world's youth live in low- and middle-income countries. However, it also highlights a key characteristic of global migration – most international migrants, including youth,

tend to move within their own regions. Europe has the highest intra-regional migration share (74 percent), followed by sub-Saharan Africa (64 percent). Youth migrants are more likely than older cohorts to choose regional destinations due to geographic proximity, lower migration costs, and strong cultural, linguistic and economic ties.[50,52] Some regions such as Central and Southern Asia experience large migrant outflows, with 78 percent of migrants residing outside their region, particularly in member states of the Gulf Cooperation Council. Similarly, 60 percent of migrants from Latin America and the Caribbean live in Northern America, their movement contributing to one of the largest global migration corridors, although growth has slowed in recent years.[49] Crucially, children and youth make up a large share of forcibly displaced populations, including refugees, asylum seekers and internally displaced persons (see Box 2.1).

ASPIRATIONS AND PLANS TO MIGRATE INTERNATIONALLY

Youth express higher aspirations for international migration than adults across all agrifood systems typologies, with aspirations rising between 2015 and 2023 (Figure 2.11). In 2023, 46.6 percent of male and 45.5 percent of female youth expressed a desire to migrate compared to approximately 36 percent in 2015. Migration aspirations among youth are lowest in industrial agrifood systems and highest in countries with protracted crisis agrifood systems, where 61.8 percent of young males aspire to migrate (Figure 2.11) (see also Box 2.2). In such fragile contexts, such as Eritrea, where economic prospects are limited, youth often view migration as the only pathway to a better life.[53] However, many young people may be unable to migrate due to financial and institutional barriers, and remain trapped in their present circumstances.[54]

BOX 2.1 FORCED DISPLACEMENT

Children and youth represent a significant portion of the forcibly displaced (internally displaced persons, refugees, asylum seekers and other people in need of international protection). At the end of 2023, an estimated 117.3 million people worldwide were forcibly displaced due to persecution, conflict, violence or human rights violations, of which 68.3 million were internally displaced.[i] Some 40 percent of the forcibly displaced are under the age of 18.[i] According to the Internal Displacement Monitoring Centre (IDMC), in 2021, some 33 million children and young people under the age of 25 were internally displaced, of which 25.2 million were under the age of 18, and 11.4 million were between the ages of 15 and 24.[ii] Most refugees remain close to their countries of origin, with 69 percent hosted in neighbouring countries. Low- and middle-income nations continue to host three-quarters of the world's refugees.[i]

Children and youth face heightened risks during displacement, including exposure to violence, abuse and disruption of critical developmental milestones such as education. Girls are particularly vulnerable to these risks, as displacement often exacerbates barriers to education and increases the risk of sexual violence. The long-term consequences of displacement, if unaddressed, can have a lasting impact, limiting future opportunities and perpetuating cycles of vulnerability. Addressing the specific needs of youth and children – such as healthcare (including vaccinations), education and vocational training – is essential to mitigating these risks, boosting their resilience and supporting their development.[iii]

In protracted crisis and traditional agrifood systems, male youth are more likely than female youth to aspire to migrate internationally, reflecting gender norms that favour men's work outside the home.[55] However, in other agrifood systems, migration aspirations do not differ notably by gender.

Despite high aspirations, few youth actively plan to migrate in the next year and even fewer have made concrete preparations for such moves (Figure 2.12; Note that Information about plans and preparations to migrate internationally were only collected in 2015 Gallup World Poll data). This gap between aspirations and actual plans to migrate likely reflects the significant barriers young people face, including financial constraints, limited access to information and restrictive migration policies that limit migration opportunities.[40] In addition, young people may hold aspirations to migrate internationally for

© IFAD/LAISIASA DAVE/ PACIFIC FARMER ORGANIZATIONS
IN NAVOSA, FIJI, YOUNG FARMER FILIPE BAITUWAWA IS GROWING NUTRITIOUS VEGETABLES FOR HIS COMMUNITY, AFTER RECEIVING TRAINING AND FARMING INPUTS TO BOOST LOCAL FOOD SECURITY DURING THE COVID-19 LOCKDOWN.

FIGURE 2.11

THE SHARE OF YOUTH ASPIRING TO MIGRATE INTERNATIONALLY INCREASED BETWEEN 2015 AND 2023 ACROSS MOST AGRIFOOD SYSTEM TYPES

Source: Author's estimates based on Gallup World Poll datasets for 2015 and 2023. The estimates are unweighted averages derived from pooled survey data across different agrifood system typologies. The plots show the proportion of individuals who aspire to migrate across different agrifood system typologies based on pooled survey data from over 120 countries for the years 2015 and 2023. The agrifood systems typology averages are derived by computing the weighted mean of migration aspirations within each typology, ensuring representation across all included countries. The world average is similarly computed by pooling all countries together, providing a global estimate of migration aspirations. The estimates were produced using adjusted survey weights following Heckert *et al.*[56]

FIGURE 2.12

ASPIRATIONS TO MIGRATE INTERNATIONALLY ARE HIGHEST AMONG YOUTH, ESPECIALLY IN PROTRACTED CRISIS SYSTEMS, BUT RELATIVELY FEW HAVE MADE PLANS OR PREPARATIONS TO MIGRATE IN THE NEXT 12 MONTHS

Note: The figure shows the share of youth who aspire to migrate, plan to migrate or have made preparations to migrate in the next 12 months, disaggregated by sex and agrifood system typology.

Source: Author's estimates using the Gallup World Poll dataset for 2015. The estimates were produced using adjusted survey weights following Heckert et al.[56]

years, but the period of active preparation could be much shorter. Changes in conditions at destination, including labour demands and migration policy shifts towards border restrictions or the opening of legal pathways for migration, can also influence if and when migration aspirations transform into actual migration.[40] Key drivers of international and internal migration among youth are discussed later in the chapter.

YOUTH MIGRATION WITHIN NATIONAL BORDERS

While international migration often receives the most attention, the majority of migration occurs within national borders, [45] especially among youth, who typically lack the financial resources and networks necessary to migrate internationally.

BOX 2.2 YOUTH MIGRATION TO EUROPE – MIGRANT CHARACTERISTICS AND KEY MIGRATION DETERMINANTS

In 2023, the International Organization for Migration (IOM) published data capturing the experiences of migrants aged 14–24 travelling to Europe by sea and land. These journeys, often perilous, reflect young individuals' aspirations for better futures as well as their need to escape crises or violence in their home countries. The data were gathered using the Displacement Tracking Matrix (DTM), a set of tools developed by IOM to gather and analyse information on the mobility, vulnerabilities and needs of mobile and displaced populations.

Young migrants came from a diverse range of countries, of which Afghanistan (15 percent), Morocco (12 percent), Pakistan (9 percent), Bangladesh (7 percent) and Guinea (6 percent) are the most common. Some 90 percent of the surveyed youth migrants were boys and young men, with higher shares of females coming from specific countries.

Economic challenges and escaping conflict and personal violence were major migration drivers. Over a third (37 percent) of respondents were unemployed and actively seeking work before departure, while another 37 percent were employed, and only 15 percent were students. Education levels varied widely, with 51 percent having no or only primary education, 45 percent having completed either lower or upper secondary, and only 4 percent having a tertiary education. On average, young women migrants had slightly higher education levels than young men. Of all migrants, 92 percent were single, though for young women, 27 percent were in a couple and 21 percent had children (compared to only 3.5 percent of males).

Agriculture, forestry and fisheries were prominent sectors of employment among young migrants before their departure, particularly in Pakistan (41 percent) and Bangladesh (34 percent). Environmental degradation, including worsening droughts, soil erosion and rising temperatures, were cited, particularly in North Africa. For example, 40 percent of young Algerians and 19 percent of young Moroccans cited slow-onset environmental changes as a key factor in their decision to migrate.

Socioeconomic opportunities, safety and family networks were key factors influencing their choice of destination, with approximately one-third of respondents indicating they had extended family members in Europe.

Source: Based on information derived from IOM. 2024. *DTM Europe – youth on the move, travelling by sea and by land to Europe in 2023.* Grand-Saconnex, Switzerland. https://dtm.iom.int/reports/europe-youth-move-travelling-sea-and-land-europe-2023

Evidence from Demographic Health Surveys in 26 countries – primarily from sub-Saharan Africa, with some from Asia and Europe – shows that youth internal migration rates are generally high and vary significantly by country and gender (Figure 2.13). Young women (aged 15–24) are in most cases more likely than young men to have migrated within their country at least once in their life, contrary to international migration patterns. Among female youth, the incidence of internal migration ranges from 87 percent in Bangladesh to 14 percent in Armenia and Tajikistan. For male youth, the incidence ranges between 61 percent in Gabon to 4 percent in Armenia. Only three countries in the sample – Cambodia, Gabon and Mozambique – have a notably higher incidence of internal migration among male youth than female youth, while in the United Republic of Tanzania and Timor-Leste, female and male youth report migration at similar rates.

In most cases, female youth migrate internally at younger ages than male youth, with the probability of having migrated in the last five years peaking around the age of 22 for women and the age of 25 for men (see Figure 2.14).

> **MOST YOUNG PEOPLE MIGRATE WITHIN THEIR OWN COUNTRIES RATHER THAN CROSSING INTERNATIONAL BORDERS.**

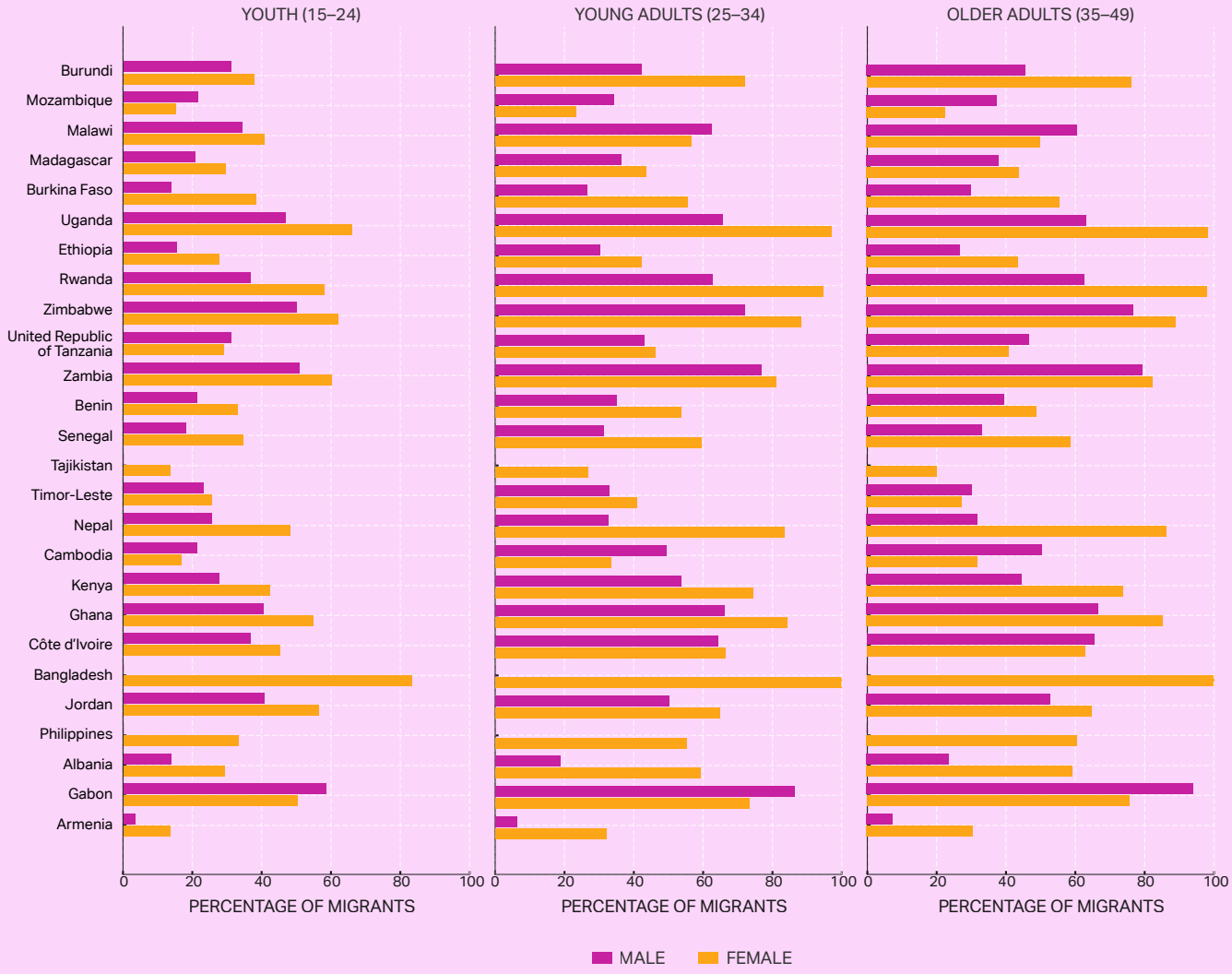
Female youth often migrate earlier, due to marriage, as detailed further below, while young men tend to migrate later, primarily for employment, often after completing education.[54] The gender gaps in migration rates are smaller among older adults in many countries, but in general women continue to have a higher probability of migrating during their life.

© IFAD/ASAD ZAIDI
IN SINDH, PAKISTAN, 28-YEAR-OLD GOHAR COLLECTS ROSES ON HER FARM AFTER TAKING A LOAN OF 10 000 RUPEES TO BUY GOATS AND SUPPORT HER LIVELIHOOD.

FIGURE 2.13

YOUNG WOMEN ARE MORE LIKELY THAN YOUNG MEN TO MIGRATE INTERNALLY

The share of individuals who have ever migrated, by sex and age group



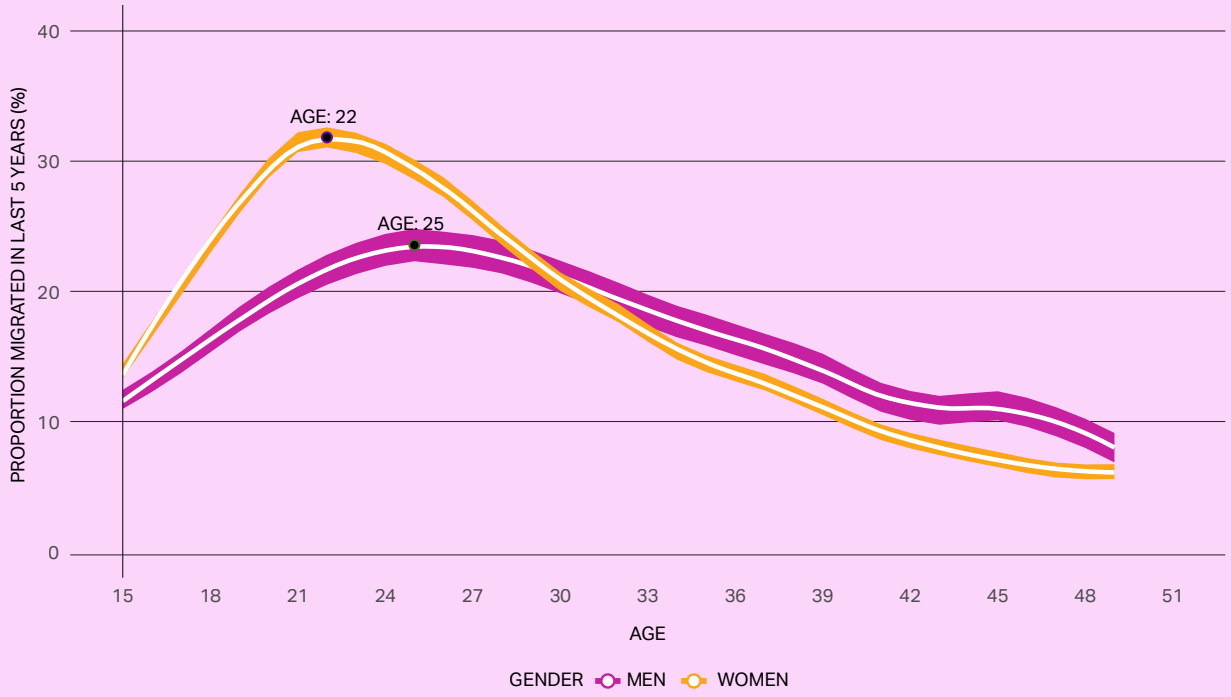
Note: The countries are arranged by GDP per capita in PPP. In these surveys, male and female respondents aged 15–49 were asked if they had always lived in their current place of residence. If their responses were negative, they were asked where they moved from and when, enabling an examination of migration patterns between and within rural and urban areas. Migrants are individuals who have not always lived in their current place of residence and have thus relocated at least once between their birth and the time of the interview. Therefore, these datasets identify youth migrants at the place and households of destinations, not in the household or place of origin. Ten of the surveys also inquire about reasons to migrate.

Source: Author's calculations based on 26 national-level datasets from the Demographic Health Surveys (DHS) for selected countries with migration information.

FIGURE 2.14

INCIDENCE OF MIGRATION PEAKS AROUND AGE 22 FOR WOMEN AND 25 FOR MEN

Proportion of individuals who migrated in the past five years, calculated as a share of the total population by age and sex



Note: Coloured, shaded areas represent the 95% confidence intervals.
Source: Author's calculations based on data from the Demographic Health Surveys (DHS) for selected countries with migration information. The trend for women is based on data from 26 countries: Albania, Armenia, Bangladesh, Benin, Burundi, Burkina Faso, Cambodia, Cote d'Ivoire, Ethiopia, Gabon, Ghana, Jordan, Kenya, Madagascar, Malawi, Mozambique, Nepal, Philippines, Rwanda, Senegal, Tajikistan, United Republic of Tanzania, Timor-Leste, Uganda, Zambia and Zimbabwe. The trend for men is based on 23 of these countries; Bangladesh, Philippines and Tajikistan are excluded due to data unavailability for men.

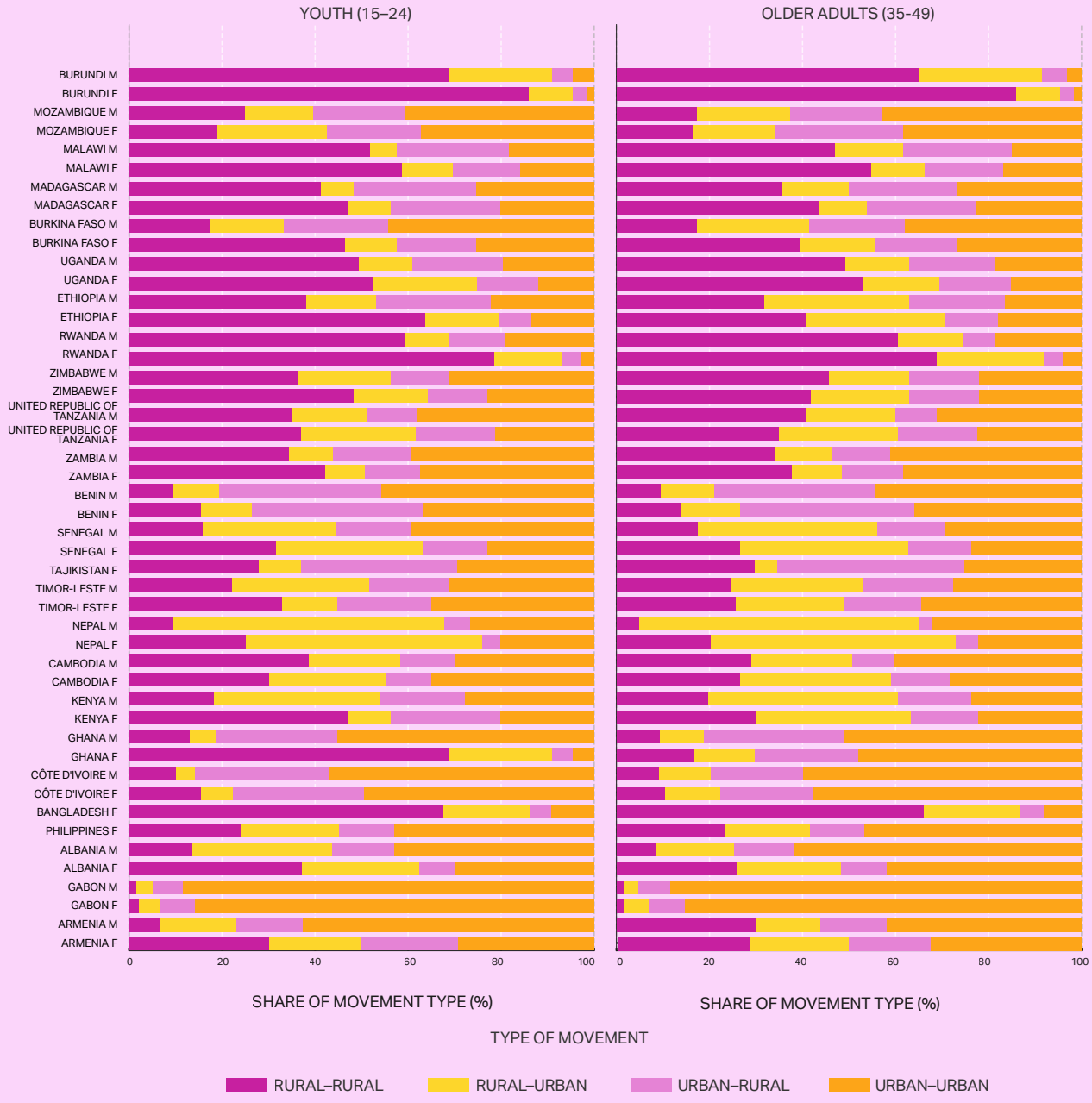
There is significant heterogeneity in the direction of youth migration patterns across the selected countries. Around 30 percent of youth migrants engage in rural-to-rural[a] migration across the entire set of countries, but this type of migration is particularly important at lower levels of GDP per capita (Figure 2.15). For instance, in both Burundi and Rwanda, over 60 percent of young migrants are rural-to-rural migrants. Other studies also show that on average in low- and middle-income countries, more people migrate between rural areas than from rural to urban areas,[45, 57] often in search of arable land. On average, young women are more likely than young men to migrate between rural areas.

a The DHS surveys differentiate between rural, urban and towns. The definition of towns can vary significantly across countries. To simplify the analyses, towns have been aggregated into either the rural or urban category, depending on the country, with the decision informed by country-specific reports produced by the DHS initiative. In most cases, towns are classified as urban, but there are exceptions.

FIGURE 2.15

RURAL-TO-RURAL YOUTH MIGRATION IS PROMINENT, PARTICULARLY IN COUNTRIES AT LOWER LEVELS OF ECONOMIC DEVELOPMENT

The types of migration patterns, by sex and age group



Source: Author's calculations based on data from the Demographic Health Surveys (DHS) for 26 countries with migration information. The countries are arranged by GDP per capita in PPP. Migrants are defined as those individuals who have migrated at least once between their birth and the time of the interview.

Rural-to-urban migration varies by country (Figure 2.15). In Nepal, over 60 percent of young male migrants migrate from rural to urban areas, whereas in Gabon, Ghana and Tajikistan the proportion is relatively small. Additionally, no consistent gender patterns have been identified in rural-urban migration.

Urban-to-rural migration is also notable (Figure 2.15), with movement patterns indicating circular and seasonal movements or return migration. In many cases, youth work in cities to save money before returning to begin a family and start their own farm.[58] A study in Nairobi noted that 41 percent of male migrants aspired to return to their villages in the next 12 months, and 76 percent planned to return permanently.[59] Young female migrants, however, were less likely to express an interest in returning permanently to their villages.[59]

Urban–to-urban migration is more common in higher income and highly urbanized countries, where it tends to dominate migration patterns (Figure 2.15). In Albania, for instance, migration between urban areas accounts for 62.2 percent and 42.1 percent of male and female youth migration, respectively. In Gabon, where most of the population live in urban areas, over 85 percent of migration for both male and female youth occurs between cities.[60] Migration to and from urban areas may involve smaller towns rather than major cities, as towns are typically classified as "urban" in Demographic and Health Surveys. Box 2.3 offers a more detailed analysis of youth migration along the rural–urban continuum in East and West Africa.

Migration patterns among older cohorts mirror the youth cohort, reflecting the fact that many migrants relocate to their current residence before the age of 25.

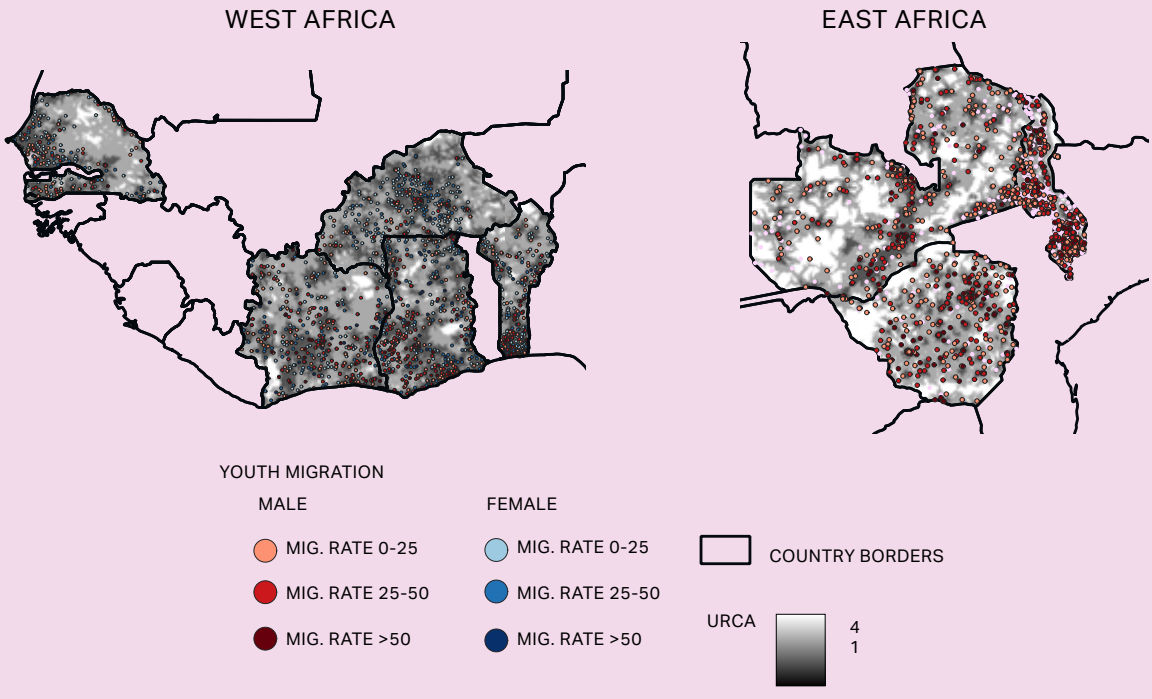
© FAO/ANIS MILI
IN GOUBELLAT, TUNISIA, INÈS MESSAOUDI HOLDS A ROMAN JAR FILLED WITH OIL WHILE WORKING IN AN OLIVE GROVE.

BOX 2.3 SPATIAL PATTERNS OF YOUTH MIGRATION IN WEST AND EAST AFRICA

Youth migration is not limited to large cities, with many young people also migrating to peri-urban and intermediate cities. In the United Republic of Tanzania, youth often migrate to nearby secondary towns, which offer off-farm jobs and are more accessible financially than big cities, allowing easy return to their home villages if needed.[i] Rural–urban distinctions are commonly used in analysis, including in this report, due to limitations in geospatial data, but they mask a more nuanced understanding of youth mobility across the urban–rural continuum. Taking advantage of the availability of geo-referenced data from several Demographic Health Surveys, the variation in youth migration rates is examined across space and by gender. Rural youth migration rates, calculated at the survey cluster and focused on youth who have migrated in the five years preceding the survey, are overlayed on the urban-rural catchment areas (URCA) maps[ii, iii] (Figure A). Youth migration rates are measured at destination.

Urban and peri-urban areas attract a large share of migrants. Female youth migrate to both urban and rural areas. [iv, v] In contrast, male youth migration is largely towards urban centres [vi], particularly peri-urban areas. These gendered patterns are more pronounced in countries in West Africa than in East Africa. The spatial mobility patterns reinforce the findings that female and male youth migration are frequently motivated by different factors. [vii–ix]

FIGURE A. YOUTH MIGRATION RATES BY GENDER ACROSS THE URCA SPACE



Note: Refer to the disclaimer on the copyright page for the names and boundaries used in this map. Urban and peri-urban areas are marked in darker shades of grey on the maps.

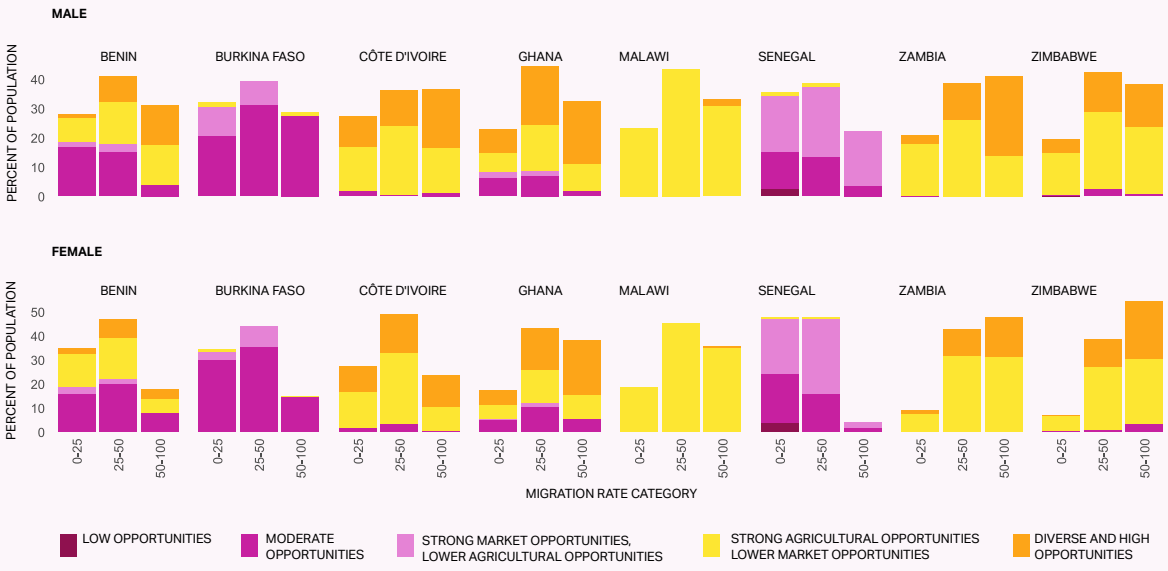
Source: Authors' calculations are based on data from the Demographic Health Surveys (DHS) for selected countries. Categories for DHS clusters are: "Mig. Rate 0–25" for cluster with migration rate above 0 and below 26 percent, "Mig. Rate 26–50" for clusters with migration rate equal or greater than 26 percent and below or equal to 50 percent, and "Mig. Rate >50" for clusters with a migration rate above 50 percent. Clusters with no migration (i.e. the migration rate is 0) are excluded from the analysis

BOX 2.3 SPATIAL PATTERNS OF YOUTH MIGRATION IN WEST AND EAST AFRICA

The spatial distribution of youth migration is also explored across opportunity spaces (see Appendix 1). Figure B shows the distribution in each country of the shares of male and female youth migrants according to the type of space in which they live.

Larger shares of young migrants live in areas with higher opportunities. These are areas with higher market connectedness and agricultural potential, thus offering enhanced opportunities in terms or employment, education, agripreneurship and access to markets (marked in blue). Across all countries but Burkina Faso and Senegal, clusters with more than 50 percent of young migrant display larger shares of rural young migrant living in areas characterized by both high agricultural and market opportunities, which could signal the fact that youth moved seeking better livelihood options. In most countries, large shares of young migrants live in areas with strong agricultural opportunities (either with strong or moderate market opportunities, marked in green). This is not surprising, given that all countries but Zimbabwe, in the sample have traditional agrifood systems, with higher reliance on the agriculture sector, and where rural-to-rural migration is prevalent (see Figure 2.15). Senegal stands out as an exception, where youth migration is directed toward areas with strong market opportunities but lower agricultural potential (purple), as well as areas with moderate opportunities (orange). This likely reflects youth engagement in urban informal off-farm agrifood system roles, such as street vending.

FIGURE B. YOUTH MIGRATION RATES BY GENDER ACROSS OPPORTUNITY SPACES



Source: Authors' calculations are based on data from the Demographic Health Surveys (DHS) for selected countries. Categories for DHS clusters are: "Mig. Rate 0–25" for cluster with migration rate above 0 and below 26 percent, "Mig. Rate 26–50" for clusters with migration rate equal or greater than 26 percent and below or equal to 50 percent, and "Mig. Rate >50" for clusters with a migration rate above 50 percent. Clusters with no migration (i.e. the migration rate is 0) are excluded from the analysis.

KEY DRIVERS OF YOUTH MIGRATION

Youth migration is driven by a complex and often intertwined array of factors at the individual, family, community, national and international level.[61] For many youth, migration is often a family strategy to diversify income and improve household welfare,[62] especially in contexts where state-provided welfare systems are absent or weak. In such cases, the decision to migrate is not made in isolation, and parents and elders may support youth migrants financially, with the expectation of future remittances.[63] When migration is a family strategy, it implies for youth balancing personal aspirations with familial obligations and expectations.

Youth migrate internally for various reasons, but primarily for marriage, education, employment and to join family members (Figure 2.16). Both young women and men often cite joining other family members as a primary reason for migration to both rural and urban areas. For young women, marriage and family reunification are the predominant reasons, especially for those migrating to rural areas. In Nepal, marriage accounts for nearly all female youth migration to both urban and rural areas, while in Cambodia and Kenya, employment is a leading driver of young women's migration to cities. For young men, education and employment are the primary drivers especially for rural to urban migration (Figure 2.16), reflecting the concentration of secondary schools in urban areas and the poorer quality of schools in rural areas.[64, 65] When youth migrate primarily for work or education, the process is rarely a single event and instead often involves a series of moves.[19, 66, 67] Youth may migrate for short or long periods, return home, stay temporarily and then migrate again. However, quantitative data capturing these multiple migration moves remain limited (see Box 2.4). These findings corroborate evidence[68, 69] showing that youth migration – particularly internal migration – is driven by reasons beyond immediate economic gains. Migration age profiles are strongly correlated with the age structure of life-course transitions such as education, entry into workforce and marriage, especially among women.[70] These transitions differ widely both within and across societies and are further shaped by social markers of differentiation including gender, class and Indigenous or ethnic identity.

The different motivations for internal migration have distinct implications for the relations between migrants and their families and communities of origin, as well as for the welfare and opportunities of young people. Youth migrating for education often require financial support instead of remitting money back home.[65] Even when migration is undertaken for employment, families often cover the initial costs,[71] and some migrants may stay with extended family members or close friends as they transition into the new life at their destination.[65, 66, 72, 73] In fact, youth migrants often remit less than migrants over 25 years old, in part because they need time to integrate into the host labour markets and begin earning higher wages.[74] Studies show that young people migrating for education often come from the wealthiest households, while those migrating for work have on average access to financial resources at a level similar to the rest of the population.[65]

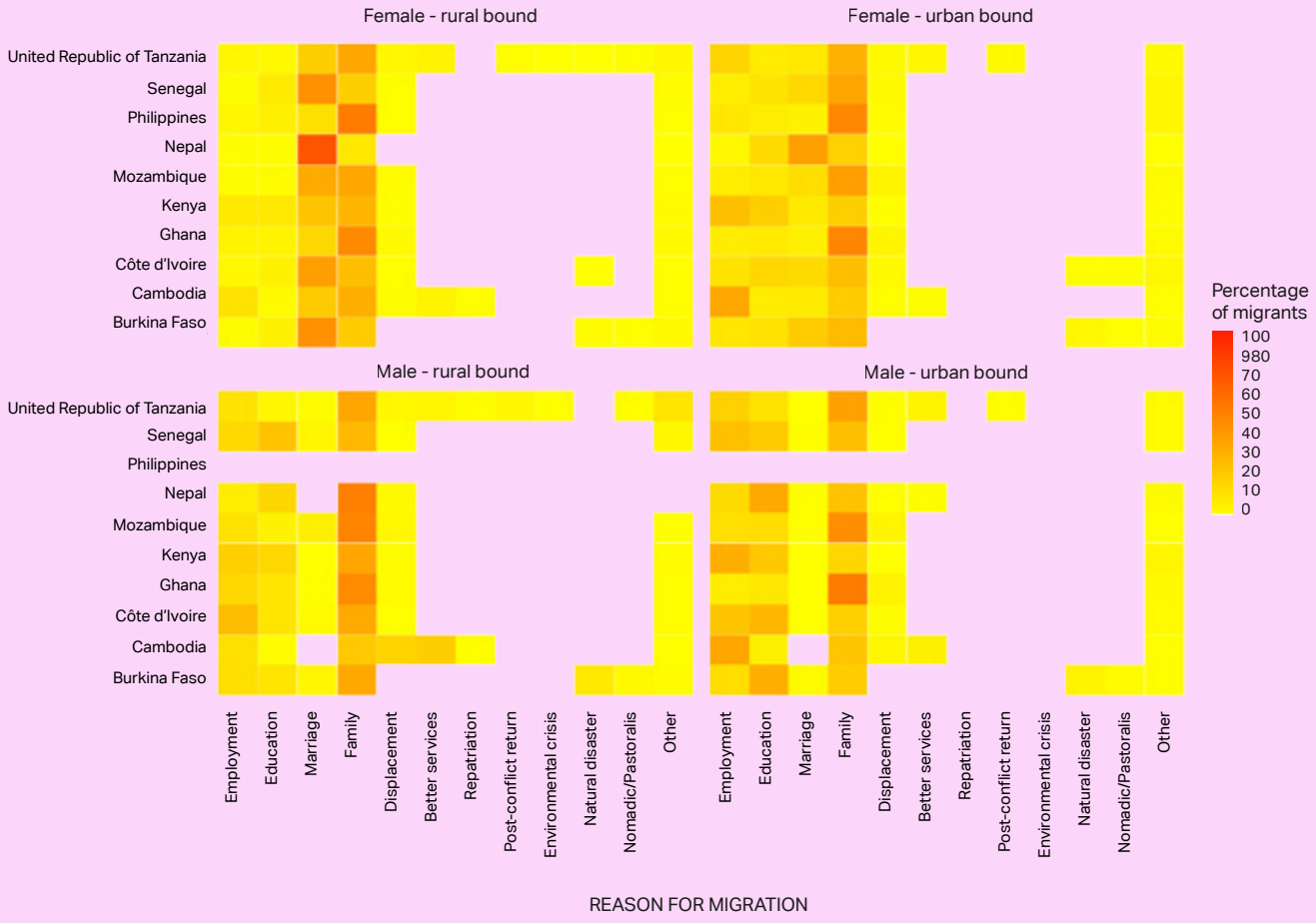
> "MIGRATION PATTERNS DIFFER BY GENDER. YOUNG WOMEN OFTEN MIGRATE FOR MARRIAGE OR FAMILY, YOUNG MEN FOR JOBS.

The nature of structural transformation and agrifood systems transition in a given context influences youth migration patterns. Urbanization, youth population growth, the local availability of off-farm work, and access to land and other productive assets all shape youth decisions to migrate. A study in Nigeria[41] found

> "YOUTH MIGRATION IS CLOSELY LINKED WITH LIFE TRANSITIONS LIKE WORK, EDUCATION AND MARRIAGE.

FIGURE 2.16

MARRIAGE AND FAMILY ARE KEY MIGRATION REASONS AMONG BOTH MALE AND FEMALE YOUTH, WHILE MALE YOUTH ARE MORE LIKELY TO MIGRATE FOR EMPLOYMENT



that urbanization encourages youth migration, though the propensity to migrate differs depending on gender, education and ownership of assets. In general, women and better-educated youth are more likely to migrate to cities, while youth in households with livestock are less likely to do so. Owning land and physical assets is positively correlated with temporary migration, while larger landholdings deter permanent migration.[41] Other studies also point to access to land as an important determinant of youth migration. Larger than expected land inheritance significantly reduces the probability of both long-distance permanent migration and migration to urban areas in Ethiopia, particularly among male youth.[42]

For many young people, internal migration is often also a response to a lack of decent employment opportunities in rural areas. The prospect of better jobs, even within the informal economy, draws young people to cities.[75] Data from school-to-work transition surveys also highlight job satisfaction as a key motivation for migration, with strongly dissatisfied working rural youth more than twice as likely to migrate as those who were satisfied with their jobs.[76] However, a study in Zambia[77] examining

the role of rural vibrancy in youth migration decisions found that youth aged 15–24 were less influenced by local economic opportunities, including the availability of non-farm economic opportunities, than older individuals. While areas with greater agricultural productivity were associated with reduced rural out-migration, increased local non-farm economic activity seemed to have the opposite effect, increasing rural out-migration. However, these patterns are not observed among youth.[77]

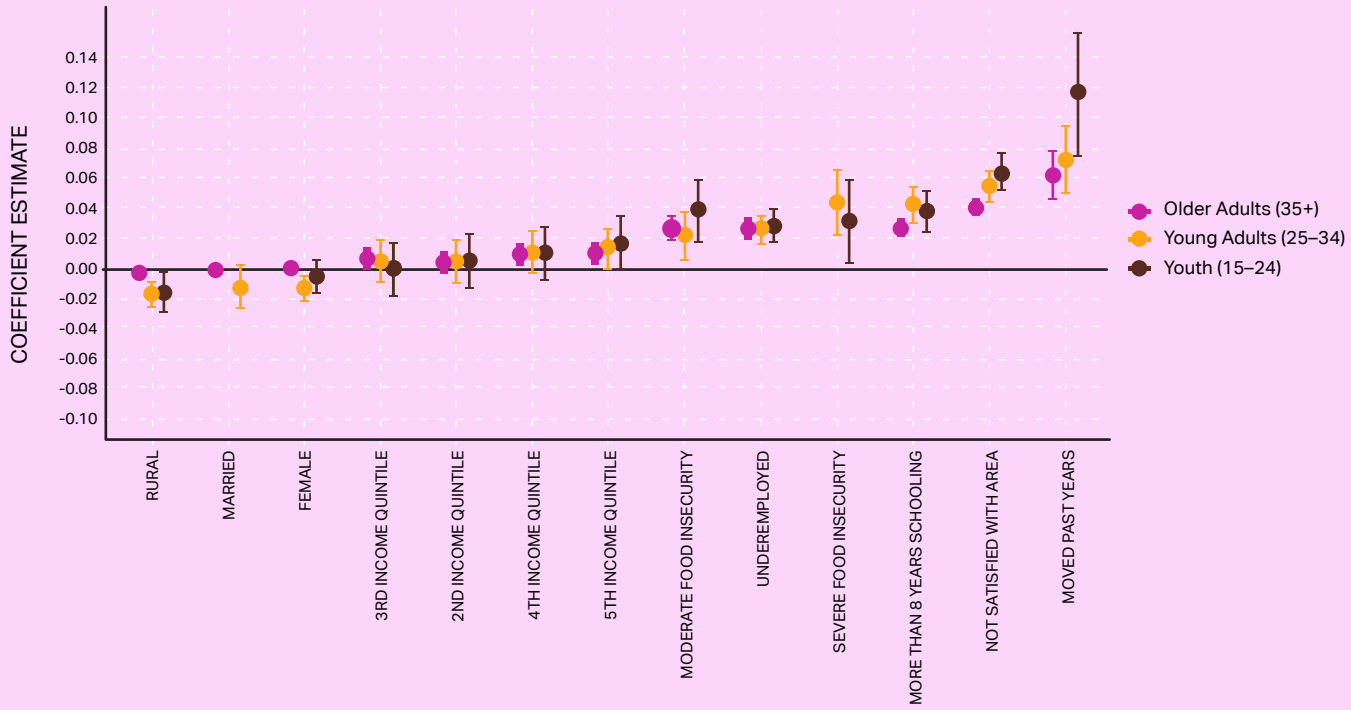
International migration, however, is more likely to be driven by economic reasons than internal migration. Unemployment and underemployment are strongly associated with intentions to migrate abroad, as shown in Figure 2.17, which illustrates key factors correlated with international migration plans among youth and adults. Youth planning to migrate internationally also tend to be better educated and are less likely to be female, married or living in rural areas (Figure 2.17).[78, 79] In Lebanon, youth from poorer backgrounds have a higher propensity to migrate, with unemployment and higher education levels increasing the likelihood.[80] In the European Union as well, youth with higher levels of education and those who are unemployed, particularly in countries with high youth-to-adult unemployment ratios, are more likely to have intentions to migrate.[79] Additionally, among youth who have migrated in the last five years, the likelihood of planning another move is higher, especially when experiencing dissatisfaction with living conditions in the local area.

Food insecurity also influences youth migration plans (Figure 2.17). Youth living in areas experiencing moderate food insecurity have a significantly higher probability of making plans to migrate abroad, while the coefficient on severe food insecurity is positive but not statistically significant. Youth facing severe food insecurity may be trapped in situations of vulnerability and may lack the requisite resources to migrate.

© FAO/JEAN BAPTISTE NKURUNZIZA
IN RWANDA, A YOUNG FARMER PROUDLY HOLDS A CHICKEN RAISED ON A MODEL POULTRY FARM, PART OF A GROWING MOVEMENT EMPOWERING YOUTH WITH SKILLS AND INCOME THROUGH SUSTAINABLE EGG PRODUCTION.

FIGURE 2.17

MODERATE-TO-SEVERE FOOD INSECURITY INCREASES YOUTH'S PLANS TO MIGRATE INTERNATIONALLY, WHILE SEVERE FOOD INSECURITY HAS NO SIGNIFICANT EFFECT



Notes: The dependent variable is a binary indicator equal to 1 if the respondent intends to migrate within the next 12 months. The estimates are taken from a linear probability model with country fixed effects. The variables moderate food insecurity and severe food insecurity are measured at the sub-regional level. The variable underemployment is an indicator equal to 1 if the respondent is either unemployed or underemployed.

Source: Authors' estimates based on individual-level survey data from the Gallup World Poll for 2015 for 131 countries.

YOUTH MIGRATION AND LABOUR SHORTAGES IN AGRIFOOD SYSTEMS

Youth migration can enhance livelihoods and incomes, while addressing labour shortages in agrifood systems. If well-managed, youth migration could fill critical labour gaps within agrifood value chains[3, 5] and revitalize rural areas in countries facing shrinking youth populations.

Global agrifood systems already rely heavily on both internal and international migrants. The COVID-19 pandemic demonstrated this dependence, as border closures and mobility restrictions led to severe labour shortages in many agricultural supply chains, especially those reliant on seasonal labour, with disruptions in production as well as the processing and distribution of food.[81] Temporary and seasonal migration – both within and across borders – is a longstanding characteristic of rural livelihoods, linked to seasonality of agriculture and household income diversification strategies (see

Box 2.4). For instance, major agricultural exporters such as Brazil,[82] Chile[83] and Mexico[84] depend on internal migrants, often from Indigenous communities, to fulfil seasonal labour needs on commercial farms. In South Asia, internal migrants form a substantial portion of the workforce in aquaculture and fish processing industries in countries like Bangladesh and India.[85, 86]

For countries in the early or intermediate stages of agrifood system transition but with large youth populations, such as protracted crisis, traditional and expanding agrifood systems, migration can enhance youth economic prospects. Evidence from Peru demonstrates that temporary labour migration, whether to work within or outside agrifood systems, significantly improves the welfare of young migrants.[87] Temporary labour migration is a function of agricultural activities with different crop cycles, ensuring continuous employment throughout the year. While agriculture remains a key employer for youth migrating to rural areas, migration enables access to non-agricultural opportunities, particularly for youth moving to urban areas. A study in Ethiopia, Malawi, the United Republic of Tanzania and Uganda found that youth migration to urban areas facilitates entry into non-agricultural labour markets, whereas rural-to-rural migration primarily supports livelihood diversification within the agrifood sector.[88] This highlights how migration – whether to rural or urban areas – can help young people supplement their incomes and reduce dependence on a single economic activity, making them more resilient to economic and environmental shocks.

Migration also affects the agricultural activities and income of those who stay in the household. Studies in Ethiopia and Malawi demonstrated that youth migration affects rural households' labour allocation and decisions, with the labour endowment of migrants replaced by other members of the households or leading to an increase in hired labour.[2] The impact on household income varies by context; in Malawi, youth migration has been linked to reduced total household income, whereas in Ethiopia, it has led to higher net income.

In industrial agrifood systems, international migration is increasingly vital for addressing agricultural labour shortages caused by declining rural populations. Australia, Canada and the United States of America have long relied on migrant workers to sustain their agrifood industries.[89,90] Similarly, Southern European nations like Greece, Italy and Spain are experiencing a growing dependence on migrant labour as local populations move away from agricultural work.[91] In Greece, for example, migrants now constitute a substantial share of the workforce in sheep, cattle and goat husbandry, reflecting broader trends in workforce restructuring.[92, 93]

Although youth constitute a large proportion of migrant agricultural workers, comprehensive statistics on their exact numbers remain scarce due to data aggregation practices. Migrant youth under 18 are often categorized alongside children in child labour studies, obscuring their specific contributions. Research indicates that youth under 18 can comprise 10 percent to 40 percent of migrant agricultural workers and 16 percent to 80 percent of child labour in specific agrifood value chains.[94] However, they often face precarious working conditions, including lower wages, longer working hours, reduced educational opportunities and higher occupational hazards compared to local youth.[95]

BOX 2.4 YOUTH TEMPORARY AND SEASONAL MIGRATION

Seasonal migration is a temporary form of migration in which individuals or entire families move during specific periods of the year, returning home afterwards. This movement can occur within national borders or across countries and is influenced primarily by agricultural calendars. In Senegal, mobile phone data tracking confirms spikes in seasonal rural-to-rural migration during agricultural harvest period.[i] Recent studies reveal trends of seasonal migration of young people during the rainy season, suggesting diverse income diversification strategies.[ii,iii]

Seasonal migration tends to be more accessible for landless, low-income and marginalized groups, as well as youth, due to its lower skills requirement and fewer upfront financial costs.[iv,v] A study from India showed that individuals aged 16–40, particularly from scheduled tribes and castes, are overrepresented in short-term migration flows.[vi] In Benin, many young people from the Barienou district migrate annually to Nigeria to work in agriculture. Nearly half of migrants interviewed are aged between 18–27 years old, with primary-educated and married youth more engaged in farming activities. [vii] In Brazil, young men aged 17–30 years from rural areas with low-education and farming backgrounds are the predominant seasonal migrant workers in sugarcane mills.[viii] Similarly, in the Valle de Uco in Argentina, seasonal migrant workers are mostly young men aged 20–30.[ix] Youth also represent a large share of seasonal international migrant workers supporting agriculture, particularly in fruit and vegetable production within industrial agrifood systems.[x]

Seasonal migration presents both opportunities and challenges for youth. Seasonal migration to nearby areas allows youth, especially male youth, to return home for the farming season.[xi] This supports continued ties with family land while awaiting inheritance (see Chapter 3). Some youth also use seasonal migration to accumulate capital for future agricultural investments. [xii] However, seasonal migration can negatively impact youth health, social life and working conditions.[vii] For example, young men migrating to work on farms in Nigeria are often recruited by intermediaries and employed under precarious working conditions.[xiii] Likewise, in Ethiopia, many young people migrate to urban centres to work as daily labourers, particularly after the harvest season. Additionally, while seasonal migration serves as a vital coping mechanism for food insecure households or a supplemental livelihood strategy, it can also reduce agricultural yields due to labour shortages in sending areas, increase school dropouts and deepen social isolation.[xiv] Seasonal migration, whether undertaken by individual youth alone or alongside other adult family members, as seen in cotton harvesting in Pakistan[xv], can restrict access to education and healthcare, increase risks of child labour and ultimately undermine long-term human capital development [xvi] (see also Chapter 3, Box 3.2).

Temporary and seasonal migration also have gender patterns. In Benin, girls as young as 13 years migrate temporarily, with some seeking independence and/or escaping forced marriages. Many end up working in processing, street food or as domestic servants.[xiii] In Mali, temporary migration is increasing, particularly among unmarried girls in search of autonomy. [xvii] Similarly, in Tunisia, seasonal migration patterns have shifted over time, with rural young women increasingly engaged in short-term migration to work in textile factories, domestic labour or agriculture.[xviii]

When managed effectively, temporary and seasonal migration can be a "triple-win" – it can support migrants' livelihoods, alleviate labour shortages at destination areas, and contribute to economic development in origin communities through remittances and skill transfers. Bilateral labour migration agreements, seasonal agricultural migration schemes and entry quotas are some of the policy tools used to regulate this form of migration (see Chapter 7).

Despite its importance, seasonal migration remains poorly understood due to limited and inconsistent data. Many seasonal migration movements go unrecorded due to the lack of standardized definitions and the short-term nature of these movements. Data are rarely disaggregated by age, making it difficult to analyse youth-specific trends. While Eurostat provides comparable seasonal migration data for European countries, similar initiatives are lacking in many other regions. Improved data collection is crucial for assessing the scale, trends and impacts of seasonal migration on migrants and agrifood systems.

© FAO/TANG CHHIN
SOTHY – IN KAMPONG CHHNANG, CAMBODIA, CHHUM KIMSEAK, AGED 17, RIDES HER MOTORBIKE TO SCHOOL.

03 ACCESS TO ASSETS AND RESOURCES

© FAO/RUSSELL WAI
IN PAPUA NEW GUINEA, GIBSON AND GENO GABI STAND IN THEIR PLANTATION OF SWEET POTATOES.

KEY MESSAGES

- Rural youth, and especially young rural women, lag behind their urban counterparts in terms of social capital and formal and informal participation in policy and decision-making processes related to agrifood systems.
- Rural youth face significant disadvantages in accessing quality education and training opportunities, impacting their opportunities to secure decent work in agrifood systems. 74 percent of rural young people complete lower secondary education, compared with 85 percent of urban young people. These challenges are more severe in protracted crisis and traditional agrifood systems, both for young rural women and migrants.
- Fewer than half of young people own any land due to barriers such as delayed inheritance and rising land prices. These constraints, and others like limited access to capital, hinder young people, especially young women, who want to farm from accessing land and establishing independent livelihoods.
- There are significant gaps in the data and evidence regarding youth access to natural resources – such as forestry and fisheries – and assets like livestock. Case studies suggest that young people encounter challenges in accessing more valuable and capital-intensive livestock, such as dairy-producing animals, with the limited available data suggesting that youth and youth-led households have smaller livestock holdings than adults or households led by adults.
- Young people's inadequate access to inputs, machinery and technology reduces the propensity of youth to work in agrifood systems. Data from selected countries suggest that adult-headed households, as compared to those led by youth, enjoy greater uptake of and access to improved seeds, fertilizers and chemicals in the majority of countries.
- Youth are more digitally connected than adults, but disparities persist. 81.2 percent of youth use the internet, compared to 68.2 percent of adults, reflective of higher digital engagement among young people. However, digital access varies widely by agrifood system: 98.2 percent of youth use the internet in industrial agrifood systems, but only 33.9 percent in traditional agrifood systems. The digital gap between youth and adults decreases as agrifood systems transition from traditional to industrial, but youth in protracted crisis settings remain the most digitally excluded.

INTRODUCTION

Greater access to assets and resources is essential for the empowerment of young people, their economic independence and productive participation in agrifood systems. However, young people frequently face significant challenges in accessing resources due to generational and gendered power dynamics, as well as structural, economic, social and spatial constraints.[1] Policy and legal barriers may also impede access. Delayed access to farmland and other resources (e.g. fisheries or forestry rights) through inheritance means that many young people establish themselves as independent farmers only once they are no longer officially classified as youth, although their involvement in farming might have started earlier. For many young women, farming becomes a vocation only after marriage, and even then, they may not have independent access to land.[2]

There is a growing interest in understanding what motivates young people to pursue agrifood system livelihoods. Studies have sought to ascertain the role of different assets and resources in facilitating young peoples' access to livelihoods in agrifood systems, including whether access to knowledge and technology can offset negative perceptions of work in agriculture or agrifood system value chains. The reality is much more nuanced and suggests that decisions may also be driven by the presence of concrete opportunities, such as access to land or wage employment.

The literature on generational renewal of farming identifies different ways in which young people can enter farming: as newcomers to the agricultural sector, by moving directly from working on family farms to becoming independent farmers, or by returning after a period of time away for education or for work. For example, in rice-growing villages in Central Java, West Java and South Sulawesi, Indonesia, landlessness is widespread and less than half of farmers own the land they cultivate. Young people from smallholder families may inherit a small piece of land one day, likely when they are no longer young, while youth from landless and land-poor families opt for temporary migration or wage labour and sharecropping.[3]

Evidence also shows that the likelihood of embracing innovation is related less to age than to being a newcomer to the agricultural sector, which undermines the idea of technology and innovation as a silver bullet to motivate young people to remain in agriculture.[4] Intergenerational relations and interdependencies, including inheritance and the transfer of knowledge, can facilitate or hamper the generational renewal of agricultural labour, a process further complicated by the intersection with education, marriage and family formation.[2]

Contextual factors including social norms and policy environment also shape access to assets and resources. Young people continually renegotiate their position in society as well as in relation to assets, especially land. Within agrarian structures, young people exercise constrained agency, meaning they navigate, adapt to and sometimes challenge the limitations imposed by generational and gendered hierarchies. This concept acknowledges that while young people – especially young women – face structural barriers to accessing resources and decision-making power, they also find ways to negotiate space for autonomy within these constraints.

Following the conceptual framework outlined in Chapter 1, this chapter examines young people's access to the assets and resources that underpin agrifood systems livelihoods, highlighting the unique barriers they encounter due to their social position. Five broad categories of assets and resources are considered: social capital; human capital with a focus on education, training and skills; natural capital (land, livestock, forest

and fisheries resources); financial capital; and physical capital, including digital access, inputs and different types of technology and tools relevant for agrifood systems. All of these categories contribute to boosting young people's agency, defined as the ability to determine one's goals and act upon them, as discussed in Chapter 1.[5]

SOCIAL CAPITAL

Social capital refers to the networks, relationships and trust that connect people and help them work together to achieve common goals. These connections can open doors to resources, information and opportunities that young people need to succeed. It plays an important role in shaping how young people engage with and influence agrifood systems.[6] Social capital is a key component of building strong, sustainable rural communities.[7, 8] When combined with other factors, like good infrastructure and supportive institutions, social capital can help rural economies thrive.[9] At its core, social capital is about relationships – how they are formed, how they change and how they help communities adapt over time.[10]

There are two main types of social capital. Bonding social capital refers to strong connections within close groups, like family and friends. These ties create a sense of loyalty and trust, which helps people support one another.[10] Bridging social capital, on the other hand, connects people from different backgrounds or communities. This kind of social capital helps young people access new ideas, opportunities and resources beyond their immediate circle.[11]

In rural areas, both bonding and bridging social capital play an important role. Young people often rely on close networks of family and friends for emotional and practical support. At the same time, having connections outside of these circles – through schools, community organizations or agricultural cooperatives – can help them find new opportunities. For instance, a study of young farmers in Northern Greece revealed that social capital was generally low, with limited participation in voluntary organizations and low trust in institutions. This hindered their ability to engage in collective activities and access new resources. However, those with stronger trust in personal relationships, such as family and friends, were more likely to participate in collective efforts, highlighting the role of personal networks in compensating for weak institutional support.[12]

The relationship between agency – as defined in Chapter 1 – and social capital is dynamic. While networks play a key role in building social capital,[13] agency is essential to effectively mobilize and utilize this social capital.[14] Conversely, when social capital is weak – due to limited trust or poor institutional support – it can constrain youth agency, limiting their ability to participate meaningfully in agrifood systems. Youth who lack formal access to resources, such as land or credit, often rely on social capital to bridge these gaps, drawing on family ties, peer networks and community connections.

> "YOUTH WHO LACK FORMAL ACCESS TO RESOURCES, SUCH AS LAND OR CREDIT, OFTEN RELY ON SOCIAL CAPITAL TO BRIDGE THESE GAPS.

Collective action is an important means for youth to act as agents of change. Many young people are active participants in cooperatives, social movements and associations, to varying degrees across countries and typologies of agrifood systems.[16] Such collective processes can amplify the voice of young people as agents of change for agrifood systems transformation. Social capital focused on building relationships with peers and friends is particularly beneficial for youth when participating in associations and organizations, because they can acquire expertise and demonstrate the capacity to organize.[17] Case studies in settings as diverse as Canada, the Russian Federation and Thailand demonstrate that joining collective organizations can facilitate youth's access to natural resources, finance and markets,[16] whereas evidence from Uganda suggests that being part of rural organizations has helped young people overcome psychological, physical and economic barriers to improved rural livelihoods.[17]

> **"YOUTH OFTEN EXERT LITTLE INFLUENCE ON DECISION-MAKING IN GLOBAL FORUMS, INCLUDING ON AGRIFOOD SYSTEMS AND CLIMATE, DUE TO A LACK OF PARTICIPATION AND VOICE.**

Nonetheless, youth participation in collective action faces challenges. Young people have lower levels of experience and resources and may therefore experience greater difficulties in establishing, leading and holding rural organizations to account.[18,19] As suggested by Trivelli and Morel, living in a remote rural setting constitutes the first level in a "hierarchy of exclusion" which can intersect with numerous other characteristics of youth. Gender is considered a major exclusion factor that interacts with rurality reducing young women's opportunities for participation due to mobility constraints, lower literacy rates, persistent gender inequalities in the rural household and discriminatory social norms.[20] Rural youth in employment or education seem to be more likely to be politically or socially engaged than economically inactive youth.[21] Additionally, youth civic engagement is increasingly tied to the digital sphere, with the internet and social media expanding and redefining traditional civic spaces and forms of engagement, though lack of access to technology and digital literacy represent constraints for unconnected youth in remote rural settings.

Finally, youth often exert little influence on decision-making in global forums, including on agrifood systems and climate, due to a lack of participation and voice.[22] Research on the lived experiences of young participants in multilateral forums notes persistent barriers to meaningful youth engagement, including inadequate support for quality participation (e.g. lack of clarity regarding objectives, pre-participation training, financial and logistical support) and insufficient inclusivity and representation. Young delegates report tokenism and feeling exploited, and most are unable to attribute any social or policy impact to their participation in global forums.[23] Strategies and policies on youth are often written based on the request of donors or other development partners, rather than grassroots demand (see also Box 3.1).[24]

HUMAN CAPITAL

EDUCATION, TRAINING AND SKILLS

Education – including informal ways of acquiring knowledge and competencies – and training are essential for empowering youth to participate in a meaningful manner in agrifood systems, while also enabling them to strengthen their livelihoods. Without adequate skills and education, young people are more likely to be confined to low-quality jobs, perpetuating intergenerational cycles of poverty and inequality. Education is highly correlated with better wages and employment opportunities, both within and outside agrifood systems. In agriculture, education is significantly correlated with the adoption of improved technologies such as improved varieties, chemical inputs and mechanization, though the association with improved natural resource management innovations is more ambiguous.[25] Agricultural extension is most effective in areas with higher education levels, highlighting the complementarities between education and agricultural extension.[25]

©FAO/FANJAN COMBRINK IN CHEREPONI, NORTH-EAST REGION, GHANA, CHRISTABEL KWASI AND FELLOW YOUNG WOMEN FARMERS INSPECT A FONIO PROCESSING MACHINE THAT EFFICIENTLY SEPARATES THE CHAFF FROM THE GRAIN, EXEMPLIFYING YOUTH-LED INNOVATION IN LOCAL AGRIFOOD SYSTEMS.

BOX 3.1 YOUTH REPRESENTATION IN FORMAL POLITICAL PROCESSES

Youth are under-represented in formal political processes. Only 2.8 percent of parliamentarians worldwide are under 30, about one-third of whom are young women. The share of youth in single and lower chambers is 3.2 percent globally but is lower in Africa and Asia at 2.3 percent and 1.8 percent, respectively.[i] A combination of legal barriers (e.g. age and financial requirements for public office) and social norms undermines the active participation of young people, especially young women, in formal governance structures. For instance, African youth (aged 18–35) are less likely than older citizens to engage in change-making activities such as voting in elections, attending a community meeting or joining others to raise an issue, and are more likely to view government institutions and leaders as corrupt.[ii]

Mechanisms such as youth parliaments or national and local youth councils risk reinforcing social inequality by failing to achieve diversity and inclusion among their young constituents, particularly of the hard-to-reach majority.[iii–v] Such participation mechanisms tend to involve more educated, organized youth activists – high-performing and outspoken urban "elites" who do not necessarily represent the interests or share the experiences of their less educated or less socially engaged peers.[vi] Institutional participatory spaces dedicated to rural youth exist in a few countries, supported by the Ministry of Agriculture or local authorities. For instance, Chile's Mesa Nacional de Jóvenes Rurales is a consultative mechanism composed of 16 youth representing different local chapters, which in turn comprise hundreds of rural young people. This platform plays a role as a sounding board for national policies and programmes targeting young smallholder farmers and youth in rural areas, such as the national Rural Youth Policy.

Analysis of rural youth civic engagement and its determinants is minimal, particularly for low- and middle-income countries. However, young people in rural areas seem to be less likely to participate in political activity than their urban peers,[vii–ix] both offline and online.[x] In rural communities, traditional decision-making spaces are often dominated by older generations, and even when youth are included, they frequently lack the confidence, skills and resources necessary to effectively influence decision-making outcomes. Generational power dynamics create further resistance, with elders or community leaders reluctant to share authority. Institutional and local political systems often fail to provide inclusive platforms for youth participation, while economic pressures such as unemployment force many young people to focus on immediate survival rather than civic engagement. In some regions, political instability, violence and restrictive environments also make participation unsafe, further deterring youth from engaging in community processes.[xi]

Notes: Refer to the Notes section for full citations.

FORMAL EDUCATION

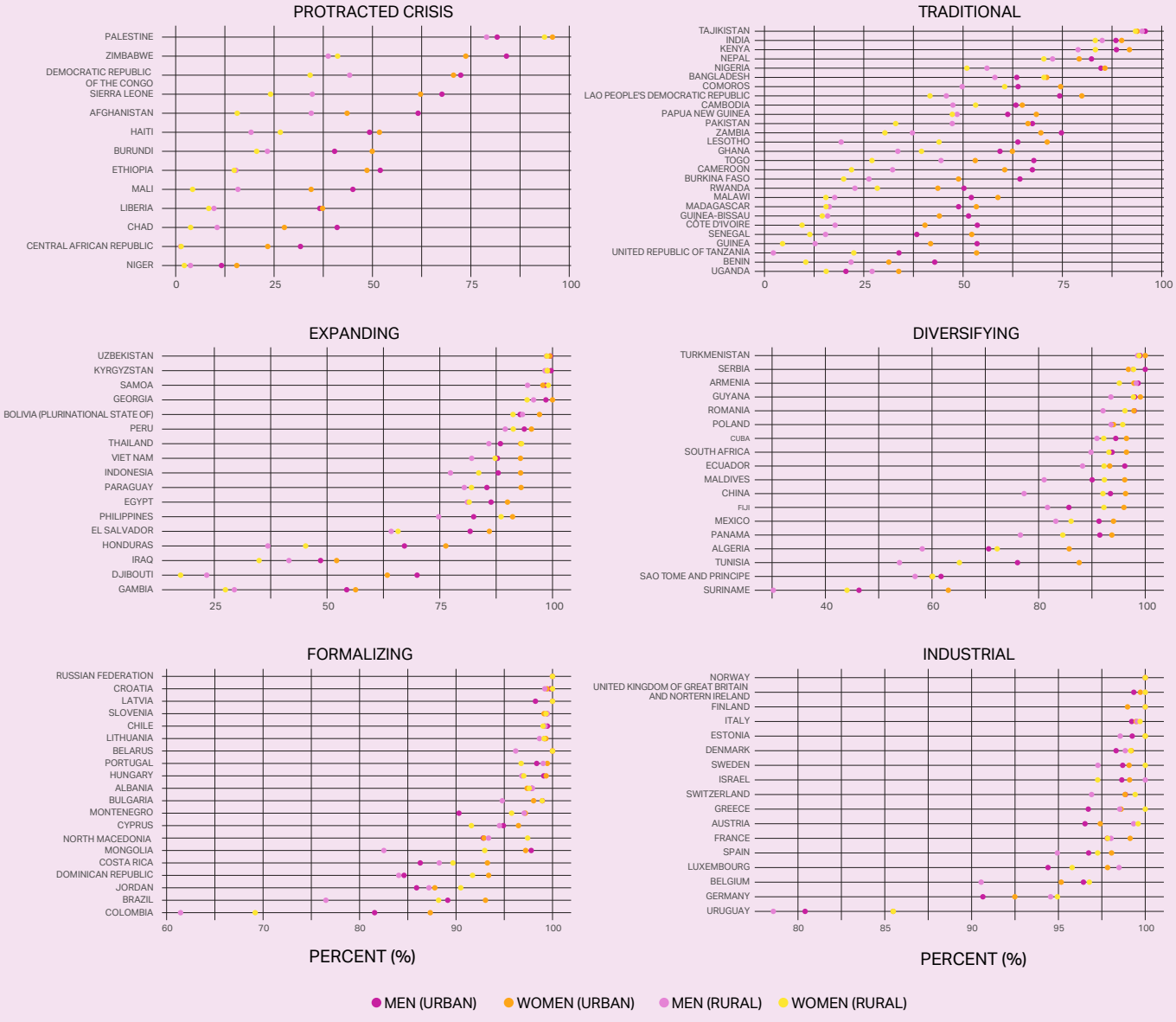
Despite significant improvements in education globally over the last several decades, rural youth continue to be disadvantaged in access to formal education compared with their urban peers. These disadvantages start with primary and lower secondary education, which are the foundational blocks for engaging in more advanced learning and better-paid work. Averaging across all types of agrifood systems, 74 percent of rural youth complete lower secondary education compared with 85 percent of their urban counterparts. Only 20.5 percent of rural girls in protracted crisis agrifood systems complete lower

> **ONLY 20.5 PERCENT OF RURAL GIRLS IN PROTRACTED CRISIS AGRIFOOD SYSTEMS COMPLETE LOWER SECONDARY EDUCATION.**

FIGURE 3.1

RURAL YOUTH ARE LESS LIKELY TO COMPLETE LOWER SECONDARY EDUCATION THAN URBAN YOUTH IN TRADITIONAL AND PROTRACTED CRISIS AGRIFOOD SYSTEMS

Completion rate (%) of lower secondary school for men and women in rural and urban areas, by agrifood system typology

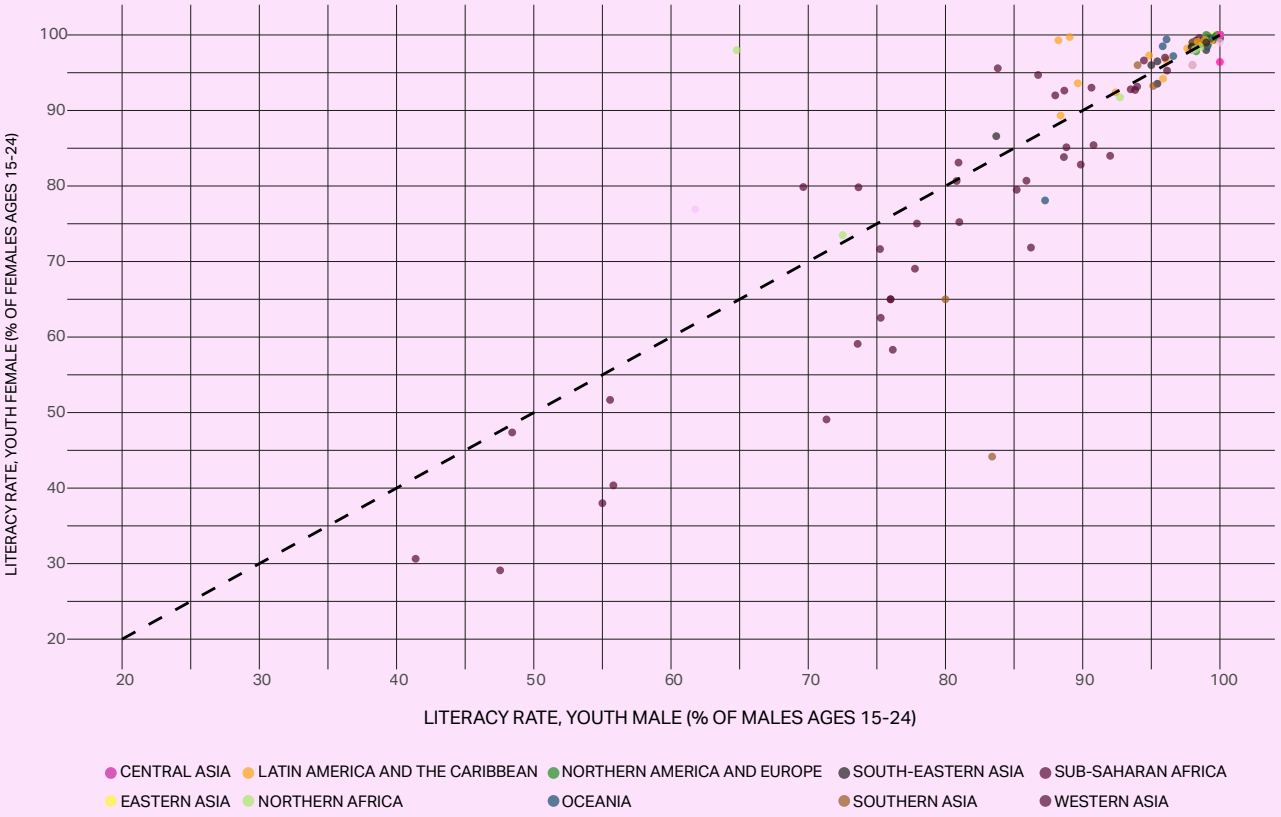


Source: Author's own elaboration based on data reported for SDG indicator 4.1.2 (Completion rate, lower secondary by sex and location) for 112 countries. The data – restricted to the latest available years – were downloaded from http://data.uis.unesco.org/index.aspx?queryid=3697 (28 November 2024). Three additional countries reported data on SDG 4.1.2, but an agrifood system classification is not available for these countries.

FIGURE 3.2

LOW YOUTH LITERACY RATES AND LARGE GENDER GAPS ARE OBSERVED IN MANY SUB-SAHARAN AFRICAN COUNTRIES

Literacy rates (%), young men vs young women, aged 15–24, by region



Source: UNESCO Institute for Statistics (UIS). UIS. Stat Bulk Data Download Service. Processed by World Bank Gender Data Portal, https://genderdata.worldbank.org/en/indicators, accessed 11 March 2025. The most recent year available can vary from 2015 (e.g. Nicaragua) to 2023 (e.g. Azerbaijan).

secondary education, compared with over 50 percent of their male and female peers in urban areas, and with 98 percent of girls in industrial agrifood systems. In Central African Republic, Chad, Liberia, Mali and the Niger, less than 10 percent of rural girls complete lower secondary education (Figure 3.1).

While marked rural–urban gaps in education are also evident in the case of traditional food systems, the gap in lower secondary education is smaller in expanding and diversifying agrifood systems, though some exceptions are visible, notably in Djibouti, the Gambia, Honduras and Iraq. In diversifying food systems, rural girls not only outpace boys in completing lower secondary education, they also reach almost the same level as urban girls. Rural–urban and gender gaps disappear in industrial agrifood systems. Young migrants also face challenges in accessing education (see Box 3.2).

LITERACY AND NUMERACY SKILLS OFTEN REMAIN ALARMINGLY LOW EVEN AMONG THOSE WHO ATTEND SCHOOL.

Between 2000 and 2022, the youth literacy rate increased from 87 percent to 93 percent, globally.[26] However, literacy and numeracy skills often remain alarmingly low even among those who attend school. Low literacy and numeracy have been identified as binding constraints on competitiveness across sub-Saharan Africa, leading to low-quality jobs and persistent poverty and inequality.[27] Among young men and women aged 15–24 in sub-Saharan Africa, 21.4 percent lack basic literacy skills,[26] with literacy skills also low in several countries in South Asia and North Africa (Figure 3.2).

©ALISA SUWANRUMPHA IN NORTHEASTERN THAILAND, NOOPHEEN MEKAWAN, MARKETING SECRETARY OF THE BAAN HUAI BONG FISH PROCESSING GROUP, SHARES HER STORY DURING AN INTERVIEW AT THEIR 'ONE' BRAND SHOP IN NONG BUA LAM PHU.

BOX 3.2 EDUCATION AND TRAINING OF YOUNG MIGRANTS, REFUGEES AND INTERNALLY DISPLACED PERSONS (IDPS)

Internal and international youth migrants face a number of specific barriers to education and training. Residence requirements, a need for documentation (or even perceived need) or the threat of deportation can keep children and youth from enrolling in school. Young seasonal migrants and/or the children of seasonal migrant workers may also face additional barriers including incompatibility of school calendars, admission timing, the expectation that they will work with their families, and the location of agricultural work in remote areas where schools may not be present or transportation unavailable.

Despite the challenges, migration to towns, cities or abroad can increase access to education compared to availability in the area of origin. Many youth migrate from rural to urban areas for secondary or tertiary education. In OECD countries, immigrant youth often achieve better educational outcomes compared to peers who remained in their country of origin.[i] However, their outcomes tend to lag behind those of native-born peers, with the gaps shrinking for the second generation[i] and largely disappearing by the third.[ii] The age of migration can also affect education outcomes: for example, among Mexican immigrants to the United States of America, those who arrived between the ages of 0 and 6 years have an educational advantage compared to their peers who do not migrate and those that migrate in the later years of childhood.[iii]

Children and youth left behind in migrant-sending households

Migration from rural areas can also positively or negatively impact the education of children and youth who are left behind. Receiving remittances from migrant household members can pay for school fees and related costs and help their households respond to shocks, allowing them to continue their education. A study using data from 122 developing countries from 1990 to 2015 found that remittances had a positive effect on school enrolment and completion rates, and that investment in girls' education increased more than in boys'.[iv] Conversely, children/youth may withdraw from school (or be pulled out) to compensate for the labour of relative(s) who have migrated. Such youth experience increased risks of mental health concerns including depression and anxiety, and worse nutritional outcomes compared with the children of non-migrants.[v, vi]

Young refugees and IDPs

Displacement poses serious challenges for the education of young people. An estimated 40 percent of the forcibly displaced population are under 18, totalling 47 million children.[vii] Nearly half of school-aged refugees are out of school, with persistent gender disparities. [vi] Some 66 percent of refugees are in protracted situations; low- and middle-income countries host 71 percent of the refugee population, globally, with least developed countries (LDCs) accounting for 22 percent.[vii] Displacement can cause large influxes of children and youth in a short period of time, necessitating urgent action and the allocation of considerable resources. In remote and rural areas, key challenges include the need for parallel systems to educate displaced students, a lack of recognition of previous degrees or courses, teacher shortages, slow recruitment processes, language barriers, trauma, insufficient psychosocial support, teachers without adequate training to deal with displaced populations, social tensions, and prolonged detention or transit zones without access to education while applications are processed.[viii]

Notes: Refer to the Notes section for full citations.

At the global level, the gender gap in literacy stood at 2 percentage points in favour of men, but is significantly larger in many countries in sub-Saharan Africa and South Asia.[28] For example, in Pakistan 65 percent of young women were literate in 2019 compared with 80 percent of young men, while in Afghanistan only 44 percent of female youth were literate in 2022 compared with 83 percent of male youth (Figure 3.2). In the Central African Republic and Chad, less than one in three young women are literate.

Numeracy skills often lag even further behind literacy skills. In a sample of 13 sub-Saharan African countries, the proportion of children aged 7–14 with foundational numeracy skills[b] ranges from less than 1 percent to approximately 36 percent for both boys and girls.[28] Limited access to resources, digital technology and skilled teachers exacerbates the situation in rural areas.[29] School curricula and textbooks may downgrade farming as an occupation, marginalizing agriculture in young people's aspirations, contributing to the deskilling of youth and their unpreparedness for life in transforming rural areas.[30–32] For instance, almost no mention of pastoralism is made in Kenya's educational curriculum.[33]

VOCATIONAL EDUCATION AND TRAINING

In many low- and middle-income countries, even students who attend school often leave without the skills required for better remunerated on- and off-farm jobs, creating a disconnect between education and local labour market demand. Technical and vocational education and training (TVET) – with its focus on practical, work-related skills, such as how to process and package food, or training on the cultivation of new or specific varieties of crops – is often promoted to help address skills gaps and increase the employment opportunities of both youth and adults. However, participation in TVET remains limited. Globally, only 13.6 percent of youth (aged 15–24) have completed vocational education, a proportion that decreases to 9 percent in Africa.[34] Youth from marginalized groups may face significant barriers to accessing vocational training.

© FAO/TANG CHHIN SOTHY – IN KAMPONG CHHNANG, CAMBODIA, TEM SREM AND HER DAUGHTER CHHUM KIMSEAK SMOKE FISH AT THEIR HOME.

[b] If the child succeeds in 1) number reading, 2) number discrimination, 3) addition and 4) pattern recognition, s/he is considered to have foundational numeracy skills. https://data.unicef.org/resources/dataset/learning-and-skills

A systematic review based on 37 studies from India found that despite government efforts, participation of youth from tribal communities in vocational training remained low.[35]

In both TVET and general education, the socioemotional and problem-solving skills needed for successful youth employment, along with necessary advanced cognitive and technical skills, are not being taught.[36–38] Employers highlight the absence of socioemotional skills as the primary reason for their reluctance to hire recent graduates.[36] Teaching non-cognitive (soft) skills is likely to be a low-cost investment with high returns, as discussed in Chapter 7.[39, 40]

However, access to education and training is not sufficient to ensure a match between the skills and training youth receive and those needed for employment. As Fox and Ghandi note, "Africa has both an over-skilling and under-skilling problem",[39] which can result in large shares of youth in low- and middle-income countries reporting unemployment or lack of use of their skills. In a sample of eight sub-Saharan African countries, 47 percent of employed youth were overqualified for their jobs, while 28 percent were underqualified,[41] pointing to the existence of substantial labour market frictions (see also Chapter 4).

Learning goes beyond formal schooling.[42] This is particularly important for rural youth who tend to be disadvantaged in access to quality formal education.[30, 32] In rural areas, especially in agriculture, knowledge is often passed down from older to younger generations, starting early as children help on the farm. However, in rapidly evolving contexts shaped by factors such as economic development and improved access to education, young people spend less time at home with family and elders, engaging in traditional agricultural activities. On the other hand, young farmers increasingly aspire to adopt modern, technology-driven agricultural practices.[43,44] Agricultural extension systems can play a vital role in filling this gap, providing access to information and cutting-edge technologies.

AGRICULTURAL EXTENSION AND ADVISORY SERVICES

Agricultural extension and advisory services are integral to equipping those working in agrifood systems with the knowledge and skills necessary for achieving sustainable production. They can take many forms including access to information, financial services, digital platform and marketing support, designed to meet a wide array of objectives beyond productivity gains.[45]

Recent studies highlight a modest level of youth participation in agricultural extension and advisory services. In Pakistan, researchers found that youth participation in extension programmes plays a critical role in disseminating essential knowledge, promoting sustainable agricultural practices and adopting climate-smart techniques, equipping young farmers with valuable skills and bridging traditional agricultural practices with modern climate adaptation strategies.[46] Participation in Farmer Field Schools (FFSs) and other institutional initiatives was also minimal, with disparities observed between male and female youth in case studies from Ethiopia and Nigeria.[47,48] Increasing attention has been paid to targeting youth as both recipients and providers of extension and advisory services,[49] though understanding of how to effectively engage youth in extension and advisory services remains limited.

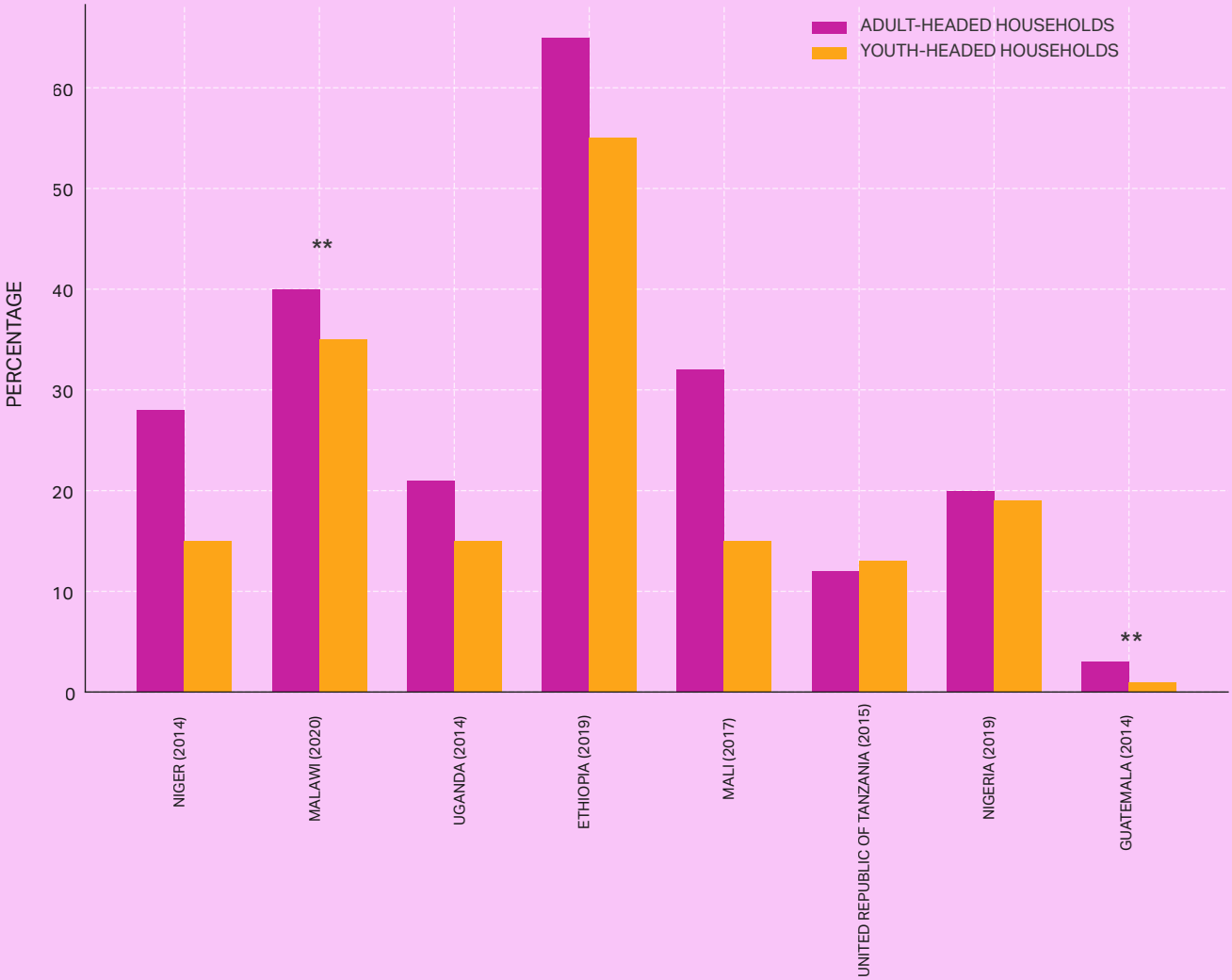
Young men and women are often disadvantaged because extension systems tend to target the household head, who are likely to be mostly older men. Information on access to extension continues to be collected mainly at the household level, resulting in significant gaps in information at the individual level. Even when youth are the head of the household (see Box 3.3), they tend to be disadvantaged in access to extension, as evidenced in Figure 3.3, which shows data from seven sub-Saharan African countries and Guatemala.

RECENT STUDIES HIGHLIGHT A MODEST LEVEL OF YOUTH PARTICIPATION IN AGRICULTURAL EXTENSION AND ADVISORY SERVICES.

FIGURE 3.3

YOUTH HOUSEHOLD HEADS ARE LESS LIKELY TO HAVE ACCESS TO EXTENSION SERVICES

Share of farming households with access to extension services, comparing households led by young farmers with households led by older farmers, selected countries



Note: The share of youth-led households (out of all households) across the sample of countries is less than 5 percent, but it varies from 0.18 percent in Georgia to 7.7 percent in Malawi. The number after each country name refers to the year of the survey. Countries ordered by increasing level of per capita GDP. Farming households only. Youth = 15–24. Significance: *** p < 0.01, ** p < 0.05, * p < 0.10.

Source: Authors' estimates using the Gallup World Poll dataset for 2015. The estimates were produced using adjusted survey weights following Heckert et al.[56]

BOX 3.3 YOUTH-HEADED HOUSEHOLDS

The majority of young people aged 15–24 live in households with their parents and depend on their families for their survival and livelihoods. Data from the ILO's School-to-Work Transitions Surveys, conducted in 34 developing countries across four regions between 2012 and 2016, show that while most young people are still dependent on their parents at age 15, with 80 percent identifying themselves as sons or daughters, this proportion falls to 45 percent by age 24. During this transitional period, the majority of young people are single, living at home and sometimes still studying and/or working in the family business. By age 25, those who are heads of household or spouses outnumber those still considered dependants, although in some countries they may continue to live in the same extended household. By age 29, most young people are assuming adult responsibilities, such as managing their civil status, livelihoods, and family and household duties, including parenthood.[i]

The proportion of young people with children also increases with age. At age 15, very few report having children, but by age 20, this proportion rises to nearly 20 percent, and by age 25, about 35 percent of young men have children. The trend is more pronounced among women: over 60 percent of young women have children by age 25. This difference is due to the fact that women tend to marry and have children earlier than men. The transition to parenthood, especially if unplanned, has a significant impact on labour market outcomes. Those with children tend to leave school earlier and have higher rates of not in education, employment or training (NEET), with the impact being more pronounced for young mothers.[i]

Households headed by younger people, including children and orphans, are particularly common in contexts affected by conflict, epidemics, family disruption and poverty. In these situations, older siblings often assume caregiving roles in the absence of adults. Leading such households poses unique challenges that affect both the psychosocial well-being and socioeconomic conditions of young people. Youth heads experience high levels of depression and social isolation, which hinder their ability to care for dependants,[ii] affecting in turn the development of younger family members.[iii] In South Africa, older orphans often drop out of school early to support their families.[iv] The lack of adult guidance also impacts the educational attainment of youth heads who struggle to balance caregiving and schooling.[v] Because young heads lack the resources and skills to effectively manage needs, these households are more likely to face food insecurity and economic vulnerability.[vi] Factors such as land rights and inheritance, which are shaped by legal and social norms that do not favour youth, also affect the sustainability of youth-headed households, limiting their ability to generate income and secure a stable livelihood.[vii]

Gender dynamics in youth-headed households affect decision-making and the distribution of resources. Young heads, especially women, often face challenges related to autonomy in decision-making, including on health-related behaviour due to the weight of gender norms and practices and access to education, which are critical to improving their economic situation.[viii] Evidence shows that higher educational attainment improves the welfare of these households, leading to better health and economic stability.[ix,x]

Notes: Refer to the Notes section for full citations.

Important complementarities exist between extension services and education. Extension has been found to be most effective in areas with high levels of education, and less effective where education is low.[25] Innovative approaches within extension systems may be needed to overcome the constraints to extension imposed by poor education. Non-traditional approaches – peer-to-peer learning, participatory approaches and practice-based learning on the job or in the field – can supplement the gaps left by the formal education system and extension and advisory services (EAS).

Different models are emerging to include youth in agripreneurship schemes. For example, in Rwanda and Uganda, multiple models have been identified that can support youth engagement in training and entrepreneurship in agrifood systems.[49] Models which focused on fee-based service provision by youth as village agents proved more successful. Such models empower youth to operate as entrepreneurial service providers, incentivizing their involvement through financial gains, while meeting the needs of their communities and simultaneously creating localized, sustainable systems for delivering agricultural services.

> **IN 2023, WOMEN ACCOUNTED FOR TWO-THIRDS OF YOUTH CLASSIFIED AS NEET.**

> **OVER 20 PERCENT OF YOUNG PEOPLE GLOBALLY WERE NOT IN EDUCATION, EMPLOYMENT OR TRAINING (NEET) IN 2023.**

YOUTH NOT IN EMPLOYMENT, EDUCATION OR TRAINING (NEET)

Over 20 percent of young people globally were not in education, employment or training (NEET) in 2023.[50] Young people categorized as NEET are a highly diverse group facing different constraints and needs in terms of support for effective integration into the labour market. This diversity extends to their vulnerability to social and economic exclusion.

A larger share of young women than young men are NEET. In 2023, women accounted for two-thirds of youth classified as NEET.[50] In South Asia, the NEET rate among young women was 42.4 percent, nearly four times higher than that of young men.[50] Figure 3.4 shows the share of young men and women categorized as NEET across agrifood system transition types. A large share of youth in countries in protracted crisis are defined as NEET, though there is substantial variation across countries and by gender. Young women are more likely to be NEET across the whole sample, with gender gaps disappearing only in industrial systems. Rural young women are significantly more likely to be NEET than their urban counterparts in agrifood systems that are expanding, diversifying and formalizing. However, they are less likely to be NEET in contexts of protracted crises and have similar NEET rates to urban young women in traditional agrifood systems. Young migrant women, particularly those who have migrated to rural areas, are the most likely to fall into the NEET category. For young women, being classified as NEET during youth often results in cumulative disadvantages throughout their lives, reducing their likelihood of employment in later years.

FIGURE 3.4

YOUNG PEOPLE ARE OFTEN OUTSIDE EMPLOYMENT, EDUCATION OR TRAINING, PARTICULARLY YOUNG WOMEN

Share of youth not in education, employment or training (NEET) by sex across agrifood systems typologies

Source: International Labour Organization. 2020. "Labour Force Statistics database (LFS)". ILOSTAT. https://ilostat.ilo.org/data. Share of youth not in employment, education or training (NEET) by sex and rural/urban areas(%), ILO modelled estimates, November 2020. Unweighted means.

Greater unpaid and domestic care responsibilities keep young women in NEET, particularly in low- and middle-income countries. Data from 126 countries showed most young women of NEET status were not seeking employment for personal reasons, such as illness, disability, pregnancy, caring for young children or family restrictions.[50] In many countries, a large share of young women (20–24 years old) are married before they turn 18, which often results in the end of education and the start of childbearing as well as increased household responsibilities. Early marriage is most common in countries with lower levels of GDP per capita, particularly in sub-Saharan Africa followed by South Asia. Recent research, however, highlights a high prevalence in Latin America and the Caribbean, where one in four girls are married before they are 18 years old.[51,52] Poverty, restrictive gender norms, traditional beliefs and gender-based violence are key risk factors which increase the probability of early marriage.[51]

Climate change and other shocks are expected to exacerbate these challenges (see also Chapter 6). In Uganda, a negative rainfall shock led to a decline in female enrolment rates, particularly among older girls, and a decrease in female test scores, while having no significant impact on the outcomes for boys or younger girls.[53] In Bangladesh, years with moderate to severe heat waves (or the following year) see a higher proportion of girls married early or forced to marry.[54] The COVID-19 pandemic had similar impacts: in Honduras and Uganda, increased domestic and care burdens during the pandemic disproportionately decreased girls' attendance of school compared to boys,[55] conforming to broader global trends where the number of girls who dropped out of school for reasons other than closures were 1.2 times higher than that of boys.[56]

NATURAL CAPITAL: LAND, LIVESTOCK AND FISHERIES

LAND

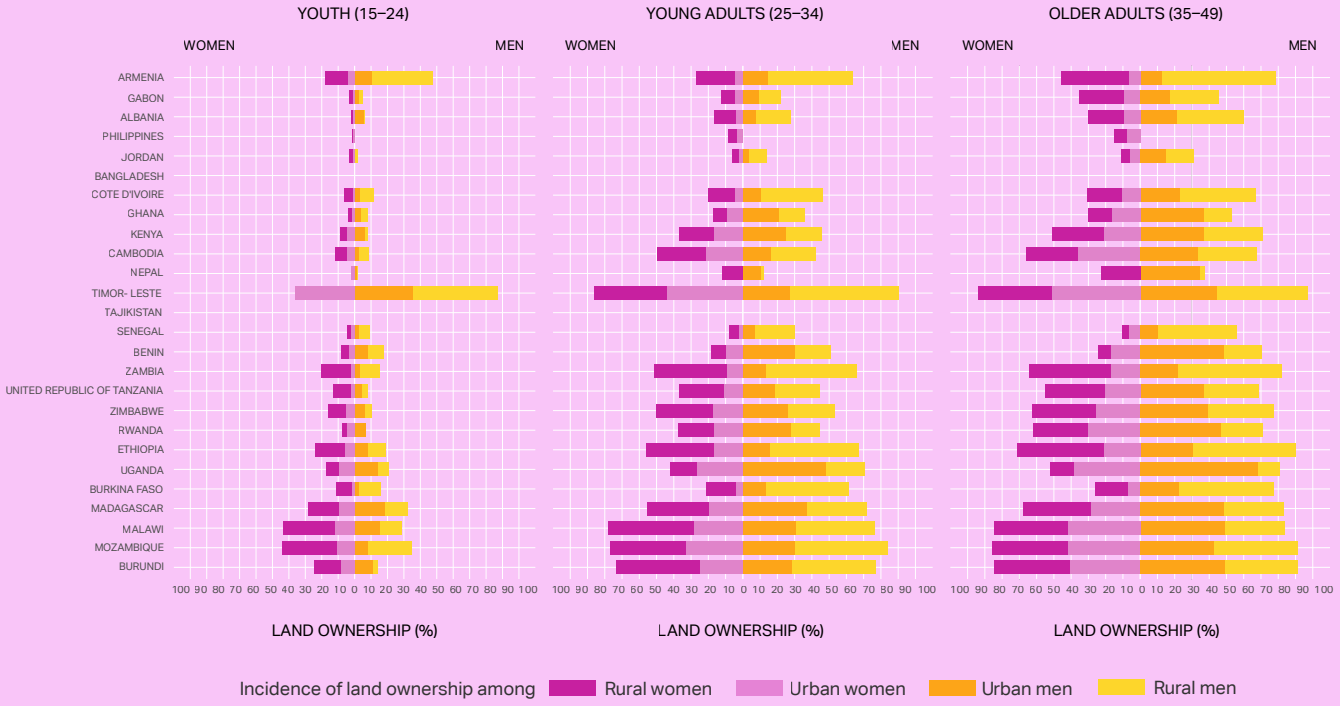
Farming requires land. An extensive body of literature points to land access and secure rights over land as key factors influencing young people's engagement in agriculture in low- and middle-income countries.[29,57,58] For example, a lack of access to land, rather than a lack of interest in agriculture, drives Indonesian youth's aspirations away from agricultural livelihoods.[59] In Ethiopia, larger than expected land inheritance increased employment in agriculture, reduced employment in the non-agricultural sector and reduced the likelihood of permanent migration among Ethiopian rural youth.[60] Similar patterns were documented in Nigeria,[61] suggesting that improving access to land can open-up opportunities for youth in agriculture.

> **"FEW YOUNG PEOPLE OWN ANY AGRICULTURAL OR NON-AGRICULTURAL LAND.**

FIGURE 3.5

FEW YOUNG PEOPLE OWN ANY LAND

Land ownership by sex, age and location



Notes: The figures show self-reported ownership of any agricultural or non-agricultural land, excluding housing. Left-hand bars show land ownership among women; right-hand bars show land ownership among men, across three age groups—Youth (15–24), Young Adults (25–34), and Adults (35–49)—in rural and urban areas. In Nepal, for Young Adult Women and Older Adult Women please note that the share of rural and urban landowners is almost identical, thus the darker color represents both groups. The male individual module was not implemented in Bangladesh, the Philippines and Tajikistan. The countries are arranged by GDP per capita (PPP), ranked from lowest (bottom) to highest (top).

Source: Authors' calculations based on data from 26 DHS Surveys, www.dhsprogram.com/data

Across a sample of 26 countries, few young people own any agricultural or non-agricultural land (Figure 3.5). Timor-Leste is notable for high land ownership among rural youth – over 75 percent of rural young women and 85 percent of young rural men own some land. On the other end of the spectrum are Jordan and Nepal where less than 5 percent of both young men and women, rural and urban, own any land. Land ownership increases with age in all countries. This rise continues until aging adults begin transferring land through sales or bequests to the next generation, at which point it declines.[62, 63] Given age-related data limitations (women over 49 are not surveyed in Demographic and Health Surveys [DHS] surveys), this trend is not visible in Figure 3.5; however, in higher-income countries, the land area owned by older people increased over time, while transfers of land happened later in life.[63,64] This could be linked to a lack of successor, difficulty selling the farmland or other socioeconomic constraints that hinder generational renewal in agriculture (see Spotlight 1.1). In many countries, youth aged 15 to 17 may not be legally permitted to own land independently until they reach the legal age of adulthood. In some

cases, land may be held in trust until they come of age, while in others, minors may be allowed to own land under specific conditions, such as inheritance. Land ownership laws vary by country, and youth land ownership statistics should be interpreted with these legal considerations in mind.

Land ownership is more common among rural young people than their urban peers. A rural–urban land gap is evident across all age cohorts, reflecting the greater reliance of rural populations on land for their livelihoods. The low incidence of land ownership among rural youth is not surprising; many rural young people work on family farms (see Chapter 4), and they may not be given independent plots of land until later in life or upon marriage. Marked gender inequalities in land ownership exist for all ages but are more pronounced for older age cohorts.

Young people who want to farm face constraints to accessing land. In many contexts, particularly in sub-Saharan Africa and parts of Asia, a smaller share of young people are inheriting land due to increasing land scarcity, and those who inherit land, tend to receive it later in life as life expectancy increases.[65] In Ethiopia, young people are less likely than their parents' generation to be able to access land independently, resulting in different patterns of land acquisition and livelihoods.[66] A large number of rural youth grow up without any prospect of inheriting land because their parents operate small plots of land, or are landless or tenant farmers.[67–69] At the same time, the nature of structural transformation in many low-income economies offers young people limited off-farm opportunities.

Elders and parents may delay transferring land to young people to retain control and secure their own livelihoods in old age. Land is often the only safety net available in rural areas,[66] and aging farmers may delay such transfers until they can no longer work the land.[70] This hinders youth from building independent livelihoods, fuelling frustration and conflicts.[71] Delayed access to farmland through inheritance means that many young people establish themselves as independent farmers when they are no longer young, although their engagement in farming might have started much earlier.[2] The tension between young people's desire to receive land and the desire of older generations to maintain control over their land represents a serious challenge in many rural contexts, including those with customary land systems.[72] A case study from Acholi subregion in Uganda, where land is held under customary tenure and is considered to be scarce, revealed that the elders were concerned about transferring land to youth because they feared it would be sold, jeopardizing their old-age livelihood.[73] Such fears are exacerbated in the context of land scarcity linked to population growth, urbanization and land degradation, and competing land uses between the expansion of monocrop plantations, tourism development and conservation efforts, as observed in some countries in Southeast Asia.[58, 74, 75] In many countries, the promised benefits of plantations have failed to materialize, especially for young people, both in terms of the number and quality of jobs created.[76]

Where land sales are formally forbidden, such as in Ethiopia[77] and in customary tenure systems, inheritance is one of the few viable pathways for young people to access land.[72] Data from 30 countries on ownership of the main property, which is often a home, show that among both male and female land-owning youth in rural and urban areas, inheritance is by far the main mode of land acquisition (Figure 3.6). The role of inheritance reduces with age as other modes of land acquisition like land purchases increase. Land purchases are less common in rural areas compared to urban areas.

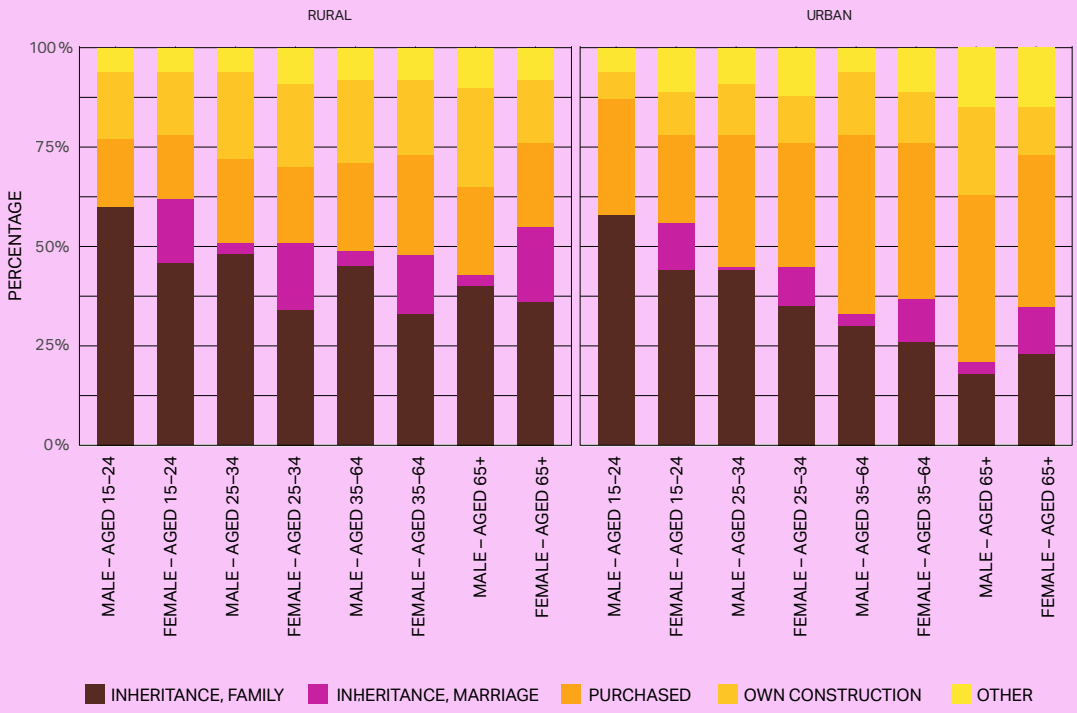
> **"INTERGENERATIONAL TENSIONS OVER LAND ACCESS POSE A SIGNIFICANT CHALLENGE IN MANY RURAL AREAS.**

© ALEX WEBB/MAGNUM PHOTOS FOR FAO
IN NUEVO SONORA, MEXICO, YOUNG WOMEN PREPARE FOOD FOR A VILLAGE MEAL.

FIGURE 3.6

YOUNG PEOPLE, BOTH MEN AND WOMEN, ACQUIRE LAND MAINLY THROUGH INHERITANCE

Mode of land acquisition among landowners, by age group and gender



Note: The statistics do not differentiate between residential, agricultural and other land.

Source: Authors' estimates based on Prindex (2020) data for 30 countries with information on types of land acquisition.

Patriarchal customs and laws often favour men in inheritance, amplifying the barriers to land access for young women. Young men and women tend to have different expectations of inheritance. For example, while 40 percent of Burundian young men expect to inherit land, only 17 percent of young women hold this expectation.[67] Female youth are also less likely than male youth to inherit property from their family but may become landowners through marriage (Figure 3.6). Their access, however, is mediated by gendered power dynamics and patriarchal norms, and their land rights to the property can be lost upon divorce or spousal death.[78]

Even when equality in inheritance is safeguarded under the law, local norms and traditions may discourage women from claiming their rights. For example, evidence from India suggests that while women's and girls' inheritance rights are protected by law and registered on the land record, male siblings took over the inherited land.[79] Women tend to relinquish their share of inherited land in favour of their brothers to help them build their independent livelihoods, but also to secure their support or because of social pressure.[79, 80] In Kenya, married daughters are refused inheritance to prevent the transfer of land outside their natal holdings and into the husband's.[81]

For young people, rising land prices, limited savings and restricted access to credit are key obstacles to purchasing land. The growth of plantations, extractive industries and residential developments tend to fuel increasing land prices, impeding young people's access to land.[29, 72, 76] Community elders and parents may also hold onto land to profit from increased land values brought about by commercial agriculture interests and urbanization.[72] Using data from 36 countries at different levels of structural and rural transformation stages, Heckert *et al*. (2020)[82] found that rural transformation – proxied by agriculture value added per worker – is associated with reduced likelihood of landownership among both young men and young women, which may be due to increasing land values, increased commercialization of agricultural production, land consolidation and/or migration. The study also showed that higher levels of structural transformation – proxied by the share of GDP from non-agriculture – are associated with a higher likelihood of landownership for young men, but not young women.[82]

Renting is becoming an important channel through which young people can gain access to land. A larger share of younger household heads rent land than older heads.[65] Based on evidence from Canada, China, India and Indonesia, Srinivasan and White find that most young people are landless and start farming on rented land, even if their parents own land. The only exceptions are youth from land-rich families and those orphaned at a young age.[2] A study in Northern Ethiopia similarly found that land rental markets can enhance access to land for landless and land-poor youth.[77] However, the study also revealed that male youth, particularly those who owned oxen, were more likely to benefit from these opportunities. Most rental contracts were under a share-cropping arrangements rather than fixed-cash payment, suggesting the existence of financial barriers or risks considerations that influence the willingness and ability of youth to engage in rental markets. In Indonesia too, youth perceived renting land for fixed-cash payment as risky and lamented the increasing scarcity of sharecropping opportunities.[83]

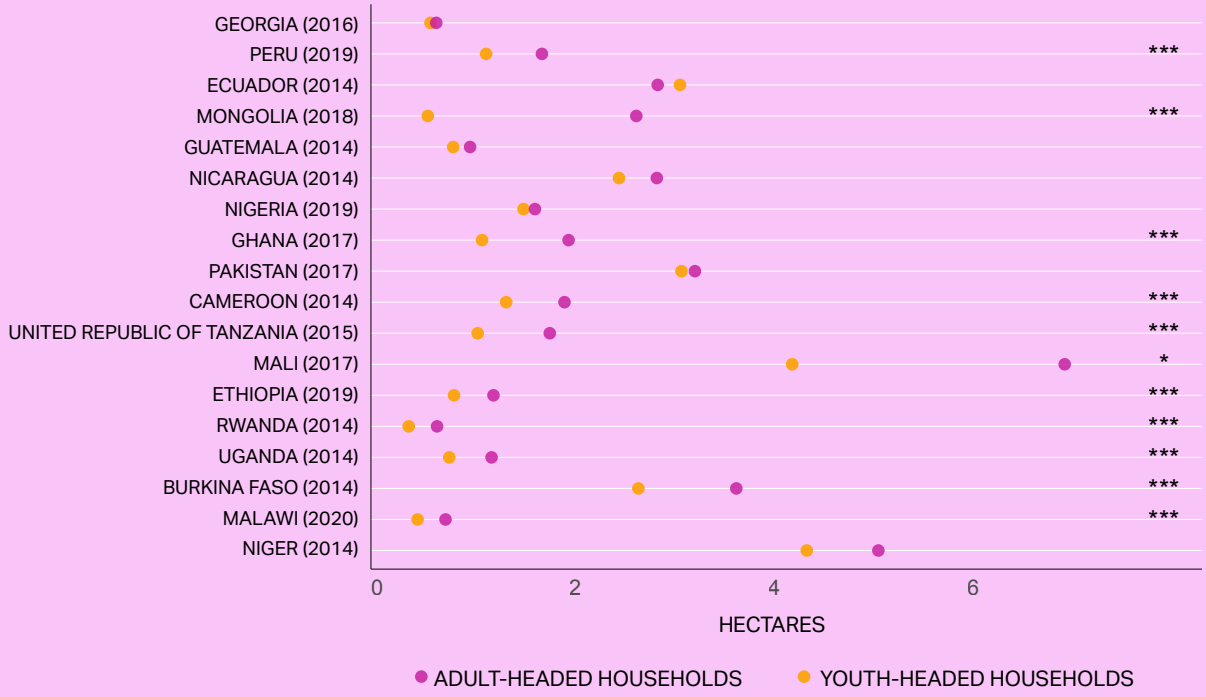
Moreover, when young people can access land, they are often restricted to small plots, which limit their ability to generate a decent income. Households headed by a young adult generally operate smaller farms (see Figure 3.7) compared to older headed households, suggesting that farm expansion and land accumulation often occur progressively over the course of an individual's life. In a case study from a customary tenure regime in Ghana, over three-quarters of youth respondents expressed dissatisfaction with their land sizes, citing concerns that the plots were too small to sustain viable livelihoods.[72] Similar findings are reported in southern Ethiopia.[57] In Ghana, young women were only able to access significantly smaller plots.[72]

©FAO/ JAVID GURBANOV IN TOVUZ, AZERBAIJAN, A BENEFICIARY OF THE WOMEN EMPOWERMENT PROJECT AND TWO YOUNG MEN STAND IN A WHEAT FIELD, CLOSELY EXAMINING THE WHEAT HEADS.

FIGURE 3.7

YOUNG FARMERS GENERALLY OPERATE SMALLER FARMS

Average farm size of households led by youth farmers compared to older farmers



Note: Countries are ordered by GDP per capita. The share of youth-led households (out of all households) across the sample of countries is less than 5 percent but varies from 0.18 percent in Georgia to 7.7 percent in Malawi. *** p<0.01, **p <0.05, * p<0.10

Source: Estimates based on data from FAO. 2024. RuLIS – Rural Livelihoods Information System. In: FAO. Rome. [Cited 5 December 2024]. www.fao.org/in-action/rural-livelihoods-dataset-rulis/en

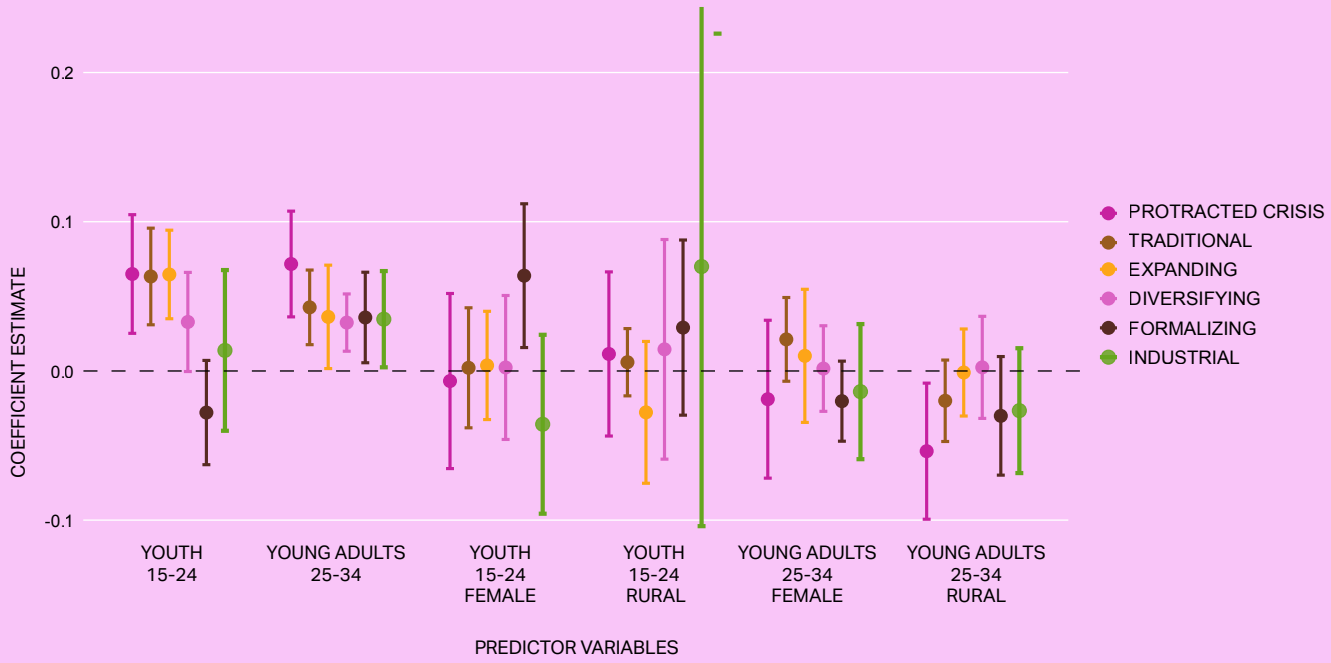
Additionally, young people are more likely to experience tenure insecurity. Youth landowners (aged 15–24) and young adult owners (aged 25–34) experience significantly greater tenure insecurity compared to landowners over 35 years old, with variation across agrifood systems (Figure 3.8). Specifically, youth and young adults encounter significantly higher tenure insecurity than adults aged over 35 in protracted crisis, traditional and expanding agrifood systems, while youth who own land do not experience notably higher tenure insecurity than adults in formalizing and industrial agrifood systems. The lower tenure insecurity among youth (aged 15–24) compared with young adults (aged 25–34) in industrial and formalizing agrifood systems may reflect the longer time youth spend in schooling and their continued financial dependence on their parents in these systems. As they transition into employment, they begin to experience tenure insecurity, closely linked to financial and job instability in early career stages. Youth in rural areas are not any more tenure insecure than their urban counterparts. Female youth also do not report higher perceptions of tenure insecurity than male youth except in formalizing agrifoods systems.

Youth voices are largely excluded from discussions on land matters, at all levels, including land reforms and large-scale land sales. Qualitative research from several countries and large-scale land acquisition cases reveals that young people often express frustration that land negotiations are dominated by local chiefs and government officials, with some input

FIGURE 3.8

YOUNG PEOPLE ARE MORE LIKELY TO EXPERIENCE TENURE INSECURITY

Percentage of adults who feel insecure about their property, by age group



Note: The figure shows the coefficients from a linear probability model. The dependent variable is a binary variable equal to 1 if the individual reported feeling tenure insecure. The base category is older adults aged 35 and above. Other controls include education, marital status, household size, country and year fixed effects. The sample includes 126 485 observations and was created by pooling two waves of Prindex data – 2018/19 and 2024 –restricted to land/property owners (i.e. excluding renters and individuals using a property with or without permission).

Source: Authors' estimates based on Prindex data downloaded from: www.prindex.net/data.

from their parents, while youth are rarely included.[84, 85] However, youth should not always be viewed as vulnerable or excluded from land matters. Local context matters. For example, post-conflict contexts, marked by weakened institutions, often provide opportunities to restructure power dynamics over land, including in customary land systems. In a case study from Northern Uganda, Kobusingye (2020)[86] found that war strengthened the power of young men to assert their claims over land, often undermining the influence of elders and traditional authorities.

FORESTS

Forests provide an important source of livelihood for many young people, especially in the Global South, in addition to supplying ecosystems services and biodiversity.

There is ample evidence of the role that forests and trees play in alleviating poverty,[87, 88] particularly for forest-dependent and forest-dwelling groups, such as Indigenous Peoples, by providing safety nets and helping households cope with shocks.[89, 90] Globally, 75 percent of the rural population live within 1 km of forests and depend on them for food, fuel, income and culture. Tenure rights, however, are often insecure, with over 70 percent of forest areas under state ownership.[91, 92]

Systematic data on young people's involvement in the forestry sector are scarce. However, case studies suggest that young people's participation in community forestry and conservation can provide an alternative livelihood option.[93] A study in Cameroon found that both young men and women relied to varying degrees on livelihoods strategies which integrated agriculture with a range of forest-based activities, including agroforestry, shifting cultivation and the collection of non-timber forest products (NTFP) and firewood. Even young people who relied on non-forest related sources of income, including wage employment, still depended on forests for food and NTFP.[94]

Access to and use of forests may be mediated by gender and age differences and inequalities. Among the Karen Indigenous Peoples of Southern Myanmar, who practise a combination of shifting cultivation and cash cropping, young men are involved in clearing and burning forest areas, while young women plant rice and vegetables and gather fruits and herbs for food and medicine as part of their domestic chores.[95]

Overall, there is growing recognition of the need to involve young people in forest management, especially through community forestry and within Indigenous Peoples' communities.[93,96,97] This trend has been reinforced by the increasing participation and visibility of young people in global environmental activism.[98–100] However, meaningful participation in forest and community governance can represent a serious challenge for young people,[101–103] as intergenerational power and gender dynamics hamper young people's, particularly young women's, contribution to decision-making and governance. In their research in Mexico, Robson *et al*. found that young people wanted more say in community decision-making and that young women in particular felt marginalized and unrepresented, explaining that all the decisions were made by men.[96, 104] Similarly, a review of community forest governance in Cameroon found that youth felt excluded from local community management and complained that those in positions of authority were not open to democratic selection process. This eventually led to conflict between young people and adults in the Kongo community.[105]

Young people from communities that depend on forests, including Indigenous Peoples, often prefer to settle in their communities, if opportunities permit. However, the need for education or better livelihood options leads many young people to migrate. At the same time, studies indicate that many who leave also hope to and choose to return.[95,96,104] For example, evidence from Indigenous Peoples communities in Myanmar shows a strong link between communities' physical, cultural and spiritual connection to nature and the forest and young people's desire to stay or return to their community and contribute to its development.[95] Similarly, a study conducted among Mapuche Indigenous communities in the Chilean Andes identified limited access to and daily interaction with forests as a cause of children's and adolescents' limited knowledge of forest resources. It also played a role in their migration away from the communities for education and their growing feelings of disconnection from traditional practices and the land.[106]

SYSTEMATIC DATA ON YOUNG PEOPLE'S INVOLVEMENT IN THE FORESTRY SECTOR ARE SCARCE.

However, this relationship is being challenged by increasingly limited access to forests as a result of land acquisitions, a decrease in forested areas on people's farms and deforestation.[106] Although the latest data suggest that the rate of global deforestation is slowing, 47 million ha of primary forests was lost between 2000 and 2020, with agricultural expansion driving much of land-use change.[92,107]

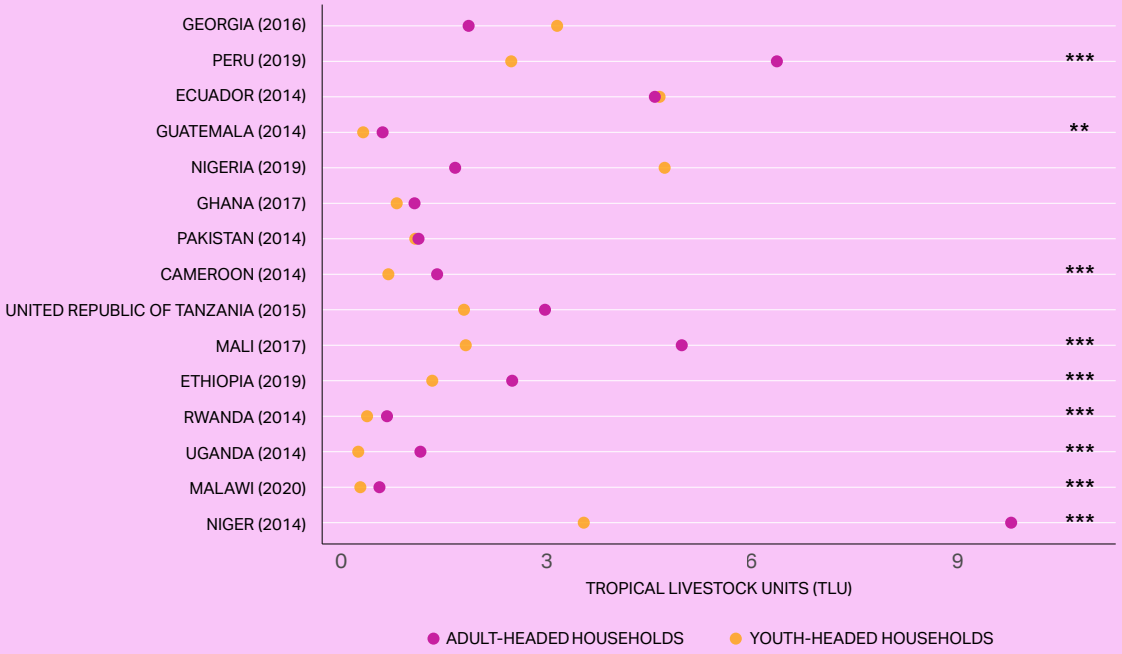
LIVESTOCK

Limited skills, knowledge, land and financial resources, coupled with inadequate policy support, create significant barriers to young people's involvement in the livestock sector, though it remains crucial for the livelihoods of many young people in agrifood systems.[108] National age and sex-disaggregated statistics on individual's livestock ownership are scarce, making it difficult to estimate young people's participation in livestock production and their access to livestock as an asset. Case studies suggest that young people encounter challenges in accessing livestock that are considered more valuable and capital-intensive, such as dairy-producing animals.[109] As a result,

FIGURE 3.9

IN MOST COUNTRIES, YOUTH-HEADED HOUSEHOLDS ARE LESS LIKELY TO OWN LIVESTOCK

Average number of tropical livestock units owned by households led by youth compared to older farmers



Note: Countries are ordered by GDP per capita. *** p<0.01, **p <0.05, * p<0.10

Source: Estimates based on data from FAO. 2024. RuLIS – Rural Livelihoods Information System. In: FAO. Rome. [Cited 5 December 2024]. www.fao.org/in-action/rural-livelihoods-dataset-rulis/en

youth-led households have smaller livestock holdings than households led by older adults (Figure 3.9). This is not surprising given youth's lower access to capital and land.

Young people access livestock through inheritance, purchases, gifting and loaning, as well as through the reproduction of animals already owned.[110] Livestock acquisition and ownership patterns may be strongly gendered. In Kenya, livestock is mostly inherited by sons. While the inheritance of livestock by girls is unusual and against prevailing norms,[110] both men and women may receive livestock as rewards for achievements, and girls may be given livestock to mark important life events such as marriage and the birth of a child.[110] However, even when young brides receive such gifts, control over the livestock may reside with the groom. Women often have easier access to and control over small ruminants and poultry, which provide them with an opportunity to earn an income that they can control and an asset that can be sold in the event of shocks.[111–113]

Cambodia, Ethiopia, Malawi and the United Republic of Tanzania are among the few countries to collect national, individual-level data on livestock ownership that can be disaggregated by both age and gender, as shown in Figure 3.10. Three elements are apparent from these data. First, a lower share of youth in all countries own each type of livestock, as compared to older adults. Second, young men are more likely than young women to own large livestock in the United Republic of Tanzania, while the opposite is true in Cambodia and Ethiopia. In rural Ethiopia, 26 percent of female rural youth compared with 17 percent of male rural youth own large livestock, either solely or jointly, while among older adults, 80 percent of adult men and 56 percent of adult women own livestock.

The data are consistent with findings in the literature suggesting that access to livestock in Ethiopia is affected by gender, age, marital status, ethnicity and class, and that women's perceptions of ownership may change as they age.[114] Third, in all countries young women are more likely to own poultry compared to young men. In Cambodia, 30 percent of rural young women (aged 18–24) own some poultry, compared with 17 percent of rural young men.

Norms around youth's ownership and control over livestock, and their participation in livestock value chains can evolve. For example, in Ethiopia, there is evidence that young women are increasingly able to control income which comes from the sale of sheep and goat products (e.g. cheese and butter), and that young people are working in wage positions in small-ruminant value chains, reducing the importance of owning larger animals.[115,116] In addition, newer strategies are being adopted to facilitate young people's access to livestock. For example, a study in Baringo County in Kenya found that young women acquired cattle, sheep and goats through participation in rotating savings groups.[110] However, among pastoralist youth in Ethiopia, membership in local savings organizations, which seemed a promising approach to enable young people to acquire livestock, was limited by lack of income and social capital.[117]

FISHERIES AND AQUACULTURE

A review by WorldFish on aquaculture and small-scale fisheries highlights the fact that young workers, particularly young women, dominate employment in the fisheries sector.[118] A global survey of aquaculture farms found that most workers were between 20 and 39 years old.[119] Similarly, a study on predominantly female workers in shrimp processing factories in Bangladesh reported that 60 percent of workers in the Chittagong region were between 18 and 25 years old.[120] In Nepal's Terai region, a project introducing carp-prawn polyculture technology to small-scale women farmers found that 58 percent of participants were between 20 and 39 years old.[121] Meanwhile, in small-scale fisheries, women-led artisanal and invertebrate fishing activities in Al Wusta Governorate of Oman were carried out primarily by those aged 21 to 30, accounting for 34 percent of participants.[122]

However, youth participation in fisheries and aquaculture is shaped by skills and asset gaps that limit their ability to engage fully in these value chains. While globally comparable data on youth participation in fisheries are not available, case studies show that ownership of, control over and access to assets and technologies influence the propensity of young people to engage in fisheries and aquaculture value chains. Such asset gaps are similar to those that influence the likelihood of youth taking up crop farming. Nets, boats and land for aquaculture are often transferred intergenerationally, over time, reducing access by youth.[123] Additionally, in Kenya significant skills gaps limit young people's participation in the more profitable parts of fish value chains.[124] Meanwhile, in the Ugandan catfish industry, a recent study by FAO demonstrates that young people are under-represented in all aspects of the value chain, though better represented in fish processing, a highly feminized segment.[125] Youth need to overcome the above-mentioned asset and knowledge gaps in order to capitalize on government incentives in fisheries and aquaculture value chains, as shown in a case study on Nigeria.[123]

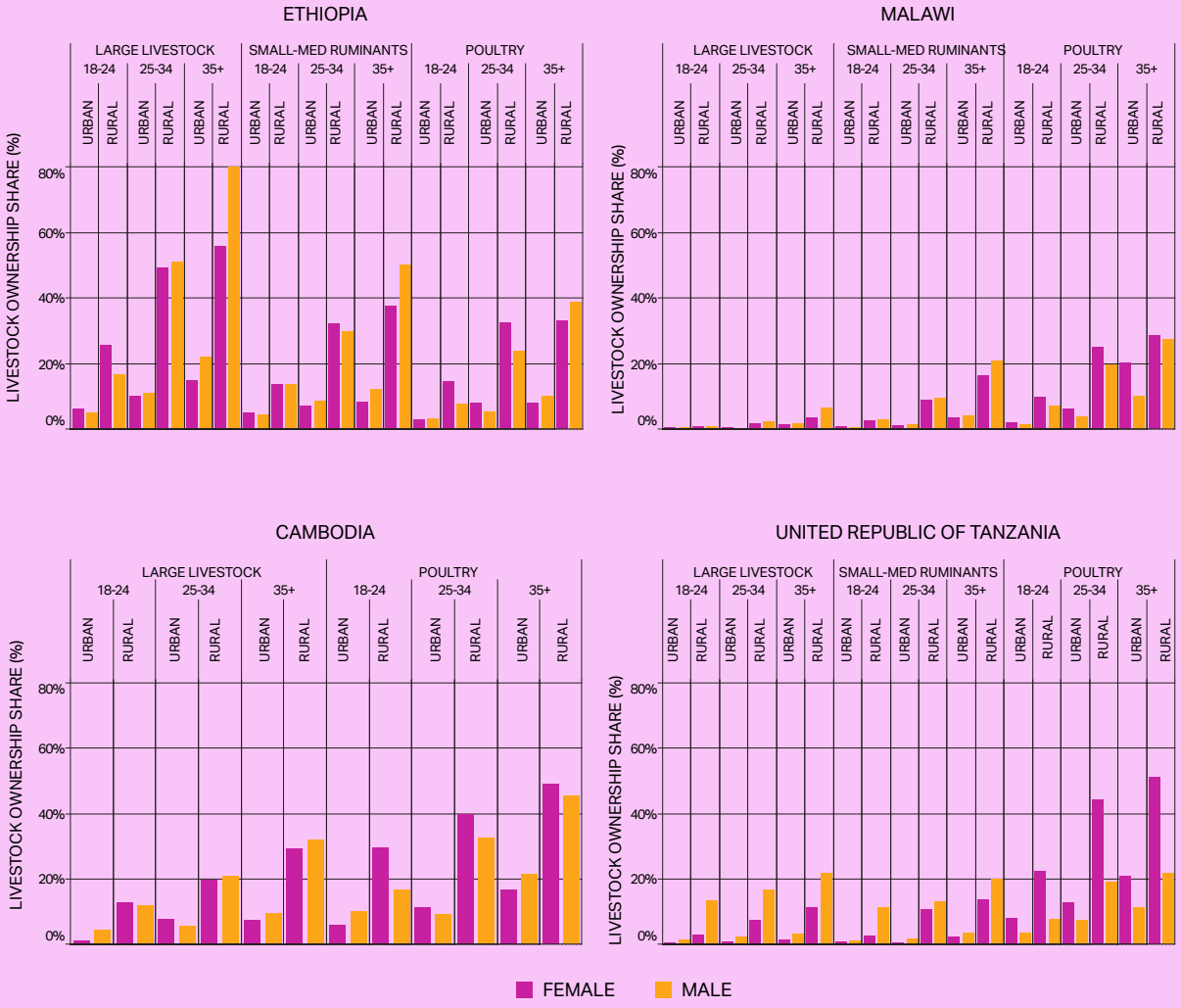
In both sub-Saharan Africa and Latin America, youth's access to technology such as mobile applications, as well as more advanced technologies like sonar and drones for those with greater economic means, could offset perceived risks related to climate change dissuading them from entering fisheries value chains.[126–128] In the Republic of Korea, specialized female fisherwomen/divers called *haenyeo* are aging, with most in their mid-60s or older, and are not being replaced by younger women due to the physical strain of the job, which is performed traditionally

> **"YOUNG WORKERS – ESPECIALLY WOMEN – DOMINATE EMPLOYMENT IN AQUACULTURE AND SMALL-SCALE FISHERIES.**

FIGURE 3.10

ACROSS ALL COUNTRIES, FEMALE YOUTH ARE CONSISTENTLY MORE LIKELY THAN MALE YOUTH TO OWN POULTRY, WHILE GENDER PATTERNS IN OWNERSHIP OF OTHER LIVESTOCK VARY

Incidence of livestock ownership among men and women of different age groups in Cambodia, Ethiopia, Malawi and the United Republic of Tanzania



Source: Authors' calculations based on the LSMS+ surveys for Cambodia and Malawi and LSMS-ISA surveys for Malawi and the United Republic of Tanzania.

without the use of oxygen supplies. Economic issues also serve as a barrier to newcomers: younger women were dissuaded from joining *haenyeo* cooperatives where earnings are shared among a small group of existing fisherwomen.[129] Recently, however, a number of initiatives have been created to preserve the tradition and pass on the knowledge to younger generations through *haenyeo* associations, cooperatives and schools.[130] Young *haenyeo* are also using social media to boost their image and sell their produce.[131]

FINANCIAL CAPITAL

FINANCIAL INCLUSION FOR YOUTH

Youth (ages 15–24) are disproportionately unbanked, particularly in low- and middle-income countries. In sub-Saharan Africa, for example, nearly 40 percent of the unbanked population consists of young adults in this age group. Globally, in 2021, 66 percent of youth aged 15–24 owned a formal financial account, compared to 79 percent of individuals over 25 years.[132]

In rural areas, youth – particularly young women – are significantly less likely than their older counterparts to own a financial account (including both financial institutions and mobile money). This gap is most evident in protracted crisis and traditional agrifood systems, where financial services are often underdeveloped or inaccessible (Figure 3.11). The share of young women with a financial account is effectively zero in countries such as Afghanistan, South Sudan and Yemen, and does not exceed 40 percent in any of the countries with protracted crisis agrifood systems (Figure 3.11). Account ownership among rural young women is higher in countries in traditional and expanding agrifood systems, reaching over 50 percent in Georgia, Ghana, India, Kenya, Lesotho, Namibia and Uganda. Account ownership tends to increase as agrifood systems transition, but with significant heterogeneity among countries, and a higher share among young rural women in some cases.

A key structural barrier to youth financial inclusion is age-related legal restrictions. In many countries, young people under 18 are unable to open bank accounts or take out loans independently, limiting their ability to save, invest and participate in economic activities. To address this barrier, several countries are exploring regulatory reforms to expand youth financial access. In Uganda, the National Financial Inclusion Strategy (2017–2022) recommended lowering the minimum age to open a savings account to 15 years. The Central Bank of Jordan is considering similar reforms to allow youth as young as 15 to open accounts without a legal guardian's approval.[133]

In contexts where the formal financial infrastructure is either lacking or inaccessible, mobile money offers an efficient and affordable alternative for youth to access financial services. In sub-Saharan Africa, for example, 32 percent of young people had a mobile money account in 2021 (see Figure 3.12), followed by Latin America and Caribbean and Europe and Central Asia with 27 percent and 25 percent, respectively. Countries with traditional agrifood systems (e.g. Ghana and Kenya) tend to have higher rates of mobile money adoption among both youth and adults, reflecting the low accessibility of formal institutions.

Conversely, countries with protracted crisis agrifood systems tend to have lower overall adoption, indicating barriers such as weak or disrupted infrastructure, and economic instability. Expanding and diversifying agrifood systems show more mixed trends, with some countries exhibiting relatively balanced adoption rates across age

> "YOUTH ARE DISPROPORTIONATELY UNBANKED, PARTICULARLY IN LOW- AND MIDDLE-INCOME COUNTRIES.

FIGURE 3.11

A LARGE SHARE OF RURAL YOUTH DO NOT OWN A FINANCIAL ACCOUNT

Ownership of any financial account (financial institution and mobile money), by age group and gender

Note: The full dataset includes information from 139 countries, collected in 2021 and 2022; however, only 72 countries provide rural–urban disaggregation. The results here are restricted to those 72 countries.

Source: Authors' calculations based on data accessed from the Global FINDEX Database 2021. www.worldbank.org/en/publication/globalfindex/Data.

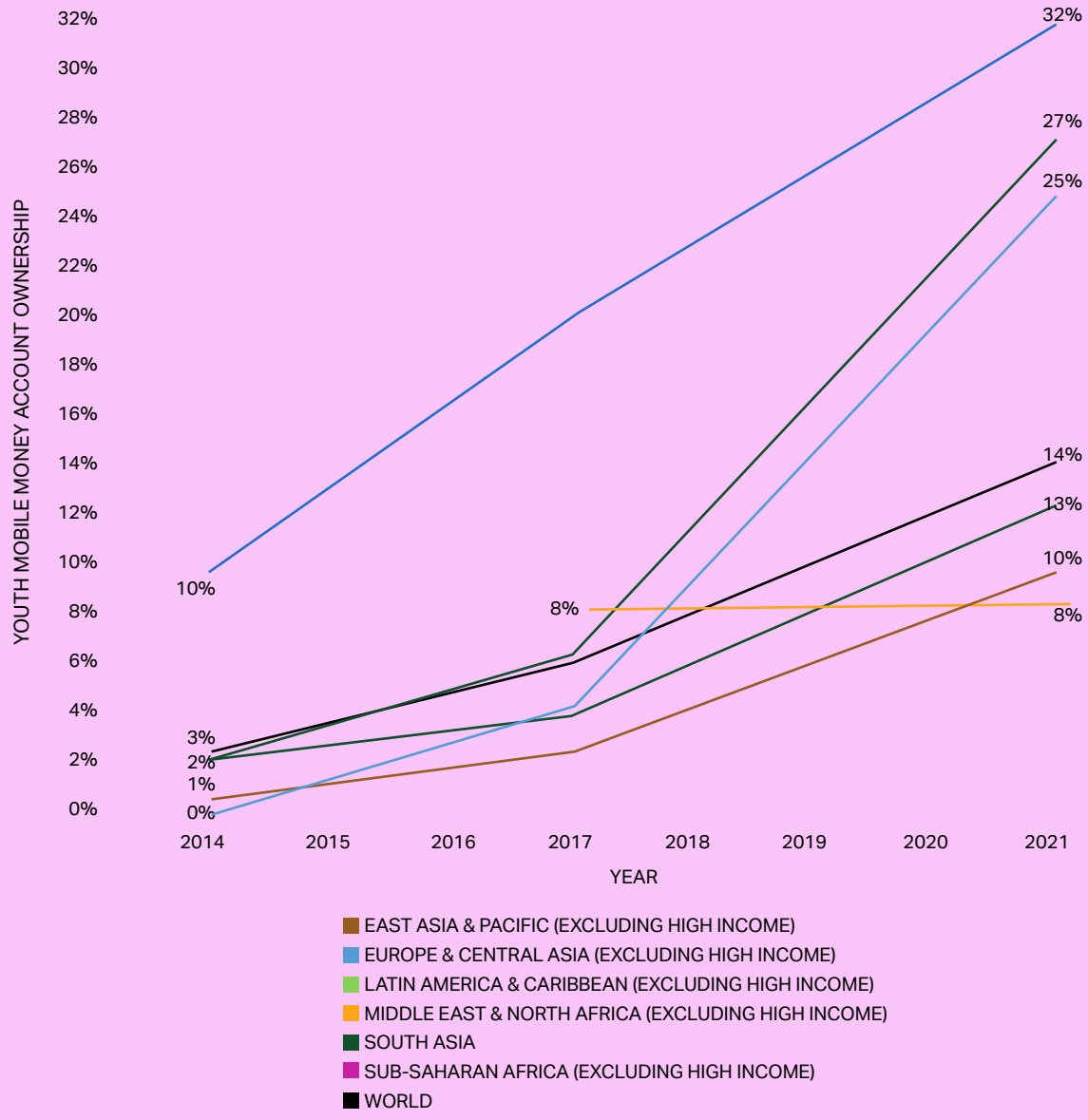
groups (Figure 3.13). Similarly, youth access to mobile money accounts has increased in all regions since 2014 (Figure 3.12).

Access to mobile phones and the internet are among the key factors driving the uptake of financial services among young people.[134] Research shows that gender gaps in youth financial inclusion can be attributed to varying levels of digital technology endowments. Youth with mobile phones are three times more likely to have financial accounts and three and a half times more likely to use them, with internet access doubling this likelihood.[135] However, gender and rural–urban disparities remain a significant challenge to youth financial inclusion. For example, Bangladesh faces a widening gender gap, affecting especially low-income women and those

FIGURE 3.12

YOUTH ACCESS TO MOBILE MONEY ACCOUNTS HAS INCREASED IN ALL REGIONS

Youth mobile money account ownership across regions, 2014–2021



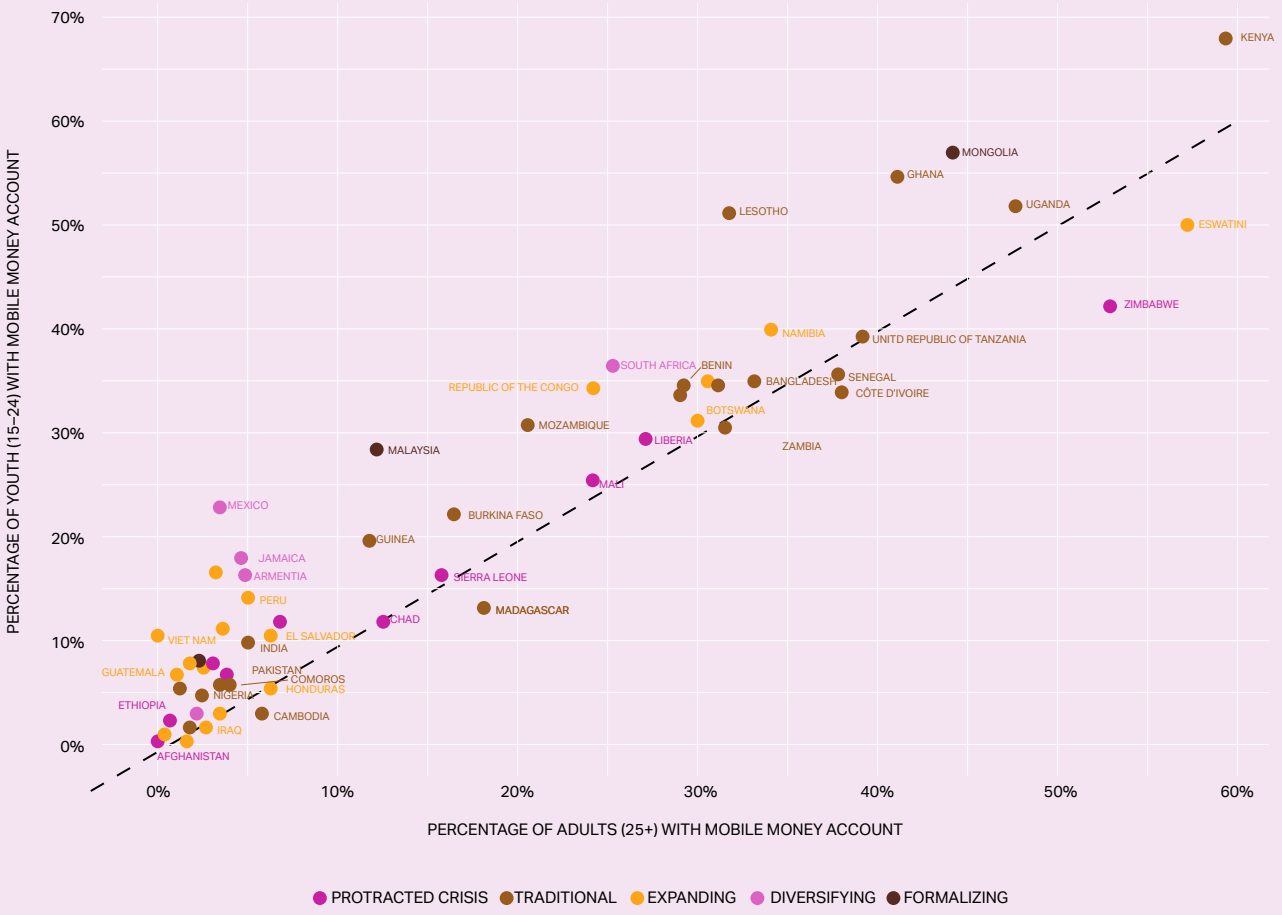
Note: Regions exclude high-income countries.

Source: Authors' calculations based on the individual-level data from The Global FINDEX Database 2021. www.worldbank.org/en/publication/globalfindex/Data, accessed 12 September 2024.

residing in rural areas. Young women with lower access to digital connectivity at the outset of their financial inclusion journey are adversely affected, disadvantaging their lifelong financial inclusion.[134] A more in-depth overview of digital inclusion of young men and women is provided in the next section.

FIGURE 3.13

MOBILE MONEY ACCOUNTS ARE POPULAR AMONG BOTH YOUTH AND ADULTS IN MANY COUNTRIES IN TRADITIONAL AGRIFOOD SYSTEMS



Note: The sample includes information from 139 countries, with information collected in 2021 and 2022, but only 72 countries provide rural–urban disaggregation. The results here are restricted to those 72 countries.

Source: Authors' calculations based on individual 2021 FINDEX data.

ACCESS TO MOBILE PHONES AND THE INTERNET ARE AMONG THE KEY FACTORS DRIVING THE UPTAKE OF FINANCIAL SERVICES AMONG YOUNG PEOPLE.

PHYSICAL CAPITAL

DIGITAL INCLUSION

Digital technologies are rapidly emerging as a means to achieve smarter, more efficient, sustainable and resilient agrifood systems.[137] In low- and middle-income countries (LMICs), the increasing penetration of ICTs has created new opportunities for young people, often previously underserved by face-to-face service providers,[138,139] to increase their access to information, training and marketing opportunities.[140–142] Furthermore, digitalization has helped reshape perceptions of agriculture, making the sector more appealing to younger generations.[143–145] While more data are available about youth access to digital technologies and ICTs than about many other assets, additional research is needed on the impact and determinants of digital technology adoption by youth in agrifood systems, taking into consideration age specificities as well as intersectional challenges linked to socioeconomic characteristics including gender, ethnicity and educational background.

Globally, youth are more digitally connected than older populations, with 81.2 percent of young people aged 15–24 using the internet, compared to 68.2 percent of adults aged 25–74 (Figure 3.14). In industrial agrifood systems, 98.2 percent of youth use the internet, whereas in traditional systems, only 33.9 percent have internet access. However, the share of youth in traditional systems using the internet is nearly 40 percent higher than their adult counterparts. This digital divide between youth and adults narrows as countries transition from traditional to industrial agrifood systems. Thus, while young people in LMICs are more likely than older generations to use digital technologies, poor infrastructure and affordability constraints continue to limit their ability to fully leverage these opportunities.[146] Few youth in LMICs have access to internet at home. In 2020, only 5 percent of rural youth and 13 percent of urban youth in low-income countries had internet access at home, compared to approximately 90 percent of youth in high-income countries.[147]

While reducing the coverage gap in broadband connectivity and increasing the affordability of internet data remain an issue in rural and remote areas,[148,149] internet access is only one of a set of barriers to rural youth's digital inclusion. Socioeconomic, behavioural and cognitive challenges lead to unequal access to digital devices, unaffordable services, limited digital skills, lack of awareness and usability of digital services, and safety and security concerns.[150,151] As a heterogenous group with varying levels of education, skills and household wealth,[68] rural youth experience these barriers in different ways. For example, adolescent girls and young women are particularly limited in their ability to participate in the digital world, due to restrictive social norms and deep-rooted structural inequalities, such as lower education and income. For every 100 male youth aged 15–24 who have digital skills, only 65 female youth do.[152] Moreover, evidence from LMICs reveals that girls gain access to digital technology at an older age and are more supervised or restricted from using computers or mobiles than boys.[153] Another commonly reported

> **"IN 2020, ONLY 5 PERCENT OF RURAL YOUTH AND 13 PERCENT OF URBAN YOUTH IN LOW-INCOME COUNTRIES HAD INTERNET ACCESS AT HOME.**

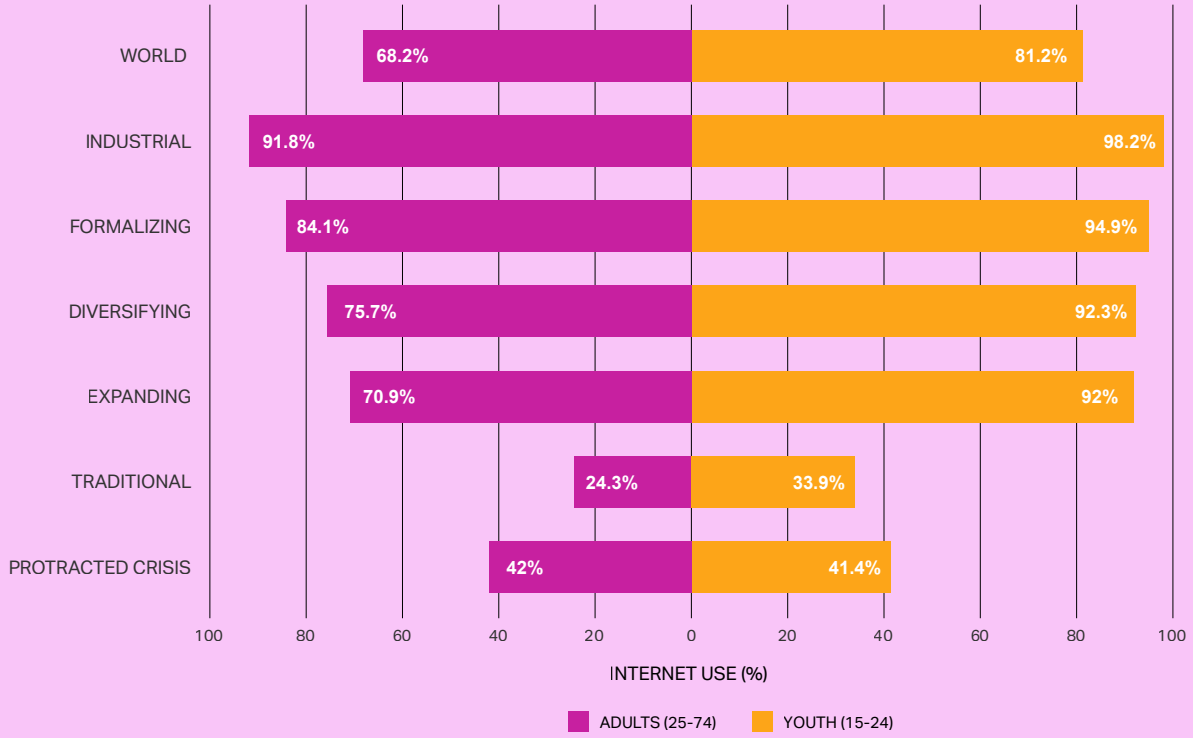
"after-access" barrier is the lack of youth-friendly digital services or content available in local languages for those youth who are not conversant in English or other widely used languages.

Despite these constraints, youth are typically more tech-savvy than adults and are uniquely positioned to leverage digital technologies to increase the productivity, profitability, sustainability and resilience of farms and agribusinesses.[50, 154] Digital technologies not only facilitate access to information, they are also revolutionizing agricultural practices allowing young farmers and agripreneurs to engage in contract farming, direct marketing, logistics coordination, networking and access to funding opportunities.[155] Technological innovation helps to attract young people who would ordinarily not be interested in farming, including well-educated urban youth.[156,157]

FIGURE 3.14

FIGURE 3.14 YOUTH ARE MORE LIKELY TO USE THE INTERNET THAN ADULTS, EXCEPT IN PROTRACTED CRISIS AGRIFOOD SYSTEMS

Youth internet use vs adult population, by agrifood system typology



Note: The estimates are weighted means, with weights adjusted for the population size of each country. The dataset includes the proportion of individuals who used the internet from any location in the last three months, covering internet usage statistics for individuals aged 15–74 across 107 countries.

Source: Authors' calculations based on data from the ITU (International Telecommunication Union) DataHub (https://datahub.itu.int/data/?e=ITA&c=701&i=11624&d=Age&g=9224), accessed 5 March 2025.

> **FOR EVERY 100 MALE YOUTH AGED 15–24 WHO HAVE DIGITAL SKILLS, ONLY 65 FEMALE YOUTH DO.**

Youth in agriculture are utilizing digital agricultural solutions. Out of a sample of 30 000 youth engaged in agriculture across 11 African countries, 23 percent were found to be engaging with at least one form of digital agricultural technology (an app, SMS, website or software). According to respondents, ease of use, range of information provided and affordability are three critical success factors of digital solutions.[158]

Social media platforms, in particular, are creating new roles within agricultural value chains, such as agribusiness mentors, agricultural influencers and "proxy farmers".[159] These platforms are also being used for crowdfunding initiatives, enabling young agripreneurs to secure capital independently of traditional financial institutions.[159] Beyond social interactions, internet and social media platforms are increasingly being used for practical purposes such as learning, job hunting, and accessing and sharing technical or market information, as well as buying and selling goods and services online.[160,161] Digital advisory services, marketplaces, fintech, farm management and supply chain traceability apps are also expanding opportunities for youth engagement.[145] These innovations can drive entrepreneurship and create employment opportunities for rural youth, enabling them to diversify their livelihoods both within and beyond the rural farm economy.[159]

Mobile phone devices serve as the primary gateway for accessing the internet and digital services in LMICs,[148] a trend that includes young people. In DHS data for a set of 26 countries, ownership of a mobile phone is on average lower among youth than among older cohorts, and lower still among rural youth, especially girls, than among urban youth (Figure 3.15), although there is a great deal of heterogeneity among countries. On average in the 26 countries, 48 percent of rural female youth and 58 percent of rural male youth own a mobile phone compared with 76 percent of girls and 80 percent of boys in urban areas. Mobile phone ownership is markedly higher among youth in the Asian and European countries in the sample, and lower in most sampled sub-Saharan African countries.

MECHANIZATION AND INPUTS

Agricultural mechanization and improved technology have important implications for young people's livelihoods, their relations with older generations and their engagement in agrifood systems. Mechanization scales up agricultural production and enhances the productivity and marketable surplus of small farmers, pastoralists and fisherfolk.[162] Mechanization also can help aging farmers continue farming, particularly by enabling a shift to more easily mechanized crops in labour-scarce contexts.[70] Labour-saving technologies make farming less reliant on family labour, altering traditional gender and generational roles in agricultural households. At the same time, advanced agrifood systems technology may be easier for young people to handle, if they have higher levels of education. This, in turn, could increase their decision-making power on the family farm or off-farm business.

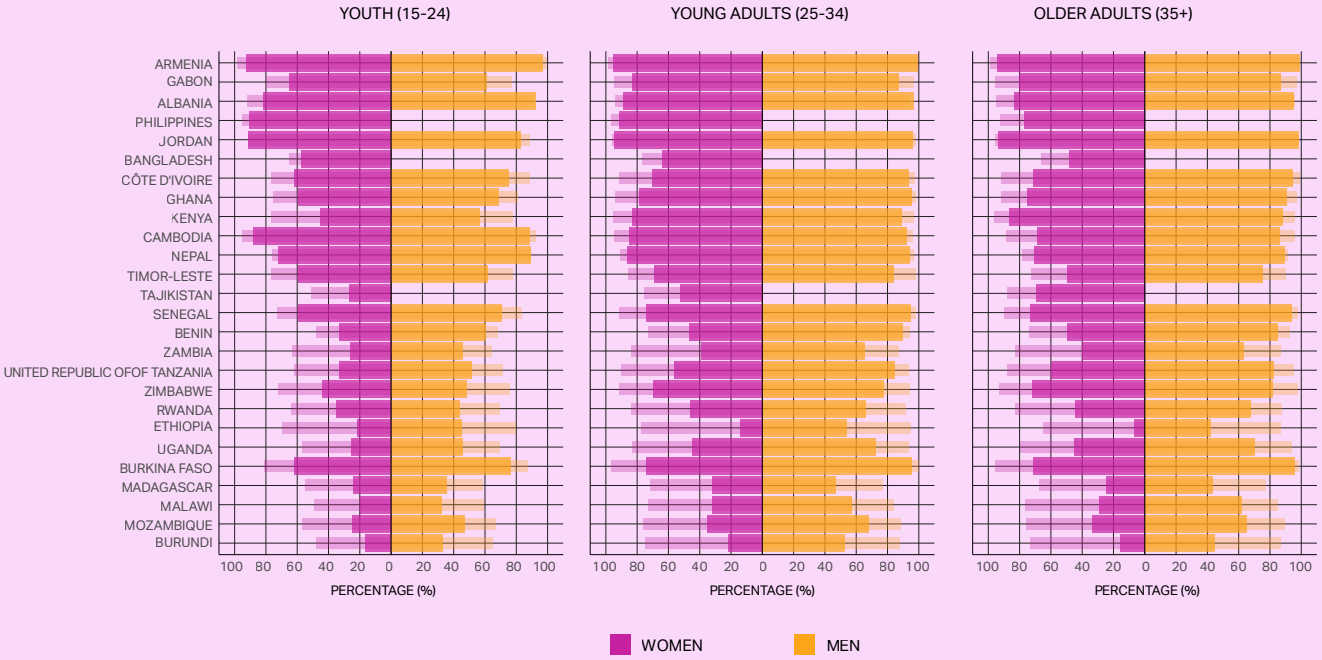
Small-scale mechanization offers numerous benefits for young rural farmers, enhancing efficiency and productivity. In Zambia, for example, the use of handheld tractors for land preparation and furrow making has proven to be less costly and more labour-efficient, increasing both crop yield and profits for young entrepreneurs.[163] In Kenya, rural youth have adapted land augers for creating water-harvesting features, significantly reducing labour requirements and supporting climate-smart agriculture. Moreover, some young farmers have developed expertise in drone operations for small-scale aerial spraying of crops and the installation of pond aerators to improve water quality and fish health, demonstrating their capacity to engage with advanced technologies.[163]

While mechanization may increase the demand for higher-skilled jobs and allow farmers to shift focus to land management activities more appealing to youth,[164] in labour-abundant areas mechanization may displace workers, particularly in routine tasks such as planting and harvesting, disproportionately

FIGURE 3.15

RURAL YOUTH ARE SIGNIFICANTLY LESS LIKELY TO OWN A MOBILE PHONE THAN URBAN YOUTH

Mobile phone ownership by age group, sex and location



Note: Pink and yellow bars represent the incidence of mobile phone ownership among men and women, respectively, across three age groups – Youth (15–24), Young adults (25–34) and Adults (35–49) – in rural and urban areas. Solid-coloured bars show mobile phone ownership among rural populations, while semi-transparent overlays indicate mobile phone ownership among urban populations. The male individual module was not implemented in Bangladesh, the Philippines and Tajikistan. Countries are arranged by GDP per capita (PPP), ranked from lowest (bottom) to highest (top).

Source: Authors' calculations based on data accessed from the Global FINDEX Database 2021. .

> **YOUNG FARMERS ASPIRE TO ENGAGE IN MODERN AGRICULTURE THAT RELIES ON IMPROVED TECHNOLOGY.**

impacting lower-skilled groups like young people and women.[165] Complementary interventions such as skills development and social protection can help mitigate the negative impacts on youth employment.

Young farmers aspire to engage in modern agriculture that relies on improved technology.[44] For example, younger apple farmers in China (aged 35 and under) showed the highest willingness to pay for precision pesticide technology services and equipment, indicating a strong interest among younger farmers in being early adopters of innovative agricultural technologies that enhance productivity and efficiency.[166] *The 2022 State of Food and Agriculture* report presents case studies

from the Republic of Korea (ioCrops) and the United States of America (Atarraya and Cattler) that highlight youth's openness to innovation and underscore their critical role in shaping the future of agriculture.[165] Other studies indicate that young farmers are more likely to adopt improved crop varieties, as seen in the United Republic of Tanzania.[167]

Despite their innovative potential, rural youth face significant challenges in accessing modern farming tools and irrigation technologies. Limited financial resources often hinder their ability to invest in mechanization. Furthermore, and as mentioned above, land access remains a critical barrier, particularly for irrigation systems, where secure land tenure is essential.[1]

Access to agricultural inputs such as quality seeds, fertilizers and pesticides can also represent a challenge for young people in LMICs. Data from FAO's RuLIS database suggest that adult-headed households, as compared to youth-headed households, exhibit greater uptake of and access to improved seeds (8 out of 10 countries), fertilizers (10 out of 14 countries) and chemicals (12 out of 18 countries) (Figure 3.16). This outcome is linked to other constraints including insufficient financial resources, low access to credit and inadequate access to extension services. Moreover, programme design can also constitute a barrier for youth. A multi-year study in Malawi of the Farm Input Subsidy Programme found that the targeting criteria, which focused on households led by married or widowed individuals, limited the access of unmarried youth to the programme's full benefits. Those that did benefit relied on social connections to participate.[84,168]

TRANSPORTATION, IMPROVED INFRASTRUCTURE AND PAVED ROADS

Transport availability and affordability shape youth employment opportunities on and off farm in agrifood systems. Youth often face significant barriers to mobility. Access to transportation infrastructure in rural areas is particularly constrained, with most smallholder farmers facing limited connections to external markets (see also Chapter 2).[169] In addition, high transportation costs relative to household income, coupled with poorly integrated transport networks, pose significant affordability challenges. These factors limit how often young individuals can use available transport options.[170]

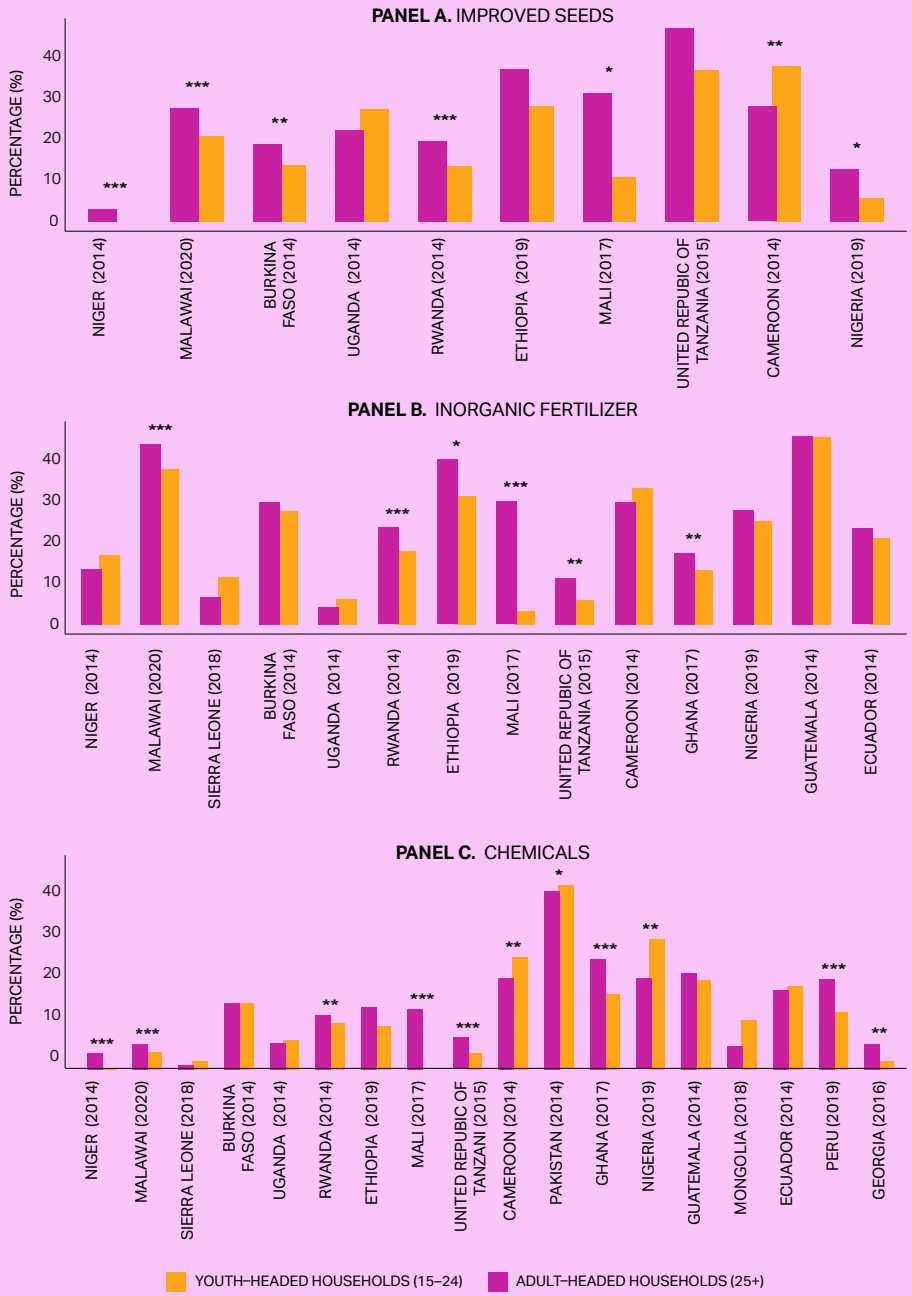
For young people in peri-urban and rural areas, access to transport is often a key determinant in securing non-agricultural jobs, which are often seen as a pathway to gaining improved incomes.[171] In Western Kenya, rural youth often resort to "tarmacking", walking long distances on potholed roads to urban centres in search of work, only to return home empty-handed. Limited mobility disproportionately affects young women, often confining them to home-based entrepreneurial activities.[172] Research demonstrates that inadequate rural transport systems in countries like Nigeria hinder the growth aspirations of female entrepreneurs in agrifood systems and compound existing gender barriers.[173] Similarly, a safety audit of rural public spaces conducted in Gujarat, India, shows that inadequate infrastructure, including the poor conditions of road and lack of safe modes of transportation, affects young women and girls by limiting their options for safe commutes and access to higher education, which is not available in many rural villages.[174]

More broadly, restricted mobility – exacerbated by household labour demands – negatively affects young people's attitudes towards agriculture and rural life, often prompting migration to urban areas in search of better opportunities.[175] In contexts where rural transport systems remain underdeveloped, these constraints reinforce existing inequalities and limit the economic aspirations of rural youth.

FIGURE 3.16

YOUTH-HEADED HOUSEHOLDS ARE DISADVANTAGED IN ACCESS TO IMPROVED SEEDS AND FERTILIZER

Share of households (%) using improved seeds, fertilizers and chemicals, by household head age



Note: Countries ordered by increasing level of per capita GDP. Farming households only. Significance levels:*** p<0.01, **p <0.05, * p<0.10

Source: Estimates based on data from FAO. 2024. RuLIS – Rural Livelihoods Information System. In: FAO. Rome. [Cited 5 December 2024]. www.fao.org/in-action/rural-livelihoods-dataset-rulis/en

©FAO/MARIO ARAUJO IN CASERÍO LA PEÑA IN EASTERN EL SALVADOR, 22-YEAR-OLD COMMUNITY PROMOTER NUBIA FUENTES LEADS AN FAO-IMPLEMENTED, GREEN CLIMATE FUND-FINANCED PROJECT FOR SUSTAINABLE SOIL MANAGEMENT.

SPOTLIGHT 3.1 AGRI-DIGITAL FINANCIAL SERVICES FOR YOUNG FARMERS AND AGRIPRENEURS

Digital financial services (DFS) present a major opportunity for young farmers and agripreneurs, yet adoption remains limited. Only 5 percent of young people globally borrow money to start, operate or expand a farm or business, while 13 percent save for such purposes, with most relying on informal financial mechanisms.[i, ii] In Bangladesh, for example, although 30 percent of micro-entrepreneurs have a mobile wallet, they primarily use it for personal transactions rather than business purposes.[iii]

The CGAP National Surveys of Smallholder Households highlight significant disparities in mobile phone ownership and mobile money account usage among youth (ages 15–30) across different countries. While mobile phone ownership is relatively high across all surveyed nations, the adoption of mobile money services remains inconsistent and, in some cases, extremely low.[iv]

According to Global Findex 2021, cash remains the dominant method for making or receiving payments for agricultural products.[v] In Kenya, over 80 percent of farmers use mobile money but only 15 percent rely on it for agricultural transactions. Usage varies by marketing channel – only 8 percent of farmers selling directly to customers use mobile money compared to around 20 percent of those selling produce to local traders, companies or cooperatives.

Smallholders have diverse financial needs – some require short-term financing for high-quality inputs, while others need long-term financing for assets and modern equipment such as machinery and drip irrigation systems. The largest financing gap concerns the latter group. In sub-Saharan Africa, 99 percent of smallholder long-term agri-financing needs remain unmet compared to 73 percent of short-term needs. This gap persists partly due to limited availability of agriculture-specific digital savings products, most of which focus on short-term input requirements.[vi]

Meanwhile, research suggests that young individuals in smallholder households have a high savings capacity, with some saving two to five times more than adults, revealing untapped potential for service providers to address the needs of this segment.[iv, viii]

According to the GSMA, digital insurance products account for 39 percent of all agri-DFS in LMICs.[vi] However, adoption remains low, with less than 20 percent of smallholder farmers worldwide having agricultural insurance coverage. Low uptake is driven by several factors, including lack of awareness among smallholders, high premium costs and a general lack of trust in financial institutions.[viii] From providers' perspective, insurance for farmers is challenging to design and offers low profitability due to high customer acquisition and service delivery costs, and the low value of premiums.[ix]

Digital financial services (DFS) are altering how young farmers and agripreneurs manage payments, credit, savings and insurance. Integration of advanced technologies such as artificial intelligence (AI), the Internet of Things (IoT) and big data analytics has led to the development of innovative financial products such as credit-scoring algorithms, crowdfunding platforms and digital agri-wallets. According to the GSMA, agricultural DFS accounts for 25 percent of digital agriculture services in LMICs, with sub-Saharan Africa leading with 111 out of 150 agri-DFS initiatives. The agri-DFS landscape varies largely by region: mobile money platforms dominate in

sub-Saharan Africa, fintechs play a larger role in South and Southeast Asia, while in Latin America and the Caribbean, traditional FSPs like banks and microfinance institutions (MFIs) lead smallholder financing.[vi]

INNOVATIVE FINTECH AND AGRI-DFS SOLUTIONS FOR YOUTH

Tailored financial products: ThriveAgic is a youth-led and youth-focused agri-tech company in Nigeria, with a broad range of initiatives, including financial inclusion, skills development and improved market access for smallholder farmers. Its financial services include loans backed by digital collateral and weather-indexed crop insurance. ThriveAgic's financing model aligns with farmers' cash flow cycle, starting before sowing. After harvest, farmers sell their crops to ThriveAgic at pre-agreed prices to repay loans. With flexible payment schedules and extended, ThriveAgic has achieved high adoption rates.[x,xi] To date, ThriveAgic has impacted over 800 000 smallholder farmers – 50 percent of whom are youth [xii] – and has disbursed over USD 150 million in financing.[xiii]

Multi-Service Digital Agriculture Platform: Over the last decade, the rise of digital agriculture platforms – facilitating market access through digital procurement and e-commerce solutions – has generated financial footprints for smallholders through transactional data and farm bookkeeping. This rich client data has made it easier for Financial Service Providers (FSPs) to profile farmers, access their creditworthiness and extend tailored financial services.[vi] These digital agricultural platforms serve as key intermediaries between FSPs and young rural clients, enabling service delivery through digital channels. FSPs benefit from cost and time efficiencies on a range of operational processes, such as client registration, due diligence, loan appraisal and disbursements. In turn, rural youth, can gain access to a broader range of flexible, affordable, and customized financial products and services better suited to their needs.[xiv]

MNOs offering innovative agri-DFS solutions

Mobile Network Operators (MNOs) are key players in the digital agriculture space, targeting the rural sector with a suite of services and products such as mobile IoT for smart farming and mobile-based agro-advisory services, in addition to mobile money. MNOs also foster an enabling environment for agritech companies by offering valuable opportunities to scale services via mobile money API integration and strategic partnerships. This allows agritechs to leverage MNO assets, such as broad user bases, distribution networks, trusted brand reputation, local market insights, stakeholder connections, and valuable customer and transaction data.[vi]

Safaricom, Kenya's largest MNO, exemplifies this role. It launched M-Pesa in 2007, revolutionizing mobile money services, followed by DigiFarm in 2017, an integrated mobile platform that provides end-to-end, farm-to-market services to smallholders. The platform leverages digital sales records to support its credit-scoring algorithm and facilitate credit access. To date, it has disbursed KSh 940 million in loans to over 1.6z million registered farmers.[xv] Youth engage with DigiFarm either as farmers or in roles that support its services.[xvi]

DFS providers creating opportunities for youth in non-farm livelihoods: Digital Financial Service (DFS) providers targeting low-income rural farmers often offer offline options to ensure last-mile financial inclusion. Many FSPs and digital agriculture platforms engage youth from local communities as rural agents to conduct field visits, collect data and support remote farmers – particularly those with limited access to internet, digital technologies or low digital literacy. This creates employment opportunities for tech-savvy youth within the agrifood system through non-farm livelihoods. DigiFarm employs a network of 1 500 ground-level agents called DigiFarm Village Advisors (DVAs) to assist clients in registering on the platform and using its services.[xvii] Mobile Money platforms like M-Pesa also engage youth to run local agent retail outlets and facilitate mobile money transactions. Another agritech, Hello Tractor, a tractor-sharing service, also engages and trains youth as booking agents in rural communities who aggregate demand from farmers, capture relevant farm and farmer data, and make payments on the platform.[vi]

DISCUSSION

The rise of agri-DFS is transforming access to finance for young farmers and agripreneurs, helping to address critical barriers. While gaps remain in tailored and targeted product offerings, innovative fintechs, digital agriculture platforms, and MNOs are creating new pathways for financial inclusion in rural areas. Additionally, DFS is generating new employment opportunities for rural

youth, allowing them to engage as service providers, agents and digital entrepreneurs within the agrifood system.

However, sustainability of youth-led agri-fintechs remains a key challenge. Although numerous startups have emerged with innovative business models and tailored financial products, some met their ill-fate due to unsustainable business strategies, financial mismanagement, or funding halts.[xviii] Additionally, adequate customer protection measures must be in place, including clear and enforceable rules for DFS providers and the establishment of a public supervisory body to address financial cybercrimes.[xiii] To fully unlock the potential of agri-DFS for youth, concerted efforts by all stakeholders is needed, where FSPs, policymakers, and development organizations collaborate to design and scale inclusive financial products. With continued investment in digital innovation, capacity-building, and enabling policy environments, DFS can drive a more inclusive and dynamic agricultural economy – one where young farmers and agripreneurs can thrive as key actors in the digital transformation of agrifood systems.[xix]

Notes: Refer to the Notes section for full citations.

©FAO/STUART TIBAWESWA AS PART OF THE FAO–CHINA–UGANDA SSC PROJECT TO INTRODUCE HIGH-YIELD, DROUGHT- AND DISEASE-RESISTANT FOXTAIL MILLET (SETARIA ITALICA), A YOUTH FARMER WINNOWS AND CLEANS THE GOLDEN-REDDISH GRAIN—WHICH MATURES IN JUST 85 DAYS AND IS RICH IN PROTEIN AND VITAMIN B_{12}

SPOTLIGHT 3.2 YOUTH WITH DISABILITIES

According to Article 1 of the United Nations *Convention on the Rights of Persons with Disabilities (CRPD)*, persons with disabilities are individuals "who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others".[i] While the CRDP establishes a legal framework for promoting and protecting the rights of persons with disabilities, Ebuenyi *et al.* (2019), highlighted significant discrepancies between the principles of the CRPD and the provisions of domestic laws as well as monitoring and reporting.[ii]

Globally, there are between 180 million and 220 million youth with disabilities, nearly 80 percent of which live in developing countries.[iii] Youth with disabilities tend to be overrepresented among the poorest and most marginalized young people, with disability and poverty reinforcing each other across all types of impairments/disability. Disabled women tend to face higher rates of violence, including sexual violence,[iv, v] and their specific condition is overlooked in the large majority of national legal frameworks.[vi]

©FAO/LUIS TATO
IN ULAFU VILLAGE, SIAYA COUNTY, KENYA, YOUNG AGRIPRENEUR STEVE OMONDI, WHO SUFFERS FROM A HEARING IMPAIRMENT CARRIES MAIZE TO FEED HIS CHICKENS, REFLECTING HOW YOUTH ARE TURNING TO POULTRY FARMING TO BUILD SUSTAINABLE LIVELIHOODS.

Research suggests that having a disability is also associated with a higher probability of food insecurity[vii] According to a survey targeting college students,[viii] 35.9 percent of respondents with disabilities reported food insecurity as opposed to 16 percent of those without a disability. Food insecurity among persons with disabilities is likely exacerbated by discrimination and stigma towards them. Public health systems and research outcomes have often referred to disability as something to "prevent, cure, or treat", thereby contributing to shaping and consolidating views around persons with disabilities as "not valuable contributors to society". [ix]

Young persons with disabilities face specific barriers to accessing health care, education and employment opportunities, and may be limited in their social participation.[x, xi] School attendance represents a huge challenge for children and young persons with disabilities, particularly for those living in developing countries: 98 percent do not attend school, and those who do have lower educational attainment compared to their peers without disabilities,[xii, xiii] de-facto hampering their school-to-work transition. This is in part due to the limited accessibility of both schools and transport, as well as poverty and stigma, among other reasons. Compounding this lack of access, persons with disabilities who attend school are also less likely to complete their education at all levels than persons without disabilities.

Some countries and territories have incorporated concerns related to learners with disabilities into their policies and legal frameworks; others such as Cuba and Palestine have implemented successful measures to close the education gap to the point that there are no longer recorded cases of children or young persons with disabilities who have never attended school. However, the global COVID-19 pandemic severely hampered progress in making national education systems inclusive with 17 percent of persons with disabilities attending education dropping out during the pandemic.[vi]

Youth with disabilities account for a large majority of young people who are neither in employment, education or training (NEET). Nearly half are likely to be NEET compared to 25 percent of youth without disabilities. The gap is largest in Eastern and Southeastern Asia (41 percentage points), Europe and Northern America (33 percentage points) and Northern Africa and Western Asia (31 percentage points). Policy recommendations related to the employment of young people and others with disabilities are similar to some of those reported in Chapter 7 of this report. Namely, specific national policies and employment schemes need to promote the inclusion of persons with disabilities in the economy, youth with disabilities can benefit from access to digital innovation and technology as well as green jobs, and the formalization of jobs can support decent employment for persons with disabilities (see also Chapter 4).[vi]

Regarding technology, according to the CRPD, information and communication technologies (ICTs) play a critical role in enhancing education and reducing isolation for young persons with disabilities, while empowering them and ensuring that "they fully enjoy human rights and fundamental freedoms".

Additionally, physical accessibility remains a critical barrier preventing persons with disabilities from participating in institutions and social life, beyond schools, in both rural and urban settings.[xiv] As discussed in Chapter 3, social capital for youth is critical to support their access to assets and resources needed for agrifood systems. Therefore, ensuring that youth with disabilities are included in organizations and groups fosters their integration into societies and economies.[xv]

Ensuring the inclusion of young people with disabilities is not only a human right; it is a prerequisite in countries around the globe for the realization of sustainable economic growth and inclusive agrifood systems.

Notes: Refer to the Notes section for full citations.

ENGAGEMENT MOVES FOOD FORWARD

©UNEP/TAUFANY ERIZ
IN CIWIDEY, INDONESIA, A YOUNG FARMER PLANTS A TREE.

04 YOUTH ENGAGEMENT AND QUALITY OF WORK IN AGRIFOOD SYSTEMS

© FAO/HEBA KHAMIS
IN BANGAR EL SOKOR, EGYPT, YOUNG WORKERS ARE ARRANGING THE TOMATOES TO DRY IN THE SUN.

KEY MESSAGES

- Agrifood systems are a key source of livelihoods for youth, especially in less formalized agrifood systems.
- Globally, 44 percent of working youth and 38 percent of working adults were employed in agrifood systems in 2021.
- The share of working youth in agrifood systems employment declines as agrifood systems transition, ranging from 82 percent in protracted crisis to 23 percent in industrial agrifood systems.
- Since 2005, the global shares of working youth and adults have decreased by about 10 percentage points, driven mainly by decreases in agricultural employment. Across agrifood systems, employed youth and adults exit agriculture at a similar pace.
- Agrifood systems are key entry points to the labour market for younger youth aged 15–19. As agrifood systems transition, the entry point for younger youth shifts from agriculture to off-farm agrifood system employment, with this sector becoming increasingly more important for young women compared to young men.
- Youth, and especially younger youth, are less likely to have more than one economic activity outside agrifood systems. As they grow older, youth diversify and eventually exit agrifood systems employment.
- Intergenerational economic mobility outside of agriculture is more likely, particularly for young men, in contexts of higher agricultural labour productivity growth.
- Youth, and especially young women, engage in more precarious work in agrifood systems. Though declining with agrifood systems transition, a consistently greater share of young women are in vulnerable employment, particularly as contributing family workers, compared to their male counterparts.
- Young women are less likely to work full time, and across most agrifood systems young women are more likely than young men to remain outside the labour force and not in school.
- Young women allocate almost three times more time than young men to unpaid and domestic work.

INTRODUCTION

Youth represent an important share of the workforce in agrifood systems. In countries at earlier stages of transition, agrifood systems, and particularly agriculture, represent the largest shares of employment,[1–4] with children and youth accounting for a significant share of the working population. Agrifood systems can also play a central role in youth job creation,[5, 6] though the provision of decent employment remains a challenge.[7, 8] As agrifood systems transition, and countries structurally transform, agrifood systems employment represents a decreasing share of total employment, and children and youth account for a smaller share of the working population (see Figure 2.5). The challenge increasingly becomes one of addressing labour shortages and generational renewal in agriculture,[9–11] which undermines future agrifood systems stability and rural revitalization[12,13] (see Spotlight 1.1).

Understanding the patterns of youth employment in agrifood systems, both in agriculture and off-farm, is critical to informing policies aimed at supporting productive and positive engagement of youth in the sector. This chapter sheds light on patterns of on- and off-farm agrifood systems employment (see Box 4.1 for a definition of employment) across agrifood systems over time and by age and gender cohorts. It looks not only at employment in terms of participation, but also in terms of time allocation, individual-level diversification and intergenerational mobility. It also discusses the quality of the jobs young men and women hold in agrifood systems, with specific attention to gender disparities. Finally, the chapter documents how the unpaid care and work burden on women undermines young women's employment in agrifood systems.

© FAO/JUDITH MULINGE
IN TURKANA COUNTY, KENYA, ONESMUS ELAR DRIES GROUNDNUTS AT THE COMMUNITY STORE COMPOUND

BOX 4.1 YOUTH EMPLOYMENT AND WORK IN AGRIFOOD SYSTEMS:: METHODOLOGICAL CONSIDERATIONS AND DATA

Official employment statistics define employment in terms of an employed individual's main job in the last seven days, including only activities performed for pay or profit as per the distinction between work and employment adopted at the Nineteenth International Conference of Labour Statisticians (ICLS).[i] Yet, this definition does not adequately capture multiple forms of work and engagement in agrifood systems. A large share of individuals and households working in agrifood systems may be engaged in different activities producing goods mainly for their own consumption, activity which may be considered as work but not employment.[ii, iii] Individuals may also engage in multiple jobs and simultaneously work in agriculture or off-farm segments of agrifood systems activities.[ii]

These measurement considerations are critical when determining the importance of agrifood systems for youth in low- and middle-income countries. When they engage in additional jobs, a large share of youth is either involved in subsistence farming or in agrifood.[iv] To adequately capture the role played by youth in agrifood systems, as well as the importance of agrifood systems in youth's livelihoods, this chapter considers both work and employment, to account for the various forms of work and engagement in agrifood systems.

Agrifood systems are defined following a specific categorization of industry codes (ISIC), distinguishing between agriculture, food processing and services, and manufacture of non-food agricultural products.[ii] A detailed definition and categorization of ISIC codes can be found in Table A2.1 of Appendix 2. Some analyses also differentiate between different types of agrifood systems, following recent typologies[v,vi] (see **Box 1.1**).

This chapter also uses multiple sources of data. First, the chapter uses age-disaggregated global data on the share and number of youth and adults in agriculture and off-farm agrifood systems. The modelling approach draws on that of Davis *et al.*[ii] and employs unpublished ILO estimates based on ILO modelled estimates (November 2023)[vii] on the share of youth among all agricultural workers. More details on the model used can be found in Appendix 2.

Second, the chapter uses estimates derived from survey data on the share and number of youth and adults in agriculture and off-farm agrifood systems, based on ad hoc tabulations provided by ILOSTAT.[viii] These data cover up to 77 countries and are, whenever applicable, disaggregated by gender and detailed age cohorts.

Third, some analyses in this chapter build on micro-level data produced by Davis *et al.*[ii] These data include data from up to 18 low– and lower-middle income countries on individual engagement in agrifood systems. These data have also been merged with geospatial data to analyse patterns of youth engagement along the rural opportunity space framework presented in Chapter 2 (see **Spotlight 4.1**).

Notes: Refer to the Notes section for full citations.

YOUTH EMPLOYMENT IN AGRIFOOD SYSTEMS DECREASES WITH DEVELOPMENT

YOUTH EMPLOYMENT IN AGRIFOOD SYSTEMS

In 2021, approximately 44 percent of employed youth and 38 percent of employed adults were working in agrifood systems, compared with 54 percent of youth and 47 percent of adults in 2005 (Figure 4.1). This reduction in agrifood systems employment is explained primarily by the decline in agricultural employment in both age cohorts over this period.

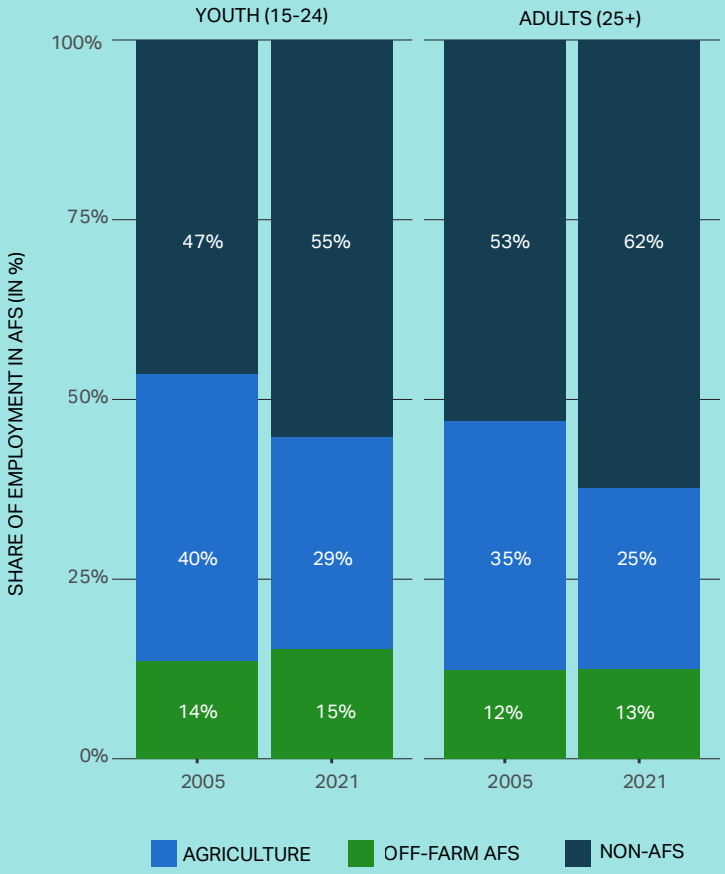
> **GLOBALLY, 44 PERCENT OF WORKING YOUTH WERE EMPLOYED IN AGRIFOOD SYSTEMS IN 2021.**

©FAO/TANG CHHIN SOTHY IN KAMPONG CHHNANG, CAMBODIA, 17-YEAR-OLD CHHUM KIMSEAK WRITES ON THE BOARD DURING CLASS AT HER SCHOOL IN KOUK BANTEAY COMMUNE, HIGHLIGHTING THE ROLE OF EDUCATION IN EMPOWERING RURAL YOUTH.

FIGURE 4.1

EMPLOYMENT IN AGRIFOOD SYSTEMS REMAINS IMPORTANT FOR YOUTH

Share of agrifood systems employment in total employment in 2005 and 2021, by age cohort



Note: Shares for youth do not amount to 100 percent due to rounding. Graph based on data from 136 countries: *Sub-Saharan Africa*: Burundi, Benin, Burkina Faso, Botswana, Cape Verde, Comoros, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Swaziland, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe. *Southern Asia*: Afghanistan, Bangladesh, India, Iran (Islamic Republic of), Nepal, Pakistan, Sri Lanka. *Southeastern Asia*: Cambodia, Indonesia, Lao People's Democratic, Republic, Malaysia, Myanmar, Philippines, Thailand, Timor-Leste, Viet Nam. *Eastern Asia*: China, Japan, Korea (Republic of), Mongolia. *Central Asia*: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan. *Western Asia*: Azerbaijan, Cyprus, Georgia, Iraq, Israel, Jordan, Lebanon, Oman, Palestine, Saudi Arabia, Türkiye, United Arab Emirates. *Northern Africa*: Algeria, Egypt, Morocco, Tunisia. *Latin America and the Caribbean*: Argentina, Bahamas, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay. *Oceania*: Australia, Fiji, New Zealand. *Europe and Northern America*: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Germany, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova (Republic of), Netherlands (Kingdom of the), North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration, using ILO estimates based on ILO modelled estimates, November 2023. These estimates provide the share of youth among all agricultural workers. The share and number of youth in agriculture and off-farm agrifood systems employment were modelled, adapting an approach used by Davis *et al.*[1] and detailed in Appendix 2.

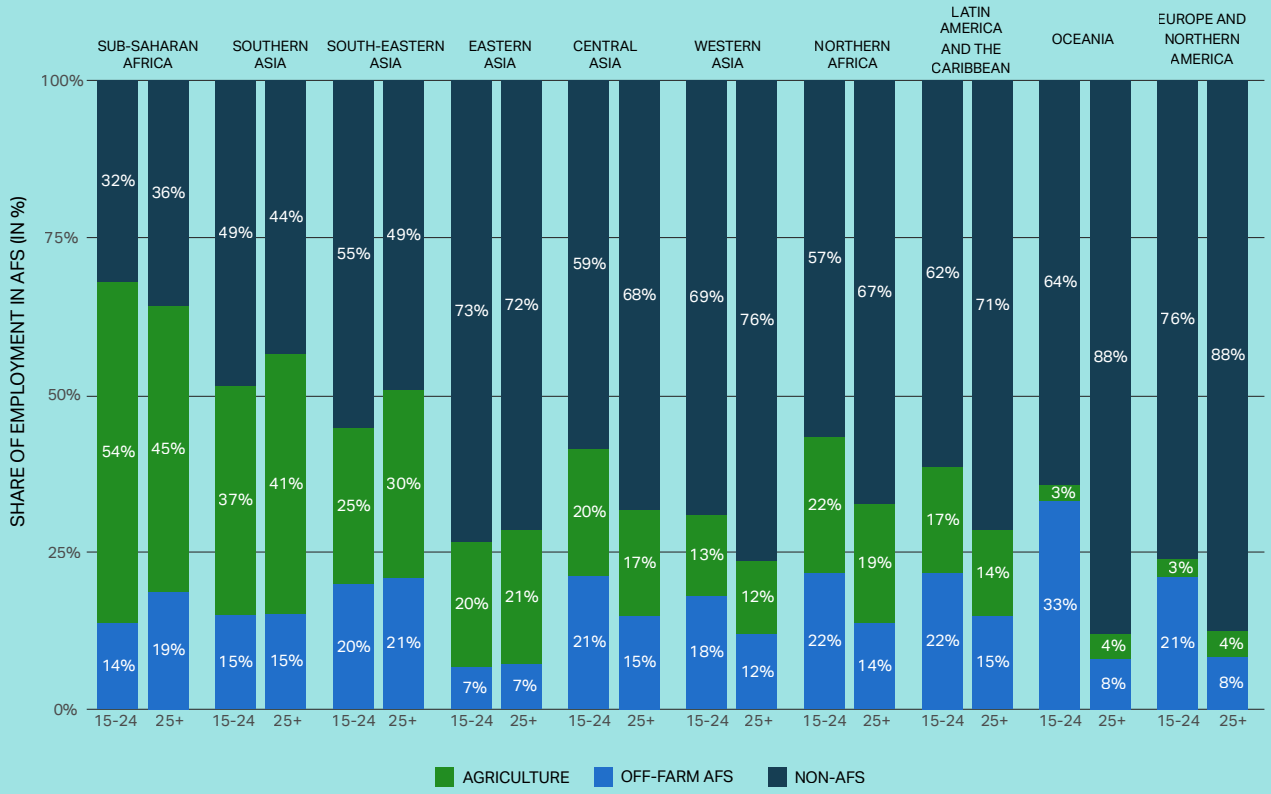
Looking first at youth employment in agrifood systems by region (Figure 4.2), the largest shares are found in sub-Saharan Africa and South Asia, with 68 percent and 52 percent, respectively. Most of these youth are working in agriculture.[5] In more developed countries, including from Southeastern Asia and Latin America and the Caribbean, while relatively larger shares of employed youth work in agrifood systems (45 percent and 39 percent, respectively), a greater portion of youth work off-farm in agrifood systems. In higher-income countries, with lower shares of rural youth in their populations, such as Europe and Northern America, less than a quarter of employed youth work in agrifood systems, mostly off-farm. In Oceania and Europe and Northern America, the share of youth employed in agrifood systems is more than double that of adults.

©IFAD/ANDREW ESIEBO IN OVIA NORTH, EDO STATE, NIGERIA, AIGBOKHAE OSIFO EFOSAS STANDS PROUDLY WITH HIS CHICKEN FEED IN THE POULTRY PENS, WHICH TRANSFORMED HIM FROM AN UNEMPLOYED YOUTH INTO A THRIVING ENTREPRENEUR.

FIGURE 4.2

AGRIFOOD SYSTEMS ARE A KEY SOURCE OF EMPLOYMENT FOR YOUTH IN AFRICA AND SOUTHERN ASIA

Share of agrifood systems employment in total employment in 2021, by age cohort and region



Note: Shares for youth do not amount to 100 percent due to rounding. Graph based on data from 136 countries: *Sub-Saharan Africa*: Burundi, Benin, Burkina Faso, Botswana, Cape Verde, Comoros, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Swaziland, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe. *Southern Asia*: Afghanistan, Bangladesh, India, Iran (Islamic Republic of), Nepal, Pakistan, Sri Lanka. *Southeastern Asia:* Cambodia, Indonesia, Lao People's Democratic, Republic, Malaysia, Myanmar, Philippines, Thailand, Timor-Leste, Viet Nam. *Eastern Asia:* China, Japan, Korea (Republic of), Mongolia. *Central Asia*: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan. *Western Asia:* Azerbaijan, Cyprus, Georgia, Iraq, Israel, Jordan, Lebanon, Oman, Palestine, Saudi Arabia, Türkiye, United Arab Emirates. *Northern Africa*: Algeria, Egypt, Morocco, Tunisia. *Latin America and the Caribbean*: Argentina, Bahamas, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay. *Oceania*: Australia, Fiji, New Zealand. *Europe and Northern America*: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Germany, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova (Republic of), Netherlands (Kingdom of the), North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration, using ILO estimates based on ILO modelled estimates, November 2023. These estimates provide the share of youth among all agricultural workers. The share and number of youth in agriculture and off-farm agrifood systems employment were modelled, adapting an approach used by Davis *et al.*[1] and detailed in Appendix 2.

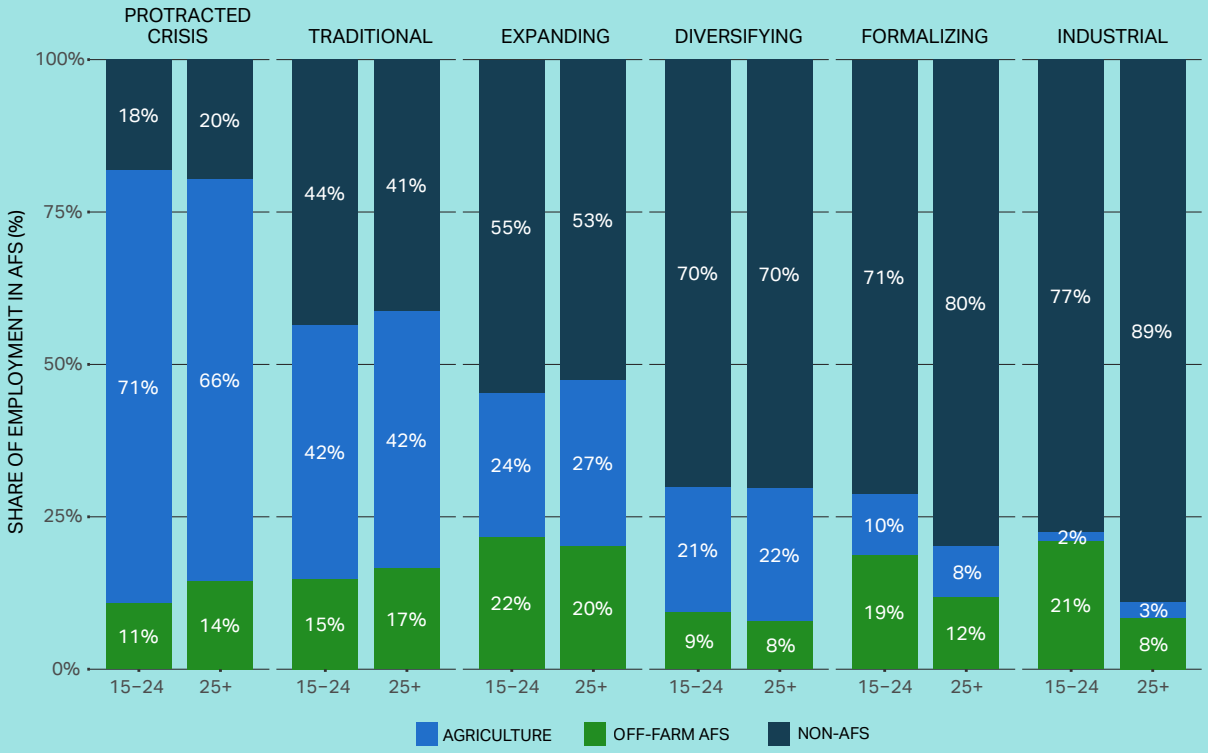
Youth employment in agrifood systems decreases as agrifood systems transition (Figure 4.3). The share of agrifood systems employment for youth ranges from 82 percent in protracted crisis agrifood systems to 57 percent in traditional agrifood systems, and 46 percent in expanding agrifood systems. The importance of agrifood systems for youth employment, as well for adults, continues to decline, with 30 percent of employed youth in diversifying agrifood systems, 29 percent in formalizing agrifood systems, and 23 percent in industrial agrifood systems.

©FAO/GIULIO NAPOLITANO IN AKASSATO, BENIN, DANIEL NARCISE SAVI, A YOUNG AGRIBUSINESS PROFESSIONAL, STANDS AT THE ALITECH FACTORY, REPRESENTING A NEW GENERATION DRIVING PRIVATE SECTOR INNOVATION IN AGRICULTURE.

FIGURE 4.3

AGRIFOOD SYSTEMS ARE A CRITICAL SOURCE OF EMPLOYMENT FOR YOUTH IN LESS FORMALIZED AGRIFOOD SYSTEM CATEGORIES

Share of agrifood systems employment in total employment in 2021, by age cohort and type of agrifood system



Note: Graph based on data from 136 countries: *Protracted crisis*: Afghanistan, Burundi, Ethiopia, Haiti, Mali, Mauritania, Niger, Palestine, Zimbabwe. *Traditional*: Bangladesh, Benin, Burkina Faso, Cambodia, Comoros, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, India, Kenya, Lao People's Democratic Republic, Lesotho, Madagascar, Malawi, Mozambique, Myanmar, Nepal, Nigeria, Pakistan, Rwanda, Senegal, Tajikistan, United Republic of Tanzania, Timor-Leste, Togo, Uganda, Zambia. *Expanding*: Azerbaijan, Bolivia (Plurinational State of), Botswana, Cape Verde, Egypt, El Salvador, Gambia, Georgia, Guatemala, Honduras, Indonesia, Iraq, Kyrgyzstan, Morocco, Namibia, Nicaragua, Paraguay, Peru, Philippines, Sri Lanka, Swaziland, Thailand, Uzbekistan, Viet Nam. *Diversifying*: Algeria, Belize, Bosnia and Herzegovina, China, Ecuador, Fiji, Guyana, Iran (Islamic Republic of), Jamaica, Kazakhstan, Lebanon, Mauritius, Moldova (Republic of), Mexico, Panama, Poland, Romania, Suriname, Trinidad and Tobago, Tunisia, Ukraine, South Africa. *Formalizing*: Albania, Argentina, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Croatia, Cyprus, Dominican Republic, Hungary, Ireland, Jordan, Latvia, Lithuania, Malaysia, Mongolia, North Macedonia, Oman, Portugal, Russian Federation, Saudi Arabia, Slovakia, Slovenia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Bahamas, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Israel, Italy, Japan, Korea (Republic of), Luxembourg, Malta, Netherlands (Kingdom of the), New Zealand, Norway, Spain, Sweden, Switzerland, Uruguay, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration, using ILO estimates based on ILO modelled estimates, November 2023. These estimates provide the share of youth among all agricultural workers. The share and number of youth in agriculture and off-farm agrifood systems employment were modelled, adapting an approach used by Davis *et al.*[1] and detailed in Appendix 2.

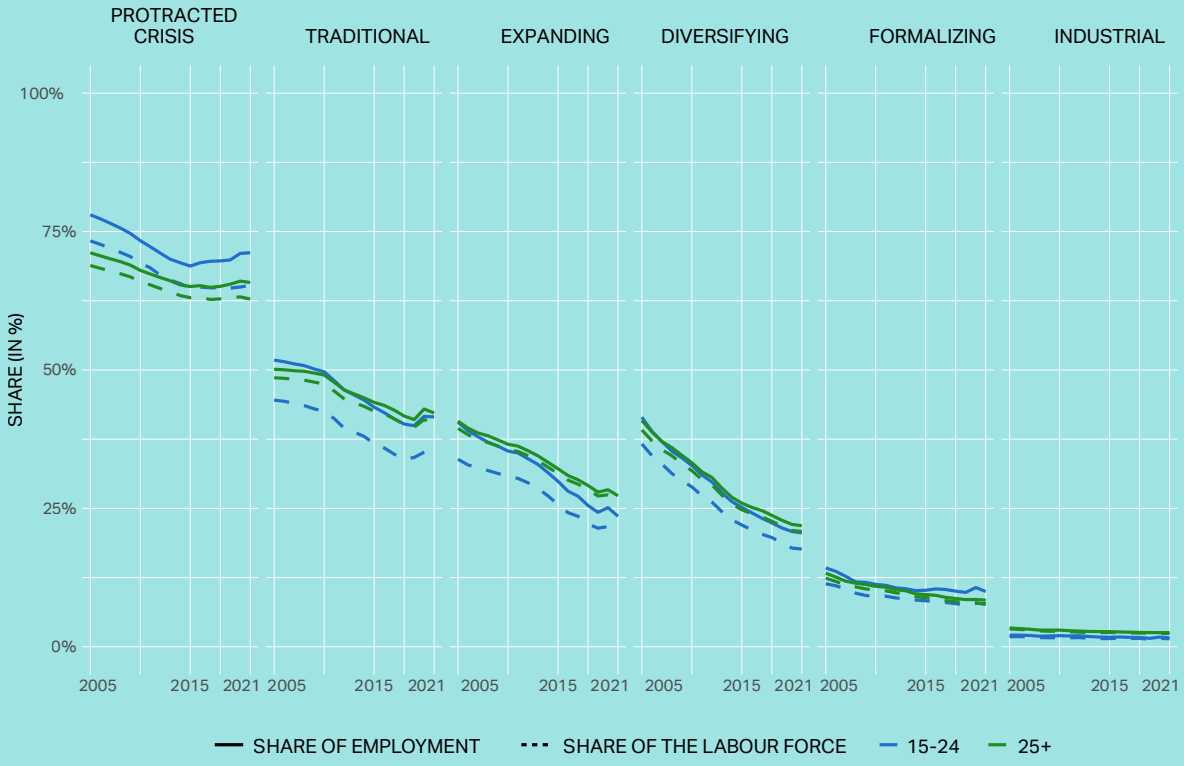
Youth and adult employment in agrifood systems follow similar patterns as agrifood systems transition. This process is driven mainly by adults and youth moving out of agriculture as countries structurally transform (Figure 4.4). In all types of agrifood systems the share of youth and adults in agricultural employment out of all youth and adults in employment and in the labour force declined over time, with similar trajectories between youth and adults.

©IFAD/GIULIO NAPOLITANO IN ATHIEME, BENIN, YOUNG COOPERATIVE LEADER ADELE GOGOE SERVES AS SECRETARY OF THE LOCAL MAIZE PRODUCERS' UNION, EXEMPLIFYING YOUTH LEADERSHIP IN STRENGTHENING COMMUNITY-BASED AGRIFOOD SYSTEMS.

FIGURE 4.4

YOUTH AND ADULTS IN EMPLOYMENT AND THE LABOUR FORCE EXIT AGRICULTURE AT A SIMILAR PACE

Share of adults and youth employment and labour force in agriculture between 2005 and 2021, by agrifood system types



Note: Graph based on data from 136 countries: *Protracted crisis:* Afghanistan, Burundi, Ethiopia, Haiti, Mali, Mauritania, Niger, Palestine, Zimbabwe. *Traditional*: Bangladesh, Benin, Burkina Faso, Cambodia, Comoros, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, India, Kenya, Lao People's Democratic Republic, Lesotho, Madagascar, Malawi, Mozambique, Myanmar, Nepal, Nigeria, Pakistan, Rwanda, Senegal, Tajikistan, United Republic of Tanzania, Timor-Leste, Togo, Uganda, Zambia. *Expanding*: Azerbaijan, Bolivia (Plurinational State of), Botswana, Cape Verde, Egypt, El Salvador, Gambia, Georgia, Guatemala, Honduras, Indonesia, Iraq, Kyrgyzstan, Morocco, Namibia, Nicaragua, Paraguay, Peru, Philippines, Sri Lanka, Swaziland, Thailand, Uzbekistan, Viet Nam. *Diversifying*: Algeria, Belize, Bosnia and Herzegovina, China, Ecuador, Fiji, Guyana, Iran (Islamic Republic of), Jamaica, Kazakhstan, Lebanon, Mauritius, Moldova (Republic of), Mexico, Panama, Poland, Romania, Suriname, Trinidad and Tobago, Tunisia, Ukraine, South Africa. *Formalizing*: Albania, Argentina, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Croatia, Cyprus, Dominican Republic, Hungary, Ireland, Jordan, Latvia, Lithuania, Malaysia, Mongolia, North Macedonia, Oman, Portugal, Russian Federation, Saudi Arabia, Slovakia, Slovenia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Bahamas, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Israel, Italy, Japan, Korea (Republic of), Luxembourg, Malta, Netherlands (Kingdom of the), New Zealand, Norway, Spain, Sweden, Switzerland, Uruguay, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration, using ILO estimates based on ILO modelled estimates, November 2023. These estimates provide the share of youth among all agricultural workers. The share and number of youth in agriculture and off-farm agrifood systems employment were modelled, adapting an approach used by Davis *et al.*[1] and detailed in Appendix 2.

Multiple factors explain this exit from agriculture. The structural transformation process, characterized by increases in labour productivity and increased income and demand in non-food products and services, typically results in a shifting of the workforce into more stable and better paying jobs in the secondary and tertiary sectors.[5,14] As can be seen in Figure 4.4, countries with less formalized agrifood systems are at an earlier stage of this process but have experienced more rapid declines in agricultural employment, affecting both youth and adults. Along with these economic shifts, multiple factors have played a critical role in shaping labour markets and youth engagement in agriculture, such as negative perceptions of work in agriculture,[15–17] limited access to land,[18–21] and other inputs as well as increased educational attainment, all of which have reshaped youth aspirations and capacity to pursue jobs in the off-farm sector associated with better income and opportunities[15] (see Spotlight 1.1 and Chapter 3).

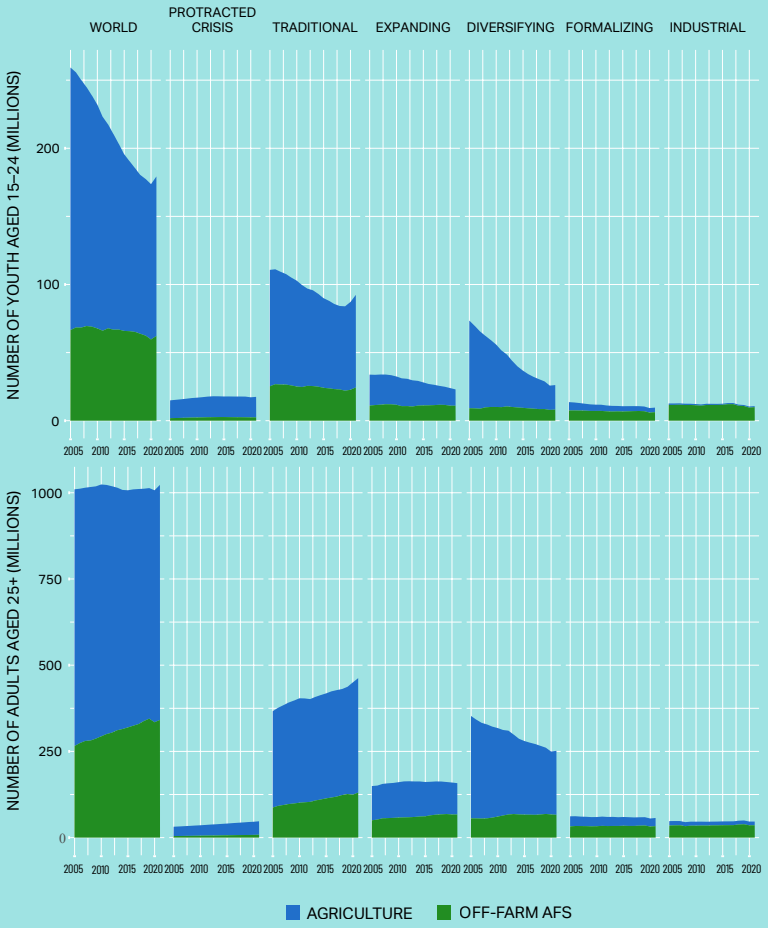
While the share of agriculture and broader agrifood systems employment declines as agrifood systems transition, this employment remains critical for large numbers of youth and adults, especially in less formalized agrifood systems (Figure 4.5). Globally, while the number of adults working in agrifood systems has remained stable between 2005 and 2021, the number of youth employed in the sector, both in agriculture and off-farm segments of agrifood systems, has declined during the same period. This decline is driven mostly by large decreases in countries with diversifying agrifood systems. For example, China has experienced a decrease in the number of workers in agriculture.[22,23] While the number of young workers in agrifood systems has declined over time in traditional agrifood systems, this number has remained more stable in other types of agrifood systems. In countries with large youth populations, especially with traditional agrifood systems, agrifood systems still provide employment opportunities to a large number of youth entering labour markets.

©FAO/LUIS TATO IN KIAMBU COUNTY, KENYA, RUTH WANJIRU MBURU AND GRACE WANJIRA KANGHETE FEED THEIR KIENYEJI CHICKENS ON A YOUTH-RUN FARM, SHOWCASING HOW AGRIBUSINESS TRAINING IS CREATING LOCAL OPPORTUNITIES AND ALTERNATIVES TO MIGRATION FOR RURAL YOUTH.

FIGURE 4.5

AGRIFOOD SYSTEMS EMPLOYMENT DECLINES BUT REMAINS CRITICAL FOR MANY WORKERS IN LESS FORMALIZED AGRIFOOD SYSTEMS

Number of workers in agrifood systems between 2005 and 2021, by sector and agrifood system type



Notes: Graph based on data from 131 countries: *Protracted crisis*: Afghanistan, Burundi, Ethiopia, Haiti, Mali, Mauritania, Palestine, Zimbabwe. *Traditional*: Benin, Burkina Faso, Bangladesh, Cambodia, Comoros, Côte d'Ivoire, Ghana, Guinea-Bissau, India, Kenya, Lao People's Democratic Republic, Lesotho, Madagascar, Malawi, Mozambique, Myanmar, Nepal, Nigeria, Pakistan, Senegal, United Republic of Tanzania, Timor-Leste, Togo, Uganda, Zambia. *Expanding*: Azerbaijan, Bolivia (Plurinational State of), Botswana, Cape Verde, Egypt, El Salvador, Gambia, Georgia, Guatemala, Honduras, Indonesia, Iraq, Kyrgyzstan, Morocco, Namibia, Nicaragua, Paraguay, Peru, Philippines, Swaziland, Thailand, Uzbekistan, Viet Nam. *Diversifying*: Algeria, Belize, Bosnia and Herzegovina, China, Ecuador, Fiji, Guyana, Iran (Islamic Republic of), Jamaica, Kazakhstan, Lebanon, Mauritius, Moldova (Republic of), Mexico, Panama, Poland, Romania, Suriname, Trinidad and Tobago, Tunisia, Ukraine, South Africa. *Formalizing*: Albania, Argentina, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Croatia, Cyprus, Dominican Republic, Hungary, Ireland, Jordan, Latvia, Lithuania, Malaysia, Mongolia, North Macedonia, Oman, Portugal, Russian Federation, Saudi Arabia, Slovakia, Slovenia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Bahamas, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Israel, Italy, Japan, Korea (Republic of), Luxembourg, Malta, Netherlands (Kingdom of the), New Zealand, Norway, Spain, Sweden, Switzerland, Uruguay, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration, using ILO estimates based on ILO modelled estimates, November 2023. These estimates provide the share of youth among all agricultural workers. The share and number of youth in agriculture and off-farm agrifood systems employment were modelled, adapting an approach used by Davis *et al.*[1] and detailed in Appendix 2.

YOUTH SHARES OUT OF ALL AGRIFOOD SYSTEMS WORKERS ARE LINKED TO AGRIFOOD SYSTEMS TRANSITION

Globally, youth constitute 15 percent of all agrifood systems workers, although this share varies as agrifood systems transition (Figure 4.6). In countries with protracted crises, about a quarter of agrifood systems workers and almost 30 percent of agricultural workers are aged 15–24. The share of youth among all agrifood systems workers declines as agrifood systems transition, reaching 9 percent in emerging agrifood systems. In modernizing and industrial agrifood systems, the share of agrifood systems workers categorized as youth increases to 15 percent and 20 percent, respectively, driven primarily by increasing shares of youth among off-farm agrifood systems workers. In industrial agrifood systems, youth account for only 7 percent of agriculture workers, reflecting the aging of the agriculture sector.[9,13,24]

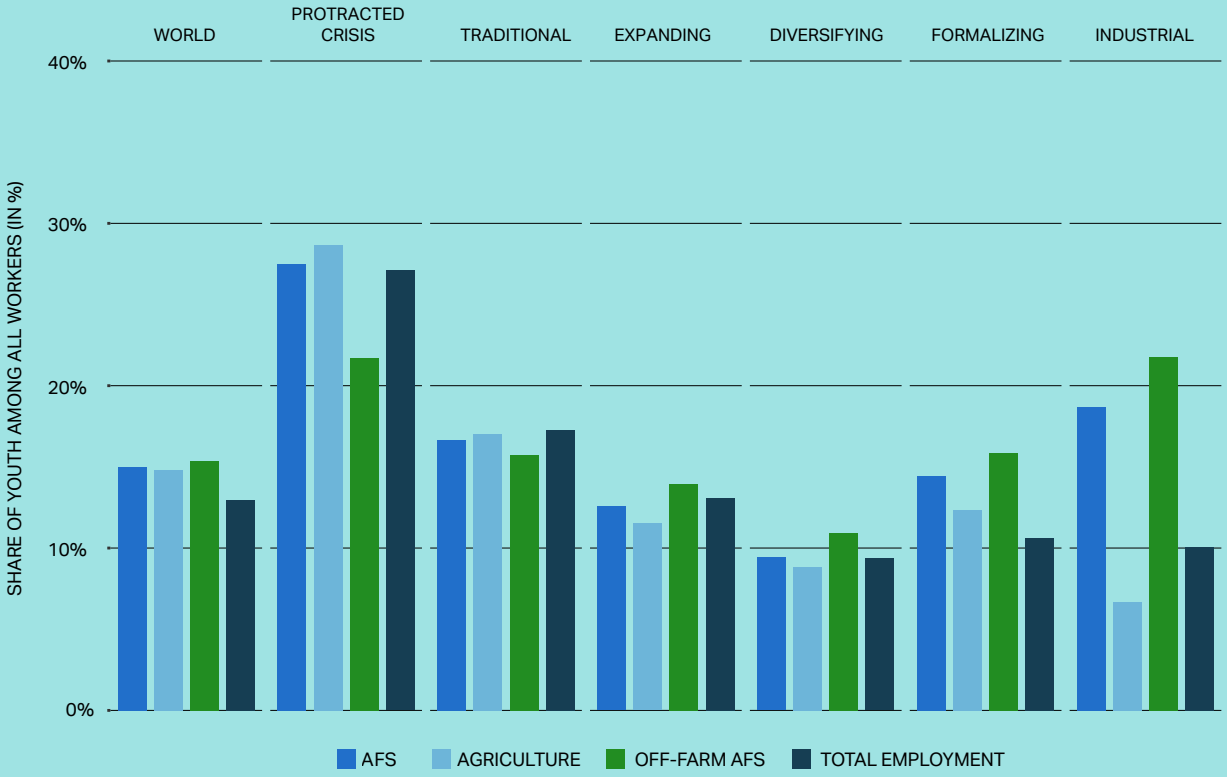
> “YOUTH REPRESENT 15 PERCENT OF ALL AGRIFOOD SYSTEMS WORKERS IN THE WORLD.

©FAO/SAIKAT MOJUMDE IN BRAHMANBARIA, BANGLADESH, A YOUNG MEMBER OF A COMMUNITY-BASED ORGANIZATION TRANSPORTS HARVESTED FISH TO A NEARBY MARKET AFTER FOUR MONTHS OF FLOATING CAGE AQUACULTURE, DEMONSTRATING YOUTH-LED INNOVATION IN SUSTAINABLE FISH FARMING.

FIGURE 4.6

ABOUT 15 PERCENT OF AGRIFOOD SYSTEMS WORKERS ARE YOUTH, ALTHOUGH SHARES DIFFER BY AGRIFOOD SYSTEM

Share of youth out of all agrifood systems workers in 2021, by agrifood system type and sector



Notes: Graph based on data from 136 countries: *Protracted crisis*: Afghanistan, Burundi, Ethiopia, Haiti, Mali, Mauritania, Niger, Palestine, Zimbabwe. *Traditional*: Bangladesh, Benin, Burkina Faso, Cambodia, Comoros, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, India, Kenya, Lao People's Democratic Republic, Lesotho, Madagascar, Malawi, Mozambique, Myanmar, Nepal, Nigeria, Pakistan, Rwanda, Senegal, Tajikistan, United Republic of Tanzania, Timor-Leste, Togo, Uganda, Zambia. *Expanding*: Azerbaijan, Bolivia (Plurinational State of), Botswana, Cape Verde, Egypt, El Salvador, Gambia, Georgia, Guatemala, Honduras, Indonesia, Iraq, Kyrgyzstan, Morocco, Namibia, Nicaragua, Paraguay, Peru, Philippines, Sri Lanka, Swaziland, Thailand, Uzbekistan, Viet Nam. *Diversifying*: Algeria, Belize, Bosnia and Herzegovina, China, Ecuador, Fiji, Guyana, Iran (Islamic Republic of), Jamaica, Kazakhstan, Lebanon, Mauritius, Moldova (Republic of), Mexico, Panama, Poland, Romania, Suriname, Trinidad and Tobago, Tunisia, Ukraine, South Africa. *Formalizing*: Albania, Argentina, Brazil, Bulgaria, Chile, Colombia, Costa Rica, Croatia, Cyprus, Dominican Republic, Hungary, Ireland, Jordan, Latvia, Lithuania, Malaysia, Mongolia, North Macedonia, Oman, Portugal, Russian Federation, Saudi Arabia, Slovakia, Slovenia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Bahamas, Belgium, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Israel, Italy, Japan, Korea (Republic of), Luxembourg, Malta, Netherlands (Kingdom of the), New Zealand, Norway, Spain, Sweden, Switzerland, Uruguay, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration, using ILO estimates based on ILO modelled estimates, November 2023. These estimates provide the share of youth among all agricultural workers. The share and number of youth in agriculture and off-farm agrifood systems employment were modelled, adapting an approach used by Davis *et al.*[1] and detailed in Appendix 2.

Figure 4.7 provides the age distribution of workers in agrifood systems by more granular age cohorts and gender using non-modelled data. Among men, agrifood systems in protracted crisis have the most youthful structure, with the largest share of workers found in the 15–24 age category, followed by those aged 25–34 and 35–44. Across agrifood systems transition, except for industrial agrifood systems, young men constitute a larger share of agrifood systems workers, reflecting lower levels of female labour force participation. In all other age cohorts, male workers consistently represent larger shares of agrifood systems workers than their female counterparts.

Within agrifood system types, countries have substantial heterogeneity in the share of youth among all agrifood systems workers. In all countries with protracted crises in the sample (Ethiopia, Mali, Palestine, South Sudan and Zimbabwe) and several countries with traditional agrifood systems (Madagascar, Pakistan, Uganda and Zambia), many of which have large youth populations (see Figure 2.4 in Chapter 2), youth represent about one-quarter of all agrifood systems workers. Among diversifying agrifood systems, nearly 20 percent of agrifood systems workers are aged 15–24 in Ecuador, Mexico and Panama, while in expanding agrifood systems, more than 20 percent of agrifood systems workers are aged 15–24 in Angola, the Gambia, Guatemala, Honduras, Iraq, Kyrgyzstan and Peru. In industrial agrifood systems, while youth represent a minor share of agrifood systems workers in Japan (5 percent) or Greece (6 percent), they account for 29 percent and 36 percent of all agrifood systems workers in Israel and Australia, respectively.

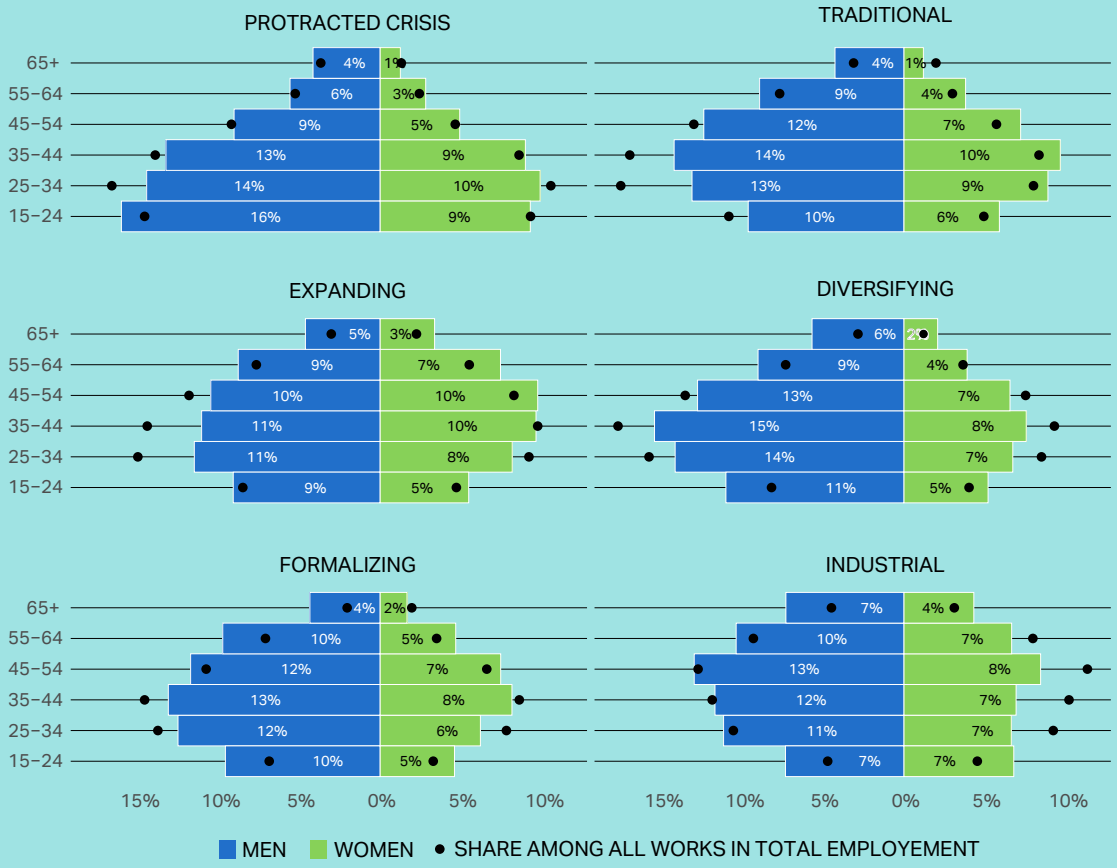
While the contribution of youth to agrifood systems employment decreases as agrifood systems transition, youth remain over-represented in the sector. With the exception of young men in traditional agrifood systems, the shares of youth among workers in agrifood systems is larger than their shares in total employment in almost all settings, making agrifood systems more reliant on youth than other sectors.

©FAO/NASTYA PALAGUTINA IN ASTANA, KAZAKHSTAN, A YOUNG LABORATORY WORKER PREPARES RAW MILK SAMPLES FOR TESTING, CONTRIBUTING TO FOOD SAFETY AND QUALITY ASSURANCE IN THE DAIRY VALUE CHAIN.

FIGURE 4.7

YOUTH ARE OVERREPRESENTED IN ALMOST ALL AGRIFOOD SYSTEMS

Share of different age cohorts out of all agrifood systems workers and total employment in 2021, by agrifood system type and gender



Note: Graph based on data from 72 countries: *Protracted crisis*: Afghanistan, Ethiopia, Mali, Palestine, Sudan, Zimbabwe. *Traditional*: Bangladesh, Burkina Faso, Cambodia, Comoros, Guinea-Bissau, India, Lao People's Democratic Republic, Madagascar, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Timor-Leste, Togo, Uganda, Zambia. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, Panama, South Africa, Tunisia. *Expanding*: Angola, Bolivia (Plurinational State of), Botswana, Egypt, El Salvador, Eswatini, Gambia, Georgia, Guatemala, Honduras, Iraq, Kyrgyzstan, Peru, Samoa, Sri Lanka, Thailand, Viet Nam, *Formalizing*: Albania, Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Saudi Arabia, Slovakia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Czechia, France, Greece, Israel, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

The decline of youth's share in agrifood systems is linked to a drop in the share of youth among all agricultural workers. While there are no major changes within agrifood system types, which have maintained overall similar demographic structures among agricultural workers, different regions have seen a substantial decline in the shares of youth among all agricultural workers (see Figure A5.2 in Appendix 5). Sub regions in Asia have experienced the sharpest declines, whereas in sub-Saharan Africa, the decline has been more gradual, with youth representation decreasing by about 2 percentage points over the last two decades. As both youth and adults leave agriculture at a similar pace, including proportionately to their levels of development,[5,25] agriculture relies more extensively on adult workers as agrifood systems transition.

While overall trends show a decrease in the role of youth in agriculture, the share of youth among agriculture workers increased in some countries, such as Angola (from 21 percent to 29 percent), Uganda (from 31 percent to 36 percent) and Ecuador (from 19 percent to 22 percent) (Table A5.1 in Appendix 5). This may be due to the increased participation of youth in agriculture in low-income and lower-middle-income countries after the onset of the COVID-19 pandemic, as well as the success of agricultural interventions in promoting youth employment, such as land titling, farmer school programmes and other programmes that aim to shape youth's perceptions of agricultural employment.[26–28] In many industrialized agrifood systems, the share of young workers in the sector also increased (e.g. from 6 percent to 9 percent in France), which could be linked to clearer farm succession plans,[29] the presence of young farmers in these agrifood systems[26, 30] or highly specialized agricultural activities.

> **"THE DECLINE IN THE SHARE OF YOUTH IN AGRICULTURE COINCIDES WITH AN INCREASE IN SCHOOL PARTICIPATION."**

MANY YOUTH LEAVE AGRICULTURE FOR SCHOOL

Different patterns emerge regarding young people's paths when they exit agriculture (Figure 4.8). In countries with less formalized agrifood systems, the drop in the share of working-age youth employed in agriculture between 2012 and 2021 coincided with an increase in the share of youth in school. For example, in countries with protracted crisis agrifood systems, the share of young working-age women and men declined by 17 and 15 percentage points, respectively, while the share of those in school increased by 11 and 9 percentage points. A similar trend is observed in countries with traditional and expanding agrifood systems. These trends reflect the progress made in educational attainment in these countries, especially as they catch up with more formalized agrifood systems (see Chapter 3).

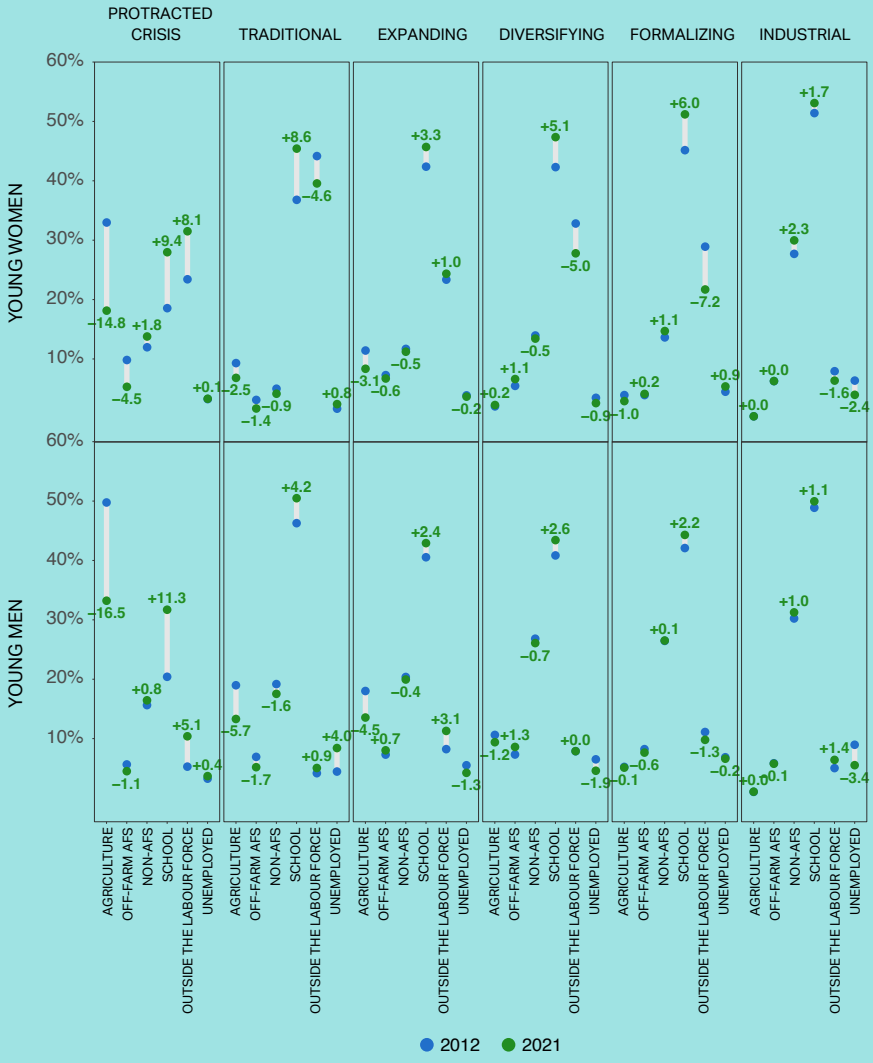
Young women are also catching up with young men. Across agrifood system types, greater shares of young women were engaged in school in 2021 than in 2012. In fact, a greater share of young women were in school in 2021 compared to young men across expanding, diversifying, formalizing and industrial agrifood systems.

Young women, however, remain much more likely to be outside of the labour force and not in school than young men across all agrifood system types, except industrial agrifood systems (see Chapter 3). The high proportion of young women outside of the labour force who are not in school may be linked to gender norms that constrain women's choices and impose expectations that they engage in unpaid work.[31,32] This makes them more vulnerable to being pushed out of the labour force during crises.[32]

FIGURE 4.8

DECLINE IN THE SHARE OF YOUTH EMPLOYED IN AGRICULTURE COINCIDES WITH AN INCREASE IN SCHOOL PARTICIPATION

Status of working-age youth in 2012 and 2021, by agrifood system type



Note: The graph shows the distribution of working-age population between 2012 (or the nearest year within a three-year band) and 2021, disaggregated by age and gender cohorts. The changes between 2012 and 2021 do not always add up to 100 due to rounding. Graph based on data from 37 countries: *Protracted crisis*: Afghanistan, Ethiopia, Palestine, Zimbabwe. *Traditional*: Comoros, Cambodia, India, Timor-Leste, Uganda. *Expanding*: Angola, Bolivia, Egypt, El Salvador, Kyrgyzstan, Peru, Thailand, Viet Nam. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico. *Formalizing*: Albania, Argentina, Dominican Republic, Mongolia, North Macedonia, Portugal, Slovakia, Türkiye. *Industrial*: Austria, Czechia, Greece, France, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration. The shares of youth employed in agriculture, off-farm agrifood systems and outside agrifood systems are based on ILO Harmonized Microdata, https://ilostat.ilo.org. The shares of youth in school, outside the labour force and unemployed were calculated based on annual data from the ILOSTAT and YouthSTATS databases.

AGRIFOOD SYSTEMS REMAIN KEY FOR YOUTH

AGRIFOOD SYSTEMS AS A CRITICAL ENTRY POINT FOR YOUTH EMPLOYMENT

While youth employment in agrifood systems declines with development and agrifood systems transition, agrifood systems remain a critical entry point for youth (Figure 4.9).[33, 34] The youngest category of men (15–19 years of age) relies more on agrifood systems employment than youth aged 20–24 across all levels of agrifood systems transition. This is also true for young women, except in the case of traditional agrifood systems. For example, in protracted crisis agrifood systems, 76 percent and 66 percent of men and women, respectively, aged 15–19 rely on agrifood systems employment, compared with 66 percent and 63 percent of men and women, respectively, aged 20–24. The percentages decrease moving from protracted crisis to industrial food systems, where 25 percent of men and 29 percent of women aged 15–19 are in agrifood systems employment, compared to 13 percent of men and 12 percent of women aged 20–24.

In the first three types of agrifood system transition, younger youth rely extensively on agriculture for their livelihoods, with engagement in own farming being the most direct entry point for those living in farm-owning households,[33, 34] an involvement that in some cases started much earlier in childhood.[35] This is particularly true for youth aged 15–17, who have reached the legal minimum age for employment and rely extensively on agrifood systems.[36]

At the same time, the share of youth aged 15–19 and 20–24 employed in off-farm agrifood systems employment increases, particularly for young women, in expanding agrifood systems (31 percent of young women aged 15–19 and 24 percent of young women aged 20–24, compared to 18 percent of young men aged 15–19 and 19 percent of young men aged 20–24, respectively), diversifying agrifood systems (39 percent versus 21 percent and 24 percent versus 18 percent, respectively) and industrial agrifood systems (27 percent of young women aged 15–19 versus 23 percent of young men aged 15–19).

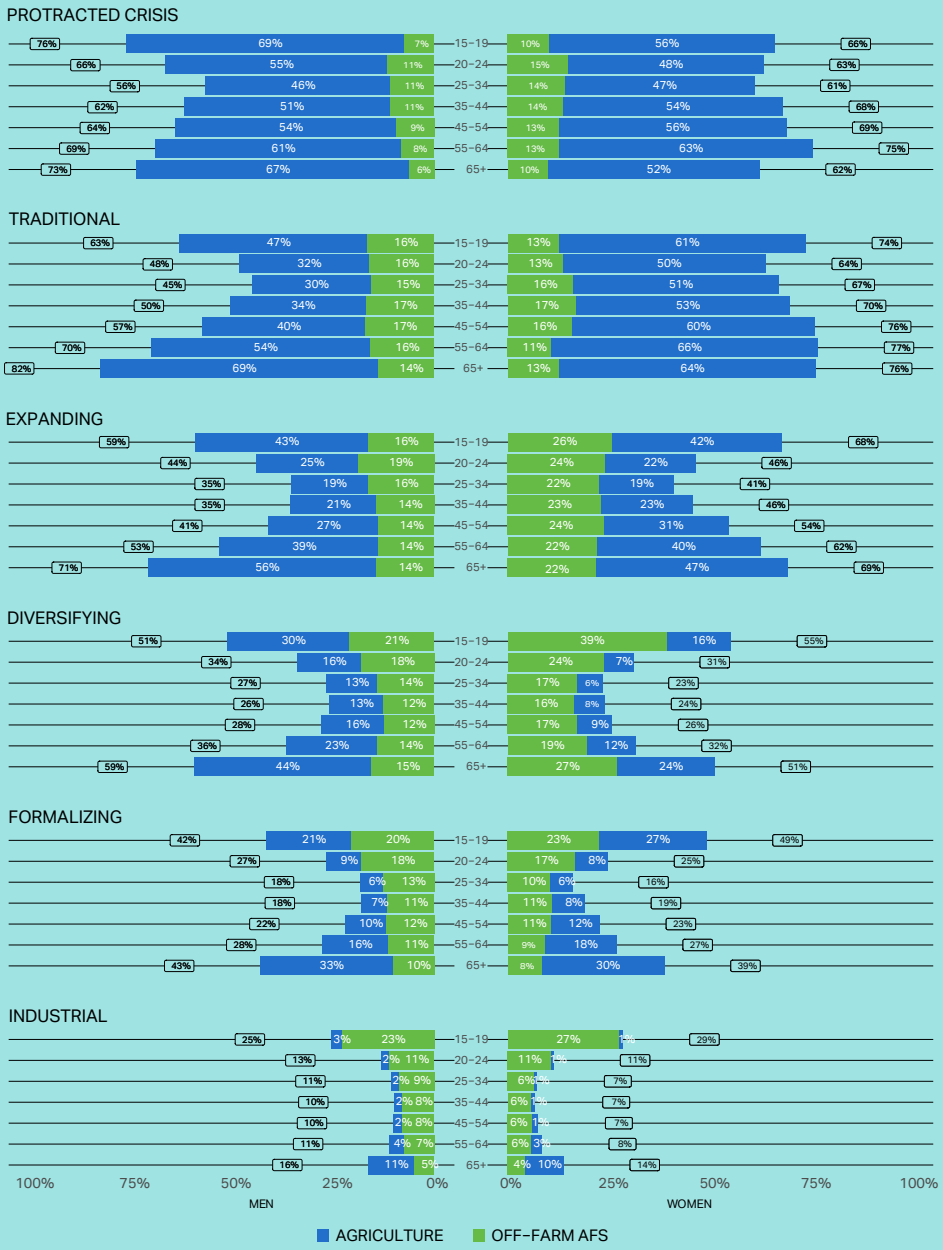
Variation in agrifood systems employment by age cohort is "C"-shaped across all types of agrifood system transition, except for women in protracted crisis agrifood systems. Following initial high levels, as individuals age, smaller shares are employed in agrifood systems employment until the 35–44 age cohort, at which point both women and men return to agrifood systems employment. As agrifood systems transition, the youngest cohort increasingly works on off-farm agrifood systems employment, while the oldest cohort focuses on agriculture.

> **"AGRIFOOD SYSTEMS, ESPECIALLY AGRICULTURE, ARE KEY SOURCES OF LIVELIHOODS FOR YOUNGER YOUTH (15-19).**

FIGURE 4.9

AGRIFOOD SYSTEMS ARE A MAJOR ENTRY POINT FOR YOUNGER YOUTH, BUT YOUNG MEN EXIT AGRIFOOD SYSTEMS FASTER THAN YOUNG WOMEN

Share of workers in agrifood systems between 2005 and 2021, by sector and agrifood system type



Note: The shares of total agrifood system employment do not always add up to the sum of the shares of agricultural and off-farm agrifood system employment due to rounding. Graph based on data from 77 countries: *Protracted crisis*: Afghanistan, Ethiopia, Mali, Sudan, West Bank and the Gaza Strip, Zimbabwe. *Traditional*: Bangladesh, Burkina Faso, Cambodia, Comoros, Guinea-Bissau, India, Lao People's Democratic Republic, Madagascar, Nigeria, Pakistan, Papua New Guinea, Rwanda, Senegal, Timor-Leste, Togo, Uganda, Zambia. *Expanding*: Angola, Bolivia, Botswana, Egypt, El Salvador, Eswatini, Gambia, Georgia, Guatemala, Honduras, Iraq, Kyrgyz Republic, Peru, Samoa, Sri Lanka, Thailand, Viet Nam. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, Panama, South Africa, Trinidad and Tobago, Tunisia. *Formalizing*: Albania, Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Saudi Arabia, Slovak Republic, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Czechia, France, Greece, Israel, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

Agrifood systems remain a larger source of livelihoods for young women than young men across all agrifood system types. In protracted crisis and traditional agrifood systems, the youngest men are exiting the sector faster than young women (aged 15–19). Lower shares of working men aged 25–64 compared to women from the same age cohort work in protracted crisis, traditional, and expanding agrifood systems. In agrifood systems further along the transition process, that is diversifying, formalizing, and industrial agrifood systems, similar or slightly higher shares of men aged 25–64 are employed in agrifood systems, compared to their female counterparts. In protracted crisis and traditional agrifood systems, women's employment is at similarly (high) levels across age cohorts, stressing the importance of agrifood systems employment for women throughout their life cycle. A similar pattern is observed in spaces with severe challenges and limited economic opportunities, where women's livelihoods rely more extensively on agrifood systems (see Spotlight 4.1).

IMPORTANCE OF OFF-FARM AGRIFOOD SYSTEMS

Off-farm agrifood systems can provide employment opportunities that may be more accessible to youth.[33] These can be found on different segments of agrifood systems and involve firms of different sizes. As agrifood systems transition, more job opportunities are created in off-farm segments and the "hidden middle" of agrifood systems, in particular in small- and medium-sized enterprises (SMEs),[7,37,38] who dominate the midstream of agrifood systems,[37,39] often supplied by small-scale farmers.[38] A review by Berdegué *et al.*[7] stresses that SMEs in agrifood systems represent important sources of employment for youth, who may also be attracted by the use of modern and new technologies in the sector.[7,42,43] However, in earlier stages of agrifood systems transition, many of these SMEs are informal and exhibit low productivity.[44–47] Evidence from Zimbabwe, for example, suggests that while many youth work in SMEs, such work often takes place in precarious circumstances.[48]

Globally, the share of youth among off-farm agrifood systems workers is 15 percent (Figure 4.6). Countries with protracted crisis and industrial agrifood systems display the highest shares of youth out of all off-farm agrifood systems workers (21 percent and 22 percent, respectively). In traditional agrifood systems, 16 percent of all off-farm agrifood systems workers are aged 15–24, but these shares decline slightly as agrifood systems transition, with 14 percent and 11 percent of youth among off-farm agrifood systems workers in informal and emerging agrifood systems, respectively. In modernizing agrifood systems, the share of youth among all off-farm agrifood systems workers increases to 16 percent.

In countries with protracted crisis and traditional agrifood systems, the share of youth among all off-farm agrifood systems workers is lower than the share of youth among all agriculture workers or out of all workers. Several factors may contribute to this, including limited access to financial resources, which hinders youth from pursuing education, training or entrepreneurial opportunities,[28,34,49] including in the off-farm sector. Increased educational attainment in more developed economies often leads to youth studying longer, but without corresponding access to relevant skills for off-farm jobs. Skills mismatch also plays a critical role (see Chapter 3), with discrepancies between the types and levels of education young people receive and the demands of the off-farm agrifood systems market. Inequitable access to quality education further exacerbates this issue, limiting opportunities for youth in rural areas or lower-income communities to transition successfully into the off-farm sector.[50,51] In transitioning and industrial agrifood systems, youth shares among all workers are higher in off-farm agrifood systems employment, compared to agriculture and total employment.

Generally, off-farm agrifood system employment is a more critical source of livelihoods for women (Figure 4.9).[32,52] Young women, particularly those aged 15–19, are more likely than young men to be employed in off-farm agrifood systems, except in contexts of protracted crisis (Figure 4.9). As agrifood systems transition, the significance of off-farm agrifood systems employment grows more rapidly for young women than for young men. For example, among women aged 15–19, its share increases from 10 percent in protracted crisis agrifood systems to 27 percent in industrial systems, while the share for young men increases from 7 percent in protracted crisis agrifood systems to 23 percent in industrial systems. In general, as youth get older, they tend to transition out of off-farm agrifood systems, with young women in general exiting the sector at

higher rates than young men as they approach young adulthood, especially in agrifood systems further along the transition process (Figure 4.9).

Off-farm agrifood systems also present greater livelihood opportunities for urban youth, compared to their rural peers and their adult counterparts in urban areas (Figure 4.10). Unsurprisingly, employment outside agrifood systems dominates in urban areas, in line with recent evidence.[33] Yet, non-negligible shares of employed urban youth rely on off-farm agrifood systems employment. In protracted crisis and traditional agrifood systems, approximately one in five employed youth in urban areas work in off-farm agrifood systems. The importance of off-farm agrifood systems in urban areas increases as agrifood systems transition. In expanding and diversifying agrifood systems, 22 percent of young employed urban men and 34 percent and 28 percent of young employed urban women, respectively, work in off-farm agrifood systems. This situation could reflect the fact that new job opportunities generated off-farm by the transition of agrifood systems, especially in SMEs, coupled with urbanization,[37,40] can benefit urban youth who are more likely to engage in non-farm employment.[7,33] In formalizing and industrial agrifood systems, slightly lower shares of urban youth engage in off-farm agrifood systems employment, although they rely more on such employment than adults.

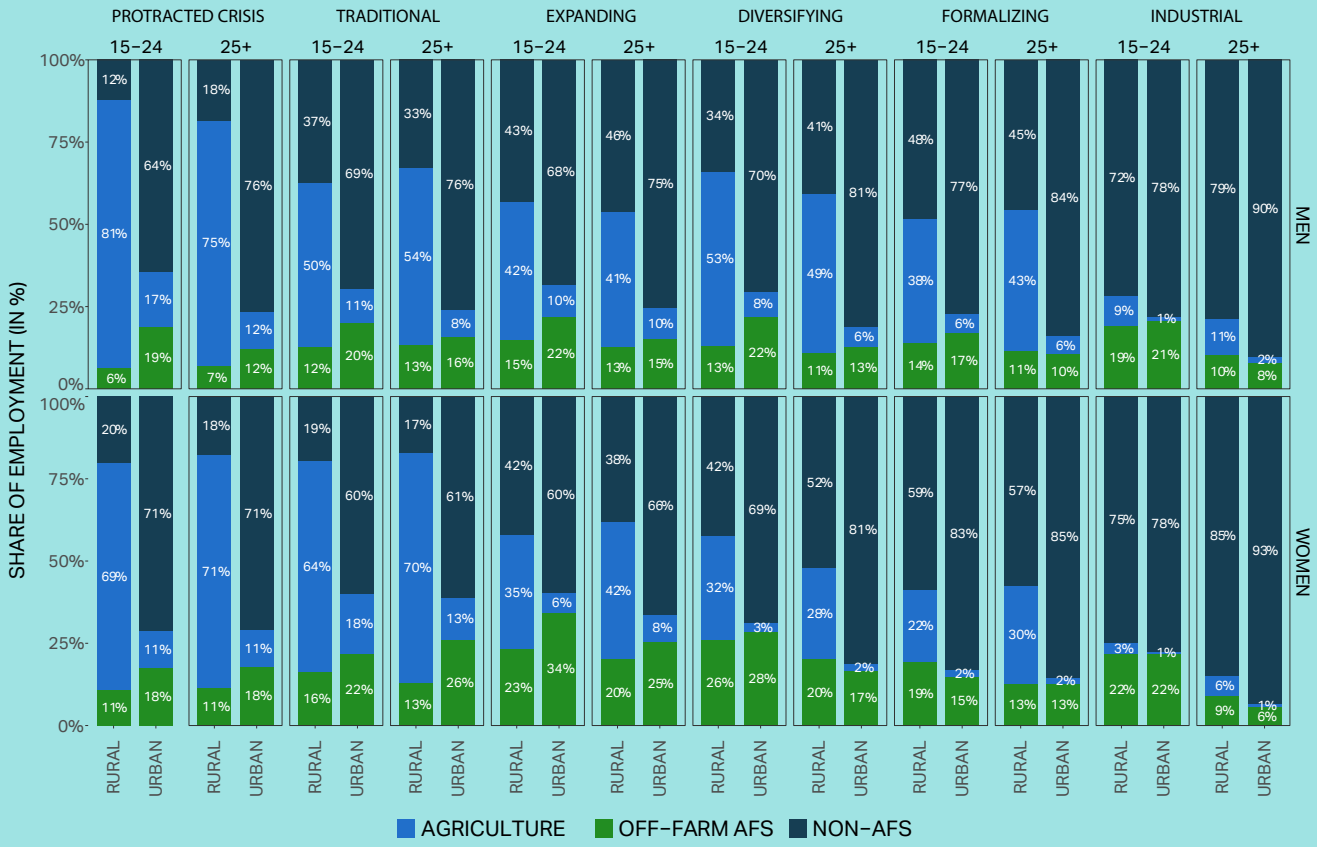
Figure 4.10 also shows a sharper decline in agricultural employment in rural areas as agrifood systems transition, although it also decreases in urban areas. In rural areas, off-farm agrifood systems employment is more important for young women than young men, across agrifood system types, compared to urban areas, except in industrial agrifood systems, where the shares are similar (21 percent and 22 percent, respectively). Many of the jobs created in SMEs that are located predominantly in urban areas remain linked to agriculture and primary production,[7] with urban centres connected to their surrounding areas.[53, 54] Yet, beyond the rural-urban dichotomy, understanding how agrifood system employment opportunities evolve along the rural-urban continuum is critical, taking into consideration the unequal services and opportunities available across different areas[54] (see Spotlight 4.1).

©FAO/CHRIS STEELE-PERKINS/ MAGNUM PH IN THE VILLAGE OF NARAPANI, NEPAL, RIPA THAPA PREPARES THE EVENING MEAL AT HOME WHILE HER HUSBAND WORKS ABROAD. CLIMATE-SMART AGRICULTURE INITIATIVES HELP YOUNG FAMILIES LIKE HERS ADAPT TO CLIMATE CHANGE AND REDUCE THE NEED FOR MIGRATION.

FIGURE 4.10

OFF-FARM AGRIFOOD SYSTEMS ARE MORE IMPORTANT FOR YOUTH IN URBAN AREAS IN LESS CONSOLIDATED AGRIFOOD SYSTEMS

Share of employment in agrifood systems, by gender, age cohort and location (2021)



Note: Graph based on data from 47 countries: *Protracted crisis*: Ethiopia, Mali, Sudan, Zimbabwe. *Traditional*: Burkina Faso, Cambodia, Guinea-Bissau, India, Lao People's Democratic Republic, Madagascar, Nigeria, Pakistan, Rwanda, Senegal, Timor-Leste, Togo, Uganda, Zambia. *Expanding*: Bolivia (Plurinational State of), Egypt, El Salvador, Gambia, Georgia, Guatemala, Honduras, Iraq, Peru, Thailand, Viet Nam. *Diversifying*: Bosnia and Herzegovina, Ecuador, Mexico, Panama, Tunisia, South Africa. *Formalizing*: Belarus, Costa Rica, Dominican Republic, Jordan, Mongolia. *Industrial*: Australia, Austria, Czechia, France, Greece, Switzerland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

Youth participation varies among the various sectors that make up off-farm agrifood systems, ranging from 10.2 percent in transportation to 17 percent in food processing and services (Table 4.1). These shares increase for young adults aged 25–34, reaching approximately 25 percent across all categories, and surpassing 50 percent for older adults. There are also significant gender gaps in off-farm agrifood employment. Among male and female youth these gender gaps are most pronounced in trade and transportation – two of the more lucrative off-farm activities in agrifood systems,[32] where young women represent 4.8 percent and 0.7 percent of all workers, respectively, compared to 9.9 percent and 9.5 percent of young men. Across all age cohorts, men consistently have higher participation rates than women, and young women's share is always lower than their young adult and adult counterparts. Reduced participation of young women may be due to stricter social norms[55] and reduced access to capital and resources for this specific group[56] – essential factors for jobs that may require higher mobility and interactions with outsiders.[32]

> **"FEW YOUNG WOMEN ARE ENGAGED IN PROFITABLE OFF-FARM ACTIVITIES.**

TABLE 4.1 FEWER YOUNG WOMEN ARE ENGAGED IN MORE PROFITABLE OFF-FARM ACTIVITIES

YOUTH AS A SHARE OF OFF-FARM AGRIFOOD SYSTEMS SUB-SECTOR WORKERS, 2021 (IN %)

CATEGORIES	YOUTH, 15–24		YOUNG ADULTS, 25–34		OLDER ADULTS 35+	
	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN
FOOD PROCESSING AND SERVICES	6.6	10.4	8.9	15.7	25.4	31.8
MANUFACTURE OF NON-FOOD AGRICULTURAL PRODUCTS	5.9	9.7	9.8	15.6	23.9	34.5
TRADE	4.8	9.9	8.6	17.3	19.8	38.6
TRANSPORTATION	0.7	9.5	2.1	25.5	5.2	56.4

Notes: Based on data from 52 countries: *Protracted crisis*: Afghanistan, Ethiopia, Palestine, Zimbabwe. *Traditional*: Cambodia, Comoros, India, Pakistan, R wanda, Timor-Leste, Uganda, Z ambia. Expanding: Angola, Bolivia (Plurinational State of), Botswana, Egypt, El Salvador, Eswatini, Georgia, Iraq, Kyrgyzstan, Peru, Sri Lanka, Thailand, Viet Nam. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, South Africa, Trinidad and Tobago. *Formalizing*: Albania, Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Saudi Arabia, Slovakia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Czechia, Finland, Greece, Israel, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland. The list of ISIC codes in each category can be found in Table A2.1, Appendix 2.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

SPECIALIZATION AND DIVERSIFICATION

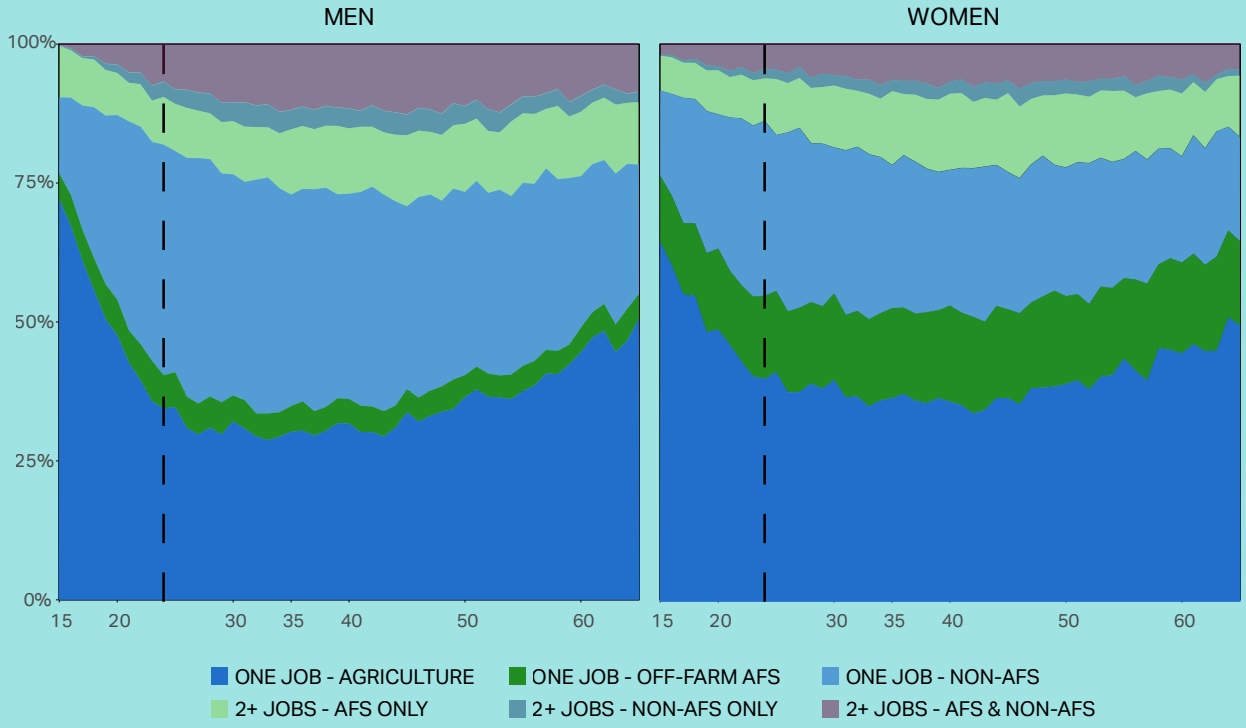
Diversification is a key feature of urban and rural livelihoods in low- and lower- and middle-income countries, with households holding diverse portfolios consisting of multiple income sources and activities across sectors and occupations.[57–61] Households diversify as a result of push and pull factors including market failure, risk management, better job opportunities and/or complementary activities.[57,62–64] Such diversification can happen at the household level with different household members allocating their time to different activities,[58,65] or at the individual level with one individual holding more than one job within or across sectors.[1,33,66–68]

Youth are less likely than adults to hold multiple jobs or diversify their portfolio of activities (Figure 4.11).c Across a sample of 16 low- and lower-middle-income countries, young men and women are more likely than their adult counterparts to hold one job only, in agriculture, in off-farm agrifood systems employment or outside agrifood systems. Even at the maximum level of diversification, at around age 50 for both men and women, only 25 percent of individuals have more than one job.

FIGURE 4.11

YOUTH ARE MORE LIKELY THAN ADULTS TO HAVE ONLY ONE JOB OR TO WORK IN THE SAME SECTOR

Share of individuals with one job or more, by gender, age and sector



Note: Data from 16 countries: Benin, Bolivia (Plurinational State of), Burkina Faso, Côte d'Ivoire, Georgia, Guatemala, Guinea Bissau, Mali, Mozambique, Niger, Nigeria, Peru, Senegal, Sierra Leone, Togo, Uganda). Unweighted means. More information on how the number of jobs were computed available in Davis *et al.*[1]

Source: Author's own elaboration, using data shared by Davis *et al.*[1] and building on data from the Rural Livelihoods Information System (RuLIS).[71] The list of surveys used for this graph is available in Appendix 3.

c In this analysis, the number of jobs is computed from information collected from employment modules in the questionnaires and does not account for time spent in own farming from the agriculture module. Diversification of activities may thus be underestimated, especially for individuals in rural areas, who are more likely to combine own farming with off-farm activities.[57,61,62]

Youth, and especially younger youth, rely more extensively on agrifood systems than adults, regardless of how many jobs they hold (Figure 4.11). Among individuals with only one job, larger shares of youth are engaged in agrifood systems, in particular in agriculture, than adults. In line with the results presented earlier in this chapter, larger shares of young women are engaged in off-farm agrifood systems employment and larger shares of young men in employment outside agrifood systems. Even when young people hold more than one job, all of them are likely to be in agriculture. The majority of youth having multiple jobs either work solely in agrifood systems (either in agriculture, off-farm agrifood systems or a combination thereof) or combine agrifood systems employment with work outside agrifood systems. In other words, most youth diversifying their portfolios and livelihoods incorporate agrifood systems into their activities.

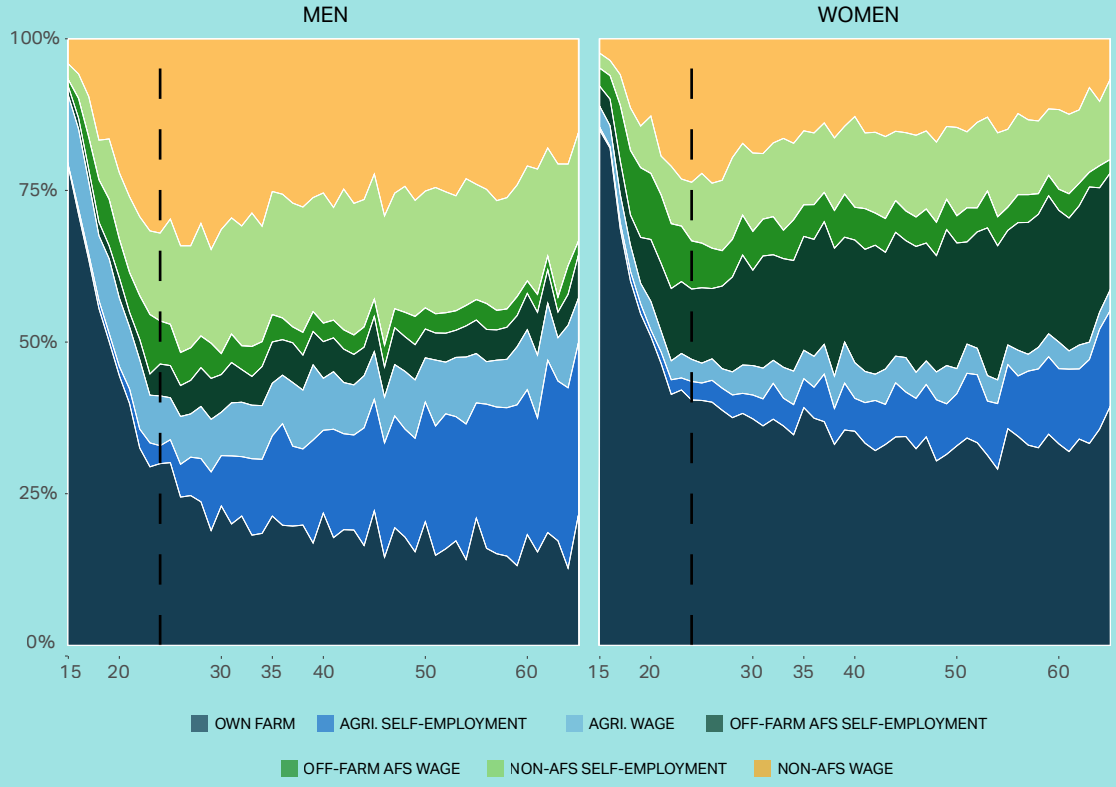
While youth increasingly seek occupations outside agriculture which they consider to reflect a higher social status and be better remunerated, agriculture remains an important element of their livelihoods. In India, for example, youth are rapidly exiting from agriculture yet lack the necessary skills to successfully transition out of farming profitably.[69] Conversely, in Ghana, the United Republic of Tanzania and Zimbabwe, three agricultural commercialization hotspots in Africa, youth are diversifying their income, but crop and/or livestock production remain a key livelihood strategy for many.[70]

©FAO/VEEJAY VILLAFRANCA
IN MAGALANG, PAMPANGA, PHILIPPINES, YOUNG AGRICULTURE PROFESSIONALS COLLABORATE WITH EXPERTS TO DEPLOY DRONES FOR ASSESSING RICE CROP DAMAGE, HIGHLIGHTING THE ROLE OF YOUTH IN ADVANCING AGRI-TECH SOLUTIONS FOR CLIMATE RESILIENCE.

FIGURE 4.12

YOUTH ALLOCATE LARGER SHARES OF THEIR TIME TO OWN AND HOUSEHOLD FARMING

Share of full-time equivalents allocated to different sectors and types of job, by age and gender



Notes: The dashed line indicate the age of 24. Pooled data from four countries from sub-Saharan Africa (Malawi, Nigeria, United Republic of Tanzania, Uganda) and one country from Latin America and the Caribbean (Peru). Unweighted means.

Source: Author's own elaboration, further processing data shared by Davis *et al.*[1] and building on data from the Rural Livelihoods Information System (RuLIS).[71] The list of surveys used for this graph is available in Appendix 3.

Beyond the number of jobs, youth are allocating more of their time to agrifood systems employment. Full-time equivalents (FTEs) provide a more detailed picture of engagement in labour markets, accounting for seasonality and the part-time nature of work.[34] In line with recent evidence,[34] an analysis of FTEs[d], pooling data from young and adult workers in four countries from sub-Saharan Africa (Malawi, Nigeria, the United Republic of Tanzania and Uganda) and one from Latin America and the Caribbean (Peru), shows that both male and female youth allocate larger shares of their FTEs to farming in their own or their household's farm, before allocating larger shares of their time to other types of work as they grow older (Figure 4.12). This finding is in line with the higher shares of adults employed outside agrifood systems reported earlier (Figure 4.9).

Different patterns between men and women are visible as they transition to (young) adulthood. While young men appear to transition more towards non-agrifood systems wage employment and self-employment, young women and adults allocate larger shares of their time to off-farm

d More details about how the full-time equivalents were computed are available in Appendix 3.

agrifood systems employment, mostly through self-employment. Overall, and across age cohorts, women are less likely than men to access wage employment, regardless of the sector.

INTERGENERATIONAL MOBILITY IN AND OUTSIDE AGRIFOOD SYSTEMS

As demonstrated above and in earlier chapters, exit from agriculture and agrifood systems is driven by processes of structural transformation and agrifood systems transition. These movements necessarily involve intergenerational mobility, where youth move to an employment sector offering higher returns than that of their parents.[18, 72, 73]

A study developed for this report using data from 27 surveys in 18 countries shows a positive correlation between agricultural productivity growth and intergenerational employment mobility, confirming that a vibrant agricultural and primary sector is correlated with more opportunities in other non-primary sectors (Figure 4.13, panels A and B). Countries with lower agricultural labour productivity growth, such as

> **YOUTH, ESPECIALLY YOUNGER YOUTH, ALLOCATE MORE TIME IN FARMING THAN OLDER COHORTS.**

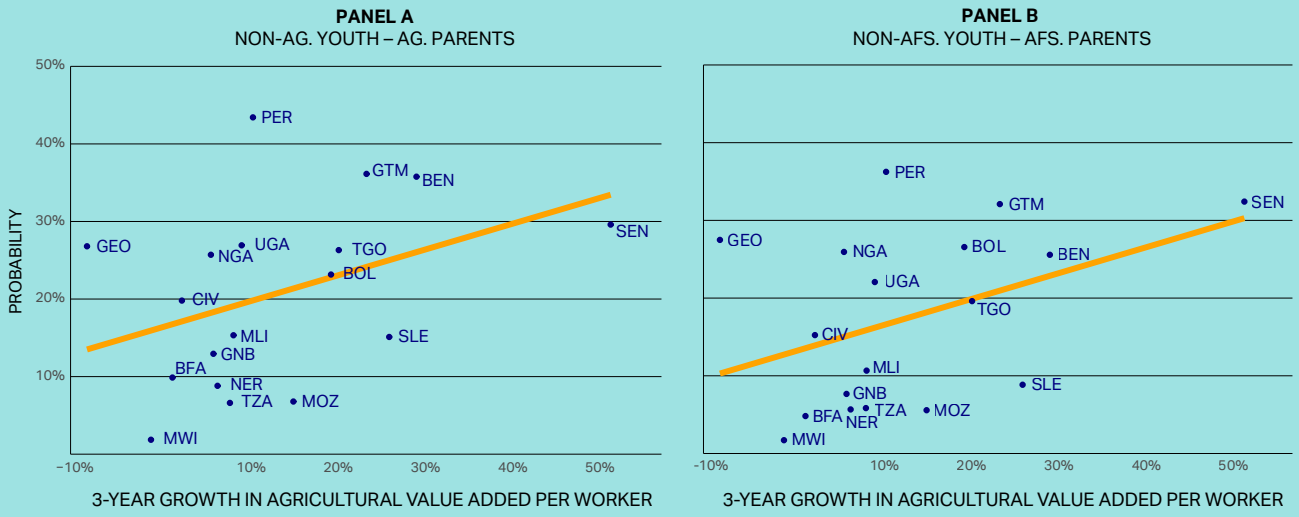
Malawi, Mali, Mozambique or the United Republic of Tanzania, exhibit lower youth intergenerational mobility probabilities outside of agriculture or agrifood systems. Conversely, youth in countries with higher agricultural labour productivity growth (e.g. the Plurinational State of Bolivia, Guatemala, Peru, Nigeria) are more likely to work outside of agriculture and agrifood systems, where their parents work. One of the more extreme cases is Malawi, where a stagnant primary sector provides few labour opportunities of employment outside the primary sector

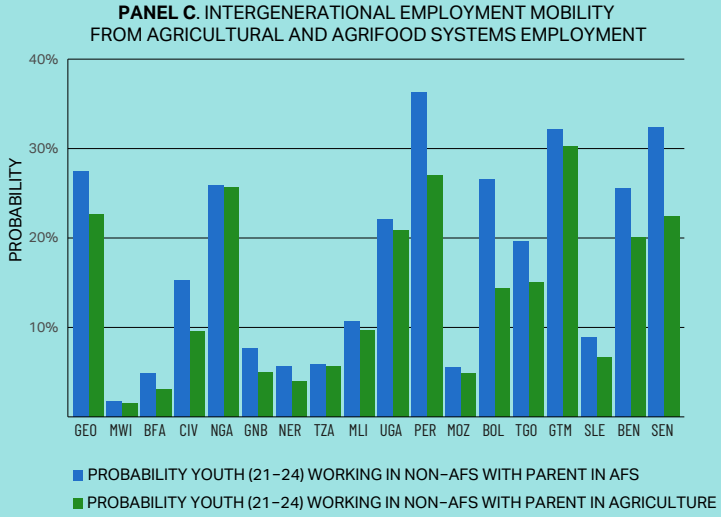
©IFAD/GIANCARLO SHIBAYAMA/ FACTSTORY IN CHAZUTA, PERU, 27-YEAR-OLD DAVID SANTOS HUANCAS, ONE OF THE YOUNGEST MEMBERS OF THE ALLIMA CACAO COOPERATIVE, LEADS PRODUCT TRACEABILITY AND DIGITAL MARKETING EFFORTS, SHOWCASING HOW YOUTH ARE USING AGRI-DIGITALIZATION TO BOOST RURAL BUSINESS, CREATE JOBS AND CONNECT SMALLHOLDER FARMERS TO NEW MARKETS.

FIGURE 4.13

PROBABILITY OF YOUTH ENGAGING IN A DIFFERENT SECTOR FROM THEIR PARENTS INCREASES AS COUNTRIES UNDERGO STRUCTURAL TRANSFORMATION

Share of full-time equivalents allocated to different sectors and types of job, by age and gender





Note: Data from 18 countries: Georgia, Malawi, Burkina Faso, Côte d'Ivoire, Nigeria, Guinea Bissau, Niger, United Republic of Tanzania, Mali, Uganda, Peru, Mozambique, Bolivia (Plurinational State of), Togo, Guatemala, Sierra Leone, Benin, Senegal.
Three letter abbreviations are ISO Alpha-3 codes. For a full list please see: https://unstats.un.org/unsd/methodology/m49/

Source: Author's own elaboration, further processing data shared by Davis *et al.*[1] and building on data from the Rural Livelihoods Information System (RuLIS).[71] The list of surveys used for this graph is available in Appendix 3.

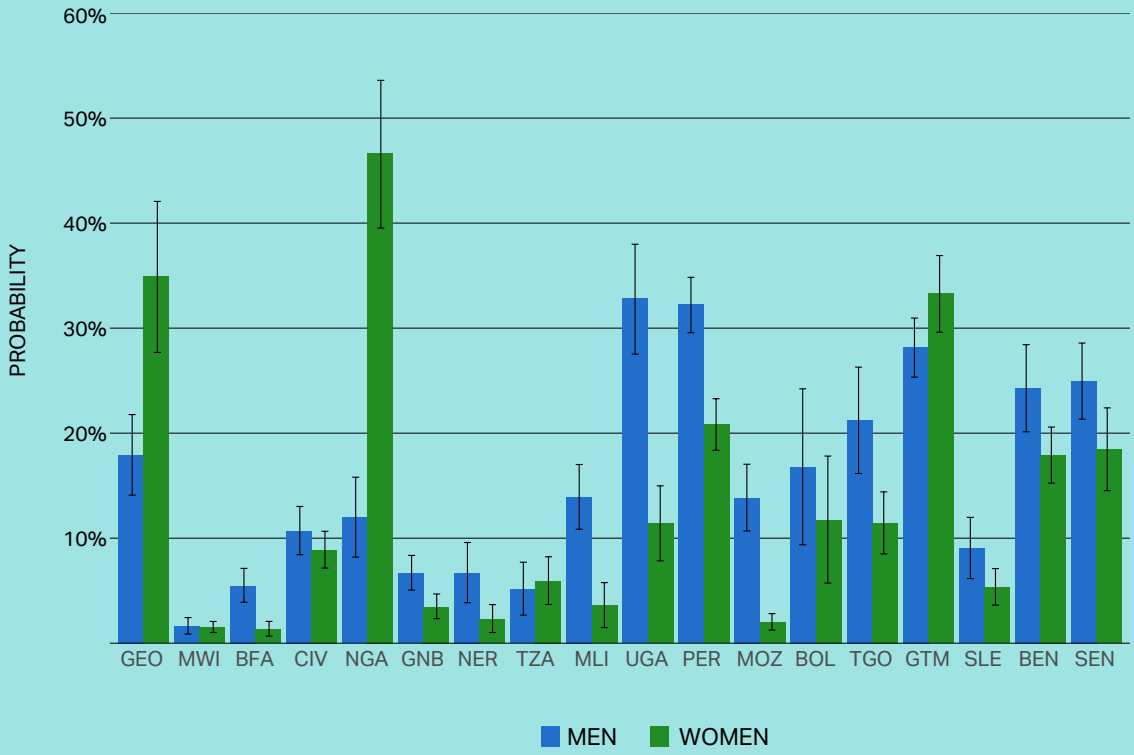
for younger generations. Meanwhile, Senegal, the sub-Saharan country in the sample with the highest growth in agricultural productivity, displays the highest share (among sub-Saharan countries) of younger employees working outside both agricultural and agrifood system employment, the sector of their parents.

Off-farm agrifood systems employment of a parent provides more opportunities for intergenerational mobility than agricultural employment. With the exception of Malawi, where intergenerational mobility is very low, the probability of the younger generation working outside agrifood systems employment is higher in all countries, when parents work in agrifood systems

FIGURE 4.14

YOUNG WOMEN ARE LESS LIKELY THAN YOUNG MEN TO EXPERIENCE INTERGENERATIONAL MOBILITY OUTSIDE AGRIFOOD SYSTEMS

Probability of youth with parents working in agrifood systems to work outside agrifood systems, by gender



Note: Data from 18 countries: Georgia, Malawi, Burkina Faso, Côte d'Ivoire, Nigeria, Guinea Bissau, Niger, United Republic of Tanzania, Mali, Uganda, Peru, Mozambique, Bolivia (Plurinational State of), Togo, Guatemala, Sierra Leone, Benin, Senegal.
Three letter abbreviations are ISO Alpha-3 codes. For a full list please see: https://unstats.un.org/unsd/methodology/m49

Source: Author's own elaboration, further processing data shared by Davis *et al.*[1] and building on data from the Rural Livelihoods Information System (RuLIS).[71] The list of surveys used for this graph is available in Appendix 3.

more broadly, than when parents work in agricultural employment exclusively (Figure 4.13, Panel C).

Yet, the possibilities for intergenerational sectoral mobility are not spread evenly across women and men (Figure 4.14). The probabilities of intergenerational mobility out of agrifood systems employment are significantly higher for males in 12 of the 18 countries considered, and larger for female youth in only 3 countries. These results indicate that social norms, particularly those assigning gender to different types of economic activities, may play an outsized role in determining intergenerational mobility and employment possibilities. They also have policy implications, as gender neutral employment policies for the young are not likely to be gender neutral in outcomes.

YOUTH ENGAGE IN MORE PRECARIOUS WORK IN AGRIFOOD SYSTEMS

Ensuring that youth access full and productive employment and decent work is essential to achieving SDG 8. Yet, working conditions in agrifood systems are usually more precarious than in other sectors, particularly for youth.[8,74,50] This section assesses the working conditions of young women and men in agrifood systems, examining their status of employment, the time they work in agrifood systems, and the inequalities in specific labour and welfare outcomes to which these precarious working conditions can lead.

VULNERABLE EMPLOYMENT

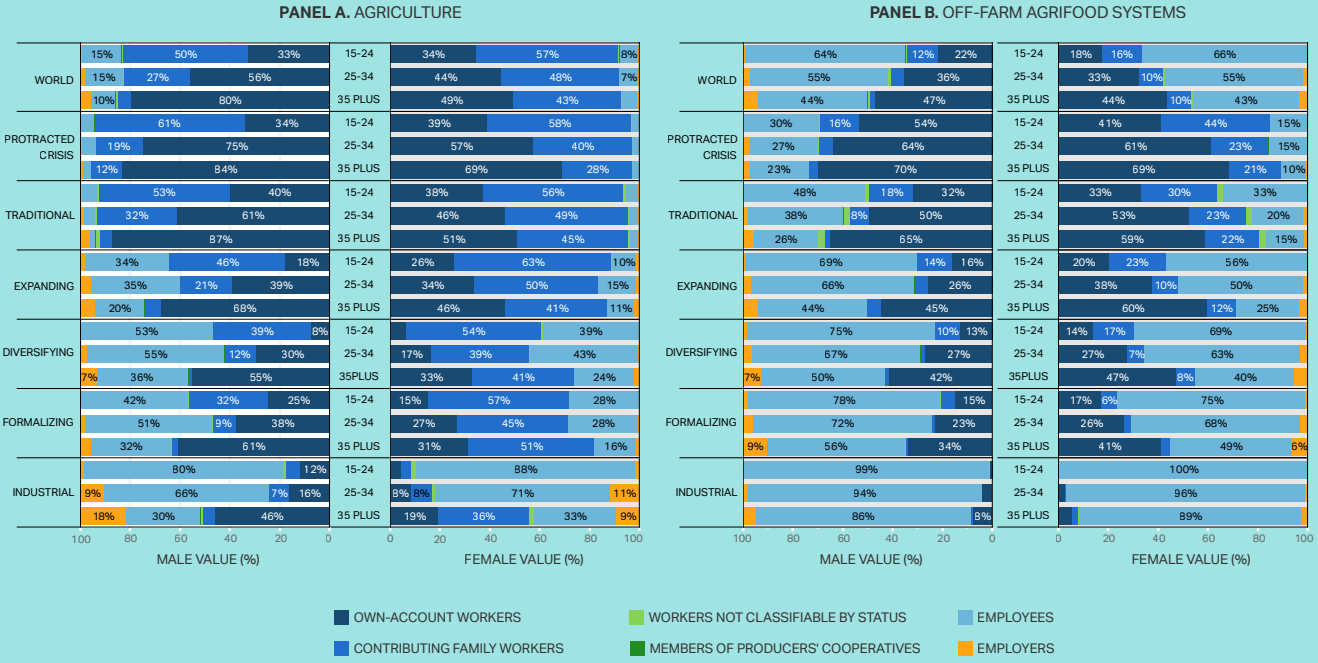
Globally, 91 percent of young women and 83 percent of young men working in agriculture are either own-account workers or contributing family workers, which are defined as forms of vulnerable employment.[75] Whether on family farms or in other activities, they often work in informal arrangements without pay, not benefiting from social protection and are more vulnerable to various risks.[32,76] As agrifood systems transition, the share of young workers in vulnerable employment decreases (Figure 4.15, Panel A). In protracted crisis and traditional agrifood systems, more than 90 percent of young workers are in vulnerable employment, with corresponding shares of 65 percent of young men and 89 percent of young women in expanding agrifood systems.

> **IN 2021, 91 PERCENT OF YOUNG WOMEN AND 83 PERCENT OF YOUNG MEN IN AGRICULTURE ARE IN VULNERABLE EMPLOYMENT.**

FIGURE 4.15

YOUTH IN AGRIFOOD SYSTEMS ARE LIKELY TO BE IN VULNERABLE FORMS OF EMPLOYMENT, ESPECIALLY IN LESS DEVELOPED AGRIFOOD SYSTEMS

Working status, by sector, gender and age cohorts (2021)



Notes: Graph based on data from 61 countries:
Panel A: *Protracted crisis*: Afghanistan, Ethiopia, Palestine, Zimbabwe. *Traditional*: Cambodia, Comoros, India, Pakistan, Rwanda, Timor-Leste, Uganda, Zambia. *Expanding*: Angola, Bolivia (Plurinational State of), Botswana, Egypt, El Salvador, Eswatini, Georgia, Iraq, Kyrgyzstan, Peru, Sri Lanka, Thailand, Viet Nam. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, Trinidad and Tobago. *Formalizing*: Albania, Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Saudi Arabia, Slovakia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Czechia, France, Greece, Israel, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland.
Panel B: *Protracted crisis*: Afghanistan, Ethiopia, Occupied Palestinian Territory, Zimbabwe. *Traditional*: Cambodia, Comoros, India, Pakistan, Rwanda, Timor-Leste, Uganda, Zambia. Informal and expanding: Angola, Bolivia (Plurinational State of), Botswana, Egypt, El Salvador, Eswatini, Georgia, Iraq, Kyrgyzstan, Peru, Sri Lanka, Thailand, Viet Nam. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, Trinidad and Tobago. Modernizing and formalizing: Albania, Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Saudi Arabia, Slovakia, Türkiye, United Arab Emirates. *Industrial*: Australia, Austria, Czechia, France, Greece, Israel, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org/.

In diversifying and formalizing agrifood systems, these shares decrease to about half of young men and 62 percent and 71 percent, respectively, of young women. In these systems, most young workers in agriculture are contributing family workers. The shares drop to less than 20 percent in the industrial category.

The shares of contributing family workers among young men and women in agriculture are similar in protracted crisis and traditional agrifood systems. These high levels could be linked to lack of alternative opportunities for youth, who eventually rely on their household's farms for their livelihoods, especially in less densely urbanized areas.[34] Gender differences are more visible in expanding, diversifying, and formalizing agrifood systems. In these categories, the share of young men in vulnerable employment in agriculture decreases, as more young men are wage employees. The share of young female contributing family workers also decreases as agrifood systems transition and consolidate, but more slowly. Countries with lower fertility rates and more gender egalitarian laws concerning marriage, parenthood, and access to social protection and resources tend to have smaller gender gaps in vulnerable employment.[77] Despite these improvements, a large portion of the remaining gender gaps can be attributed to gender norms and institutional frameworks that constrain women's roles and access to decent employment.[77, 78]

Globally, larger shares (approximately two-thirds) of both men and women in off-farm agrifood systems are employees (Figure 4.15, Panel B). The share of youth working as employees in off-farm agrifood systems increases as systems transition, from 30 percent of young men and 15 percent of young women in protracted crisis systems to practically all young men and women in industrial systems. Across all agrifood system categories, older workers, both men and women, account for higher shares of vulnerable employment than their younger counterparts. This shift to employees as agrifood systems transition reflects labour trends occurring with structural transformation, first from own-account workers in agriculture to own-account workers outside agriculture, before moving progressively from the latter to employees.

These trends reflect the modernization of agrifood systems and the growth of high-value chains, which has led to the generation of wage employment opportunities in rural areas, and benefited young rural women.[52, 79, 80] Such jobs are typically found in agro-processing facilities and food services.[52, 81] However, though the share of vulnerable employment reduces for both young men and women across agrifood systems, a consistently greater share of young women than young men are in vulnerable employment, particularly as contributing family workers (Figure 4.15). Similarly, young women in off-farm agrifood systems are more likely to be working for someone else, potentially limiting their control of income generated.[34] Yet, no significant gender wage gaps are found among youth working in wage employment in agrifood systems (Box 4.2).

FULL-TIME EMPLOYMENT AND UNPAID CARE WORK

Employment in both agricultural and non-agricultural food systems is highly seasonal, driven by the nature of the agricultural calendar.[82, 83] Both on- and off-farm work in agrifood systems tend to be highly seasonal,[45] affecting particularly youth aged 15–19 and 20–24, who across all agrifood systems work fewer hours on average than their adult counterparts (Figure 4.16). Many youth do not necessarily aspire to work as full-time farmers;[17,84,85] indeed, youth from the youngest cohorts and those attending school tend to view agriculture more as a secondary or transitional activity than a long-term career.[15,18,35,17, 84, 85]

BOX 4.2 GENDER PAY GAPS AMONG YOUTH

In addition to inequalities in working conditions and access to assets (Chapter 3), youth face persistent inequalities in economic outcomes, such as pay and economic returns. Pay gaps between men and women remain widespread, particularly in low- and lower-middle income countries.[i, ii] Recent evidence shows that women's wages in agriculture and non-farm employment in rural areas are significantly lower than those of their male counterparts.[iii–vii,viii, ix]

An analysis conducted for this report found that women aged 15–24 working in agrifood systems do not appear to be paid significantly less than their male counterparts, while those outside agrifood systems were paid 11 percent less (Table 1). The gender gaps in wages are higher for adults aged 25–34, driven primarily by "endowment effects", or the difference in characteristics such as education, skills and equality of labour market access. This underscores the critical role that equal access to decent employment opportunities can play in reducing gender-based wage disparities, which is consistent with recent evidence showing that in areas where women have better access to full-time employment and education, the wage gap tends to narrow.[iv, viii]

TABLE A GENDER WAGE GAPS IN AND OUTSIDE AGRIFOOD SYSTEMS, BY AGE COHORT (KITAGAWA-OAXACA BLINDER [X, XI, XII])

YOUTH AS A SHARE OF OFF-FARM AGRIFOOD SYSTEMS SUB-SECTOR WORKERS, 2021

	AFS			NON AFS		
	15–24	25–34	35+	15–24	25–34	35+
GAP	0.02	0.13	0.16	0.11	0.03	0.10
ENDOWMENT EFFECTS	–0.10	0.16	0.10	–0.01	0.07	0.17
STRUCTURAL EFFECTS	0.12	–0.02	0.06	0.12	–0.04	–0.07

Notes: The analysis used a pooled sample from 14 countries, including 9 traditional agrifood systems (Bangladesh, Cambodia, Côte d'Ivoire, Ghana, Malawi, Pakistan, Senegal, Uganda, United Republic of Tanzania), 4 expanding agrifood systems (Egypt, Guatemala, Iraq and Viet Nam) and one diversifying agrifood systems (Ecuador). Wage gaps are expressed in log hourly wages in real international USD. The Kitagawa-Oaxaca-Blinder Decomposition model controls for education, proxied by whether an individual completed primary education; job characteristics, including whether the worker has a written contract, receives any fringe benefits, works full-time, has multiple jobs and whether this a low-skill job; the sector of occupation; and labour market characteristics, proxied by average agricultural and non-agricultural employment shares for different demographic groups and country fixed effects.

Source: Author's own elaboration, using data processed by Benali *et al.*[iv]

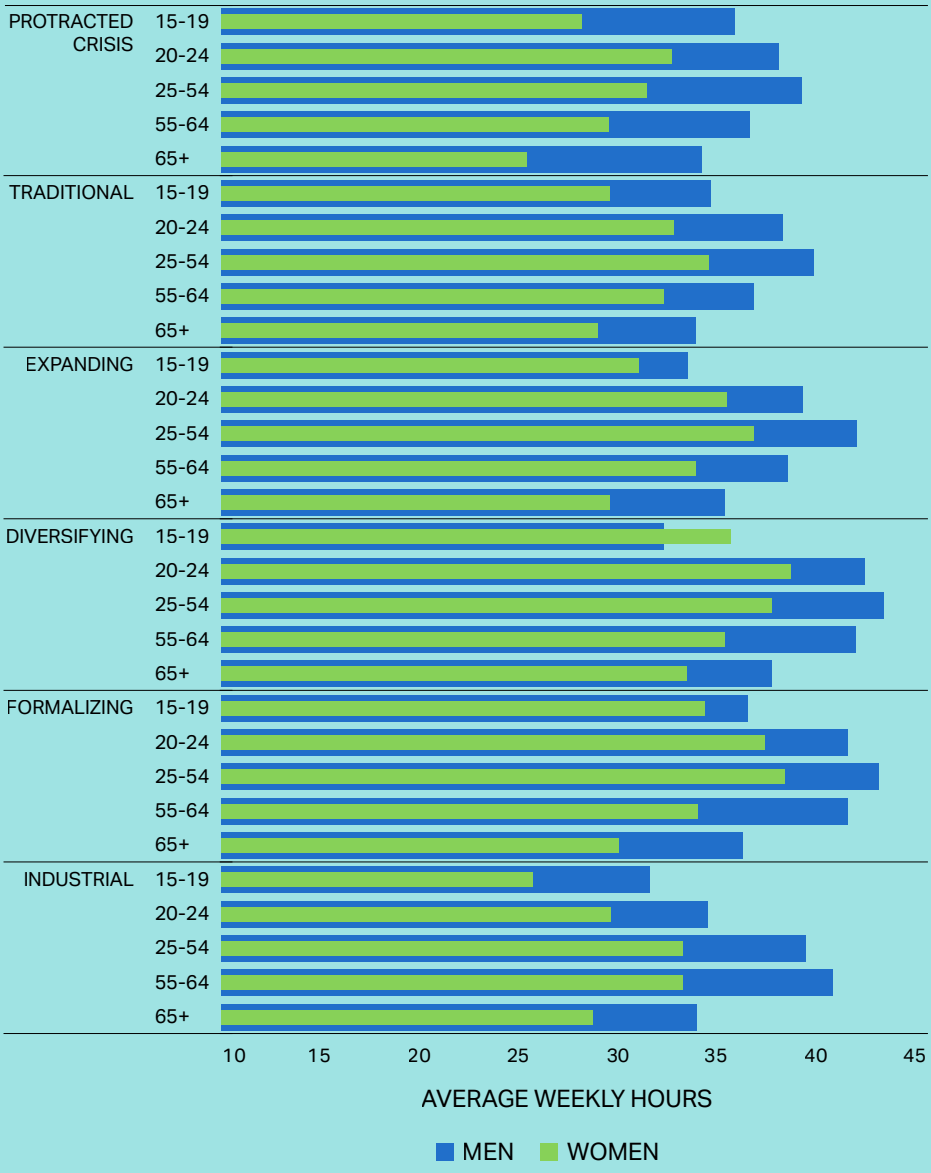
The lack of gender wage gaps in agriculture and agrifood systems among the youngest category could be linked to the fact that youth, both men and women, engage primarily in low-skilled and low-pay wage employment in large farm holdings or off-farm activities,[xiii] where shadow wages, representing the opportunity cost of labour, remain low and limited prospects for productivity growth constrain the potential for increases in wages, regardless of gender.

Notes: Refer to the Notes section for full citations.

FIGURE 4.16

YOUTH, ESPECIALLY YOUNG WOMEN, ARE LESS LIKELY TO WORK FULL TIME

Mean weekly hours actually worked per employed person in agrifood systems (main job), by gender and age cohort (2021)



Note: Graph based on data from 47 countries: *Protracted crisis*: Afghanistan, Ethiopia, Palestine, Zimbabwe. *Traditional*: Cambodia, Comoros, India, Pakistan, Rwanda, Timor-Leste, Uganda, Zambia. *Expanding*: Angola, Bolivia (Plurinational State of), Botswana, Egypt, El Salvador, Eswatini, Iraq, Kyrgyzstan, Peru, Sri Lanka, Thailand, Viet Nam. *Diversifying*: Bosnia and Herzegovina, Iran (Islamic Republic of), Mauritius, Mexico. *Formalizing*: Albania, Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Slovakia, Türkiye. *Industrial*: Austria, Czechia, France, Greece, Israel, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

Women disproportionately experience underemployment and are less likely than men to work full time in agrifood systems.[32] Men on average work longer hours in agrifood systems than women (with the exception of the 15–19 age cohort in emerging and diversified systems) (Figure 4.16). However, women usually combine home chores with farm work[25, 86,87] and have a time burden up to four times higher than men.[32]

Women's greater time burden derives from time allocated to unpaid domestic and care work,[32] which constrains them from allocating more time to economic and remunerative activities[88] and lowers both their participation and time spent in the labour market.[32, 89] Women spend more time in unpaid care work across agrifood systems and age cohorts (Figure 4.17).[90] Across all countries, women aged 15–24 allocate 2.9 times more time than men to unpaid and domestic work, with similar inequalities found for adults aged 25–44 and 45–54. At the country level, the amount of time women spend on domestic and unpaid work ranges from five times greater than men in Kenya, Guatemala and Palestine, to close to one in Finland and Sweden, where men and women spend the same or similar amount of time on domestic and unpaid care work. In five countries, inequalities between young men and young women are smaller than in older cohorts. In a few countries, though, such as the Dominican Republic, Georgia and Guatemala, young women aged 15–24 spend more time on unpaid and care work than their male counterparts, compared to older cohorts.

"YOUTH WORKING IN AGRIFOOD SYSTEMS, ESPECIALLY YOUNG WOMEN, ARE LESS LIKELY TO WORK FULL TIME THAN ADULTS.

©IFAD/FERNANDA DORADO
IIN TLAOLA, MEXICO, YOUNG ENTREPRENEUR JOSÉ ALFREDO REVIVES THE NEARLY LOST TRADITION OF *QUESADILLA FINA*, USING HIS BAKERY AND DIGITAL TOOLS TO CELEBRATE INDIGENOUS CULINARY HERITAGE, EMPOWER YOUTH AND STRENGTHEN COMMUNITY IDENTITY.

FIGURE 4.17

ACROSS ALL AGE COHORTS, WOMEN ALLOCATE MORE TIME TO UNPAID AND CARE WORK

Female-to-male ratio of average time spent on unpaid domestic and care work within a 24-hour period

Note: Three letter abbreviations are ISO Alpha-3 codes. For a full list please see: https://unstats.un.org/unsd/methodology/m49

Source: Author's own elaboration using data from the United Nations Department of Economic and Social Affairs (UNDESA). 2024. Unpaid work. In: UNDESA. New York, USA. [Cited 1 January 2025].

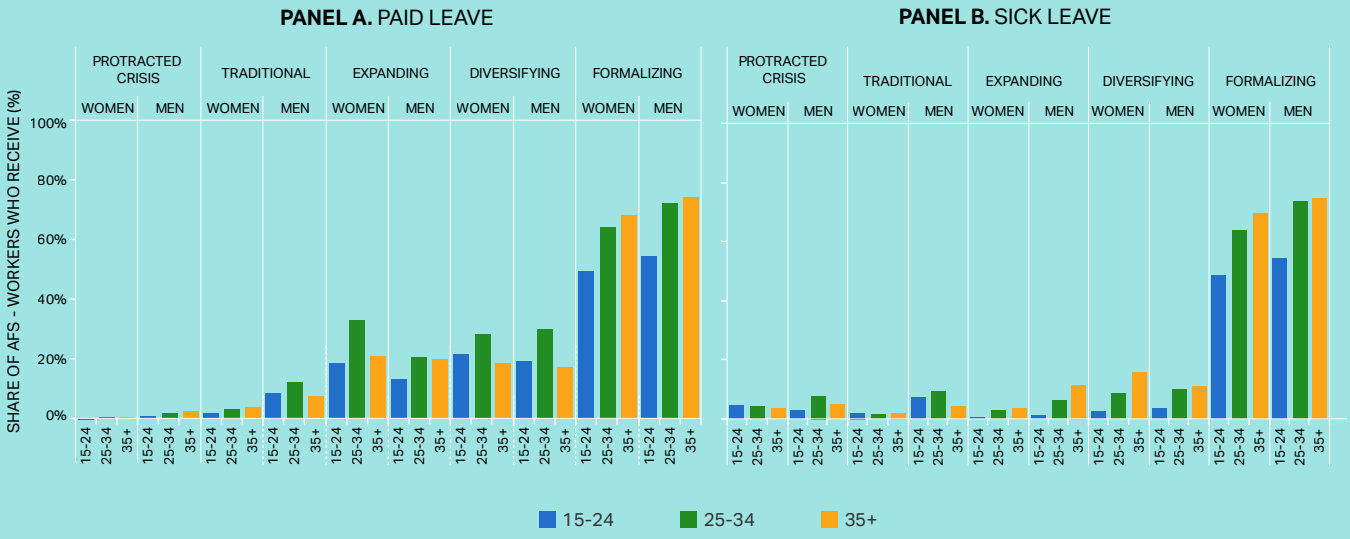
BOX 4.3 GAPS IN WORK-RELATED SOCIAL INSURANCE AND BENEFITS

Beyond wages and income, the decent work framework of the International Labour Organization (ILO) includes other forms of compensation for earnings such as paid leave, which includes paid annual and sick leave.[i] These types of leave, as part of broader social coverage schemes, can help stabilize incomes.[ii] However, they are often tied to formal jobs and are not common in sectors where informality is the norm, such as agrifood systems. Informality is a common feature of rural labour markets in low- and lower-middle-income countries, where rural youth mostly engage in informal activities.[iii] For these reasons, youth engaged in agrifood systems are expected to have lower social insurance coverage and benefit to a lesser extent from these types of benefits.

Data from the ILO enables assessment of the extent to which young women and men in agrifood systems employment benefit from paid and sick leave (Figure A). Overall, across all types of agrifood systems, youth aged 15–24 are less likely than adults to receive paid (Figure A, Panel A) or sick (Figure A, Panel B) leave. Differences between youth and adults are starker in formalizing agrifood system, while overall coverage increases as agrifood systems transition. Across all types of agrifood systems, young adults have greater access to these benefits than youth and other adults. The differences between age cohorts in terms of coverage seem to disappear in countries with more developed types of agrifood systems, in which older adults and young adults may have a similar propensity to access quality jobs.

FIGURE A

YOUTH OVERALL RECEIVE LESS BENEFITS THAN ADULTS



Notes: Data from 82 countries:
Panel A: *Protracted crisis*: Afghanistan, Burundi, Mali, Palestine, Sudan, Zimbabwe. *Traditional*: Bangladesh, Benin, Burkina Faso, Comoros, Guinea-Bissau, India, Lao People's Democratic Republic, Madagascar, Myanmar, Nigeria, Pakistan, Rwanda, Senegal, Timor-Leste, Togo, Uganda, United Republic of Tanzania, Zambia. *Expanding*: Angola, Bolivia (Plurinational State of), Botswana, Egypt, Eswatini, Gambia, Georgia, Guatemala, Iraq, Kyrgyzstan, Samoa, Sri Lanka, Viet Nam. *Diversifying*: Bosnia and Herzegovina, Ecuador, Mexico. Modernizing and formalizing: Albania, Argentina, Costa Rica, Dominican Republic, Jordan, Mongolia, United Arab Emirates.
Panel B: *Protracted crisis*: Afghanistan, Burundi, Mali, Palestine, Sudan, Zimbabwe. *Traditional*: Bangladesh, Benin, Burkina Faso, Comoros, Guinea-Bissau, Lao People's Democratic Republic, Madagascar, Myanmar, Nigeria, Pakistan, Rwanda, Senegal, Timor-Leste, Togo, Uganda, United Republic of Tanzania, Zambia. *Expanding*: Angola, Botswana, Egypt, Eswatini, Gambia, Georgia, Iraq, Kyrgyzstan, Samoa. *Diversifying*: Bosnia and Herzegovina, Ecuador. *Formalizing*: Albania, Argentina, Costa Rica, Dominican Republic, Jordan, Mongolia, United Arab Emirates. The graphs do not include information from countries with industrial agrifood systems as the number of countries from this group was too low.

Source: Own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

Notes: Refer to the Notes section for full citations.

SPOTLIGHT 4.1 IN LOW- AND LOWER-MIDDLE-INCOME COUNTRIES, YOUTH ENGAGEMENT IN AGRIFOOD SYSTEMS DEPENDS ON THE SPACES IN WHICH THEY LIVE

Structural transformation is characterized by urbanization and changing rural-urban linkages.[i, ii] These linkages yield a diversity of spaces in terms of distance to urban centres and densely populated areas, as well as access to activities and services.[iii–v] The diversity of these spaces translates into an array of economic opportunities and livelihoods as well as challenges for youth and adults.[iv, vi–ix]

Recent evidence shows that youth engagement in specific employment is shaped by the opportunities available in the spaces in which they live.[vi, vii, x] Analysis developed for this spotlight builds on this existing spatial framework presented in Chapter 2 with information on access to markets (proxied by travel time to different types of spaces) and digital connectivity (proxied by access to different type of mobile networks), building a new and more disaggregated categorization of spaces ranging from severe challenges to high opportunities (adapting the framework presented in Chapter 2).

The results confirm that youth engagement in agrifood systems depends heavily on spatial contexts (Figure A, Panel A). Across a sample of 18 low- and lower-middle income countries, agrifood systems employment remains important across all types of spaces, but is more significant in spaces characterized by low connectivity – either those with low land productivity (severe challenges spaces) or those with higher land productivity, yielding more agricultural opportunities.

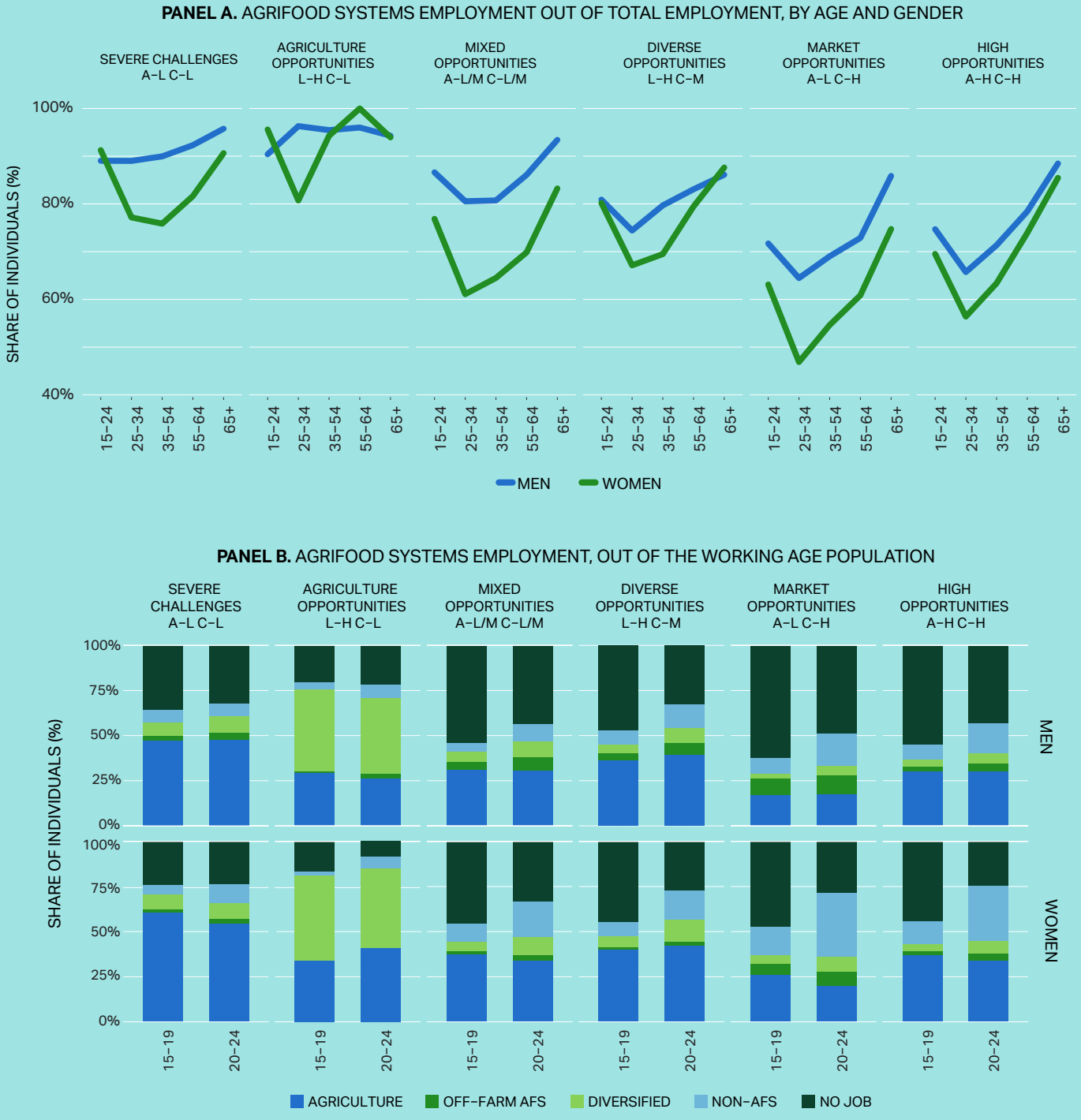
Across all spaces, agrifood systems remain a key entry point for youth, as noted earlier in this chapter. However, the nature and patterns of engagement in agrifood systems vary significantly between the different type of spaces. In spaces characterized by severe challenges or agriculture opportunities, young female adults remain and work more than male youth, while young male adults exit agrifood systems, as shown in Figure 4.3. In spaces characterized by low connectivity, and thus potentially lower mobility, young women may not be able to access livelihood opportunities outside agriculture. Women's limited mobility,[xi, xii] combined with their domestic and child care responsibilities,[xiii] can thus further limit their engagement in off-farm (agrifood systems) employment in less connected spaces. In spaces with higher degrees of connectivity, young women may be more able to access off-farm opportunities located outside or further from the household's location.

While agriculture remains key for youth livelihoods in low or medium opportunity spaces, off-farm agrifood systems are more important for youth in mixed, diverse and market opportunities spaces, especially women. As connectivity increases, larger shares of women engage and take advantage of off-farm agrifood systems opportunities generated by greater proximity or easier access to urban areas and consumer demand.[ii] This dynamic is most apparent in spaces with market opportunities, where higher levels of off-farm agrifood systems employment are observed. In these contexts, off-farm employment may form part of a livelihood diversification strategy, to potentially offset the reduced income from agriculture resulting from lower land productivity. Yet, in the diverse opportunities settings, where land productivity is higher, women aged 25–34 engage less in agriculture and more in off-farm agrifood systems, which could be indicate that women from this group eventually tend to exit agriculture when opportunities outside the sector are available – a pattern possibly driven by increases in agricultural productivity.

Even when all working-age youth are taken into consideration, not just those in employment, agrifood systems employment remains critical for young people (Figure A, Panel B). Agriculture remains key in spaces constrained by severe challenges, while larger shares of working-age youth diversify their activities in low connectivity spaces with higher agriculture opportunities, either within agrifood systems, combining and agricultural and off-farm agrifood systems employment, or outside agrifood systems combining agrifood system employment with work. In high connectivity spaces, while slightly less or about half of youth still rely on agriculture, larger shares of youth have no job, potentially exiting the labour force to either pursue education – understanding that educational attainment is higher in urban areas (see Chapter 3) – or being unemployed, taking into consideration the typically higher unemployment and NEET rates among urban youth.[xiv] Specialization in non-agrifood systems employment increases in spaces with medium to high connectivity, with a stronger rise among youth aged 20–24, reflecting the importance of non-agrifood systems employment in spaces in or closer to peri-urban and urban areas.[i, xv]

©FAO/A.K. KIMOTO IN SIEM REAP, CAMBODIA, LAND SINOUN PROUDLY SHOWS VISITORS HER THRIVING HOME GARDEN, DEMONSTRATING HOW SMALL-SCALE AGRICULTURAL SUPPORT CAN EMPOWER RURAL WOMEN AND FOSTER COMMUNITY RESILIENCE.

FIGURE A. AGRIFOOD SYSTEM EMPLOYMENT IS MORE IMPORTANT IN LESS CONNECTED SPACES



Notes: A/L: Low agricultural potential, C-L: Low connectivity, A/M: Medium agricultural potential, M-L: Medium connectivity, H/L: High agricultural potential, C-H: High connectivity.Data from 18 countries (Benin, Côte d'Ivoire, Burkina Faso, Guinea Bissau, Togo, Senegal, Niger, Bolivia (Plurinational State of), Guatemala, Mozambique, United Republic of Tanzania, Uganda, Georgia, Mali, Malawi, Nigeria, Peru, Sierra Leone).

Source: Own elaboration, further processing data shared by Davis *et al.*[xvi] and building on data from the Rural Livelihoods Information System (RuLIS).[xvii]

Notes: Refer to the Notes section for full citations.

SPOTLIGHT 4.2 CHILD LABOUR AMONG THE 15–17 COHORT

Little attention has been paid to youth aged 15–17, who belong to both the children (0–17) and youth age groups.[i] This cohort is characterized by specific biological, developmental and legal characteristics that distinguish them from older youth and adults. Biologically, youth aged 15–17 are in the later part of adolescence, a crucial stage of physical and cognitive development, characterized by biological growth and social transitions.[ii,iii] Individuals from this group have reached legal working age (set at 14 years old in some countries, and 15 or 16 years old in most countries) and can be in employment.[i,iv,v] They often face conflicting expectations and frequently engage in work that may be inappropriate for their age or development while lacking corresponding rights, voice or access to resources, which places them at heightened risk of involvement in child labour, particularly its worst forms.[iv] According to ILO Conventions Nos. 138 and 182, if they are involved in hazardous work, these youth are considered to be in a situation of child labour,[v,vi] which can have long-term negative implications for employment and health outcomes.[i,vii]

Thirty-five million youth aged 15–17, representing 9.5 percent of this cohort, are in a situation of child labour and hazardous work.[viii] Agriculture is more prone to hazardous work[ix] and employs 47.6 percent of all youth aged 15–17 in hazardous work.[viii] Children face a wide array of hazards and risks in the sector, including exposure to chemicals and extreme weather and temperatures, handling of dangerous tools and machinery, strenuous physical work, with heavy loads and repeated movements, or working with certain animals.[i, viii] The prevalence of child labour and hazardous work among youth aged 15–17 occurs more often in low- and lower-middle-income countries,[viii] where youth below the age of 18 generally work as contributing family workers in agriculture.[iv, viii]

Youth in child labour[vii] and hazardous work[viii] are less likely to be attending school or completing graduation. Besides the inherent health and physical and cognitive development risks associated with hazardous work, lower school attendance can eventually compromise children and youth's potential to build required professional skills and hamper future employment outcomes.[vii] The toll taken on youth's health and education can reduce their skills and productivity, further affecting their livelihoods and hampering the capacity of agrifood systems to ensure sustainable future food production.[iv]

Youth aged 15–17 face multiple challenges which heighten their vulnerability to hazardous forms of work and constrain their capacity to safely engage with agrifood systems. Compared to older youth (18–24), this cohort lacks the financial autonomy and legal capacity to own or access assets required for productive engagement in agrifood systems (see Chapter 3). For instance, evidence shows that they are less likely to own or access land, non-land and political assets than older youth.[x] Combined with their limited education, the lack of alternative productive and decent employment opportunities in rural areas often constrain youth aged 15–17 to work in subsistence agriculture or take up poor quality and low-paid jobs in off-farm segments of agrifood systems.[iv] Enforcement of child labour laws is also particularly challenging,[vii, viii] even more so in remote areas.[i] Data on the activities youth perform in agriculture and the related conditions are scarce, limiting the capacity to monitor and identify situations of child labour and hazardous work for this cohort.

Different patterns emerge as to girls' and boys' vulnerability to child labour and hazardous work in agriculture and broader agrifood systems. Child labour and hazardous work is more prevalent among boys than girls within the 15–17 age cohort (12.2 percent against

6.6 percent, respectively).[vii] They typically engage in different activities. Boys tend to be more involved in hazardous agricultural work, including heavier work in the field and work with livestock, while girls tend to engage in activities that are closer to the family home, including postharvest activities involving smaller livestock and the marketing of agricultural products.[iv]

Girls are also more likely to be engaged in household chores in their own homes.[xi–xiv] These "invisible" tasks are not always included in the definition of child labour but increase their overall work burden.[viii] Cultural norms in many regions constrain girls' mobility and limit their access to education, thereby reducing their opportunities for formal agricultural training and decent employment. Adolescent girls and young women, in particular, often face compounded barriers, including heightened risks of physical and emotional violence, discrimination and harassment, which further marginalize their participation in the agrifood sector.[xv]

Promoting safe work in agrifood systems for youth aged 15–17

Agrifood system employment remains critical for youth aged 15–17, especially in countries at the earlier stages of agrifood systems transition. Ensuring that youth aged 15–17 can access legal, non-hazardous work is thus critical, including for the sustainability of agrifood systems.[iv]

Protection of youth aged 15–17 from hazardous work in agrifood systems can be achieved through multiple approaches, targeting individual workers, their households and broader rural areas. First, young workers in agrifood systems should be protected from hazardous working conditions. For instance, promoting sustainable agricultural practices and labour-saving technologies can help reduce youth's exposure to agrochemicals and dangerous equipment.[i,iv] Non-state actors-based monitoring systems can also help identify situations of child labour in more remote areas and the informal economy.[viii] Second, targeted efforts should aim at reducing youth's likelihood to engage in hazardous work. Supporting their education and sector-specific skills training can help youth access decent and more productive jobs.[iv] In the same vein, interventions supporting rural and agricultural households can help reduce their likelihood to resort to child labour. Evidence shows that interventions combining livelihood and education support, such as in Peru,[xvi] or food-for-education programmes, such as in Burkina Faso,[xvii] can help reduce child labour in agricultural households. Third, broader investments and rural development policies (including in basic infrastructure, health and education) that aim to generate decent, quality and remunerative work opportunities are also essential. Besides offering decent alternatives to hazardous work to youth aged 15–17, both in and outside agrifood systems, prospects of better-quality jobs will encourage families to prioritize long-term youth education and training over child labour generated income.[iv]

Notes: Refer to the Notes section for full citations.

SPOTLIGHT 4.3 INDIGENOUS YOUTH'S WORK AND ACCESS TO ASSETS AND RESOURCES IN AGRIFOOD SYSTEMS

Forty-five percent of the world's estimated 476 million Indigenous Peoples are between 15 and 30 years of age.[i] While Indigenous Peoples constitute approximately 6.2 percent of the global population, with the majority living in middle-income countries, some sources place them among the most economically poor, representing more than 19 percent of the extreme poor.[i] It is important to note that for many Indigenous Peoples around the world, across the seven sociocultural regions, their ways of life are intricately connected to food and knowledge systems embedded within the diverse ecosystems of their territories and homelands, and not necessarily measured by economics and labour. For Indigenous Peoples, including Indigenous Youth, food is more than just eating – food carries nutritional, medicinal, healing, spiritual, social, cultural, relational and emotional dimensions and values.[ii] From an economics perspective, many Indigenous Peoples are dependent on agrifood systems for their livelihoods: the ILO estimates that 55 percent of Indigenous Peoples work in agriculture (compared to 27 percent in the non-Indigenous population). There is little to no disaggregated data available for Indigenous Youth by occupation.[iii]

Despite this lack of data, there is an increasing emphasis on documenting the important role that Indigenous Youth play in protecting and advocating for Indigenous Peoples' food and knowledge systems, the conservation of biodiversity, climate change adaptation, ecological restoration and food systems transformation in their communities. Indigenous Youth also actively participate in global forums including the Convention on Biological Diversity (CBD), the UN Convention to Combat Desertification (UNCCD), the UN Framework Convention on Climate Change (UNFCCC) Conference of Parties (COP) and the UN Global Indigenous Youth Forum (UNGIYF). As with food, Indigenous Peoples and Indigenous Youth protect and prioritize biodiversity for its importance not just for their livelihoods but also for cultural, spiritual and symbolic reasons.[iv]

Additionally, interest is growing in better measuring and assessing the extent to which Indigenous Peoples, including Indigenous Youth, work in "traditional occupations", many of which are related to agrifood systems, such as hunting, gathering (including plants for both food and medicine), herding, fishing and aquaculture, pastoralism, cultivation, farming, beekeeping, forestry, the production of handicrafts (e.g. weaving, basketry, pottery, carving), and the preparation and storage of foods.[v] Such "traditional occupations" are intrinsically connected to the characteristics and collective stewardship required to sustain their food systems and territorial management. According to FAO's White/Wiphala Paper on Indigenous Peoples' food systems,[ii] "Indigenous Peoples' food systems consist of both food generation and food production, and different Indigenous Peoples' communities may participate in food generative and productive activities to differing extents".[ii]

Within these traditional occupations in agrifood systems, young Indigenous Peoples also play important roles in innovating, changing and adapting practices. For example, in Thailand, Indigenous Youth combined work with traditional agricultural practices with an innovative business model to create a community-based social enterprise.[vi] In the Philippines, youth members of the Lake Sebu Indigenous Women and Farmers Association advanced a project to make and sell banana chips during the COVID-19 pandemic to prevent food loss and waste

due to interrupted supply chains. The bananas used were native species, which had greater resilience to climate change. This project increased and diversified income for youth and their families, while incorporating sustainable practices and promoting biodiversity.[vii]

Many Indigenous Youth around the world are under increasing pressure to relocate to urban centres for reasons including economic opportunities or displacement. In spite of this, many Indigenous Youth are finding ways to remain connected with their cultures and food systems. For example, Indigenous Youth from the Anishnaabeg community in Canada demonstrated that rather than representing a loss of cultural traditions, their rural–urban mobility for work and education has helped finance traditional activities such as hunting, trapping, fishing and plant collection[viii] Additional examples from Northern America reveal Indigenous Youth sustaining and revitalizing their food and knowledge systems in both rural and urban areas, while protecting ecosystems through the cultivation and use of native species in culinary and production businesses, ranching, wild harvesting, fishing and hunting.[ix, x, xi] In Alaska, Indigenous Youth are collaborating with remote Native villages, planting food and native species to stabilize melting permafrost, and increase local food production and access to affordable, nutritious food.[xii]

In consultations held during the 2023 UN Global Indigenous Youth Forum and at World Food Forums since 2021, more than 200 Indigenous Youth leaders from across the seven sociocultural regions have shared initiatives they are leading to support Indigenous Peoples' food and knowledge systems.[xiii] Indigenous Youth from across Central and South America and the Caribbean are working to preserve and protect varieties of seeds and plant genetic resources through cultivation based on the milpa system. In the Amazon basin of Ecuador, Indigenous Youth are creating their own alternative economies founded on the plants, foods and medicines of their region. In Mexico, Indigenous Youth and Women face encroachment on their agricultural and grazing lands from wind projects and are advocating for Free, Prior and Informed Consent (FPIC) in relation to green energy projects.[xiv]

Indigenous Youth of the Ogiek People in Kenya and the Hunter-Gatherer Peoples in the Congo Basin are advocating to retain access to their homelands and sustain their traditional systems of forestry. Indigenous Youth in Botswana, Namibia and the United Republic of Tanzania are combating desertification and drought by applying new pastoralism approaches, restoring grasslands and planting small gardens for mobile schools.[xv, xvi] Indigenous Youth of the Kal Tamashek in Burkina Faso are identifying ways to sustain their nomadic livelihoods with livestock and wild harvests in the face of desertification and political violence.[xvii]

Saami Youth across Scandinavia are actively engaged in protecting grazing lands for their reindeer herds and are finding ways to sustain their mobile livelihoods despite encroachment and climate change impacts[xviii] Indigenous Youth in the Arctic regions of Alaska, the United States of America and Nunavut, Canada are studying arctic marine life with the aim of sustaining traditional hunting, whaling and fishing practices in sustainable ways.[xix]

Indigenous Youth in Arctic regions of the Russian Federation are also working to maintain their food systems, which are rooted in hunting, fishing and reindeer herding, despite territorial challenges and climate change.[xx] In the North Caucasus, Indigenous Youth are collaborating with Indigenous chefs and food historians to learn about and share traditional foods and preservation practices.[xxi]

In the Pacific, Indigenous Youth in Vanuatu and other small island nations are encouraging their communities to cultivate traditional varieties of foods using Indigenous practices, in order to increase food security and nutritional health.[xxii] In the Solomon Islands and Timor-Leste, Indigenous Youth are working together with Elders and the local government to monitor and sustain Indigenous fisheries and sustainable practices[xxiii] Similarly, Indigenous Youth across Australia are working alongside Elders to sustain their Indigenous food and knowledge systems, re-establish connections and reacquire lost knowledge.[xxiv] In Hawaii, young Kanaka Oiwi (Native Hawaiians) are revitalizing fishponds and restoring Indigenous food and knowledge systems linked to "ahupua'a" watersheds.[xxv] Indigenous Youth in New Zealand are working to reconnect with their traditional *whenua* (lands) and restore spaces for cultivation.[xxvi]

While Indigenous Youth are leading initiatives around the world to protect, preserve and revitalize Indigenous Peoples' food and knowledge systems in the broader

context of agrifood systems, there is a lack of disaggregated and published data on their initiatives. This data gap is slowly being addressed.

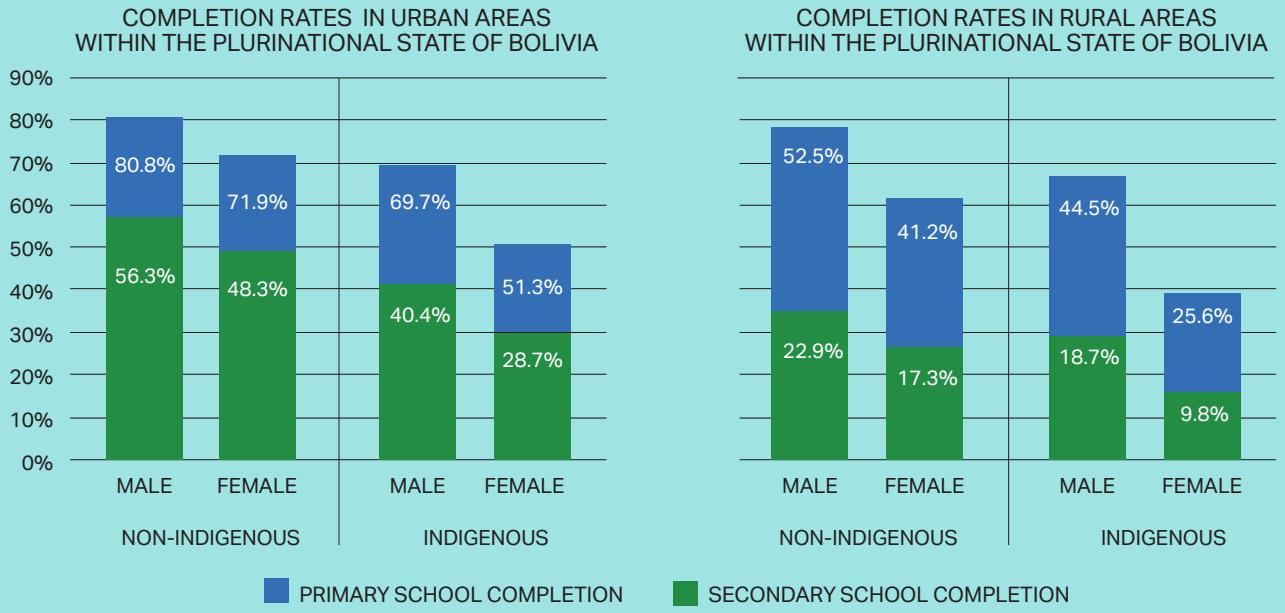
One way to better understand the access and opportunities open to Indigenous Youth is to analyse employment data, although the variations in these data are depending on region and national context. Data from two industrial agrifood systems with large populations of Indigenous Peoples – Australia and the United States of America – demonstrate significant gaps. In Australia, the employment rate in 2021 for Indigenous Youth was 44 percent compared to approximately 60 percent for non-Indigenous Youth. Additionally, 42 percent of Indigenous Youth are not in employment, education or training (NEET). These outcomes are due in part to the challenges that Indigenous Youth and adults face in Australia, including discrimination, disproportionately high rates of incarceration, disparities in the educational system, and lack of access to training and long-term job opportunities, as well as the absence of mentorship for Indigenous Youth seeking employment.[xxvii]

Data from the United States of America (2016) show similar patterns, with unemployment higher for Indigenous Youth aged 20–24 years (24 percent) than for any other ethnic group, and greater for Indigenous Youth aged 16–19 (27 percent) than for all groups except black youth (32 percent). In both cohorts, the unemployment rate for Indigenous Youth is significantly higher than for white youth (19 percent among ages 16–19 and 9 percent for ages 20–24).[xxviii] In the United States of America, 19 percent of young farm workers aged 14–19 were Indigenous (compared to 2 percent for the population overall), and 6 percent spoke an Indigenous language as their primary language.[xxix]

These gaps are reflective of specific challenges that Indigenous Youth face in agrifood systems. These include lack of access to land and water,[xxix] limited participation in policy processes and governance structures,[xxx] reduced access to ICTs compared to urban and/or non-Indigenous Youth,[xxxi] and lower rates of school completion. For example, data from 2011 show that Indigenous Youth in Guatemala were almost 12 percentage points less likely to complete primary school, and almost 13 percentage points less likely to complete secondary school. In Ecuador, Indigenous Youth are more than 16 percentage points less likely to complete secondary school. Further gaps are noticeable between young Indigenous women and men, and between young Indigenous people living in rural and urban areas (see Figure A for statistics on the Plurinational State of Bolivia). While the trend in Latin America improved significantly between 2000 and 2011, and varies across countries in the region, significant gaps – including urban/rural and gender gaps – persist with consequent impacts for Indigenous Youth on skills and labour force participation.[xxxi]

© FAO/ADRIANO GAMBARINI/OPAN
ON RIVER TAPAUÁ IN THE BRAZILIAN AMAZON, A YOUNG MAN SITS ON A WATER VESSEL IN THE LANDS OF THE PAUMARI INDIGENOUS PEOPLE.

FIGURE A. INDIGENOUS YOUTH, ESPECIALLY YOUNG INDIGENOUS WOMEN, ARE LESS LIKELY TO COMPLETE EDUCATION IN RURAL AREAS OF THE PLURINATIONAL STATE OF BOLIVIA



SOURCE: World Bank. 2015. Indigenous Latin America in the twenty-first century. Washington, DC.
https://documents1.worldbank.org/curated/en/145891467991974540/pdf/Indigenous-Latin-America-in-the-twenty-first-century-the-first-decade.pdf

Finally, loss of cultural heritage including the disappearance of Indigenous languages, which is particularly acute among Indigenous Youth, can also contribute to lack of access to resources and job opportunities. For example, in Mexico, the adoption of Spanish as their primary language, by Indigenous Youth from the Cucapa people, has been used to deny them official recognition as Indigenous, thereby reducing their access to fishing rights and land.[xxxii]

Despite these challenges, Indigenous youth are also leading and participating globally in initiatives to retain, restore and revitalize their Indigenous languages, as well as to strengthen the language skills they need in the job market and international negotiations. It is important to note that for many Indigenous Youth, educational systems in their countries have historically been and continue to be a place of assimilation and separation from their cultures, values, systems of knowledge, languages, foods and ways of life. In recognition of this issue, Indigenous-led education initiatives around the world are giving Indigenous Youth a way to access education while also retaining and strengthening these connections and sustaining their food and knowledge systems.[xxxiii, xxxiv]

To gain a better understanding of Indigenous Youth's work and access to assets and resources in agrifood systems, it is important to understand their motivations and the challenges they face in today's world. Options to complete their education under the "mainstream" system and work in the agriculture sector may or may not be accessible, nor serve the goals of protecting and sustaining Indigenous Peoples' food and knowledge systems.

Notes: Refer to the Notes section for full citations.

©IFAD/SANTIAGO BILLY/ FACTSTORY IN QUICHÉ, GUATEMALA, JUANA MORALES RODRÍGUEZ, A YOUNG MOTHER OF THREE AND RURAL CREDIT UNION LEADER, USES SOLAR-POWERED DIGITAL TOOLS TO MANAGE GROUP SAVINGS AND GROW HER FAMILY-RUN WEAVING BUSINESS, SHOWING HOW DIGITAL INCLUSION EMPOWERS RURAL WOMEN ENTREPRENEURS.

©FAO/GMB AKASH
IN COX'S BAZAR, BANGLADESH, A YOUNG MEMBER OF A FARMER FIELD SCHOOL WORKS IN HER VEGETABLE FIELD.

05
FOOD SECURITY, NUTRITION AND HEALTHY DIETS FOR RURAL YOUTH

© FAO/GILLES SABRIE
IN CHONGQING, CHINA, A YOUNG EMPLOYEE AT WORK IN THE SMART PLANT FACTORY IN XINGLONG TOWN.

KEY MESSAGES

- Youth is a critical period for biological growth requiring proper nutrition to boost cognitive development with lasting effects on health, academic performance, workforce readiness and earning potential.
- Young people, especially in rural areas, are more likely to experience food insecurity resulting in unhealthy diets and nutrient inadequacy. However, significant and widespread data gaps, particularly in protracted crisis and traditional agrifood systems, hinder understanding of the full scope and severity of these challenges.
- Food insecurity among youth increased from 16.7 percent to 24.4 percent between 2014–2016 and 2021–2023, driven partially by the COVID-19 pandemic and other crises. This increase widened the existing youth–adult gap and was greater among women and rural populations.
- As youth transition from childhood to adulthood, their autonomy and agency regarding food choices gradually increases enabling them to form dietary habits that often persist into adulthood.
- Youth have to navigate challenging biological and social transitions in changing food environments.
- Any agrifood systems transformation that is not sensitive to the challenges and needs of youth may exacerbate existing diet and nutrition-related challenges and inequalities, and/or give rise to new ones.
- Co-creating youth-inclusive agrifood systems means placing healthy diets at the centre of transformation, taking into consideration young people's biological and dietary needs, their sociocultural values and aspirations, and ensuring alignment with their economic situation.

INTRODUCTION

A youth-inclusive agrifood system requires the involvement of young people, not just as participants but as drivers of change, equipped with the skills, resources and agency to make meaningful contributions. Ensuring youth are healthy and well-nourished is fundamental to this vision and begins with access to and the consumption of healthy diets.

Today's youth face significant health-related challenges including food insecurity and a complex malnutrition crisis, characterized by undernutrition, micronutrient deficiencies, and increasing rates of obesity and diet-related non-communicable diseases such as hypertension and diabetes.[1–3] In 2023, an estimated 2.33 billion people worldwide were moderately or severely food insecure.[4] Most of those affected reside in low- and middle-income countries (LMICs), which also host the majority of the global youth population.[4,5] Rising food prices, projected population growth, climate change-induced agrifood losses, and insufficient nutrition, education, and healthcare are likely to exacerbate these challenges.[5–7] These factors could push many youth into highly vulnerable conditions, limiting their ability to access healthy diets and negatively impacting their development, education, health and economic opportunities.[8–10] Unhealthy diets jeopardize the capacity of youth to make effective contributions to agrifood systems and undermine their long-term economic stability and earning potential.[11, 12] Addressing food insecurity and all forms of malnutrition among youth is a crucial step toward empowering young people to contribute to equitable, sustainable and resilient agrifood systems.

Agrifood systems transformation has the potential to foster advancements in agricultural practices, improve market access and promote economic diversification, increasing the availability and accessibility of nutritious and safe food.[13, 14] At present, however, agrifood systems are transitioning in ways that undermine youth nutrition and do not support healthy diets.[15] The widespread availability of unhealthy foods high in sugar, unhealthy fats and salt are displacing traditional diets rich in fruits, vegetables and whole grains, leading to concerning dietary changes even among rural youth.[15] These changes are driven partially by the globalization of food markets and aggressive marketing by national and regional food companies targeting young consumers. The convenience of ultra-processed options, coupled with inadequate regulatory measures, makes it challenging for youth to make informed dietary choices, resulting in adverse health outcomes such as obesity and diet-related non-communicable diseases.[15]

This chapter builds on the conceptual framework introduced in Chapter 1, which identifies food security and nutrition as key outcomes of youth-inclusive agrifood systems transformation. It explores the complex relationships between youth, food security and nutrition within the broader context of agrifood systems transformation. The chapter outlines the nutritional and dietary needs of all youth, emphasizing the risks of food insecurity and malnutrition. It also examines the current state of food security and nutrition among youth, disaggregated by gender, age, geographical location and agrifood system type. Where available, evidence on rural youth nutrition in agrifood systems is emphasized while noting persistent data gaps on dietary intake, particularly from protracted crisis and traditional agrifood systems, and the need for disaggregation of data by sex, age and geography (urban vs rural).[16] Lastly, the chapter presents key sociocultural and economic considerations to guide policies and programmes aimed at improving food security and nutrition outcomes for young people.

NUTRITIONAL CONSIDERATIONS FOR YOUTH-INCLUSIVE AGRIFOOD SYSTEMS TRANSFORMATION

YOUTH IS A PERIOD OF SIGNIFICANT BIOLOGICAL CHANGE REQUIRING PROPER NUTRITION

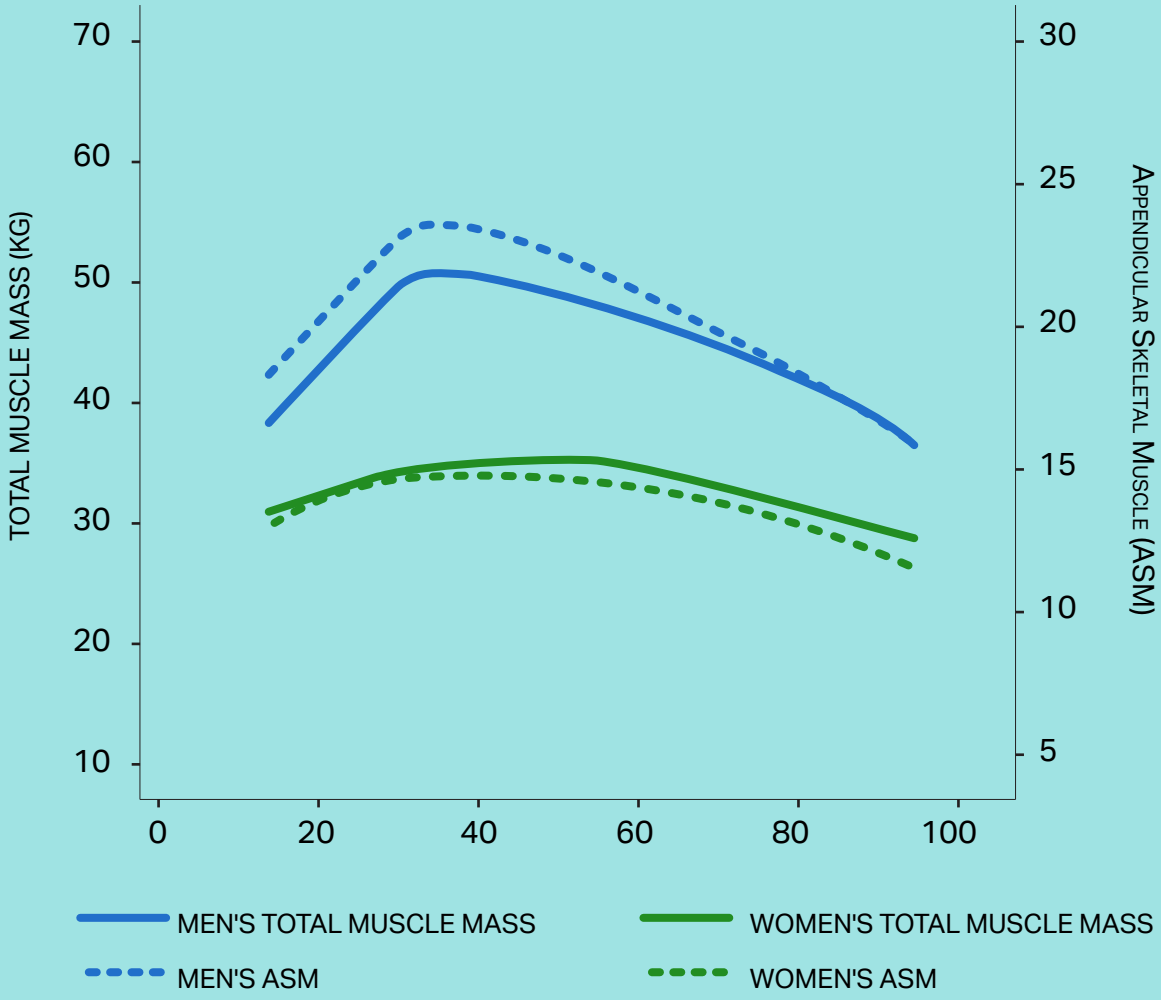
Proper nutrition from preconception through early adulthood is crucial for healthy growth, development and long-term health. Changes in body composition, including bone, muscle and fat distribution affect long-term metabolic, muscular and skeletal health. Linear growth begins before birth, with bone mass peaking at 20–30 years, followed by gradual bone loss later in life, with females experiencing a period of rapid bone loss during menopause.[17,18] Young females typically grow taller earlier than males, but young males tend to gain more muscle.[19] Skeletal muscle growth continues to develop throughout youth, with muscle development peaking in the 30s for males and 40s for females (Figure 5.1).[20]

Brain development also continues well into a person's

©FAO/EDUARDO SOTERAS
IN NAIROBI, KENYA, A YOUNG FARMER TENDS TO HERBS.

FIGURE 5.1

SKELETAL MUSCLE GROWTH PEAKS IN THE THIRTIES FOR MALES AND FORTIES FOR FEMALES



Note: Total muscle mass refers to the total amount of muscle tissue in the body. ASM (kg) refers to a skeletal muscle mass index that comprises the sum of muscle mass in the arms and legs, adjusted for body size.

Source: Adapted from Kim, K.M., Jang, H.C. & Lim, S. 2016. Differences among skeletal muscle mass indices derived from height-, weight-, and body mass index-adjusted models in assessing sarcopenia. The Korean Journal of Internal Medicine, 31(4): 643–650. https://doi.org/10.3904/kjim.2016.015. Data on age trends in total muscle mass and appendicular skeletal muscle (ASM)* indices of 28 476 males and females are drawn from the Korea National Health and Nutrition Examination Survey 2008–2010.

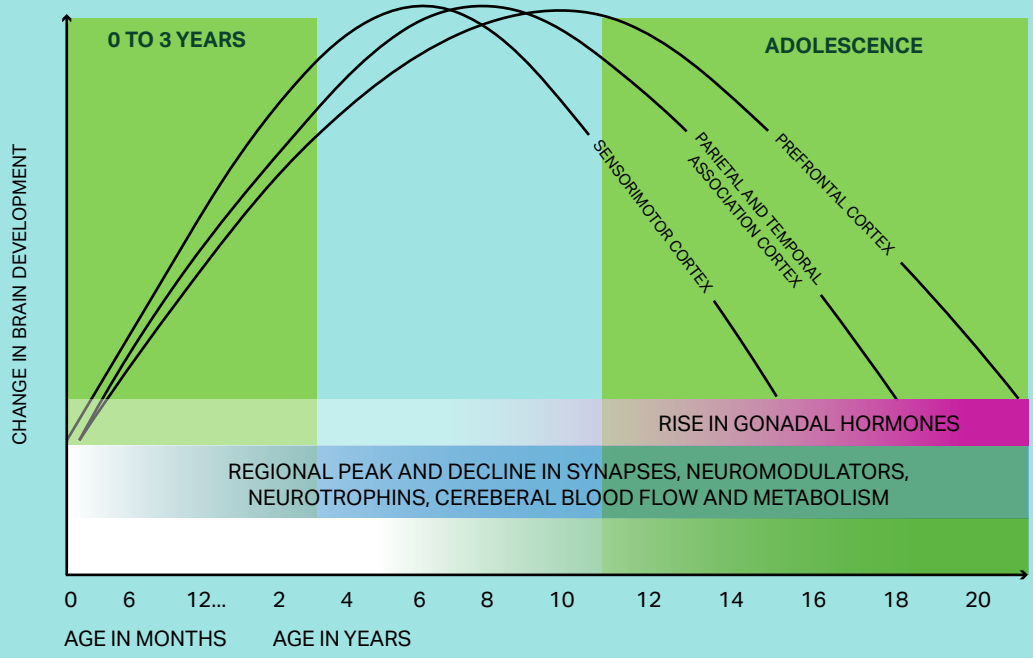
mid-20s, especially in areas responsible for decision-making, impulse control and planning. The extent of development is influenced by hormones, myelination (Figure 5.2)[21] and other biological systems[19] as well as lifestyle factors such as diet, activity levels and overall health. The brain remains highly adaptable or "plastic" to social, learning, and nutritional environments.[19] While this process enhances the ability to learn and adjust to new experiences, it also makes young people more vulnerable to negative influences such as poor nutrition.[19] Additionally, while the immune system functions similarly to that of adults, by late childhood it undergoes sex-specific hormonal changes during puberty and into youth.[19] By the end of puberty, the body reaches full physical maturity, preparing for reproduction. Sexual maturation and social relationships during youth are critical for future parenthood, as reproductive health is best when physical, mental, social and emotional development is fully complete.[19] Cumulatively, these factors indicate that youth, especially the period from 20 to 24 years, represents a critical phase of development with the potential to shape lifelong health and well-being.

Adequate nutrition is needed to support the biological

©FAO/LUIS TATO IN SIAYA, KENYA, SARAH JUMA, A MEMBER OF THE COMMUNITY-BASED GROUP SIDIPO, HOLDS FRESHLY HARVESTED MANGOES AT HER HOME, REFLECTING THE VITAL ROLE OF YOUNG WOMEN IN STRENGTHENING RURAL AGRIFOOD SYSTEMS.

FIGURE 5.2

YOUTH SPANS SENSITIVE PERIODS OF BRAIN DEVELOPMENT



Source: Gee, D.G. & Casey, B.J. 2015. The impact of developmental timing for stress and recovery. Neurobiology of Stress, 1: 184–194. https://doi.org/10.1016/j.ynstr.2015.02.001

YOUTH HAVE GREATER DIETARY ENERGY AND NUTRIENT NEEDS THAN OTHER AGE GROUPS.

changes that occur as youth transition from childhood to adulthood.[19] Nutrients are the essential substances the body needs for growth, development and function. Macronutrients (those required in larger amounts), including carbohydrates, proteins and fats, provide energy and are essential for muscle and organ development. Micronutrients (those required in smaller amounts), including over 20 essential vitamins and minerals, are critical for proper functioning of all body systems, including brain development and immune system function.[22] Inadequate, unbalanced or excessive nutrient intake results in visible forms of malnutrition (e.g. low or excess weight), but also in functional changes in the body that may not be easily detected (e.g. changes in organ and brain development, and immune function, among others).

Youth have greater dietary energy and nutrient (see Table 5.1 and Table A5.2 in the Appendix 5) needs than other age groups due to rapid physical growth and activity. Their need for nutrients such as calcium, zinc and iron is especially high.[16] These micronutrient density needs are even greater for adolescents (10–19 years), adolescent girls, youth (15–24 years), and pregnant and lactating females relative to the global average across all life stages (see Box 5.1).[23]

TABLE 5.1 YOUTH HAVE HIGHER DIETARY NUTRIENT NEEDS THAN OTHER AGE GROUPS

	MALES				FEMALES				PREGNANCY			LACTATION		
AGE (YEARS)	9–13	14–18	19–30	31–50	9–13	14–18	19–30	31–50	14–18	19–30	31–50	14–18	19–30	31–50
MACRONUTRIENTS														
CARBOHYDRATE (G/D)	100	100	100	100	100	100	100	100	135	135	135	160	160	160
PROTEIN (G/KG/D)	0.76	0.73	0.66	0.66	0.76	0.71	0.66	0.66	0.88	0.88	0.88	1.05	1.05	1.05
MINERALS														
CALCIUM (MG/D)	1 100	1 100	800	800	1 100	1 100	800	800	1 000	800	800	1 000	800	800
SELENIUM (RG/D)	35	45	45	45	35	45	45	45	49	49	49	59	59	59
MAGNESIUM (MG/D)	200	340	330	350	200	300	255	265	335	290	300	300	255	265
ZINC (MG/D)	7.0	8.5	9.4	9.4	7.0	7.3	6.8	6.8	10.5	9.5	9.5	10.9	10.4	10.4
IRON (MG/D)	5.9	7.7	6	6	5.7	7.9	8.1	8.1	23	22	22	7	6.5	6.5
IODINE (RG/D)	73	95	95	95	73	95	95	95	160	160	160	209	209	209
WATER-SOLUBLE VITAMINS														
VITAMIN C (MG/D)	39	63	75	75	39	56	60	60	66	70	70	96	100	100
THIAMINE (MG/D)	0.7	1.0	1.0	1.0	0.7	0.9	0.9	0.9	1.2	1.2	1.2	1.2	1.2	1.2
RIBOFLAVIN (MG/D)	0.8	1.1	1.1	1.1	0.8	0.9	0.9	0.9	1.2	1.2	1.2	1.3	1.3	1.3
NIACIN (MG/D)[1]	9	12	12	12	9	11	11	11	14	14	14	13	13	13
VITAMIN B6 (MG/D)	0.8	1.1	1.1	1.1	0.8	1.0	1.1	1.1	1.6	1.6	1.6	1.7	1.7	1.6
VITAMIN B12 (RG/D)	1.5	2.0	2.0	2.0	1.5	2.0	2.0	2.0	2.2	2.2	2.2	2.4	2.4	2.4
FOLATE (RG/D)[2]	250	330	320	320	250	330	320	320	520	520	520	450	450	450
FAT-SOLUBLE VITAMINS														
VITAMIN A (RG/D)[3]	445	630	625	625	420	485	500	500	530	550	550	885	900	900
VITAMIN D (RG/D)	10	10	10	10	10	10	10	10	10	10	10	10	10	10
VITAMIN E (MG/D)[4]	9	12	12	12	9	12	12	12	12	12	12	16	16	16

Note: An Estimated Average Requirement (EAR) is the average daily nutrient intake level estimated to meet the requirements of half of the healthy individuals in a group. EARs for youth (15–24 years) are shaded in green for males and orange for females. EARs have not been established for vitamin K, pantothenic acid, biotin, choline, chromium, fluoride, manganese, potassium, sodium, chloride or other nutrients not yet evaluated via the dietary reference intakes process.[1]Niacin equivalents (NE): 1 mg of niacin = 60 mg of tryptophan.[2]Dietary folate equivalents (DFE): 1 DFE = 1 µg food folate = 0.6 µg of folic acid from fortified food or as a supplement consumed with food = 0.5 µg of a supplement taken on an empty stomach.[3]Retinol activity equivalents (RAEs): RAE = 1 Rg retinol, 12 Rg G-carotene, 24 Rg F-carotene, or 24 Rg G-cryptoxanthin. The RAE for dietary provitamin A carotenoid is twice that of retinol equivalents (RE), whereas the RAE for preformed vitamin A is the same as RE.[4]F-tocopherol: F-Tocopherol includes *RRR*-F-tocopherol, the only form of F-tocopherol that occurs naturally in foods, and the *2R*-stereoisomeric forms of F-tocopherol (*RRR*-, *RSR*-, *RRS*- and *RSS*-F-tocopherol) that occur in fortified foods and supplements. It does not include the *2S*-stereoisomeric forms of F-tocopherol (*SRR*-, *SSR*-, *SRS*- and *SSS*-F-tocopherol), also found in fortified foods and supplements.

Source: Institute of Medicine (US) Panel on Micronutrients. 2001. *Dietary reference intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington, DC, National Academies Press. www.ncbi.nlm.nih.gov/books/NBK222310

PROPER NUTRITION DURING YOUTH SUPPORTS LONG-TERM HEALTH, WORKFORCE READINESS, AND ECONOMIC PRODUCTIVITY.

Ensuring adequate nutrition during the critical youth period has long-term consequences for dietary habits, overall health and human capital. Healthy diets – adequate, balanced, moderate and diverse – ensure strong immunity, proper development and lifelong well-being.[25] Chronic undernutrition, especially micronutrients deficiencies, can weaken the immune system,[26–28] disrupt cognitive functions and brain development, impair reasoning abilities, delay puberty[19] and increase risks of complications during pregnancy and childbirth among young mothers and their offspring.[29] Maternal malnutrition – whether undernutrition or obesity – before and during pregnancy influences the growth and health of their offspring as well as the future risk of conditions like diabetes.[19] It also increases the likelihood of low birth weight, pre-term birth and stunting, with intergenerational consequences for the health of both mothers and their offspring throughout life (see also Box 5.1 on youth and adolescent pregnancy).[19]

At the same time, overweight and obesity driven by high fat, sugar and processed diets contribute to chronic inflammation, early puberty[19] and long-term risks like diabetes and reproductive issues.[19,30] They can also impair brain function and self-regulation, potentially leading to neurodevelopmental challenges including impulsive behaviours,[19,31] attention disorders, depression and anxiety.[32,33] Overweight and obesity during pregnancy can increase the risk of pregnancy complications, infant morbidities, and future obesity and metabolic diseases in offspring.[34, 35]

Nutrition also directly impacts educational and economic outcomes. Adequate nutrition enhances cognitive function, leading to better concentration, academic achievement and school completion.[36] Higher educational attainment opens doors to better employment opportunities,[37,38] increasing the likelihood of stable income and access to healthy foods later in life. Conversely, malnourished youth often struggle academically due to impaired cognitive development, increased absenteeism and higher dropout rates, which significantly reduce future employment prospects and economic stability.[36] Those who enter the workforce malnourished may struggle with physical limitations, low productivity and frequent absenteeism, which reduce their economic contribution.[11,12, 39, 40]

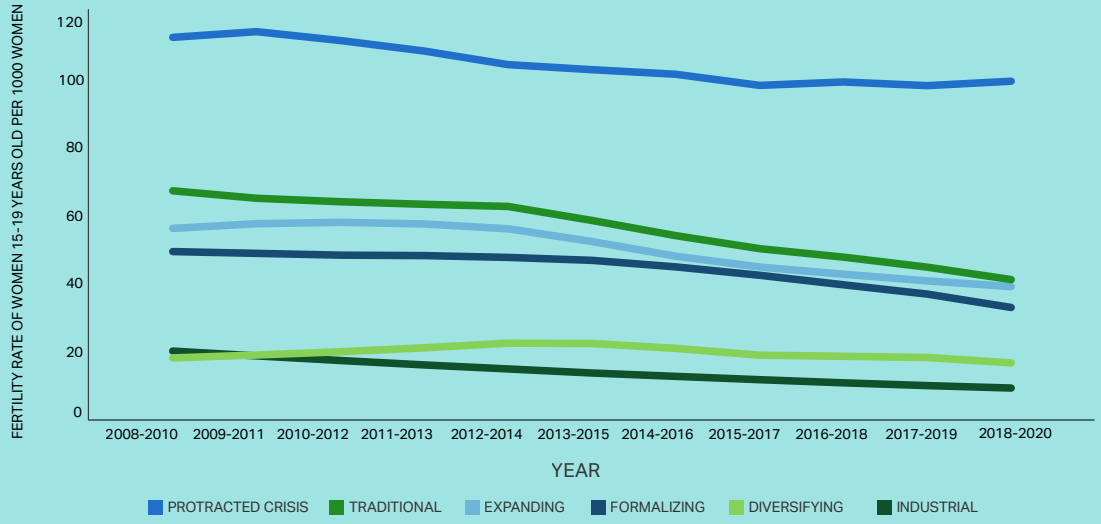
©FAO/ANIS MILI IN BEJA, TUNISIA, YOUNG AGRI-ENTREPRENEUR AHED MOUSSI ARRANGES PACKETS OF HERBS ON SHELVES AT HER DISTILLATION WORKSHOP, WHERE SHE TRANSFORMS LOCAL HERBS AND FLOWERS INTO HIGH-VALUE PRODUCTS.

BOX 5.1 ADOLESCENT AND YOUTH PREGNANCY

Adolescents and pregnant and lactating women have higher daily caloric needs and specific micronutrient requirements. In many countries and across agrifood system types, many women have their first child while still in the younger youth category (15—17), placing specific demands on their nutrition, with implications for their education, livelihoods and health outcomes.

In 2019, there were 21 million pregnancies among adolescent girls aged 15–19. About 50 percent were unintended, resulting in 12 million births,[i] 95 percent of which occurred in low- and lower-middle-income countries.[ii] Pregnancy and childbirth carry higher risks for adolescents than older women, including pre-eclampsia, eclampsia, systematic infections, iron deficiency, anaemia and fistulae. These conditions are also associated with negative outcomes for infants including higher rates of pre-term birth, low birth weight, stillbirths and neonatal deaths.[ii] Additionally, complications from pregnancy and childbirth are a leading cause of death for girls aged 15–19.[iii]

FIGURE A. ADOLESCENT FERTILITY RATES, BY AGRIFOOD SYSTEM TYPOLOGY



Note: 1. To improve the coverage of adolescent fertility data across countries and years, linear interpolation was used to estimate missing values for countries with at least two data points. Adolescent fertility rates were then aggregated by agrifood system typology as population-weighted averages. Three year moving averages were applied to smooth short-term fluctuations. 2. The number of countries covered in the analysis ranged from 11 to 19 in protracted crisis agrifood systems (depending on the time period); 25–30 for traditional agrifood systems; 19–30 for expanding agrifood systems; 30 throughout for formalizing agrifood systems; 27–28 for diversifying agrifood systems; and 28–29 for industrial and agrifood systems.

Source: Authors' computations based on WHO 2025 data for adolescent birth rates (per 1 000 women) [Indicator]. http://data.who.int/indicators/i/24C65FE/27D371A [Cited April 2025]; and World Bank staff estimates using the World Bank's total population and age/sex distributions of the United Nations Population Division's World Population Prospects: 2024 Revision, Population, ages 15–19, female. https://databank.worldbank.org/reports.aspx?source=2&series=SP.POP.1519.FE.5Y [Cited April 2025].

Adolescent pregnancy also interferes with schooling, carries stigma, especially if it occurs outside of marriage, and can perpetuate cycles of poverty.[iv] It is facilitated by declining but still high rates of child marriage (650 million women alive today were married before their 18th birthday),[v] high rates of poverty, restrictive gender norms, and unmet needs for and knowledge of contraception. These pregnancies are more prevalent in low-income countries and rural areas.[vi] For example, in Zambia adolescent girls aged 15–19 in rural areas are twice as likely to have given birth as those in urban areas. The percentage of girls in this age group who were pregnant or had already given birth ranged from 14.9 percent in the capital city, Lusaka, to 43 percent in the rural/agricultural areas of the Southern Province.[vii]

Adolescent fertility rates are highest in countries at the earliest stages of structural transformation, with rates declining as agrifood systems transition (see Figure A). The highest rates are observed in countries facing protracted crises, where early and forced marriages and limited reproductive autonomy are often coping mechanisms in response to displacement and instability, and sometimes constitute an attempt to protect girls and young women from more violence.[viii] The lowest rates of adolescent fertility are seen in industrial agrifood systems, which aligns with global patterns in more developed countries, where needs for contraceptives are better met, and extended education and delayed family formation are common.

Notes: Refer to the Notes section for full citations.

STATUS OF YOUTH DIETARY INTAKE AND FOOD INSECURITY

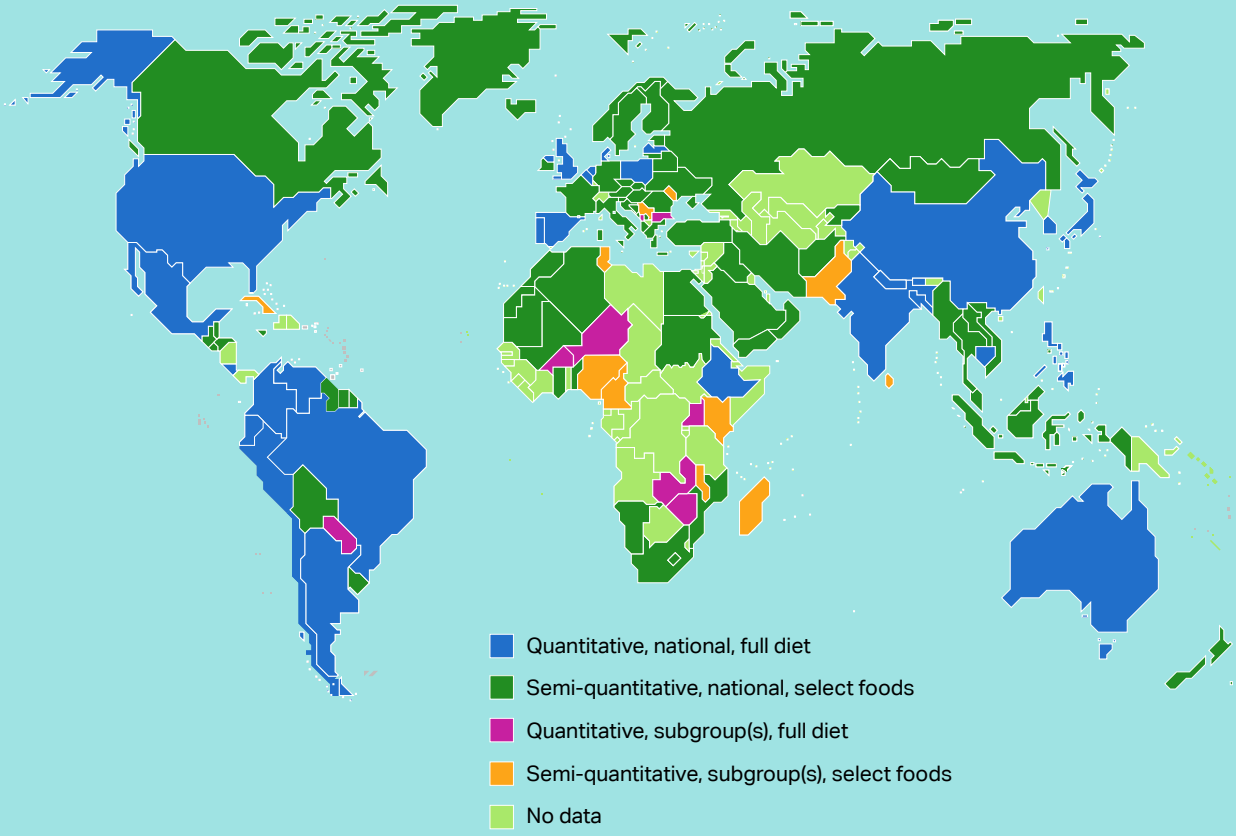
YOUTH DIETS ARE OFTEN POOR AND LACK ESSENTIAL NUTRIENTS

The extent of global data on youth dietary patterns is limited with most of the available data coming from industrialized agrifood systems and upper-middle and high-income countries, rather than from traditional agrifood systems or low- or lower-middle-income countries (see Box 5.2). Ethiopia and India are notable exceptions, providing data from traditional agrifood systems. As shown in Figure 5.3, the most comprehensive national dietary data (quantitative and covering the entire diet) are available for Australia, East Asia, Europe, Northern America and South America. There are no data available for many countries in sub-Saharan Africa. The absence of such data undermines the design of effective youth-focused nutrition policies and programmes in many countries.[16]

> **DATA GAPS HINDER UNDERSTANDING OF YOUTH NUTRITION, ESPECIALLY IN PROTRACTED CRISIS CONTEXTS.**

FIGURE 5.3

AVAILABILITY OF DATA TO ASSESS DIETARY PATTERNS AMONG YOUTH



Note: Refer to the disclaimer on the copyright page for the names and boundaries used in this map. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Final status of the Abyei area is not yet determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Blue indicates countries with comprehensive food intake data at the national or sub-national level, allowing for assessment of overall dietary patterns and nutrient adequacy. Green indicates countries with national or sub-national datasets limited to selected foods or food groups. Purple refers to countries where evidence is drawn from smaller-scale studies that include detailed dietary intake data. Orange represents countries with evidence from smaller studies focused only on selected food groups or specific dietary components. Light green indicates countries with no available data.

Source: Neufeld, L.M., Andrade, E.B., Ballonoff Suleiman, A., Barker, M., Beal, T., Blum, L.S., Demmler, K.M. et al. 2022. Food choice in transition: Adolescent autonomy, agency, and the food environment. *The Lancet*, 399(10320): 185–197. https://doi.org/10.1016/S0140-6736(21)01687-1

Available dietary data[41] show poor dietary patterns among youth, often marked by inadequate intake of essential nutrients (see Figure 5.4 and Box 5.3). Typical youth diets are characterized by low consumption of fruits and vegetables and high consumption of carbonated soft drinks and fast food, with differences by region and gender.[41–44]

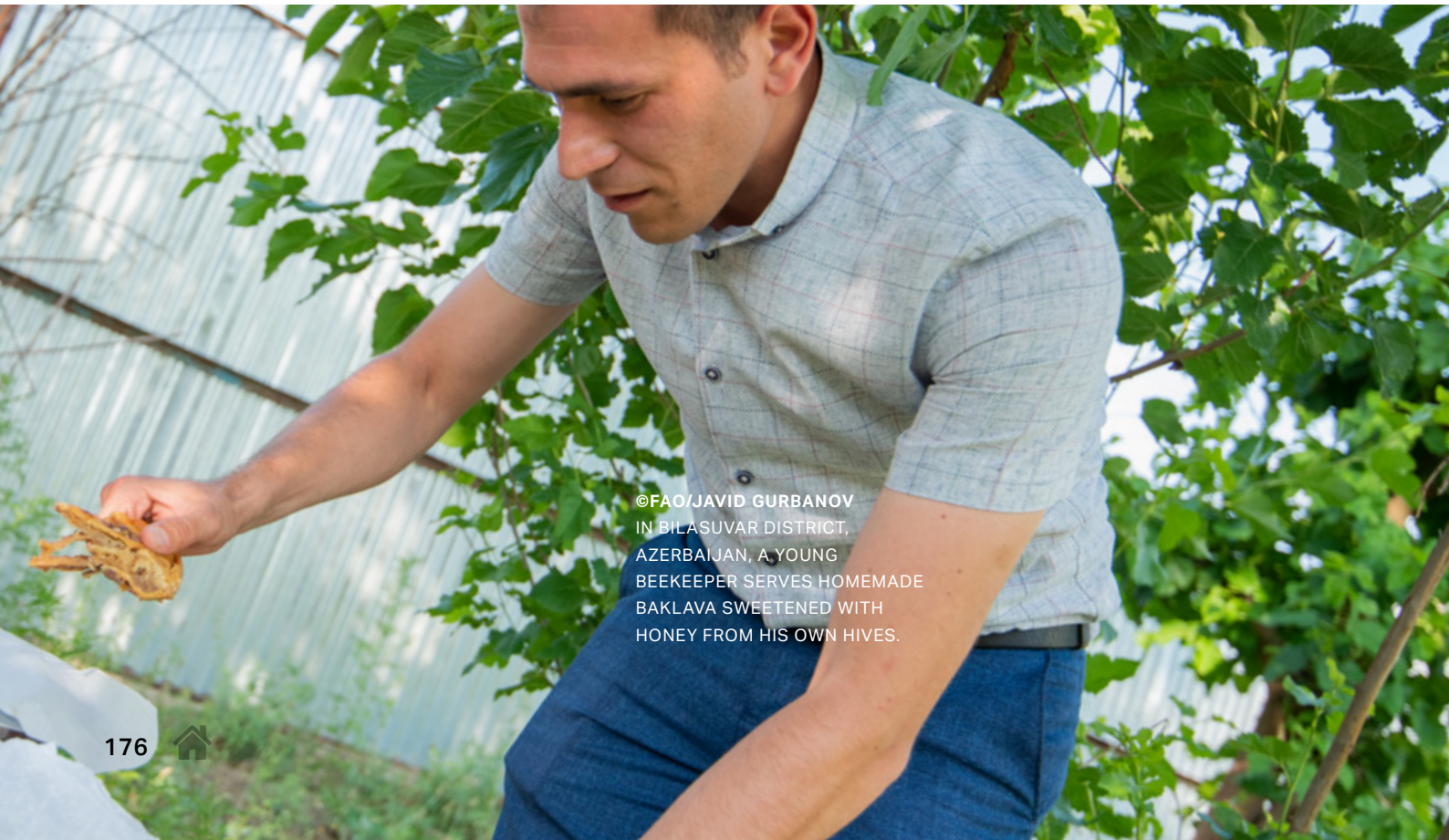
Micronutrient intake inadequacies are more common among youth living in East Asia and the Pacific, Latin America and the Caribbean, and South Asia.[45] Insufficient intake is most common for vitamin E, iron, calcium and iodine. Vitamin E deficiency is common among young people due to inadequate dietary intake, rapid growth and low vitamin stores from childhood,

BOX 5.2 DATA GAPS

Limited information on adolescent and youth (10–24 years) diets is available in 61.8 percent of countries, with only 11.2 percent of countries recording detailed food intake at the national or subnational level.[i] When adolescent data are available, 46.4 percent come from high-income countries.[i] Adolescent diet data from surveillance systems in high-income countries (Australia, Canada, New Zealand and the United States of America) present severe limitations in terms of data quality and comparability.[i] Less than half (42.8 percent) of papers identified in a systematic review disaggregated their findings by sex and those that did revealed the absence of data on dietary intake among adolescent boys in lower-income countries.[i] Furthermore, there is a need for data on how modern agrifood systems are affecting youth diets and nutrient intake across regions and different subgroups.

Data scarcity is location-specific, with the least data reported in Africa.[i] Data on rural youth is even scarcer. The available data on youth nutrition are scattered across various databases, which often consolidate records without providing aggregated data on nutritional indicators. Platforms like the FAO/WHO Global Individual Food Consumption Data Tool consolidate datasets from multiple countries and allow filtering by age range (e.g. 15–24 years) and urbanicity, in order to access data on food consumption, nutrition (e.g. food sources of micronutrients and macronutrients), dietary diversity and environmental factors (e.g. estimated impact of greenhouse gas emissions by food group).[ii] While efforts are being made to consolidate data sources, at present researchers must search individual datasets, articles or demographic and health surveys to gather information on nutrition indicators of interest.[iii–v]

Notes: Refer to the Notes section for full citations.

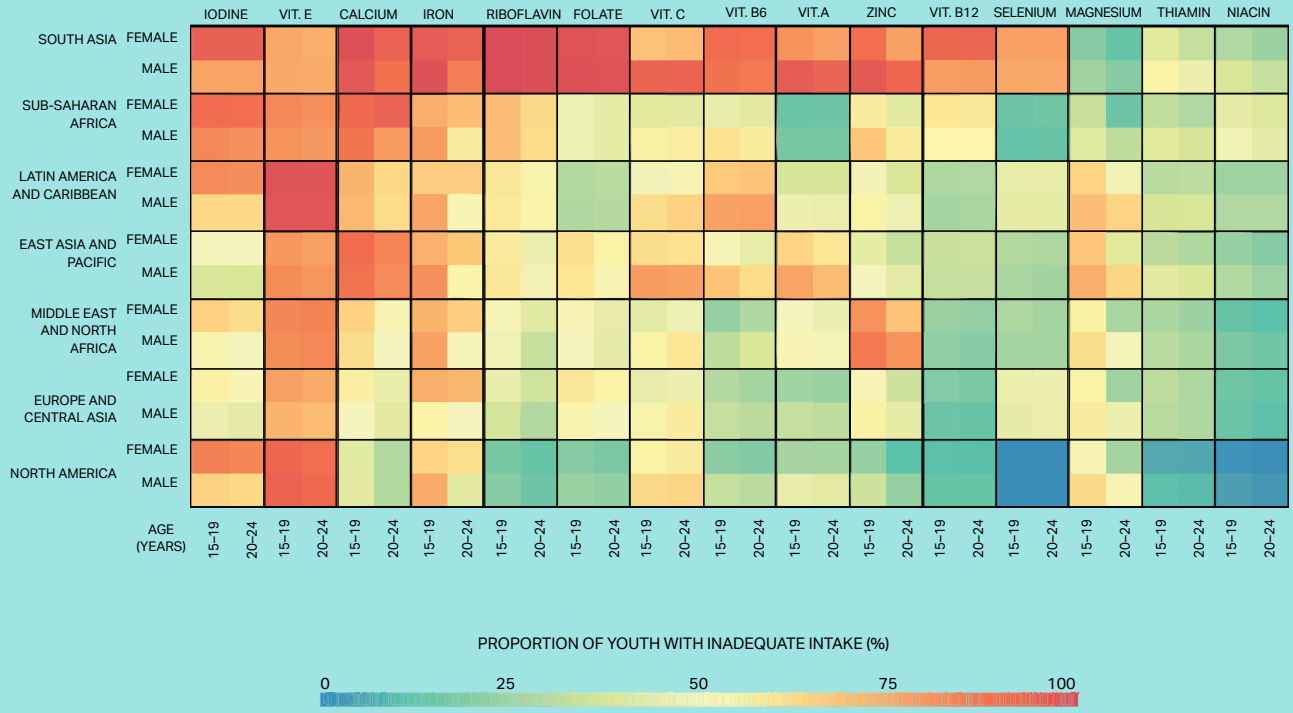


©FAO/JAVID GURBANOV
IN BILASUVAR DISTRICT, AZERBAIJAN, A YOUNG BEEKEEPER SERVES HOMEMADE BAKLAVA SWEETENED WITH HONEY FROM HIS OWN HIVES.

FIGURE 5.4

INTAKE AMONG YOUTH IS INADEQUATE FOR MANY NUTRIENTS

Proportion of younger and older youth with inadequate intake of select nutrients, by sex and region



Source: Adapted from Passarelli, S., Free, C.M., Shepon, A., Beal, T., Batis, C. & Golden, C.D. 2024. Global estimation of dietary micronutrient inadequacies: A modelling analysis. The Lancet Global Health, 12(10): e1590–e1599. https://doi.org/10.1016/S2214-109X(24)00276-6

which can lead to long-term health consequences, including increased risk for non-communicable diseases.[46–48] Iron deficiency and anaemia are common among youth aged 10–24, and highest in South Asia and sub-Saharan Africa, although deficiencies in South Asia declined from 1990 to 2015.[49] Younger children and adolescents are at risk of zinc and calcium deficiencies due to changes in zinc levels in the blood and increases in calcium demands during growth spurts.[50] Insufficient intake of iodine is a concern during youth, with large regional variability.[49] Males and younger youth generally present higher micronutrient inadequacies than females and older youth,[45] although the burden of nutrient deficiencies in youth is greater among females.[49] Pregnancy in early youth causes an increased risk of developing micronutrient deficiencies to support both the foetus and mother.[51, 52]

Compounding these issues, excess energy intake has led to a steady increase in the global prevalence of obesity across all sex and income groups, disproportionately affecting those in higher-income groups.[53] This trend highlights the dual burden of malnutrition – undernutrition alongside overweight and obesity – that youth face today with rapidly evolving agrifood systems. Health status is becoming progressively worse with the most serious effects observed among lower income youth. As with

food insecurity, the risk of poor diets and nutrient inadequacy is not equally distributed across youth, with disparities arising from socioeconomic, regional and gender differences. Socioeconomic status influences diet quality, as youth from lower-income families often consume nutrient-poor, energy-dense foods due to financial constraints.[54]

DRIVERS OF YOUTH FOOD INSECURITY

Food security is achieved when "all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life".[22] Food security encompasses food availability, economic and physical access, food utilization, stability over time, agency and sustainability. In recent years, the global prevalence of food insecurity and malnutrition among youth has risen significantly. This rise reflects agrifood systems transitions that do not adequately support healthy diets and are influenced by broader forces such as climate change,[7] conflicts,[55–57] globalization[6,22] and migration.[58–60] These dynamics alter rural food environments, increasing exposure to processed foods and impacting what and how young people eat.

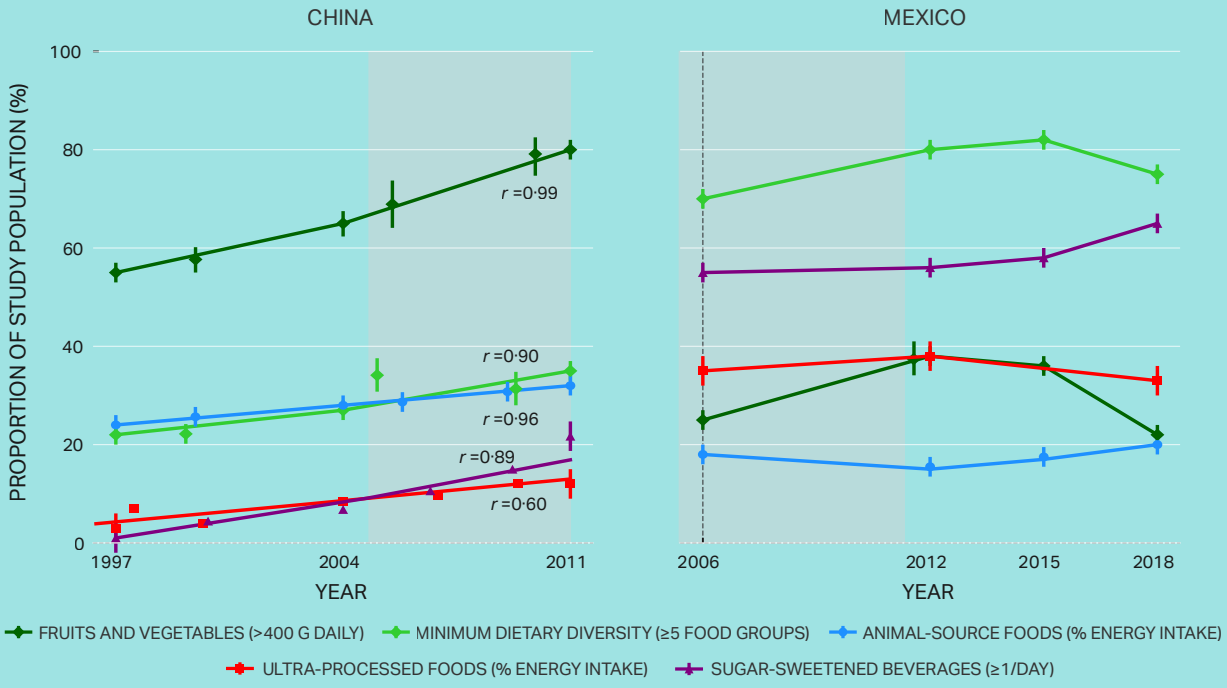
© **FAO/MATTIA ROMANO** IN ASTANA, KAZAKHSTAN, BREAD MARKET SELLERS MURATZHAM PATTARKULOV AND NAGIMA SERIMKULOVA PREPARE UZBEK TANDYR NAN BREAD COOKED IN A VERTICAL CLAY OVEN, THE TANDYR.

BOX 5.3 CONTEXT AND COHORT-SPECIFIC DIETARY TRENDS

A study of adolescent boys and girls in China (8 015 participants aged 10–19 years, 1997–2011) and Mexico (18 121 participants aged 12–19 years, 2006–2018) reveals changes in common dietary indicators, showing both progress and setbacks in nutrition.[i] In China, the daily consumption of more than 400 g of fruits and vegetables – the amount recommended to reduce the risk of non-communicable diseases[ii] – increased slowly but remained below half the population by 2011. In Mexico, fruit and vegetable consumption rose between 2006 and 2012 to nearly 40 percent but dropped by 2018, with only one in five adolescents meeting the target.

Dietary diversity in these two countries followed a similar trend. In China, the share of youth consuming five or more food groups daily rose to 80 percent by 2011. In Mexico, minimum dietary diversity remained 70 percent from 2006 to 2015 before declining by 2018. Animal-source foods persisted as a consistent part of daily diets in both countries, increasing slightly over time and higher in China than Mexico, contributing to less than a third of adolescents' total energy intake.

FIGURE A. DIETARY TRENDS IN CHINA AND MEXICO



Note: Error bars show 95 percent confidence interval. China: bivariate linear regression. Mexico: smoothing splines. r=Pearson's correlation coefficient (p<0·01). Shaded area represents overlapping years.

Source: Neufeld, L.M., Andrade, E.B., Ballonoff Suleiman, A., Barker, M., Beal, T., Blum, L.S., Demmler, K.M. et al. 2022. Food choice in transition: Adolescent autonomy, agency, and the food environment. *The Lancet*, 399(10320): 185–197. https://doi.org/10.1016/S0140-6736(21)01687-1

BOX 5.3 CONTEXT AND COHORT-SPECIFIC DIETARY TRENDS

Consumption of ultra-processed foods and sugar-sweetened beverage intake differs between the two countries. Ultra-processed food contributed to less than 10 percent of energy intake among the study population in China, but nearly 40 percent of the energy intake among the study population in Mexico. For adolescents in China, consumption of at least one sugary drink per day rose from nearly 0 percent to 10 percent of the study population by 2011, whereas for adolescents in Mexico, more than half consumed one or more sugary drink daily in 2006, surpassing 60 percent by 2018.

Notes: Refer to the Notes section for full citations.

"FOOD INSECURITY AMONG YOUTH INCREASED FROM 16.7 PERCENT IN 2014–2016 TO 24.4 PERCENT IN 2021–2023, WIDENING THE YOUTH-ADULT GAP.

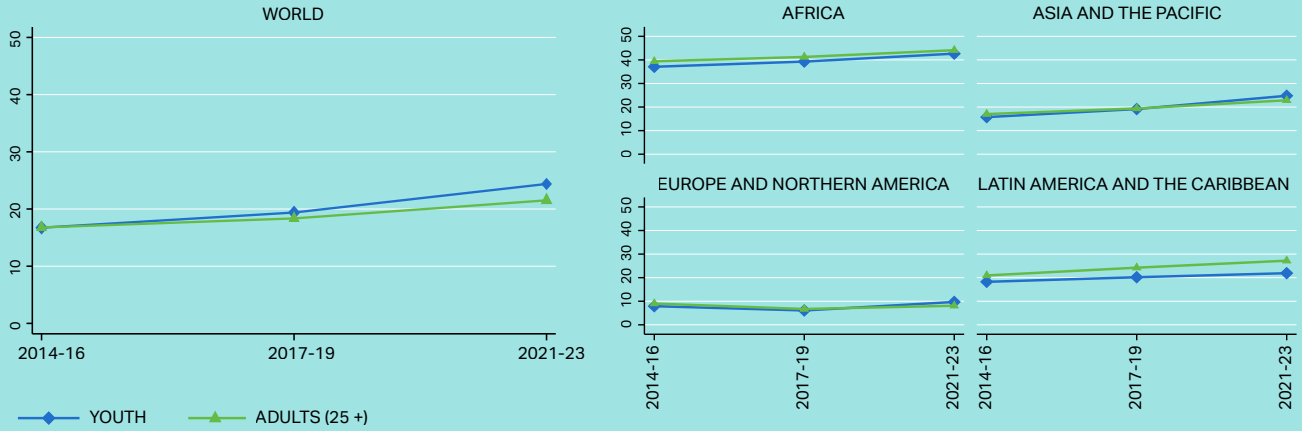
Globally, the prevalence of moderate or severe food insecurity among youth aged 15–24 increased significantly from 16.7 percent in 2014–2016 to 24.4 percent in 2021–2023 (Figure 5.5). This rise among youth outpaced that observed among adults aged 25 and over, whose food insecurity increased from 16.7 percent to 21.5 percent over the same period. This increasing gap between youth and adults is in part attributable to the disproportionate impact of the COVID-19 pandemic on young people.[61]

Regionally, youth in Africa experienced the highest prevalence of food insecurity both in 2014–2016 (37.1 percent) and in 2021–2023 (42.7 percent), while youth in Europe and Northern America reported the lowest rates, increasing from 8.0 percent to 9.7 percent over the same period (Figure 5.5). Asia and the Pacific witnessed the steepest regional increase in youth food insecurity, rising from 15.7 percent in 2014–2016 to 24.8 percent in 2021–2023. In both Asia and the Pacific and Europe and Northern America, youth food insecurity levels surpassed those of adults in the most recent period (respectively, 24.8 percent versus 22.9 percent, and 9.7 percent vs. 8.1 percent) in 2021–2023.

FIGURE 5.5

RISK OF MODERATE TO SEVERE FOOD INSECURITY HAS RISEN AMONG YOUTH

Prevalence of moderate or severe food insecurity (%)



Note: Prevalence of moderate or severe food insecurity among youth and adults (25+). The prevalence is adjusted to account for the global youth and non-youth population.

Source: Macchioni. G.A., Mane E., Viviani, S. & Cafiero, C. (forthcoming). Youth vulnerability to food insecurity: Evidence from 141 countries. ESP Working paper series. Rome, FAO.

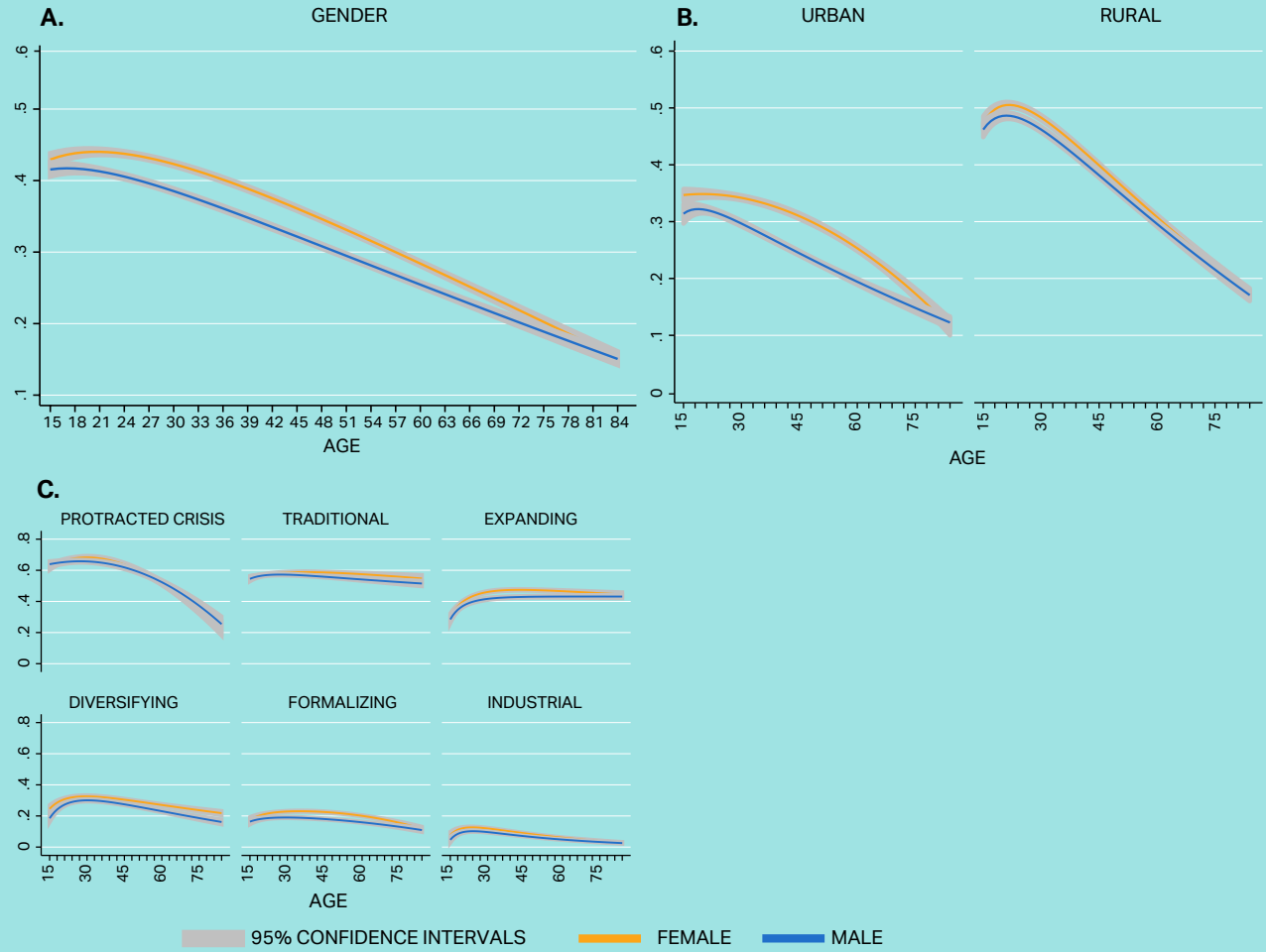
The likelihood of experiencing moderate or severe food insecurity varies with age. Youth aged 15–24 have the highest probability of experiencing food insecurity compared to all other age groups. A gender gap is evident across all age groups but is less pronounced among younger youth (aged 15–17) than older youth (aged 18–24) (Figure 5.6A). Among males, food insecurity remains relatively stable throughout youth and declines with age in adulthood. In contrast, among females, food insecurity increases steadily through adolescence, peaking in the mid-20s before declining in later adulthood.

Rural populations face higher levels of food insecurity than their urban counterparts. For rural males, the probability of food insecurity peaks in the early 20s, while for rural females, it peaks in the mid-20s (Figure 5.6B). The gender gap in food insecurity persists across all age groups and is more pronounced in urban areas, where it reaches the highest levels among adults in their mid-30s to early 60s. Among younger youth, this gap is comparatively smaller, indicating age-specific dynamics at the intersection of gender, location and vulnerability to food insecurity.

FIGURE 5.6

RISK OF MODERATE TO SEVERE FOOD INSECURITY IS HIGHER AMONG YOUTH, FEMALES AND RURAL POPULATIONS

Age-specific predicted probability of moderate and severe food insecurity in 2021–2023, (A) by gender, (B) by gender and urban and rural location, and (C) by agrifood system typology



Note: Based on an analysis of individual-level data from 141 countries collected by FAO through the Gallup World Poll from 2014 and 2023. The graphs present data-driven predictions of the probability of experiencing moderate or severe food insecurity, estimated using a fractional polynomial of age. This probability for each cohort shown is not directly comparable to official aggregated statistics available in FAOSTAT. Additionally, weighting applies within each country but not at the global level.

Source: Macchioni. G.A., Mane E., Viviani, S. & Cafiero, C. (forthcoming). Youth vulnerability to food insecurity: Evidence from 141 countries. ESP Working paper series. Rome, FAO.

The relationship between food insecurity and age varies substantially across agrifood systems for both women and men (Figure 5.6C). Agrifood systems at the early stages of transition, such as protracted crisis and traditional systems, exhibit the highest prevalence of food insecurity. In protracted crisis agrifood systems, food insecurity displays the greatest age-related variation, peaking at approximately 65 percent among individuals in their 30s before declining sharply after age 40. In traditional agrifood systems, food insecurity also peaks in the 30s, reaching around 60 percent, but remains above 50 percent across older age groups.

In agrifood systems undergoing intermediate stages of transition, such as expanding systems, and diversifying systems, the probability of food insecurity increases more steeply with age, peaking in the 30s and then declining in later adulthood. In both agrifood systems categories, women are significantly more likely than men to experience food insecurity. As agrifood systems continue to transition, the problem of food insecurity decreases. In formalizing agrifood systems, the risk of food insecurity is relatively low in youth, with minimal gender disparities up to age 20. However, gender differences emerge in early adulthood, with women facing higher and increasing probabilities of food insecurity through lates stages of life. In industrial agrifood systems, youth, and particularly young women, face a greater probability of food insecurity.

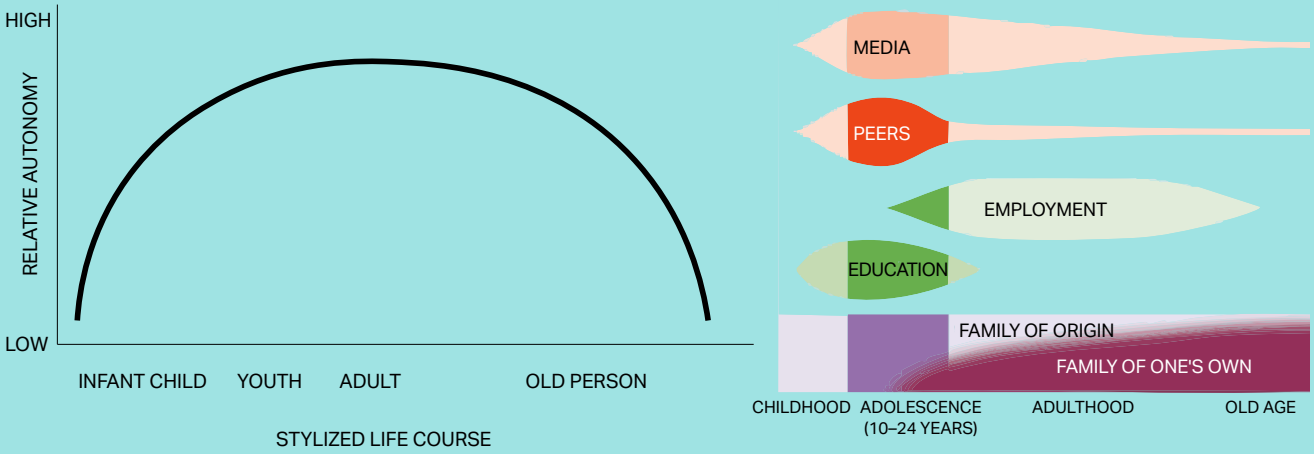
SOCIOCULTURAL AND ECONOMIC INFLUENCES ON YOUTH DIETS

Beyond its nutritional value, food helps youth to navigate their social world.[63] Youth diets evolve as they transition through different social relationships and environments, shifting from parental influences to that of their peers and partners.[16, 64–73] While independence generally increases with age, the ability to make informed and independent food choices –– known as autonomy and agency – develops throughout youth and beyond. This process is also mediated by various social and structural factors.[74, 75] Between the ages of 14 and 24 years, brain development, particularly in areas responsible for decision-making (myelination of the medial prefrontal cortex), strengthens youth's ability to form personal preferences and make more confident choices (Figure 5.7).[76] However, food-related decision are not made in isolation. Social and cultural norms, access to resources, and personal factors such as gender, birth order and socioeconomic status, all shape the ability of youth to make independent food-related decisions.[16, 63, 68, 77–84] This section discusses the social, cultural and economic influences shaping youth diets, to help guide policies and programmes that promote healthy eating habits and address barriers to nutritious food access.

> **"YOUTH DIETS EVOLVE AS THEY TRANSITION THROUGH DIFFERENT SOCIAL RELATIONSHIPS AND FOOD ENVIRONMENTS.**

FIGURE 5.7

FOOD-RELATED AUTONOMY AND AGENCY CHANGE WITH AGE BUT ARE INFLUENCED BY SOCIOCULTURAL AND STRUCTURAL FACTORS



Source: Adapted from Glover, D. & Sumberg, J. 2020.[80] Youth and food systems transformation. *Frontiers in Sustainable Food Systems*, 4:101. https://doi.org/10.3389/fsufs.2020.00101. Adapted from Patton, G.C., Sawyer, S.M., Santelli, J.S., Ross, D.A., Afifi, R., Allen, N.B., Arora, M. *et al.* 2016. Our future: a Lancet commission on adolescent health and wellbeing. *The Lancet*, 387(10036): 2423–2478. https://doi.org/10.1016/S0140-6736(16)00579-1, showing the development of autonomy across the life course.

©FAO/EDUARDO SOTERAS
IN KAPOETA, SOUTH SUDAN, YOUNG FARMER LORIKA AMONI STANDS ON HER FARM IN KOROTI, WHERE SHIFTING TO VEGETABLE CULTIVATION AND SHALLOW WELL IRRIGATION HAS BECOME A VITAL STRATEGY FOR COPING WITH WORSENING WEATHER CONDITIONS.

SOCIAL NORMS AND FOOD CHOICES FOR YOUTH

Early relationships with food, shaped largely by parental practices, play a critical role in how youth classify, process and act on food-related information.[86–90] Youth from households where the parents organize the physical and social eating environment and involve their children in decision-making tend to have healthier diets than those from households with strict, parental-dominated parenting styles that limit their child's independence.[91,92] In early adolescence (10–14 years), food choices are largely parent-controlled, shifting toward self-directed choices by middle and late adolescence, when youth form their own eating identities (e.g. healthy, picky, vegetarian).[93, 94] Autonomy over food choices varies, with youth often exercising more control during mornings (e.g. breakfast), weekends or meals outside the home, while parental influence remains strong during family meals and household purchases.[95] Younger youth often perceive food decisions as joint efforts, while parents view them as primarily parental.[96]

Parents, especially those with greater nutrition knowledge, play a key role in guiding their youth toward healthy decisions.[97, 98] In Viet Nam, youth aged 15–17 with greater parental monitoring reported healthier eating behaviours.[99] Similarly, in Peru, youth described how parental guidance emphasized regular meals, adequate intake of fruits, vegetables and dairy, and limited sugar-sweetened beverages to prevent disease. Eating behaviours formed during youth often persisted into adulthood.

Peer relationships also influence food decisions, either reinforcing or challenging social expectations[16] and helping to develop self-regulation.[100] Peers shape dietary intentions and behaviours through social pressure[95,98] to align with group eating habits.[72] For example, sugar-sweetened beverages and unhealthy foods are often consumed with peers during school breaks.[101] In traditional agrifood systems, such as rural Bangladesh, young people commonly purchase food from street vendors on their way to and from school. Bringing food from home may lead to mockery or exclusion, while sharing street food is seen as way to bond.[102] The effect of peer influence varies by gender, age, self-regulation, type of food and closeness of friendships.[73] Susceptibility to peer pressure decreases with maturity as youth develop a stronger sense of self. Stronger self-regulation is associated with healthier eating habits, such as increased fruit and vegetable intake, while poor self-regulation often leads to junk food consumption and sedentary behaviour.[103, 104]

Household dynamics and cultural norms also shape youth diets.[105] In many rural areas of LMICs, food is closely tied to family and cultural norms. Shared meals dominate and food behaviours align with tradition, such that in households where one-pot meal preparation is common, the entire family's diet may accommodate the health needs of a single member.[106] As youth enter romantic relationships or become parents, they often shift focus from individual to household nutritional needs. The establishment of new dietary habits can lead to unhealthy eating behaviours, though this risk tends to decrease if mutual support for healthy eating is established.[107–110]

Parenthood, particularly for young mothers, brings new challenges by shifting priorities from the self to the child. Cultural beliefs and food taboos may dictate what foods pregnant women should or should not be consuming,[111,112] and young parents may rely on family members to navigate their new and challenging life roles.[113] In rural areas, youth may take on other caregiving roles, including food preparation for younger siblings while their mothers work.[114] Without careful consideration of the unique challenges faced by rural youth, changes in agrifood systems can exacerbate inequities, further limiting access to affordable, healthy food.

Social norms, beliefs and values related to food – such as body image, self-esteem, environmental considerations and health goals – further guide food decisions among youth,[115] with these influences varying by socioeconomic status[116,117] and educational attainment.[118] In many cultures, gender norms shape how food is distributed within households. While food allocation has become relatively equitable,[119] females in South Asia and parts of Africa still receive smaller portions and lower-quality nutrient-rich foods, especially in resource-scarce settings.[120,121] A study of Costa Rican youth found gender stereotypes to be a key determinant of eating habits.[122] Consuming large amounts of unhealthy foods was seen as a sign of masculinity, while eating small portions of healthy foods and focusing on body care were associated with femininity. Parents reinforce these norms, particularly by encouraging daughters to control

their weight. In some cultures, females are more likely to conform to societal expectations around body image, which may lead to disordered eating,[123–125] whereas males are more likely to adopt unhealthy eating behaviours due to social influences,[126,127] particularly as they grow older, aligned with a decline in self-regulation during this developmental stage.[128–130]

Moreover, economic and social status shape food choices by influencing access and the symbolic value of foods.[131] Youth from wealthier backgrounds often prioritize foods that symbolize social status, including those that are often more accessible and socially acceptable in their circles. Youth from economically disadvantaged households tend to prioritize affordability in their food choices. In contexts with pronounced social class distinctions, these patterns are reinforced, influencing not only what foods are consumed but also how food is perceived and valued.[132-133] Understanding these social influences on youth diet is crucial for developing policies and programmes that promote healthy eating habits and address barriers to nutritious food access (Chapter 7).

NEW INFLUENCES ON YOUTH DIETS

Globalization, modernization and commercial forces associated with agrifood systems transition shape youth diets by exposing them to new foods and ways of eating.[134] Exposure to less nutritious but more affordable and accessible food options, like fast food or vending machines, may compromise diets, especially during developmental years. In urban areas, youth may live independently or with roommates, requiring more autonomous food choices, often prioritizing convenience and cost.[83] In rural settings, youth may continue living with family or partners, commonly sharing food responsibilities with less autonomous choices.[135] Modernization has led to a shift in food-related taboos and traditions, even in rural areas. For example, in pastoralist communities in the United Republic of Tanzania, youth expressed a desire for novel, packaged foods and new recipes, while elders reported frustration with the devaluation of traditional food practices.[134]

Social media and digital platforms play an increasingly important role in shaping youth food choices.[136] Platforms like TikTok, Instagram and Facebook may positively influence youth eating behaviours[137–139] by offering nutrition-related health information, peer support,[101,137,140–142] and exposure to global dietary trends like veganism or sustainability initiatives such as reducing food waste. For example, youth in Peru reported using the internet as a credible source for health information.[101] For youth in rural areas, social media can provide access to nutrition education and peer support that is often unavailable locally, though limited food availability can hinder their ability to act on information. However, impressionable youth are particularly vulnerable to false or misleading information, making social media's evolving landscape a potential negative influence on food choices. Advances in technology and the high level of investment in research and development targeting advertising at adolescents and youth have amplified the reach and persuasion of unhealthy food marketing,[143] unrealistic body ideals[137,141] and extreme eating behaviours (see Box 5.4).[144,145] While evidence is limited, exposure to digital media appears to increase the consumption of unhealthy foods and drinks in Latin American and Caribbean countries.[146] Youth are particularly vulnerable to tailored marketing of energy-dense, nutrient-poor foods,[147,148] and many struggle to translate healthy eating intentions into action[147,149–153] In response, policies are emerging in some contexts to limit food advertisements targeting youth to reduce the negative impact of media on nutritional behaviours.[154–156]

> **AGRIFOOD SYSTEMS TRANSITIONS HAVE IMPROVED DIET AFFORDABILITY BUT STILL FALL SHORT OF ENSURING OPTIMAL NUTRITION FOR YOUTH.**

BOX 5.4 BODY IDEALS INFLUENCE DISORDERED EATING BEHAVIOURS GLOBALLY

Youth and early adulthood mark a period of increased vulnerability to disordered eating in both high- and low-income countries. Although traditionally associated with Western countries, the idealization of thinness as a beauty standard has spread globally through media exposure.[i, ii] Increased media consumption has contributed to the growing preference for thin body sizes among females and muscular physiques among males, generating body dissatisfaction, even in less globally acculturated communities such as rural Nicaragua.[iii]

In Africa, larger body sizes for females have traditionally symbolized dignity, health, beauty and wealth,[iv] whereas thinner body sizes have been preferred for males.[v] With globalization and media influences, these ideals are shifting towards Western standards.[vi, vii] In Ghana, this shift has led youth to engage in dieting behaviours to achieve the thinner bodies portrayed in the media,[viii] where foods and beverages advertisements often feature underweight actors.[ii] Studies have linked disordered eating to body shape dissatisfaction in Ethiopia,[viii] higher BMI Z-scores in Denmark[ix] and perceived social norms in Fiji.[x] Eating disorders have also been observed among college students in South India[xi] and are three times more common among college students in Lebanon and Qatar than in the United States of America.[xii] Family attitudes toward weight, peer pressure, sociocultural norms and perceptions of attractiveness all influence eating behaviours and body concerns.[i]

Notes: Refer to the Notes section for full citations.

Economic disparities directly affect youth's dietary decisions.[157,158] Parental education, household income and family structure all influence youths' ability to achieve financial independence and secure adequate nutrition.[159,160] Youth with educated parents or stable family incomes are often more financially secure,[82] enabling them to access and afford healthier diets. Conversely, those from lower-income families may be forced to prioritize energy-dense, cheaper foods that compromise their long-term health.[161–163] Migrant youth, especially those from LMICs, often face food insecurity due to unfamiliar food environments, limited financial resources or economic pressures.[58–60] The challenges are compounded for rural youth due to economic, geographical and historical barriers, including geographic isolation and limited access to diverse, nutritious foods. Indigenous youth experience additional challenges rooted in historical marginalization, cultural erosion and reliance on nutrient-poor processed foods.[164–66]

Youth food choices and nutritional outcomes are closely tied to the transition point of the agrifood system in which they live.[167, 168] Agrifood systems range from protracted crisis and traditional to highly modernized industrial systems, and determine the availability, affordability and quality of food.[167, 169] Evidence indicates that transitions in agrifood systems have made recommended diets more affordable, but that they also fall short of ensuring optimal nutrition and health outcomes for youth irrespective of the stage of transition.[167] In traditional agrifood systems, youth food choices are constrained by restricted market access and a heavy reliance on staple crops, leading to poor dietary diversity and common micronutrient deficiencies, particularly among adolescent girls and caregivers.[170,171,172] As agrifood systems transition – including expanding, diversifying and formalizing agrifood systems – growing market access and an influx of processed foods can diversify diets but also pose risks of both undernutrition and overweight, contributing to a double burden of malnutrition.[173,174] In industrialized systems, youth are embedded in highly commercialized and media-saturated food environments, where food abundance and variety are often greater. Navigating these environments to make healthy choices can be challenging, especially within landscapes dominated by aggressive marketing of unhealthy options. Equitable access to healthy options can also remain elusive, especially for youth from lower socioeconomic groups,

contributing to a rise in obesity and non-communicable diseases.[167, 175] Characteristics of these agrifood system typologies often coexist within countries, particularly in low- and middle-income countries, leading to fragmented food environments.[175] For rural and marginalized youth, the benefits of agrifood systems transition are not always equitably distributed, and their nutritional vulnerabilities may persist or intensify.[176–179] Unlike urban areas, access to healthy and diverse food is more limited in rural areas.[180] Rural families often purchase food in bulk or from small convenience-type stores with a limited range of food items, in order to avoid long trips to the grocery store. Such habits limit youth exposure to fresh foods and increase their reliance on ultra- processed, nonperishable and often unhealthy foods.[171,172] Addressing these divergent realities requires integrated policy approaches that consider not only food availability, but also the intersection of cultural norms, market forces and socioeconomic inequalities that shape youth food choices and nutritional outcomes.[169,170,175,181]

“ENABLING HEALTHY DIETS REQUIRES AGRIFOOD SYSTEMS TRANSFORMATION THAT REFLECTS YOUTH NEEDS, VALUES AND ECONOMIC CONTEXT.

Food security and nutrition are critical to both the individual well-being and broader economic development of youth. As agrifood systems transform, they shape not only what youth eat but also how they learn, work and thrive. When well-nourished, youth are better equipped to succeed in school, enter the workforce, and contribute meaningfully to agrifood systems transformation and society at large. As active participants in reshaping agrifood systems, youth hold the potential to drive positive change (see Box 5.5). To effectively deliver on its promise of improved food security and nutrition for youth, agrifood systems transformation must align with young people’s biological and dietary needs, sociocultural values and aspirations, and economic realities. Thoughtful agrifood systems transformation, involving youth as active co-creative agents in the transformation process, is necessary to enable healthy diets for all.

©FAO/EDUARDO SOTERAS
IN THIKA, KENYA, A YOUNG AGRIPRENEUR SLICES A WATERMELON AT HIS MARKET STALL, PART OF A NEW WAVE OF YOUTH-LED VENTURES ENERGIZING LOCAL AGRIFOOD MARKETS.

BOX 5.5 YOUTH ENGAGEMENT IN AGRIFOOD SYSTEMS TRANSFORMATION FOR FOOD SECURITY AND NUTRITION

Youth play a pivotal role in agrifood systems transformation by introducing innovative practices, advocating for sustainable changes and facilitating economic growth. Their engagement enhances food production, improves access to healthy foods and strengthens food security at both local and national levels.

Uganda's *Young Farmers' Federation* has trained over 35 000 farmers in profitable farming, value addition and sustainable practices. Programmes like the International Young Farmers' Exchange[i] expose youth to climate-smart techniques and improved post-harvest handling, reducing food loss and ensuring year-round access to healthy food. The federation links young farmers to financial services, helping them transition from subsistence to agribusiness. Access to modern technologies enhances productivity and minimizes food loss during droughts or economic shocks. Professionalizing farming increases their income and ability to buy nutrient-dense foods.[ii]

Brazil's *Elixir Foods Initiative* is a youth-led startup that transforms cocoa pod waste into a high-value sweetener, providing an innovative model for wealth creation through circular economies. By stabilizing cocoa honey, a previously discarded byproduct, using solar energy and digital sensors, the initiative reduces food waste and increases the availability of less processed sweeteners. New revenue streams for smallholder farmers increase their financial ability to purchase healthy foods.[ii,iii]

Malawi's *New Achikumbe Elite* are educated urban-based youth engaged in commercial agriculture. These young entrepreneurs use digital platforms to access market information, agricultural training and financial services, overcoming traditional barriers to entry. Their focus on high-value, nutrient-rich crops such as legumes and vegetables contributes to diversified diets and improved food availability. Moving beyond subsistence farming helps them to reduce seasonal food shortages, improve household nutrition and enhance agrifood systems resilience. Their success creates employment opportunities, breaking intergenerational cycles of poverty and promoting long-term food security.[iv]

To enhance food security and nutrition, policies must expand youth access to financial services, business mentorship and market connections. Investing in youth entrepreneurship, cooperatives and value-chain development increases the availability of diverse and nutrient-rich foods, strengthens local production and builds economic resilience. Strengthening youth engagement in agrifood systems is critical for creating more equitable, sustainable and food-secure communities.[v]

Notes: Refer to the Notes section for full citations.

©FAO/FAO/HEBA KHAMIS
IN BANGAR EL SOKOR, EGYPT, MOHAMED ATTIA, LOADS TOMATOES TO THE WHOLESALER TRUCK.

06
NAVIGATING AN UNCERTAIN WORLD: VULNERABILITY AND RESILIENCE OF YOUTH IN AGRIFOOD SYSTEMS

©VISIONTIME/MELANIE BOUTROS
IN RAS SIDR, EGYPT, AKRAM BADR, A YOUNG COOPERATIVE FARMER STRUGGLES WITH WATER SCARCITY ON HIS PLOT OF LAND IN THE BASAYSA YOUTH COOPERATIVE.

KEY MESSAGES

- Agrifood systems are generally less prone to job losses than other sectors during economic downturns. However, youth are more likely to lose their jobs in agrifood systems during economic downturns than adults, and young women are more likely to lose their jobs than young men.
- The downturn due to the COVID-19 pandemic was particularly detrimental to young women's employment in agrifood systems. While adult employment in agrifood systems increased by 3 percent, youth employment declined by 2 percent, driven by a 7 percent reduction in employment among young women.
- Weather shocks in rural areas have different impacts on youth and adult employment in terms of if, where and how much they work. There are also important differences between their impacts on young men and young women.
- Heat stress is associated with an increase in the likelihood of youth working, and a decreased likelihood among adults. Youth increase their weekly working times by two hours more per week, compared to one hour more for adults. This effect is driven by young men, while young women tend to work less.
- Floods increase young women's likelihood of working, while older adults and young men work relatively less. Young female workers exposed to floods also work longer hours and are more likely to work in agriculture, while young male workers are more likely to be employed in other sectors.
- Young women tend to be more adversely affected by climate stress than young men in terms of human capital formation. In addition, climate stress makes young women more likely to marry early and have children at a younger age, compared with young men. These factors, in turn, shape their labour market opportunities.
- Youth have higher levels of subjective resilience than adults in protracted crises contexts. Despite the hardships they face, they maintain a positive view of their ability to cope with these challenges and create conditions for a better future.
- In the context of conflicts, young women assume a larger work burden in agriculture, sustaining production by working more and longer hours in agriculture activities.

INTRODUCTION

The ability of youth to participate in and contribute to the transformation of agrifood systems requires successful navigation of the challenges posed by an increasingly volatile and uncertain world. The escalating frequency and intensity of economic crises, extreme climatic events and conflicts exacerbate the livelihood challenges youth face and inhibit agrifood systems transformation. Building the resilience of youth is, therefore, fundamental for enhancing their wellbeing and, more broadly, facilitating and sustaining the transformation of agrifood systems.

Resilience is a concept with many definitions and applications.[1] Yet, at its core, it is the "capacity that ensures shocks and stresses do not have long-lasting adverse development consequences", where capacity is understood to include economic, political, social and psychological capacities.[1] In practice, resilience implies the ability of individuals, households and broader systems to adapt, absorb and transform in the face of shocks and stresses.[2]

Resilience is both an ability and set of capacities – including material, institutional and psychological capacities – that explain why some households and communities fare better in the face of shocks than others. Resilience is shaped by the ability to access and control key resources and services needed to mitigate the impacts of shocks, to recover from them and to make proactive choices to reduce their future impact; it entails having access to adequate and appropriate information and other services to make informed decisions and take actions; and it involves having the psychological resources and agency needed to withstand, adapt and transform one's livelihood in the face of risks and uncertainties.[1,3,4]

Youth-specific constraints, including a lack of skills and experience, limited assets, less social and political agency (Chapter 3), and a disproportionate reliance on precarious and informal work (Chapter 4), can make youth particularly vulnerable to welfare losses in the face of external shocks and stressors. These challenges are magnified for young women, Indigenous youth, persons with disabilities and those from minority identities, who are often more vulnerable to shocks due to formal policies and informal social norms that limit access to the resources, opportunities and decision-making spaces they need.[5,6]

Yet, youth also possess important attributes that, if effectively supported, enable them to effectively withstand the adverse effects of shocks and stressors on their livelihoods. Familiarity with digital technologies, higher levels of education and a willingness to migrate in search of better opportunities (Chapter 2) can help youth to access needed information and employment. Leveraging these attributes and overcoming youth-specific challenges is key for building their resilience.

This chapter sheds light on the experiences of youth in the face of mounting shocks and stresses in agrifood systems. It focuses specifically on the ways in which exposure to economic downturns, climate stresses, and conflicts and protracted crises affect the lives and livelihoods of youth in agrifood systems, and how these experiences differ between young men and women. It explores how youth's vulnerability to these events is different from those of adults, and how they adapt, absorb and respond to these situations. Additionally, the chapter will highlight how the specific strengths and abilities of youth can contribute to mitigating the impacts of shocks for themselves and their communities.

YOUTH RESILIENCE AND VULNERABILITY TO GLOBAL ECONOMIC DOWNTURNS

Economic downturns have a disproportionate impact on young people, and their vulnerability to these shocks is increasing as a result of broader shifts in global labour markets.[7] Youth in agrifood systems often have fewer skills, less formal work arrangements and less work experience to draw on in times of economic crisis (Chapters 3 and 4). As a result, when labour markets in agrifood systems and other sectors contract, youth are more likely than adults to lose their jobs, and subsequently face greater difficulties in finding new employment, as employers are prioritizing employee retention over new recruitment.[8–10] At the same time, structural shifts in the global labour market are resulting in higher levels of job insecurity for youth. As labour arrangements become increasingly flexible, informal and precarious, youth have fewer protections against job and livelihood losses during economic downturns.[11]

During the 2007/08 Great Recession, global youth labour force participation rates across all sectors fell by more than 9 percentage points, compared to a drop of 2 percentage points among adults.[12] Similarly, during the COVID-19 pandemic, global youth employment dropped by 5.4 percentage points compared to just 1.5 percentage points among adults.[13] Young people not in employment, education or training (NEET) accounted for approximately half of the youth employment losses during the COVID-19 crisis.[9] Youth in this category are particularly vulnerable to prolonged detachment from the labour market, with adverse effects on their future wages, lifetime earnings and probability of future unemployment.[14] Youth unemployment in times of crisis also has distinctive gender dimensions. For example, young women are twice as likely to fall into the NEET category than young men and are much less likely to transition out of it.[13]

The effects of economic downturns on youth employment can shape the long-term socioeconomic trajectory of their lives. For example, they can disrupt other key life cycle events, such as marriage, parenthood or home ownership.[15–17] They can also undermine the development of human capital and the accumulation of social networks derived from employment, thereby affecting young people's future labour market attainment.[7,18] Finally, they can undermine the development of youth's sense of self and social identity, and their ability to achieve economic autonomy.[19,20] The accumulation of these adverse impacts reverberates throughout society, affecting national, regional and global economic development trajectories, social integration and political stability.

Yet, agrifood systems are unique compared to other economic sectors and are not necessarily affected by economic downturns in the same way. Indeed, in many places agrifood systems have historically provided a livelihood refuge for people in times of economic crisis and job loss, absorbing workers displaced in other sectors of the economy.[21] This is particularly true in traditional agrifood systems where a large share of the population is engaged in primary agriculture production, which can absorb many displaced workers.[22]

Of course, each economic crisis is distinct. The 2007/08 Great Recession was associated with a rapid spike in global food prices, which had profound effects on global food security, but also sparked a wave of new private and public investment in the agriculture sector after decades of neglect.[23] The renewed focus on agriculture generated by the Great Recession likely contributed to the creation of new work opportunities in the sector, despite contractions in other sectors.[24,25] Conversely, while mobility restrictions to contain the spread of

COVID-19 often exempted agricultural production, they substantially disrupted work in non-farm segments of agrifood systems, including food retail, trade and input production,[26] while also increasing agrifood system workers' risk of being exposed to the virus.[27] For these reasons, it is likely that the work opportunities in agrifood systems varied substantially between these two major crises.

Employment data from the International Labour Organization (ILO) demonstrate how changes in agrifood system employment rates differ between youth (aged 15–24 years) and adults (aged 25–54 years) during the global recession of 2007/08 and the COVID-19 pandemic, with further variation between women and men.[e, f]

THE GREAT RECESSION AND YOUTH EMPLOYMENT IN AGRIFOOD SYSTEMS

While global employment declined during the Great Recession of 2007/08,[12] the data indicate a moderate increase in agrifood system employment, suggesting that the sector was more resilient to the shock than other sectors. Yet, important differences exist between age cohorts. As shown in Figure 6.1, total employment in agrifood systems increased marginally more for adults (3 percent) than for youth (2 percent) between 2007 and 2009, and the age differences are more pronounced when employment is disaggregated by segments of the agrifood system. In agricultural employment, which includes self-employment in agricultural production and paid employment, adult employment increased by 5 percent compared to just

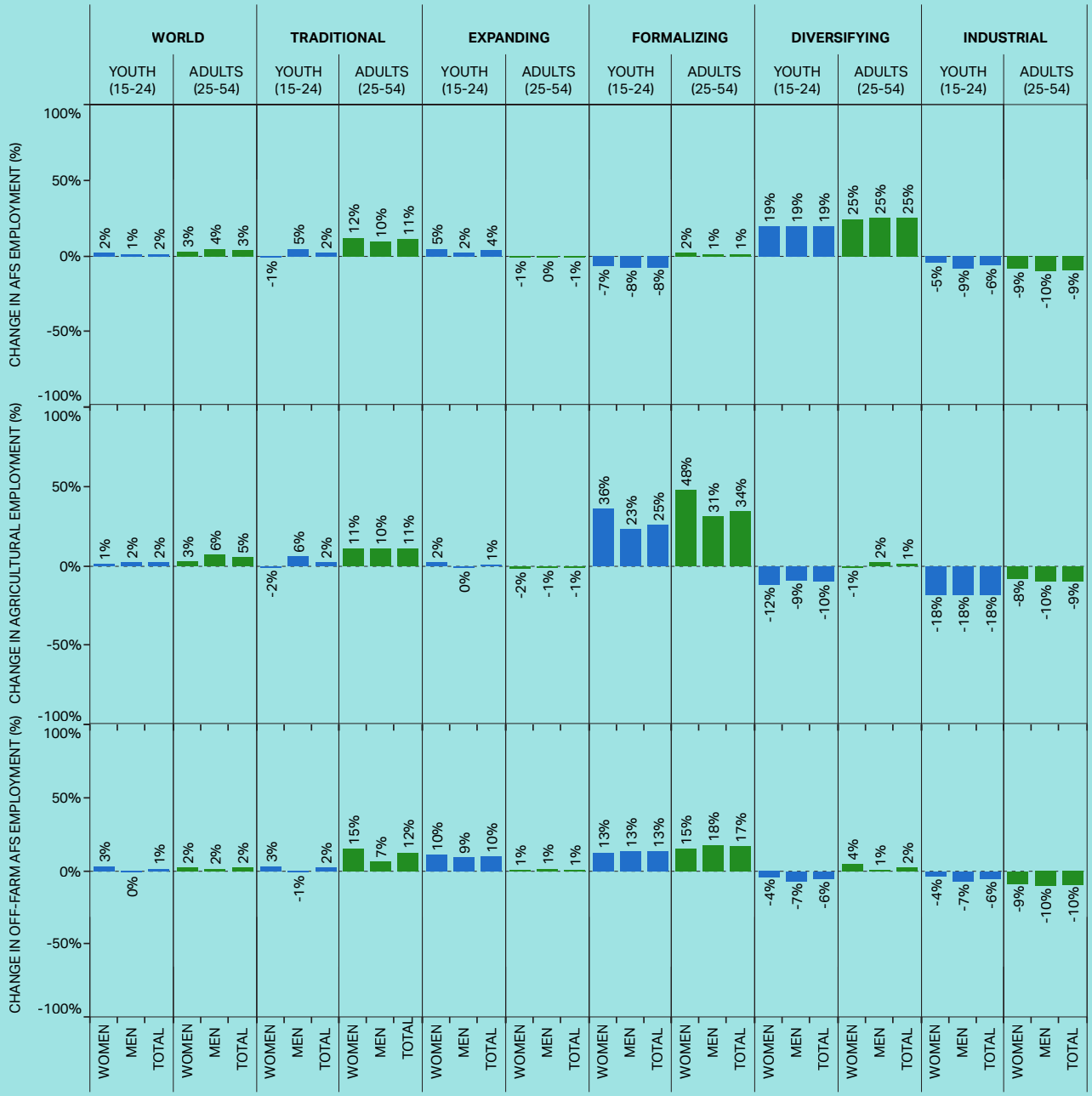
e The ILO applies the 13th ICLS definition of employment to ensure cross-year comparability and processes household and labour force surveys to estimate employment by sex, age and economic activity. Data are classified using either ISIC Rev.4 or ISIC Rev.3.1, depending on the survey year. Agrifood systems are defined as per Davis *et al.* (2023).[28] See **Box 4.1** for more details.

f For the 2007/08 Great Recession, data from 30 countries are used to compare employment rates in 2007 to 2009 across different agrifood system categories. For the COVID-19 crisis, from 45 countries are used to compare the period 2019–2020.

©VISIONTIME/JAVED PATEL IN NORTHERN GHANA, A YOUNG WOMAN STANDS AT THE EDGE OF A FIELD, WATCHING AS AN OLDER FARMER HARVESTS CROPS FOR MARKET. DURING THE GREAT RECESSION, AGRIFOOD SYSTEMS PROVED MORE RESILIENT THAN OTHER SECTORS, YET YOUTH LIKE HER OFTEN FACED BARRIERS TO FULLY PARTICIPATING, FROM LIMITED ACCESS TO LAND TO FEWER SOCIAL AND FINANCIAL RESOURCES.

FIGURE 6.1

ADULT EMPLOYMENT IN AGRIFOOD SYSTEMS INCREASED MORE THAN YOUTH EMPLOYMENT DURING THE GREAT RECESSION OF 2007/08



Note: *Traditional*: Cambodia, Tajikistan. *Expanding*: Bolivia (Plurinational State of), Honduras, Peru, Viet Nam. *Diversifying*: Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, Panama, South Africa. *Formalizing*: Albania, Brazil, Costa Rica, Cyprus, Dominican Republic, North Macedonia, Portugal, Slovakia, Türkiye Venezuela (Bolivarian Republic of). *Industrial*: Australia, Austria, France, Greece, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

2 percent among youth. For off-farm segments of the agrifood system, the increase was more modest, with adult employment increasing by 2 percent compared to 1 percent in youth employment, driven mostly by off-farm employment gains by young women.

Variance in employment outcomes between adults and youth likely reflect differences in their ability to access key resources, as well as variations in employment tenure, skills and social networks needed to acquire and sustain employment in the agrifood system. Given that the largest difference is found for agricultural employment, it is likely that youth employment was constrained by greater limitations on access to land and productive agricultural resources required to transition to agricultural self-employment during the crisis.

However, the average employment gains in agrifood systems seen were not distributed equally across the different agrifood system typologies. As shown in Figure 6.1, employment increases were concentrated in countries with less formalized and industrialized agrifood systems, with particularly high gains in countries with diversifying agrifood systems. In most cases, these gains were also greater for adults than youth. In traditional agrifood systems, for example, agrifood system employment increased by 11 percent for adults compared to only 2 percent for youth. Only in expanding food systems did youth employment increase more than for adults driven, primarily by employment growth in the non-farm segments of agrifood systems.

The concentration of employment growth in less formalized and industrialized food systems during the Great Recession of 2007/08 was likely driven by differences in agrifood system structure. In less formalized agrifood systems, employment in agrifood systems makes up a substantially larger share of total employment than in more formalized and industrialized systems and consists of many small-scale primary producers and self-employed non-farm workers. Barriers to entry into agrifood system employment are generally lower in countries with less developed agrifood systems than in more formalized and industrial agrifood systems. This is why, when employment opportunities in other sectors contract due to broader economic downturns, self-employment in agrifood systems provide a livelihood option in less developed agrifood systems.

There are also important differences in employment outcomes between young women and men. Across all 30 countries, young women's employment in agrifood systems increased by 2 percent compared to 1 percent among young men. The higher employment gains for young women were driven by employment growth in the non-farm segments of the agrifood system, such as food retailing, processing and trading. On average, across all 30 countries young women's employment increased by 3 percent in non-farm segments of agrifood systems, compared to no change for young men. These gains are concentrated in lower income countries with less formalized agrifood systems. This difference between young men and women likely reflects the gendered division of labour within agrifood systems, with women's labour generally concentrated in non-farm agrifood system work, particularly in countries with lower levels of economic development (Chapter 4). However, this work is often embedded in less profitable value chains and under worse terms than men, due to persistent discriminatory gender norms and lower access to assets and resources.[29]

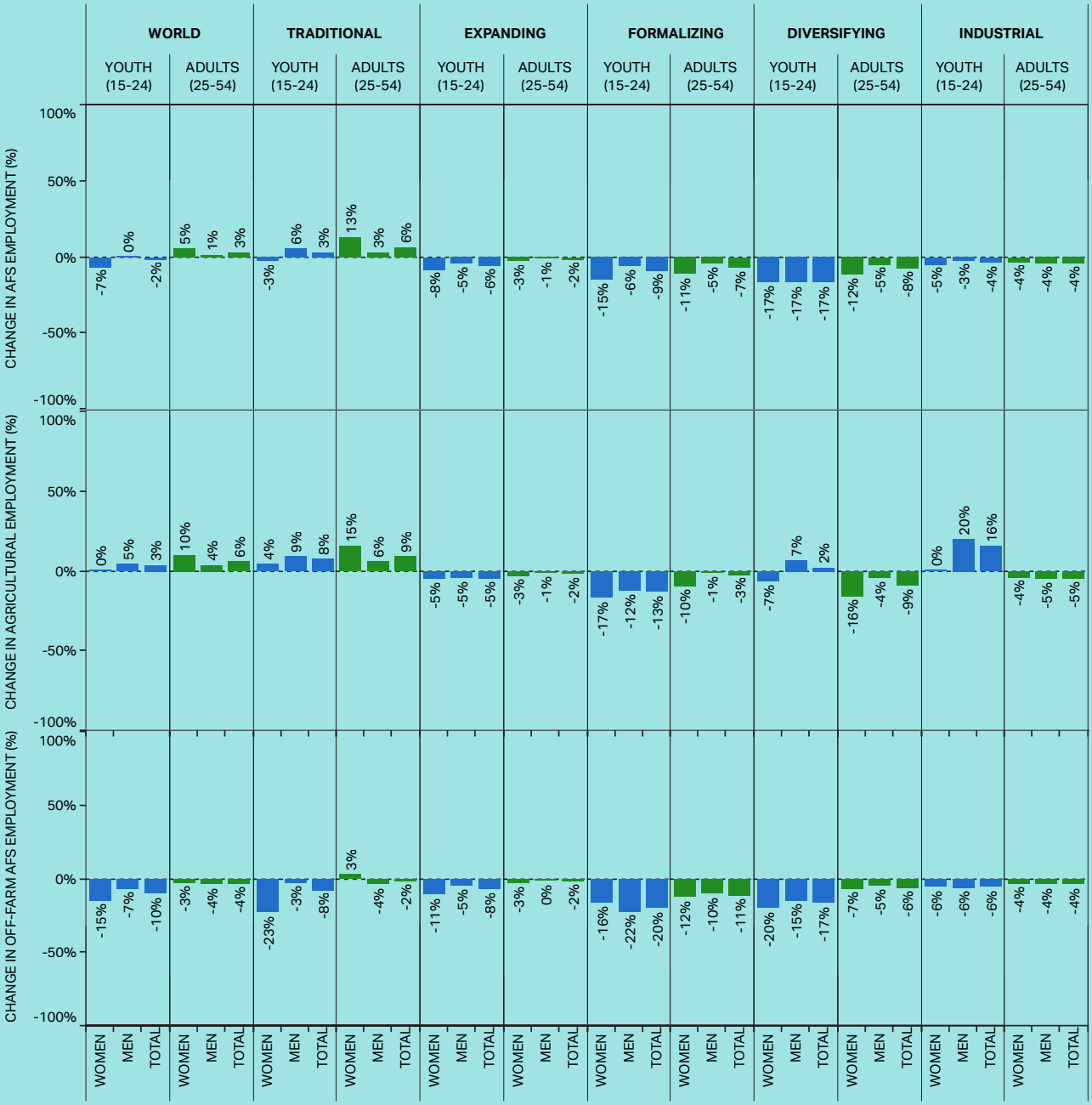
> "ECONOMIC DOWNTURNS SHAPE THE LONG-TERM SOCIOECONOMIC TRAJECTORY OF YOUNG PEOPLE'S LIVES.

THE COVID-19 CRISIS AND YOUTH EMPLOYMENT IN AGRIFOOD SYSTEMS

In economic terms, the COVID-19 crisis differed significantly from the Great Recession. Efforts to curtail the spread of the virus in numerous countries entailed restrictions on people's mobility and led to the closure of many "non-essential" businesses. These closures profoundly affected people working in informal jobs and in positions for which teleworking options were not available.[16, 30] While agriculture was considered an essential industry, mobility restrictions and the closure of retail food markets upended agriculture supply chains and led to a contraction of many non-farm employment opportunities in agrifood systems.[31, 32]

FIGURE 6.2

REDUCTIONS IN YOUTH EMPLOYMENT IN AGRIFOOD SYSTEMS DURING THE COVID-19 CRISIS WERE DRIVEN BY LOSS OF OFF-FARM WORK AMONG YOUNG WOMEN



Note: *Traditional*: Cambodia, India, Myanmar, Zambia. *Expanding*: Bolivia (Plurinational State of), Botswana, Egypt, El Salvador, Georgia, Honduras, Kyrgyzstan, Peru, Sri Lanka, Thailand, Vanuatu, Viet Nam. *Diversifying*: Armenia, Bosnia and Herzegovina, Ecuador, Iran (Islamic Republic of), Mauritius, Mexico, South Africa, Trinidad and Tobago. *Formalizing*; Argentina, Belarus, Costa Rica, Cyprus, Dominican Republic, Jordan, Mongolia, North Macedonia, Portugal, Slovakia, Türkiye. *Industrial*: Australia, Austria, Czechia, France, Greece, Israel, Italy, Japan, Switzerland, United Kingdom of Great Britain and Northern Ireland.

Source: Author's own elaboration based on ILO Harmonized Microdata, https://ilostat.ilo.org

As with the Great Recession, the COVID-19 crisis produced very different employment outcomes for adults in agrifood systems compared to youth. As Figure 6.2 shows, total youth employment in agrifood systems declined by 2 percent between 2019 and 2020 in the 45 countries considered in this analysis, compared to a 3 percent increase for adults. As detailed below, these findings were driven mostly by decreased employment for young women. Employment growth in agrifood systems during the pandemic only occurred in countries with traditional agrifood systems. In all other agrifood systems employment declined, with greater employment losses for youth than for adults.

Traditional agrifood systems are characterized by a large share of total employment engaged in agrifood system work, mostly through small-scale primary production, informal agricultural labour and self-employed non-farm agrifood system work. In this context, the agrifood system sector was capable of absorbing labour from other sectors that shed labour during the COVID-19 crisis.

During the pandemic, trends in agricultural work remained on average positive, increasing by 3 percent for youth and 6 percent for adults, while work in the off-farm segments of agrifood systems experienced sharp declines of 10 percent for youth and 4 percent for adults. These results are consistent with findings from 40 low- and middle-income countries, which showed that during the COVID-19 crisis agriculture absorbed workers who lost jobs in the services, industry and public service sectors.[16]

Important gender differences exist in terms of the impact of the crisis on employment. Agrifood system employment remained unchanged for young men but declined by 7 percent for young women. In agriculture, specifically, young men's employment increased by 5 percent, while young women's employment remained on average unchanged. Losses for young women, though, were high in non-farm segments of the agrifood system at 15 percent compared to 7 percent for young men.

> **YOUTH AGRIFOOD SYSTEM EMPLOYMENT DECLINED DURING THE COVID-19 PANDEMIC, DRIVEN BY JOB LOSSES AMONG YOUNG WOMEN.**

The substantial reduction in young women's employment in agrifood systems reflects various societal factors that make young women more vulnerable to the effects of economic crises than young men. Young women often work in more precarious forms of employment, including self-employment in non-farm agrifood systems work (Chapter 4). These jobs are often particularly sensitive to mobility restrictions and restrictions on public gathering.[29] For example, work in petty trading and food retailing, which employ large numbers of young women in traditional agrifood systems, were heavily disrupted by containment policies during the pandemic.[32] This is reflected in the employment data, where young women's non-farm agrifood system employment declined by 23 percent in traditional food systems – the largest decline of any group.

The pandemic also had very specific impacts on women's unpaid work. School closures and disruptions in services affected women more than men, increasing the ratio of unpaid work between women and men from 1.8 hours in 2020 to 2.4 hours in 2021.[33] The increase in the unpaid care burden for women during the pandemic forced many women to forgo work altogether or to reduce their working hours.

CLIMATE STRESSES AND YOUTH IN AGRIFOOD SYSTEMS

Climate change plays a fundamental role in shaping the livelihoods of youth and their economic and social transition into adulthood. The challenges posed by climate change are particularly acute for rural people who depend on agrifood systems for their livelihoods. For example, climate change gives rise to significant transformations in agroecological conditions, leading to shifts in the types of agricultural systems and associated value chains that are feasible. As a result, people in agrifood systems are increasingly forced to make radical changes in their livelihoods and in some cases pushed to migrate in search of new opportunities.[34–37] These challenges are important for all people but are particularly pronounced for young people who are transitioning to adulthood. Moreover, youth today will experience continued and accelerated changes in the climate during their lifetimes. How young people in agrifood systems navigate the constraints and uncertainty imposed by climate change will determine both their individual well-being and the future trajectory of development for countries and regions across the world.

In the face of climate change, young people in agrifood systems will need to be resilient and adaptable to successfully transition into adulthood. However, youth in agrifood systems often possess important positive attributes that may help to strengthen both their climate adaptability and resilience. For example, young people tend to have higher levels of education compared to their parent generation and are better able to leverage digital technologies to access information (Chapter 3). These factors may enable youth to access a larger range of employment options, including work outside of primary agricultural production, and to obtain information required to adapt to climate change. Moreover, there is evidence that young people are more open to innovation and change, which increases their willingness to explore different jobs, learn new skills and experiment with advanced technologies. For example, studies show that young farmers are more likely to adopt drought-tolerant seed varieties than older people[38] and to migrate in search of non-farm jobs.[39] Finally, young people are biologically better able than older adults to handle extreme weather events such as heat stress, when engaging in high-intensity physical work, which is required for many agrifood system jobs.

Young women, however, often face a range of structural constraints due to discriminatory gender norms that limit their capacity to respond to climate-related challenges. For example, young women have on average lower levels of education, less economic and political agency to act, and more limited access to information needed to respond to climate change.[40–43] They also often work in jobs that are flexible, part-time or home-based, but poorly paid, because of the disproportionate role they play in unpaid household work.[29, 44] In addition to these socioeconomic factors, women's physiological heat resistance is generally lower than that of men due to a higher percentage of body fat, lower aerobic fitness and lower sweat rates.[45]

Climate change creates substantial challenges to youth's human capital formation, which can undermine their future well-being and the pathways available to them as they transition into adulthood. For example, exposure

to extreme weather events has been found to impede learning among secondary students and university applicants from low- and middle-income countries. Studies show that students who experience extreme heat, floods and tropical storms concurrent with exams perform significantly worse than those who learn under normal conditions.[46–50] Extreme weather events can also push young people out of school and into the workforce. For example, in Madagascar, both droughts and cyclones reduce the likelihood of adolescents and young adults in rural areas attending school, while increasing their propensity to work.[51] In Mexico, similar effects are found for hurricanes and floods.[52]

There are also important gendered differences in the impacts of climate stresses on educational decisions and outcomes. In Mexico, for example, the education outcomes of girls and young women are more negatively affected by natural disasters (including hurricanes and floods) than those of boys and young men.[51,52] Conversely, in India negative rainfall shocks are associated with better education outcomes, particularly for girls, because of the adverse effects of these events on wages. Interestingly, this effect is stronger in districts with higher female labour force participation in agriculture (i.e. where young womens' farm labour is more valuable and the opportunity costs of their education are higher).[53]

Climate change and associated extreme weather events also affect the timing of young women's life transition (e.g. through decisions related to marriage and pregnancy). In sub-Saharan Africa, exposure to extreme weather events has been linked to earlier marriages and first pregnancies.[54–56] Early marriage is also associated with premature childbearing and early termination of education of women, with long-term consequences for their economic and social development. Furthermore, women who marry early are often considerably younger than their husbands, which is found to undermine their intra-household bargaining power.[57] Women's involvement in household decision-making matters for their vulnerability to climate change, as it determines their crop choices for the household farm, as well as their likelihood to engage in non-agricultural activities.[40]

"YOUNG WOMEN FACE STRUCTURAL BARRIERS THAT LIMIT THEIR ABILITY TO RESPOND TO THE CHALLENGES OF CLIMATE CHANGE.

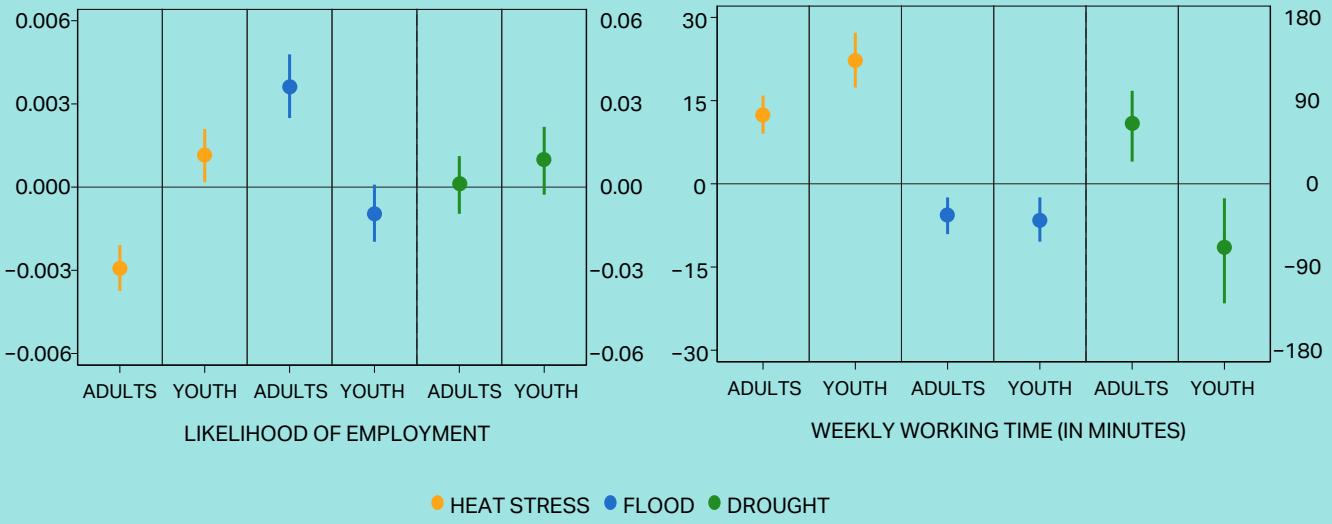
However, there is little evidence on the implications of climate stresses on labour market outcomes for young people in agrifood systems, and how these differ between women and men. Understanding the relationships between climate stresses and labour opportunities and decisions is critical to gain insights into the broader consequences of the increasingly uncertain global climate on youth's transition to adulthood. The next section provides analysis from six countries and more than 55 000 individual observations to fill this gap.[g,h]

g Six countries in sub-Saharan Africa (Ethiopia, Malawi, the Niger, Nigeria, Uganda and the United Republic of Tanzania) are included with more than 55 000 individual observations, merged with geo-referenced temperature and precipitation data. The analysis builds on recent work by FAO[37] and explores how different types of extreme weather events affect youth's (age 15—24) labour market decisions in agrifood systems, how these compare with adults (age 25—65) and how they differ between young men and women.

h A similar analysis of individual-level labour outcomes was conducted for FAO's recent report *The Unjust Climate*.[37] However, that report yields different results for exposure to heat stress finding an increased likelihood to work among older people and no change for youth. This discrepancy is due to variations in the definition of the variable capturing heat exposure. Given that *The Unjust Climate* report focuses on primary agricultural production, the variable accounts for seasonality differences in heat exposure. For the present study, which looks at agrifood systems in more general terms, the authors opted for a broader definition.

FIGURE 6.3

WEATHER SHOCKS AFFECT RURAL YOUTH EMPLOYMENT DIFFERENTLY FROM ADULT EMPLOYMENT



Note: The left panel considers all individuals while the right panel considers only those who work (defined as having worked for at least one hour in the week of reference, including work performed on the household farm or in a family business). The effects of heat stress and floods are measured for one additional day of exposure to the respective shock and plotted on the left-hand axis. The effect of droughts refers to whether a drought occurred in the year before the survey and is plotted on the right-hand axis. Effects are statistically significant if the whisker bars representing 90-percent confidence intervals do not cross the zero line.

Source: Kluth, J. Rossi, J.M. & Sitko, N. Forthcoming. *Climate shocks and youth labour: Gender-disaggregated evidence from SSA*. ESP working paper series. Rome, FAO.

COMPARING LABOUR OUTCOMES BETWEEN YOUTH AND ADULTS WHEN EXTREME WEATHER EVENTS OCCUR

Exposure to heat stress in rural areas is associated with an increase in young people's likelihood of working, while older people are less likely to work on average. Yet, for young and older workers who continue to work during these events their weekly working hours increase. In an average year, these effects translate into about an hour of additional work per week for adults and almost two hours per week for youth. As discussed below, this increase in work is driven particularly by an increase in work among young men.

Floods have the opposite effects, making youth relatively less likely to work than adults. Moreover, the results show a small decrease in weekly working hours among the entire working population. This may be driven by the loss of work opportunities in rural areas, such as employment on farms, upon which rural youth often rely.

Exposure to droughts is not related to the likelihood of working. However, droughts are associated with an increase in the weekly working hours of adults of about one hour. For youth, in contrast, the results point to a decrease in working hours of more than one hour. As with floods, this evidence suggests that the working opportunities of rural youth are more sensitive to drought than those of older people.

EXPLORING LABOUR DIFFERENCES BETWEEN YOUNG MEN AND WOMEN DURING EXTREME WEATHER EVENTS

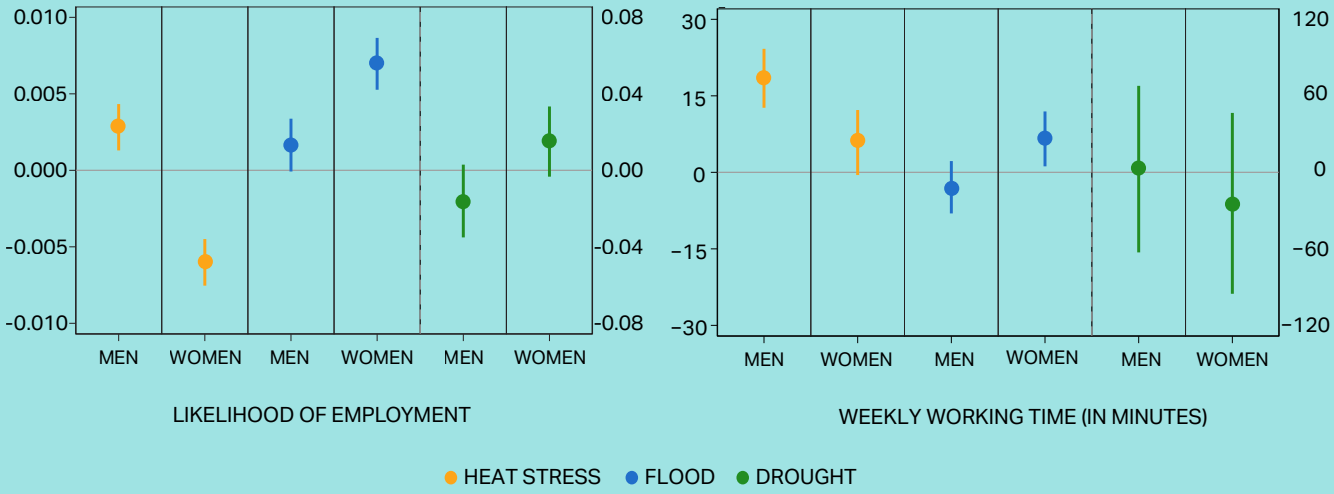
There are important differences in working opportunities between young women and men who experience extreme weather events. When exposed to heat stress, young women are less likely to work, both overall and compared to their male peers (see Figure 6.4). In other words, the higher likelihood of youth working in response to heat, discussed above, is driven by young men. In addition, working hours increase among young men but not among young women. Similar findings from South Africa have been at least partially explained by men's higher physiological resistance to heat.[58] Moreover, young women's reduced engagement in work may be linked to an increase in their household work burden caused by heat stress, for example, fetching water. Young women are also likely to be more involved in caring for children and elderly dependents, whose health is relatively more susceptible to heat.[59–61]

In contrast to heat stress, exposure to floods and droughts is associated with an increase in young women's likelihood of working and a small increase in labour time relative to that of young men. For droughts, studies from Madagascar and Uganda have produced similar results.[51, 62] However, studies from Latin America and India find floods to be related to a stronger increase in the likelihood of employment among young men than among young women.[52, 63, 64] Droughts, on the other hand, are related with a decreased likelihood of employment, with larger effects among women detected in Mexico.[52,65] These discrepancies might arise due to regional differences in gender norms. In fact, women's role in the labour market is more pronounced in sub-Saharan Africa than in other regions of the world, with female labour force participation standing at 62 percent, compared to 29 percent in South Asia and 57 percent in Latin America.[66]

©FAO/ANASTASIIA BORODAIENKO
IN LVIVSKA OBLAST, UKRAINE, A YOUNG CHEESEMAKER KEEPS HER SHEEP FARM RUNNING DESPITE WAR-RELATED CHALLENGES, SHOWING STRENGTH AND RESILIENCE IN THE FACE OF ADVERSITY.

FIGURE 6.4

RURAL YOUNG MEN WORK LONGER HOURS DURING HEAT STRESS, WHILE YOUNG WOMEN WORK MORE DURING FLOODS



Note: The left panel considers all young people while the right panel considers only those who work (defined as having worked for at least one hour in the week of reference, including work performed on the household farm or in a family business). The effects of heat stress and floods are measured for one additional day of exposure to the respective shock and plotted on the left-hand axis. The effect of droughts refers to whether a drought occurred in the year before the survey and is plotted on the right-hand axis. Effects are statistically significant if the whisker bars representing 90-percent confidence intervals do not cross the zero line.

Source: Kluth, J. Rossi, J.M. & Sitko, N. Forthcoming. *Climate shocks and youth labour: Gender-disaggregated evidence from SSA*. ESP working paper series. Rome, FAO.

“HEAT STRESSES PUSH YOUNG PEOPLE, PARTICULARLY YOUNG WOMEN, OUT OF AGRICULTURE AND INTO EMPLOYMENT OUTSIDE OF AGRICULTURE.

AGE AND GENDER DIFFERENCE IN EMPLOYMENT OPTIONS WHEN EXTREME WEATHER OCCURS

Table 6.1 presents the association between extreme weather events and rural workers' likelihood of engaging in either the agricultural or the non-agricultural sector. There are very few differences evident between youth and adults, implying that sectoral movements of workers due to weather shocks are unrelated to age. After exposure to extreme heat and floods, rural workers of all ages are less likely to engage in agriculture and are more likely to work in non-agricultural jobs. In contrast, if a drought occurs, rural workers reallocate their labour from non-agricultural sectors to agriculture.

TABLE 6.1 ADULTS ARE MORE LIKELY TO WORK IN AGRIFOOD SYSTEMS IN RESPONSE TO WEATHER SHOCKS THAN YOUNG PEOPLE, WHILE YOUNG WOMEN OFTEN SUSTAIN AGRICULTURAL PRODUCTION

	ADULTS	YOUTH	DIFF.	YOUNG MEN	YOUNG WOMEN	DIFF.
HEAT STRESS						
AGRICULTURE	-	-	(+)	-	-	-
NON-AGRICULTURE	+	+	(+)	+	+	+
FLOODS						
AGRICULTURE	-	-	-	-	(+)	+
NON-AGRICULTURE	+	+	(+)	+	(+)	-
DROUGHTS						
AGRICULTURE	+	+	(+)	(-)	+	+
NON-AGRICULTURE	-	(-)	(+)	(+)	(-)	-

Note: The table represents the effects of extreme weather events on the likelihood of working individuals (defined as having worked for at least one hour in the week of reference, including work performed on the household farm or in a family business) engaging in the respective sectors. Effects in brackets are not statistically significant. The difference is calculated as young – old and women – men, respectively.

Source: Kluth, J. Rossi, J.M. & Sitko, N. Forthcoming. *Climate shocks and youth labour: Gender-disaggregated evidence from SSA*. ESP working paper series. Rome, FAO.

Conversely, the table reveals numerous differences between young women and men. Heat stress induces a shift of young workers from the agricultural to the non-agricultural sector, which is more pronounced among young women. At the same time, young men who remain in agriculture increase their time spent on the farm by about an hour more per week in an average year, while young women's working time does not change (results for working times in the different sectors are not shown). Thus, young men who maintain their engagement in agriculture compensate for decreased participation among adults and young women by working more. Moreover, both young women and men who engage in non-agricultural work increase their working times, though the effect is stronger among young men. The welfare implications of this trend depend on the quality of the jobs that are offered outside of agriculture for young people.

In contrast to the findings of this report, a previous cross-country study found that women from rural areas in 29 African countries decreased their working times in agriculture in response to heat stress, but to a smaller extent than men.[67] However, the comparability of the results is limited due to differences in the estimation samples and the definition of climate shocks.

When exposed to floods and droughts, working young women are more likely to engage in agriculture and less likely to engage in non-agricultural jobs than working young men. Moreover, in an average year, floods are associated with a larger increase in the weekly agricultural working time by young women relative to young men, while the general trend among youth and adults is to reduce working hours dedicated to agriculture. Decreased participation of women in non-agricultural jobs due to droughts is also found among youth in India[68] and among youth and adults in Lesotho.[69] According to the Lesotho study, this trend arises because most of women's non-agricultural jobs are linked to agriculture (e.g. sales of grains or livestock), and therefore are more susceptible to droughts.[69] In addition, the finding likely reflects women's responsibility for procuring food for the household, which becomes more time-consuming as agricultural productivity contracts in times of drought.

YOUTH RESILIENCE IN CONFLICT AND PROTRACTED CRISES

The political discourse on youth and conflicts focuses disproportionately on the role of young people, particularly disenfranchised young men, as instigators of violence.[70–72] Moreover, demographic youth bulges are often framed as a factor contributing to the conditions necessary for conflicts to emerge.[72–74] Indeed, many armed groups rely on disenfranchised youth as a source of recruitment, and for many young people who join these groups the choice is often driven more by economic necessity than ideology (Spotlight 6.1). Yet, most youth living in conflict-prone regions, regardless of their economic conditions or gender, do not participate actively in armed violence. Instead, they are the direct and indirect victims of violence as well as being potential peace builders.[73] As the number of armed conflicts and protracted crises increase globally, it is critical to understand how youth are affected and how their resilience to these events can be enhanced.

Conflicts and crises affect youth along multiple and reinforcing dimensions with important differences between young men and women. The impacts can be personal, particularly for those directly affected by the trauma of violence. Experience of trauma during childhood can have a long-lasting effect on an individual's emotional and cognitive development, with negative implications for their educational attainment and labour market participation.[75] Beyond the direct personal experience of conflicts, these events can restrict economic opportunities for everyone through the destruction of infrastructure and assets, displacement of people from their homes, the closure of schools and the curtailment of private investments.[76–78] The contraction and displacement of economic activity caused by conflicts can be particularly damaging for youth, whose transition from education to the labour market is made more difficult by the economic challenges caused by these events, and can have lasting effects on youth's long-term earnings.[73]

During conflicts, women and girls often bear the sole or primary responsibility for ensuring the economic well-being of the family, regardless of whether or not male members of the family have actively joined the conflict.[79,80] This responsibility for care can push women to seek out high-risk income options, including sex work.[81] Conflicts are also frequently associated with increases in gender-based violence.[82, 83] Moreover, conflicts create conditions of risk and uncertainty that can, on the one hand, limit women's physical mobility within affected regions and, on the other hand, lead to their forced displacement.[84, 85] In some cases, exposure to conflict is found to increase incidences of child marriage.[86] The impacts of conflicts on human capital formation also differ by gender. However, these effects are highly context specific and are driven in large part by pre-war gender differences in educational attainment and labour market opportunities.[87]

Yet, conflicts can also create space for prevailing gendered norms to be disrupted and challenged. The increased economic responsibilities of women in conflicts and crises has been shown to enable women to exercise greater influence over economic and political decisions in their households and, to a lesser extent, their communities.[79] For example, in Angola and Somalia, rural people were displaced into urban economies where women's economic opportunities were greater, leading to greater economic dependence of men on women and increased respect by men for women's roles as breadwinners.[79]

Agriculture and agrifood systems have an especially important role to play in building youth resilience to conflict and in supporting peace. Armed conflicts are disproportionately concentrated in countries with relatively larger rural youth populations. Indeed, rural youth account for 60 percent of the total youth population in conflict-affected countries.[73] Land conflicts and constraints on agricultural production have been shown to escalate conflict intensity in fragile countries through various pathways, including lowering the opportunity costs of participating in conflicts, increasing opportunities for recruitment into conflicts and intensifying social grievances.[88,89] Moreover, armed conflict can alter the trajectory of agricultural development and agricultural opportunities, effects that can persist even after a conflict has ended. Studies from Colombia and Nigeria show that armed conflicts lowered agricultural production and productivity through reduced labour supply and a contraction of cultivated land.[90, 91] In Mozambique, high-intensity conflict during the civil war eroded local institutions that protected the land rights of local people, making these areas prone to land expropriation by external actors after the end of the war.[92]

Yet, agrifood systems can also serve as a foundation for stability. Promoting and sustaining agricultural development has been shown to be critical, not only for the successful reduction of poverty, hunger and environmental degradation, but also for preventing and reducing conflict.[88, 93, 94] Achieving this objective requires understanding and addressing the ways in which young people's work opportunities in agrifood systems are affected by conflicts and crises, and building on the resilience they possess to promote and sustain positive agrifood system transformations. The next section provides new evidence on the experiences of youth in conflict and protracted crisis contexts, examining how living in such situations forms young people's subjective and material resilience, and how exposure to conflict shapes youth labour opportunities and choices in agrifood systems.

> **YOUNG HOUSEHOLD HEADS HAVE A GREATER BELIEF IN THEIR ABILITIES TO ABSORB, ADAPT, AND TRANSFORM IN THE FACE OF SHOCKS AND STRESSES.**

MATERIAL AND SUBJECTIVE RESILIENCE OF YOUTH IN PROTRACTED CRISIS CONTEXTS

As mentioned in the Introduction, resilience is shaped by both the physical resources an individual can mobilize to manage the impacts of shocks and stresses, and the psychological attributes they possess to cope with the mental stresses of uncertainty and risks. These different dimensions of resilience are particularly important in the context of protracted crisis, where people's material assets and their expectations for a better future are eroded by persistent conditions of conflict, uncertainty and weak governance.

Data from 3 106 households in countries with protracted crises (Palestine, Somalia, South Sudan and Yemen) are used to examine how people's material and subjective resilience capacities differ by age and gender (see Box 6.1).[i] Subjective resilience is often expected to be strongly correlated with the material resources a person can access, yet this is not always the case. In Uganda, a side-by-side comparison of subjective and objective resilience found only a weak correlation between the two measures.[4] The variation in subjective resilience was found to be significantly greater than objective measures, suggesting that in this context people's self-assessment of their own resilience is considerably more varied than their access to material resources.

i The estimation model used for this report uses age as a linear term, in quadratic and cubic form to allow for a non-linear relationship of age and resilience. All three age variables are interacted with a binary variable indicating whether the household is female headed. In addition, the model controls for the share of household members under the age of 18, the exposure to shock and country fixed effects. For all outcomes but the total Resilience Capacity Index (RCI), the RCI subcomponents are included, as they contain relevant household information.

BOX 6.1 MEASURING MATERIAL AND SUBJECTIVE RESILIENCE

Material resilience is measured through the Resilience Index Measurement and Analysis (RIMA) tool, which consists of four resilience pillars – access to basic services, assets, social safety nets and adaptive capacities, including education levels, income and crop diversification.[i] This measure provides insights into the resources and services that people can access to manage the impacts of shocks and stresses. Yet, this measure does not take into account the knowledge people have of their own abilities and the contextual information they possess to gauge their own resilience.[ii] To fill this gap, subjective information on one's perceived resilience is important. This report measures subjective resilience using the Subjective self-Evaluated Resilience Score (SERS) method, which asks questions related to individuals' beliefs in their own capacities to deal with shocks and stresses, focusing on their adaptive, transformative, absorptive and anticipatory capacities.

Notes: Refer to the Notes section for full citations.

Differences between material and subjective resilience capacities may be particularly important for youth. On the one hand, youth in agrifood systems control substantially fewer resources and assets, and have more limited access to services than adults, suggesting that in a material sense they will be less resilient to shocks and stresses (Chapter 3). On the other hand, youth may possess important "soft" attributes, such as self-confidence and sense of self-efficacy that can help them to confront and overcome shocks and stresses.[95–97] Understanding how youth differ from adults in both their material and subjective resilience in protracted crises can help to identify ways in which youth may be constrained in managing these crises and the attributes they possess that can be leveraged to enhance their well-being outcomes.

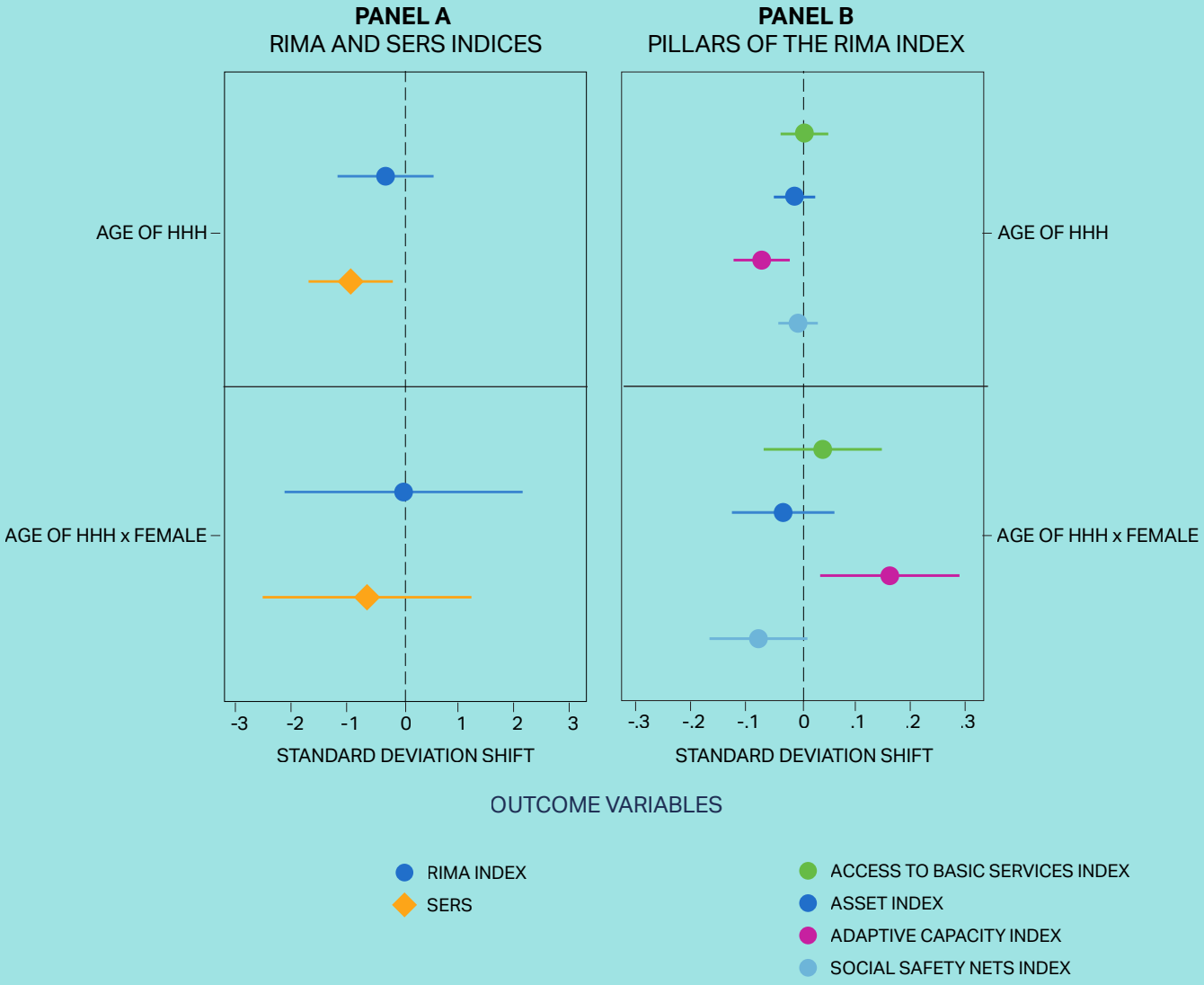
The results of the regression analysis for the four countries with protracted crises, presented in Figure 6.5, show surprisingly no difference in the overall RIMA index (material resilience) associated with age and gender (left panel). This finding stands in contrast to the global figures presented in Chapter 3, which demonstrated that youth-headed households tend to have fewer assets and less access to services. Yet, protracted crises are unique, and may lead to the widespread erosion of assets, infrastructure and services that affect everyone in a similar manner.

The overall RIMA score masks some important differences that can be observed when the index is decomposed into its four pillars. As shown in the right-hand panel of Figure 6.5, people's adaptive capacity declines significantly as they age, driven by a reduction in the capacities of male-headed households. While having on average less adaptive capacity than male-headed households, female-headed households do not display an observable decline in adaptive capacity associated with age. The adaptive capacity index includes variables such as the average education of the household members, crop diversification and income diversification. Even though the change with age is small, differences in these variables represent important attributes of youth which should be considered when making investments to support their resilience.

The left-hand panel of Figure 6.5 also displays the association of age and gender of the household head with subjective resilience, measured by the SERS. The figure shows that subjective resilience declines with age in protracted crisis countries, suggesting that youth tend to have higher levels of subjective resilience**.** The gender of the household head is not relevant. This lowering of resilience with increasing age is driven by age-related reductions in several domains of the SERS index: learning, political capital, absorptive and transformative capacities (see Table 6.2). These variables capture differences in people's belief in their abilities to bounce back from shocks, diversify their income to respond to future challenges and learn from past experiences. Together they point to important attributes of youth resilience associated with greater levels of perceived livelihood flexibility.

FIGURE 6.5

SUBJECTIVE RESILIENCE IS HIGHER AMONG YOUNG PEOPLE IN PROTRACTED CRISIS, WHILE NO DIFFERENCES ARE FOUND FOR MATERIAL RESILIENCE



Note: The figure presents the impact of age of the household head on six different resilience measures, separated by the sex of the household head (HHH). The upper coefficient group shows the main effect of the age of the HHH on the respective resilience measure. The lower group of coefficients shows the interaction effect for the age of the HHH and female headedness (age of HHH x female). The impact of age in male-headed households is shown by the "age of HHH" coefficient. The impact of age in female-headed households is the sum of the coefficient "age of HHH" and "age of HHH x female". The left panel shows the regression coefficients for the RIMA Index and the Subjective self-Estimated Resilience Score (SERS). The right panel displays the effect sizes for the subcomponents of the RIMA index: Access to Basic Services (ABS); Assets, Adaptive Capacity (AC); and Social Safety Nets (SSN). Coefficients of the same colour come from the same regression. Effects are statistically significant if the whisker bars representing 90-percent confidence intervals do not cross the zero line.

Source: Authors' own elaboration based on data from Khan Niazi, K., Pietrelli, R., Laborde, D. forthcoming. Youth resilience in protracted crises dimensions: A dual perspective on material and subjective. Rome, FAO.

TABLE 6.2 AS PEOPLE AGE IN PROTRACTED CRISES THEIR ABSORPTIVE AND TRANSFORMATIVE CAPACITIES DECLINE, ALONG WITH THEIR POLITICAL CAPITAL AND LEARNING

	(1) ABSORPTIVE CAPACITY	(2) TRANSFORMATIVE CAPACITY	(3) ADAPTIVE CAPACITY	(4) FINANCIAL CAPITAL	(5) SOCIAL CAPITAL	(6) POLITICAL CAPITAL	(7) LEARNING	(8) ANTICIPATORY CAPACITY	(9) EARLY WARNING
AGE OF HHH	-	-	(-)	(-)	(-)	-	-	(-)	(-)
FEMALE HHH	(-)	(+)	(-)	(+)	(-)	(-)	(+)	(+)	(+)
AGE X FEMALE	(+)	(-)	(+)	(-)	(+)	(+)	(-)	(-)	(-)

Note: The table represents the effects of age and sex of the household head on the nine dimensions of the SERS. The plus sign indicates a positive association, the minus sign indicates a negative association. Signs in brackets are not statistically significant.

Source: Authors' own elaboration based on data from Khan Niazi, K., Pietrelli, R., Laborde, D. forthcoming. Youth resilience in protracted crises dimensions: A dual perspective on material and subjective. Rome, FAO.

HOW CONFLICTS AFFECT THE LABOUR DECISIONS OF YOUNG WOMEN AND MEN

Armed conflicts not only pose physical dangers to people, they also have profound and long-lasting consequences for people's economic opportunities and well-being.[98,99] Formal employment opportunities are often particularly strongly affected by conflicts. Studies from various contexts show that conflicts cause firms to reduce production, sales and employment, with smaller and newer firms being more likely to close entirely.[100,101] Conflicts also curtail many forms of productive and forward-looking entrepreneurship, and push people into more necessity-based forms of entrepreneurship.[102] This shift in employment opportunities has consequences for the current and future well-being of young people.

Agrifood system work can be both a livelihood refuge and a source of risk and tension for people in conflict contexts, depending on the context. In some cases, agrifood systems, and particularly primary agricultural production, can serve as an important source of livelihood for people in conflict settings, providing food and income when food markets have been disrupted and other economic activities are unavailable.[88] However, in many cases, work in agrifood systems in conflict settings is highly risky. Some conflicts revolve around tensions over land and natural resources, where attempts to utilize land can expose people to violence.[103] In other cases, a general lack of security increases the risks to people working in agriculture to various forms of violence, including sexual and physical violence.[87] As a result, exposure to conflict is often associated with a reduction in agricultural production, agricultural land use and agricultural labour.[90, 104]

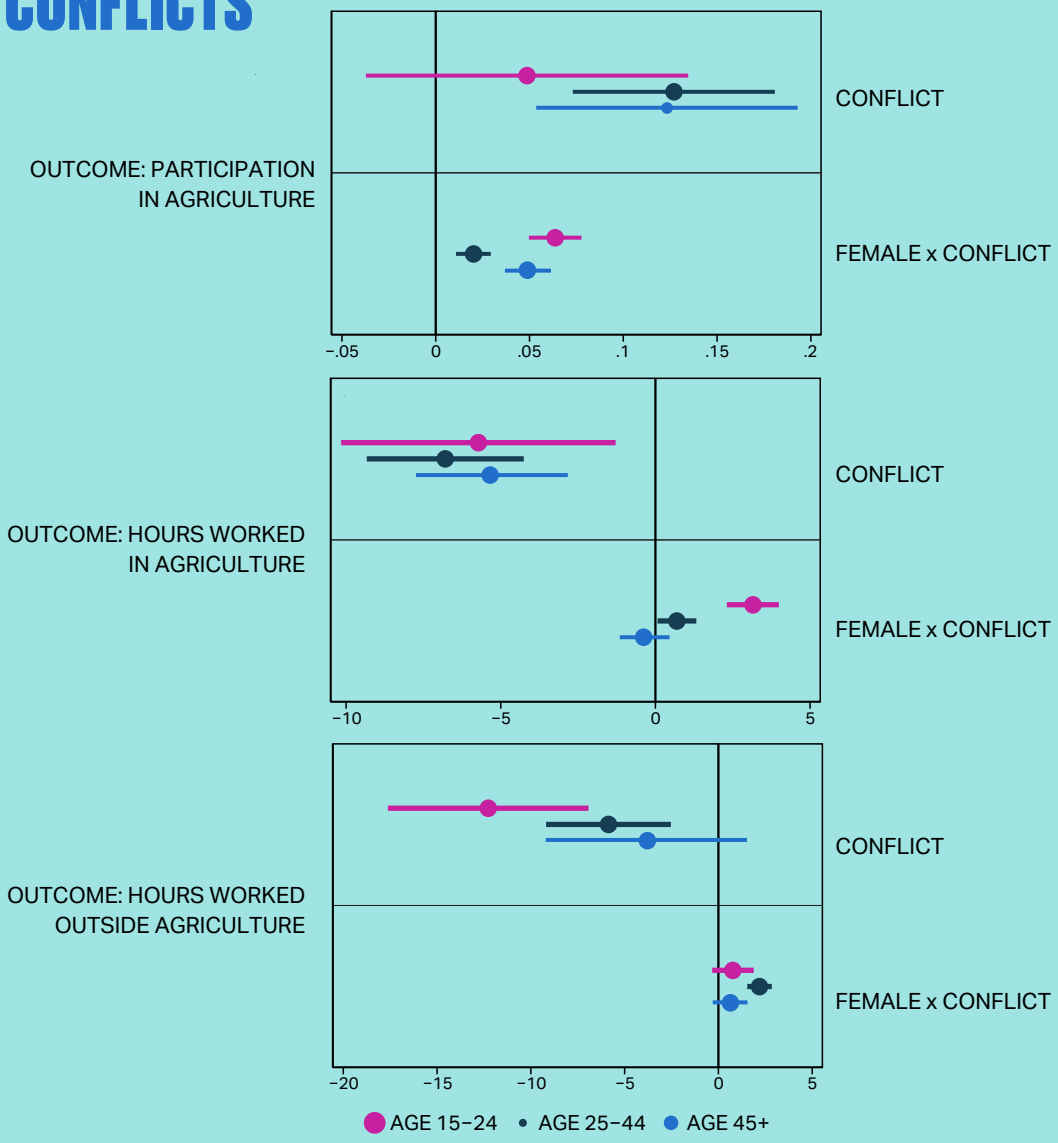
New evidence presented here on the relationship between exposure to conflict and labour outcomes of rural people in 29 African countries shows that conflict exposure increases the likelihood of working in agriculture among adults, although their total working hours are reduced (see Figure 6.6). This suggests that adults in general are pulled into agricultural work during conflicts. However, because of general insecurity they work fewer hours, perhaps because some fields are left fallow or other agricultural activities are curtailed due to security risks.[90] Important gender differences emerge in terms of agricultural work.

Women of all ages tend to work more in agriculture when conflicts occur, and young women also work longer hours. This is consistent with previous studies that show a general increase in female labour force participation in conflicts, a trend that is often linked to the temporary absence or permanent loss of male breadwinners.[79, 80, 106] Despite the risks associated with agricultural work, young women tend to work more hours in agriculture than older women and men, potentially elevating their risks of exposure to violence. However, regardless of the sector, women's employment in conflict contexts is typically low-paid, low-skilled and takes the form of informal self-employment or unpaid family labour.[107]

Addressing the impacts of conflicts on youth work opportunities is critical for building their resilience in the short term and enabling a positive transition into adulthood in the future. Recognizing and supporting the disproportionate burden and risks young women face in sustaining agricultural production is a key step. This includes providing them with the technologies and resources needed for effective agricultural production

FIGURE 6.6

YOUNG WOMEN SUSTAIN AGRICULTURAL PRODUCTION DURING CONFLICTS



Note: Effects are statistically significant if the whisker bars representing 90-percent confidence intervals do not cross the zero line.

Source: Authors' own elaboration using data from Rozani *et al.*[105]

while also recognizing the opportunity costs and physical risks they incur from this work. At the same time, efforts to support young men's employment during periods of conflict are critical. The exit of young men from work is both a cause and a symptom of conflict. Addressing the gendered division in agricultural work through gender transformative approaches, where feasible, is a potential first step to help balance the burden of agriculture work when conflicts arise.

> **"DURING ARMED CONFLICTS WOMEN'S EMPLOYMENT IN AGRICULTURE INCREASES COMPARED TO MEN.**

SPOTLIGHT 6.1 YOUTH RADICALIZATION AND PARTICIPATION IN ARMED CONFLICTS

The socioeconomic factors that make some youth susceptible to radicalization and participation in armed conflicts are complex and highly context specific. Yet underlying this complexity are often feelings of resentment that are rooted in persistent socioeconomic vulnerabilities and perceived political, social and economic inequalities between groups. These feelings of resentment can predispose people to radicalization or joining armed groups.[i]

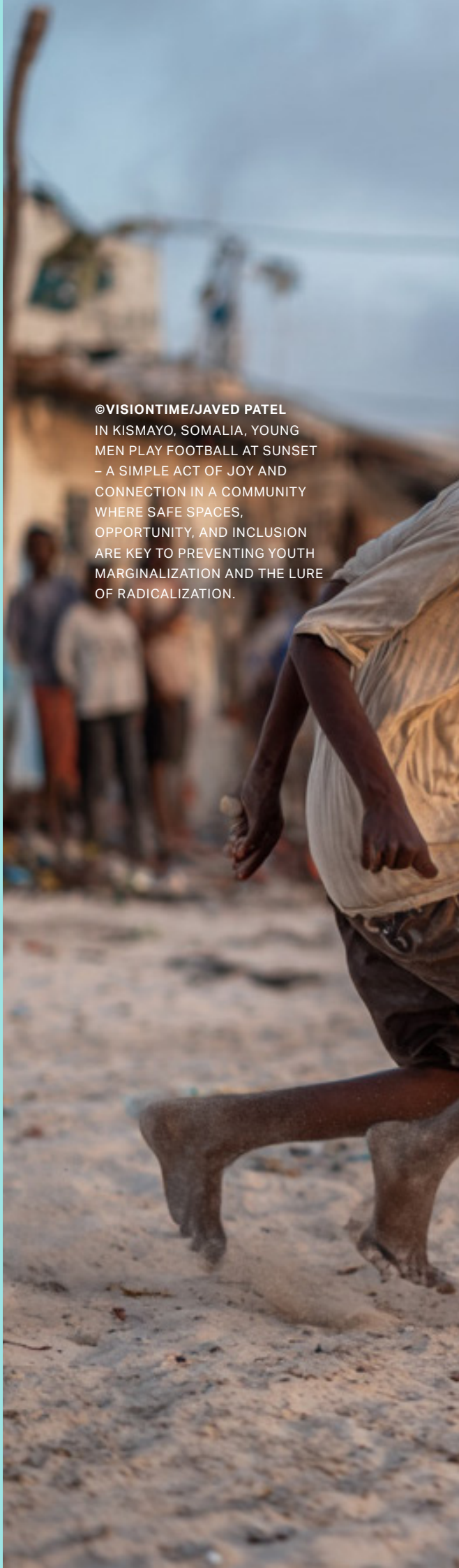
A lack of viable employment opportunities can be an important driver of youth radicalization and participation in armed conflicts. On the one hand, lack of economic opportunities is a source of grievance leveraged by groups to enrol youth.[ii] On the other hand, lack of economic alternatives lowers the opportunity costs of joining armed groups.[iii] In Nigeria, for example, the contraction of formal employment opportunities, combined with increased competition for informal and precarious work, contributed to rising frustration about the lack of economic opportunities among youth with lower education.[iv,v] Armed groups tapped into these grievances by positioning themselves as a way to fight against the system that contributed to youth's marginalization.[vi] In addition to providing an avenue to channel grievances, radical groups in Nigeria also provide needed networks for youth to access employment. For example, there is evidence that radical groups provide youth with needed social networks to engage in seasonal and permanent migration to urban areas.[vii–ix]

Radical groups also provide marginalized youth with opportunities to increase their social status and political power within their communities. In Haiti, for example, armed gangs recruit children and youth to reinforce their ranks and solidify their role and legitimacy within communities. These groups use youth to distribute food or cash to their communities, which helps the groups to gain validation and legitimacy, and provides youth with income and increased social recognition.[x] Increased authority and social power are often an important factor contributing to young woman's support for radical groups. At both the national and local level, women are often underrepresented in decision-making bodies in areas where armed groups are present. Evidence from Liptako-Gourma and Northern Nigeria suggests that the opportunity to gain influence and status incentivizes women to join armed groups.[xi] Moreover, women may join these groups to avoid risks of sexual violence associated with conflicts.[xii]

In-group socialization pressure and stigmatization by the broader community can perpetuate youth's engagement with armed groups. Youth who participate in armed groups often forgo educational opportunities and fail to develop employable skills, which limits their opportunities for economic and social advancement outside of the group.[xiii] In the aftermath of conflicts in Algeria, Liberia and Sierra Leone, for example, young demobilized soldiers found themselves similarly marginalized politically, economically and socially, as in the pre-war period.[xiv, xv] Lacking other opportunities, many returned to combat as mercenaries in regional conflicts.[vi]

Ultimately, the decision of youth to engage in armed violence is driven by both individual and community-level factors that are tied to legacies of perceived marginalization, deep-rooted social and economic grievances, and the need for protection. There is no one single driver of radicalization and no single profile of people most likely to be radicalized. As such, policies, strategies and programmes to counter radicalization must be contextualized, adaptable and engaged at the regional, national and local levels. Moreover, they must be cognizant of differences in economic constraints and opportunities faced by different people – based on factors such as age, gender, wealth, location and ethnicity – and the ways in which these are shaped by policies, norms and institutional factors.

Notes: Refer to the Notes section for full citations.



©VISIONTIME/JAVED PATEL
IN KISMAYO, SOMALIA, YOUNG MEN PLAY FOOTBALL AT SUNSET – A SIMPLE ACT OF JOY AND CONNECTION IN A COMMUNITY WHERE SAFE SPACES, OPPORTUNITY, AND INCLUSION ARE KEY TO PREVENTING YOUTH MARGINALIZATION AND THE LURE OF RADICALIZATION.

SOLUTIONS MOVE FOOD FORWARD

© FAO/VÍCTOR FARFÁN
INGRID RAMÍREZ, AGED 27, CHECKS THE RESULTS OF WATER MANAGEMENT IN HER ORCHARD.

07
MAKING AGRIFOOD SYSTEMS WORK FOR YOUTH

© FAO/DAVID HOGSHOLT
IN SINACABAN, MISAMIS OCCIDENTAL IN THE PHILIPPINES, ROSEMARIE BUSADRE, AGED 22, ARRANGES FISH FOR SALE.

KEY MESSAGES

- Youth-inclusive agrifood systems transformation requires efforts that expand economic opportunities in the broader economy and empower youth with the requisite skills, agency and resources to harness available opportunities. These efforts acknowledge the diverse circumstances and needs of youth, address specific vulnerabilities and promote meaningful engagement for all.

- Broad-based productivity growth, both on and off-farm, stimulates rural and structural transformation and in many contexts is essential to make agrifood systems work for youth, raise incomes and create decent jobs across the wider economy.

- The creation of decent jobs for youth in agrifood systems requires broader reforms that promote the progressive formalization of economies, address widespread labour rights violations, enhance workplace safety, increase youth's awareness of their rights and strengthen social protection systems for all.

- Creating an enabling environment for agrifood enterprises, through access to credit, training and infrastructure, can further boost youth job opportunities and promote economic stability.

- Youth-specific nutrition policies that enhance access to healthy diets, strengthen food literacy and skills, and regulate harmful food marketing are essential for improving the food environment and promoting healthy eating habits.

- Targeting youth with social protection programmes specifically designed to address their vulnerabilities, and that provide capacity development on sustainable and productivity-enhancing technologies, are crucial for building youth resilience to shocks, protecting assets, sustaining consumption and promoting productive activities.

- Youth agency, visibility and empowerment in policymaking spaces can be strengthened through meaningful participation in youth-led organizations and networks. Such collective action can help young people expand their influence and better navigate power relations.

- Inclusive policies that prioritize youth, adopt transformative approaches, and address existing agency and resource access barriers affecting vulnerable and marginalized young people, are critical to foster equitable participation opportunities for youth in agrifood systems.

- Youth need skills to harness agrifood opportunities and navigate shocks. Effective skills training programmes integrate access to productive resources, emphasize practical and hands-on learning, and adapt to youth and local market needs.

- More empirical evidence and age- and sex-disaggregated data are needed to better understand the diverse realities of youth in agrifood systems and assess the impact of programmes on their engagement, food security and resilience.

- Youth-inclusive agrifood systems transformation demands strong commitments from diverse stakeholders, robust evidence, broader inclusion and greater investment. Sustaining and scaling progress calls for stakeholders to inquire more, include more and invest more to strengthen evidence, empower youth and accelerate structural change.

- Promoting youth engagement in agrifood systems is a strategic investment in global prosperity. Eliminating youth unemployment and integrating NEET youth aged 20–24 into the workforce could boost global GDP by 1.4 percent (USD 1.5 trillion), with agrifood systems alone contributing 45 percent of that estimated growth (USD 680 billion).

©VISIONTIME/MELANIE BOUTROS
IN AMMAN'S CENTRAL MARKET FOR FRUITS AND VEGETABLES, A YOUNG VENDOR USES HIS SMARTPHONE TO PRICE AND TRACK PRODUCE AT HIS STALL. YOUTH ARE BRINGING DIGITAL INNOVATION TO TRADITIONAL AGRIFOOD MARKETS.

INTRODUCTION

Inclusive agrifood systems are vital to achieving global sustainability and prosperity. A key prerequisite to building more inclusive agrifood systems is youth engagement. Young people make up a significant share of the population in many countries, particularly those with traditional and protracted crisis agrifood systems. Accordingly, youth labour, advocacy and consumption patterns are essential for building resilient, equitable and prosperous agrifood systems. In countries with smaller and shrinking youth populations, young people are vital to filling labour gaps, driving innovations and revitalizing rural areas. As outlined in the conceptual framework in Chapter 1, successfully integrating youth into agrifood systems requires intentional efforts that expand economic opportunities and empower young people.

Historically, transforming agrifood systems through broad-based productivity growth, both on and off-farm, stimulates rural and structural transformation and has been key to job creation, income growth and poverty reduction.[1] Investments that spur productivity growth create an enabling environment for agrifood enterprises, expanding opportunities for youth entrepreneurs and offering more rewarding jobs off-farm with better working conditions.[2, 3] Moreover, improvements in agricultural practices, expanded market access and diversified local economies drive rural transformation with increases in the availability and accessibility of nutritious foods.[4,5] Embedding sustainability, innovation and livelihoods diversification in the transformation process strengthens the resilience of communities, and the youth within them, enabling them to more effectively navigate economic and environmental shocks. Measures promoting broad-based productivity growth, designed to accelerate the transformation of agrifood systems and overall rural and structural transformation, are a cornerstone in the cultivation of youth-inclusive agrifood systems, helping to provide decent jobs, advance nutritional well-being and foster resilience among the rising generation.

> “INTEGRATING YOUTH INTO AGRIFOOD SYSTEMS REQUIRES EXPANDING OPPORTUNITIES AND EMPOWERING THEM WITH SKILLS, AGENCY, AND RESOURCES.

However, growth in opportunities does not automatically translate into direct access for youth. Complementary efforts are needed to empower youth with the agency, skills and resources necessary to engage in and influence agrifood systems transformation processes and partake in the outcomes. Yet, youth participation in agrifood systems decision-making is often constrained. Strengthening youth as key stakeholders fosters ownership and ensures that policies and programmes adequately reflect their needs. Moreover, youth need specific skills and education to contribute effectively in agrifood systems that are increasingly knowledge-based and technology-intensive. However, as discussed in Chapter 3, many rural youth lack access to quality education and skills training. Socioeconomic barriers, poor educational infrastructure and a misalignment between educational programmes and the demands of modern agrifood systems have limited the ability of many young people to fully seize agrifood systems

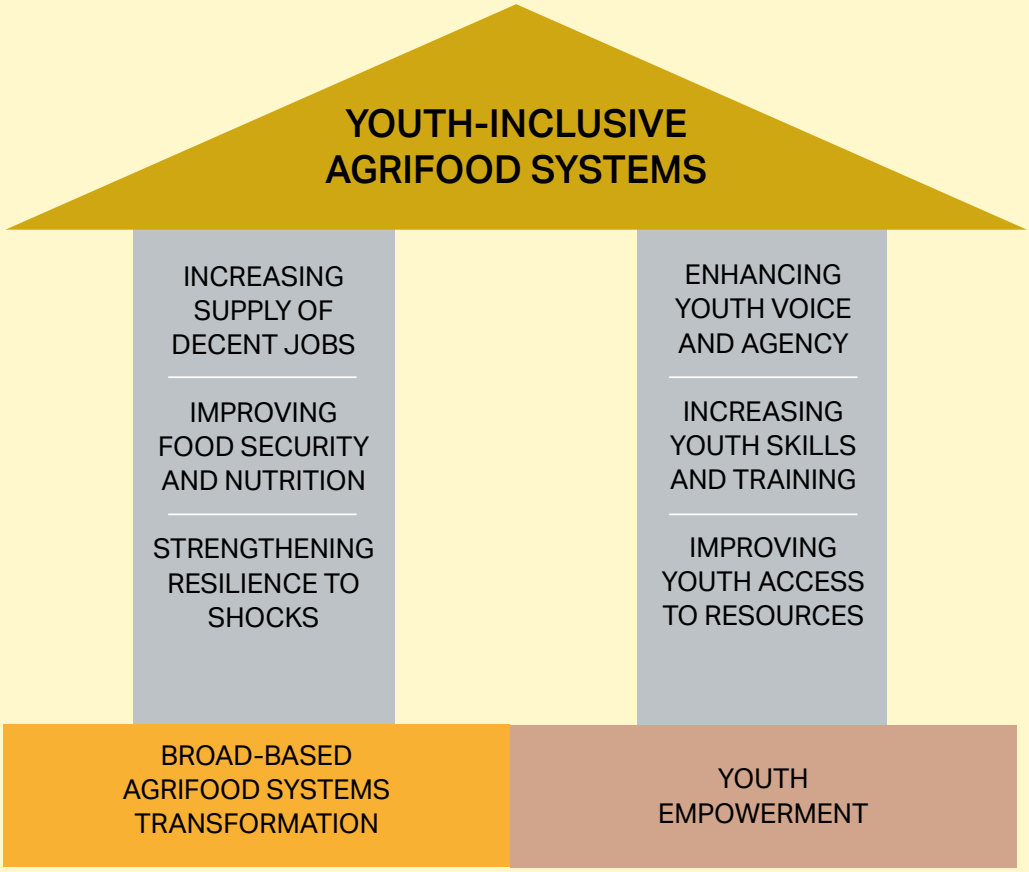
opportunities.[6, 7] At the same time, restrictive land tenure systems, inheritance laws that favour older generations, an absence of legal recognition for youth, lack of credit histories, limited social capital and discriminatory social norms collectively undermine young people's access to critical resources needed to fully engage in agrifood systems, such as secure land, finance, technology, water, markets and market information (Chapter 3).[8, 9] Bridging these gaps is essential to harness the transformative potential youth bring to agrifood systems, which in turn can improve livelihoods and food security for both youth and society.

This chapter examines promising policies and programmes with the potential to engage youth and improve outcomes in agrifood systems. Drawing on policy analyses and experiences from past interventions, the chapter identifies approaches and design features that expand youth economic prospects while empowering them to actively drive and benefit from agrifood systems transformation. The chapter highlights two key dimensions: expanding youth opportunities and youth empowerment. In terms of opportunities for youth, the chapter focuses on programmes driving inclusive agrifood systems transformation to achieve three interconnected outcomes: 1) increasing supply of decent jobs; 2) improving food security and nutrition; and 3) strengthening resilience to shocks and stresses. In terms of empowerment, the chapter examines interventions in three interrelated areas: 1) enhancing youth voice and agency; 2) increasing skills acquisition and training; and 3) improving access to resources (see Figure 7.1). While discussed separately, these six areas are interdependent: progress in one area reinforces advancements in others, collectively creating an environment that enables youth to thrive and contribute to agrifood systems transformation. The chapter concludes with recommendations for moving forward, focusing on approaches to inquire more, include more and invest more to ensure that youth are at the centre of agrifood systems transformation.

©IFAD/ANDREW ESIEBO
IN OSI COMMUNITY NEAR AKURE, NIGERIA, FISH FARMER OMOTAYO SAMUEL USES TREE-LEAF EXTRACTS AS NATURAL ANTIBIOTICS AND RECYCLES NUTRIENT-RICH POND WATER TO GROW BOTH FISH AND VEGETABLES—EXEMPLIFYING RURAL ENTREPRENEURIAL RESILIENCE.

FIGURE 7.1

YOUTH-INCLUSIVE AGRIFOOD SYSTEMS DEMAND STRATEGIES THAT COMBINE BROAD-BASED TRANSFORMATION WITH YOUTH EMPOWERMENT



Source: Authors' own elaboration.

INCREASING SUPPLY OF DECENT JOBS

Most rural youth reside in countries characterized by traditional or protracted crisis agrifood systems (Chapter 2) and rely in large part on agrifood systems for their livelihoods (Chapter 4). However, young workers fare worse than older workers across most dimensions of decent work, except in wages where no youth–adult wage gap was observed.[10,11] Ensuring access to decent work is therefore critical for youth in agrifood systems.

The available evidence on programmes aimed at improving job quality focuses primarily on wage-related aspects, with non-wage dimensions of decent work addressed less frequently. Studies specifically targeting job quality in agrifood systems are even rarer. Nevertheless, the available studies offer some insights into key areas of investment that could expand both the quantity and quality of decent work for youth.

FOSTER BROAD-BASED PRODUCTIVITY GROWTH FOR ACCELERATED STRUCTURAL TRANSFORMATION

Accelerating structural transformation is essential to address the lack of decent jobs in agrifood systems and to expand employment opportunities for youth. This transformation process is dependent on broad-based productivity growth[2,3,12,14] – improvements in efficiency and output that encompass a wide range of actors and commodities across agrifood systems.[1,14,15] Unlike growth concentrated among a few actors and commodities, this inclusive approach often generates the multiplier effects needed to stimulate structural transformation.[1,2,15] It is underpinned by climate-resilient and context-specific innovations that optimize resource use,[16,17] typically generated through international and national research and development (R&D), and extension services.[17] Public investment in agricultural R&D is highly cost-effective, with estimated social returns averaging over 40 percent annually,[17–19] yet funding remains low, especially in lower-income countries. As mentioned in Chapter 3, technology and innovations can encourage youth participation in agrifood systems, and research conducted as a public good helps to deliver cutting-edge agricultural innovations in developing regions.[20]

> “ACCELERATING STRUCTURAL TRANSFORMATION THROUGH PRODUCTIVITY-ENHANCING INVESTMENTS UNLOCK AGRIFOOD JOBS AND ENTREPRENEURIAL OPPORTUNITIES FOR YOUTH.

However, complementary investments to enhance the flexibility of intellectual property laws and strengthen the capacity of national research systems are needed to support the adoption, contextualization and scaling of these innovations.[21] Robust extension systems are equally essential to foster two-way learning between research institutions and actors in agrifood systems, encouraging forms of adaptation that align with real-world conditions and resource contraints.[21]

Investments in physical and digital infrastructure are similarly vital for promoting broad-based productivity growth in agrifood systems. Upgrading the coverage and quality of rural infrastructure (e.g. roads and reliable, affordable energy) reduces transaction costs and enhances connectivity. Improved road infrastructure, particularly paved roads, can address mobility challenges and create new economic opportunities. In rural areas, roads are often seen by young people as pathways to better income prospects, prompting shifts from agricultural work to formal labour market participation. Studies in India, for instance, show that road construction contributes significantly to helping young people, particularly women, transition out of agriculture into wage employment.[22] Similarly, cross-sectional data from 31 countries in sub-Saharan Africa show that proximity to paved roads is associated with reduced probability of unemployment among rural youth, with stronger impacts for young women.[23] In Morocco, enhanced road access led to increased secondary school enrolment among young women and a reduction in early marriages, likely due to improved commuting options. For young men, road improvements primarily facilitated access to wage employment, with only a limited impact on educational attainment.[24]

In addition, specific agrifood systems infrastructure projects related, for example, to irrigation systems and food processing facilities can bolster agricultural productivity, boost value addition and expand job opportunities along value chains.[8,16,17] Furthermore, extending digital infrastructure to rural areas promotes innovation, strengthens rural-urban linkages and opens up new market opportunities for youth and other stakeholders.

Targeted public investments can create an enabling environment that incentivizes private-sector engagement in agro-based industries, promotes value addition and strengthens cross-sector linkages to transform agrifood systems into a dynamic sector where youth can thrive. An analysis of the Enabling Business in Agriculture indicator reveals that rural youth in countries with consistent improvements in their enabling environments experience higher returns on their labour in agriculture, as well as lower poverty rates,[25] underlining the importance of institutional reforms for youth livelihoods.

Regarding entrepreneurship, youth-led enterprises merit support but multiple studies show that rural youth entrepreneurship often fails to generate large-scale employment or sustainable livelihoods due to high start-up failure rates and limited resources.[26] Meanwhile, enterprises managed by older adults frequently exhibit greater stability and a stronger capacity to employ young people.[25] Evidence suggests that firm-level interventions aimed at more established agri-enterprises – those already performing well under local conditions – are likely to boost youth job opportunities.[27] Moreover, targeting skills training to higher-productivity firms and strategic industries has yielded more job creation and economic growth than untargeted approaches.[28] Supporting companies with solid market potential and growth prospects can effectively stimulate youth employment and contribute to broader economic development.

RAISE AWARENESS ABOUT AND PROTECT THE LABOUR RIGHTS OF YOUNG WORKERS

While demand for youth labour is growing, targeted policies and programmes are necessary to ensure decent employment. Such efforts should prioritize measures to protect the fundamental principles and rights at work, including freedom of association, elimination of all forms of forced or compulsory labour, the abolition of child labour, the elimination of discrimination, and a safe and healthy working environment.[29, 30] Fair[j] and ethical recruitment practices and safe pathways for youth

j Fair recruitment implies that migrants are not charged recruitment fees, retain control of official documents, are offered pre-departure and post-arrival training, and are fully informed about employment terms before making the decision to migrate.[36]

mobility are necessary to prevent labour abuses such as forced labour and debt bondage. In agrifood systems, improving labour standards is critical, especially given young people's negative perception of agrifood systems jobs.[32]

The international legal framework for decent work is based on the International Labour Standards (ILS), a body of legal instruments developed by the International Labour Organization (ILO) that protects workers' rights and includes youth-specific provisions.[33,34] However, implementation of this framework remains challenging, particularly in the context of agrifood systems, where informality is widespread. Informal workers in agrifood systems are often excluded from national labour laws or left unprotected due to weak enforcement, especially in rural areas[34, 35] – in part due to the relatively high cost of compliance for informal enterprises. At the heart of this issue is a key dilemma – how to promote a progressive transition from the informal to the formal economy without undermining the informal sector's role as a source of employment and income for youth and the overall population.[36] Voluntary options such as responsible business conduct or approaches linked to third-party certification, including Fairtrade, can promote decent work in rural areas, although their ability to improve workers' rights and address structural inequalities may vary by context.[37–39]

Awareness-raising initiatives and monitoring mechanisms involving all agrifood system stakeholders, including youth, have been used to uphold labour rights in some settings,[40] although evidence of their impact is limited. In India, the "Youth Knowledge Hub" project raises awareness of decent income livelihood opportunities, supports skill development and empowers communities to form youth producers' groups while encouraging young workers to become Fairtrade youth champions.[41]

Safety at work is also a key consideration for youth, and one that requires stronger occupational safety and health (OSH) measures**,** including raising awareness about reporting and notifying occupational injuries and illnesses.[42] Initiatives such as the Youth in Agriculture e-Tool, for instance, offer resources on common agricultural hazards and practical safety solutions for both employers and young workers, raise awareness of OSH and facilitate youth-related injury reporting in agriculture.[43] While research from low-income countries remains limited, existing studies emphasize the necessity of involving young workers, parents, employers and communities in protecting youth in the workplace.[44, 45] They also indicate that educational interventions alone will not suffice. Creating a safe working environment for youth also demands policies, standards and regulations, and enforcement mechanisms.[45] Local and participatory approaches, such as the low-cost work improvement in neighbourhood development (WIND) approach for farmers, although not youth-specific, has shown promise in improving OSH in informal rural settings.[46, 47]

Young migrants are particularly vulnerable to exploitation in the labour market and need specific support. Targeted information campaigns and migrant resource centres (MRCs) have been shown to improve access to safe migration and work-related information, while reducing intentions of youth to embark on unsafe migration through irregular channels.[48, 49] For example, in Senegal, awareness campaigns lowered irregular migration intentions by 20 percent.[50] Similar findings were observed in Guinea where awareness campaigns employed mobile cinema screenings.[51] In Nigeria, a campaign reduced trafficking vulnerability by 50 percent and increased proactive steps toward safe migration by the same margin.[49] Similarly, MRCs and pre-departure programmes equip migrants with crucial information.[52] A study in Afghanistan, Bangladesh, Iraq and Pakistan found that counselling and orientation sessions significantly reduce irregular migration intentions and improve awareness of safe options.[53] Indeed, India,[55] Nepal,[56] Senegal[54] and Uganda are implementing radio campaigns, social media outreach and mobile resource centres to inform rural youth about migration risks, alternatives to migration and agrifood system opportunities, including climate-adaptive agriculture.

PROMOTING THE PROGRESSIVE FORMALIZATION OF AGRIFOOD SYSTEMS ECONOMIES

Supporting the progressive formalization of agrifood systems economies can improve job quality by encouraging businesses to comply with relevant laws and regulations.[57] Achieving this goal requires lowering barriers to formalization and incentivizing enterprises to operate within the formal sector. Such efforts may include streamlining business registration processes to reduce costs and regulatory burdens and linking formalization to economic support programmes or benefits like tax incentives and government contracts. A

project in Lebanon, for instance, required registration as a prerequisite for youth- and women-led agri-enterprises seeking assistance to develop export skills. This initiative encouraged formalization by demonstrating the advantages of belonging to the formal sector – such as access to markets and support programmes.[58]

Fostering group cooperation and access to social protection can help promote the progressive formalization of agrifood systems economies. Cooperatives and associations facilitate the transition to formality for youth and micro-entrepreneurs by pooling resources, for example through saving groups, reducing entry barriers to markets and accessing social security mechanisms for informal workers. Examples of the latter include Peasants' Social Insurance in Ecuador and the group insurance system of the Self-Employed Women's Association in India.[59] Initiatives to expand access to social protection for youth, who make up a significant proportion of informal workers and informal enterprises, were observed in particular during the COVID-19 outbreak.[60] Enhancing access to social protection through expanded non-contributory benefits, extending social insurance to rural workers and making social benefits portable across borders for migrants in industrialized agrifood systems[61] are all examples of successful approaches supporting the progressive formalization of rural economies.

Responsible contract farming[62] and other formalized value chain arrangements can also significantly improve youth incomes and job prospects. Several case studies have reported improvements in terms of contract farmers hiring more labour or paying higher wages in Pakistan,[63] youth increasing crop and household incomes in the United Republic of Tanzania,[64] or young people benefiting from jobs and better incomes in Rwanda.[65] However, the studies also highlighted several factors, including ownership and size of land and access to resources, that influence young farmers' engagement and performance in contract farming.[64, 65]

IMPROVING FOOD SECURITY AND NUTRITION

Enhancing food security and nutrition for young people requires policies and interventions that specifically address the unique challenges youth face in accessing and consuming healthy diets. Despite the critical role nutrition plays in shaping long-term health and economic potential, youth remain underprioritized in national policies and agrifood system transformation efforts (Chapter 5). Addressing these gaps requires a multi-pronged approach that integrates youth-specific policies to expand access to healthy diets, strengthens food literacy and skills development, and enforces regulatory measures to limit harmful food marketing.

MAKE YOUTH ACCESS TO HEALTHY DIETS CENTRAL TO AGRIFOOD SYSTEMS TRANSFORMATION

Youth access to healthy food remains a low priority in national policies. Most countries focus primarily on infants and children aged under five, leaving few initiatives to support youth nutrition. While some countries, such as Indonesia, have introduced youth-targeted nutrition programmes,[66] including iron-folic acid supplementation for young women and obesity prevention programmes for youth, youth remain underrepresented in national development agendas. To secure the next generation's

health and economic potential, agrifood systems transformation must integrate youth-specific policies that improve access to nutritious foods.

Large-scale food fortification, particularly iron-fortified flour, can help address micronutrient deficiencies among youth, as demonstrated by its success in reducing anaemia in women of reproductive age.[67] However, availability, cost and acceptability challenges hinder widespread adoption.[68] As agrifood systems transform, expanding these programmes to high-need areas, along with quality assurance monitoring to ensure compliance and effectiveness, is essential.[69–72] Similarly, strengthening policies that mandate the food industry to enhance the availability and nutritional quality of food, while regulating unhealthy food marketing, can significantly impact youth diets.[72, 73]

Making healthy diets central to agrifood systems transformation require multisectoral collaboration and tailored interventions. India's knowledge-centred approach to reducing anaemia among adolescent girls highlights the effectiveness of partnerships between government and development organizations.[74] Similar collaborations involving multiple stakeholders (e.g. national and sub-national government, community, non-governmental and private actors) and youth engagement can help scale youth-focused interventions. These collaborations should include advocacy, mass and local media engagement, technical assistance, and monitoring and evaluation to ensure sustained impact.

Additionally, careful considerations are needed for youth migrants, refugees and internally displaced persons (IDPs), since the host community food environment may be different from their own, and constraints for these young people may differ. Furthermore, food assistance programmes may not be accessible for these groups, as lack of mobility (transport), knowledge, time, resources, literacy and digital literacy, concerns about immigration status, stigma and culturally inappropriate food may hinder them from accessing such programmes.[75] Addressing the nutritional needs of young migrants, refugees and IDPs requires a multifaceted approach. Measures that have been found effective in improving the food security of young migrants, refugees and IDPs include emergency food aid, school feeding programmes,[76,77] community-based nutrition interventions (i.e. community kitchens, community gardens),[78] nutrition education programmes aimed at improving dietary habits,[79,80] monitoring and screening for malnutrition,[81, 82] and long-term resilience-building efforts.[83–85] Effective measures should focus not only on providing immediate relief but also on improving long-term health outcomes and self-sufficiency. Collaboration between governments, aid organizations and host communities is essential to enhance effectiveness and sustainability in this regard.

SUPPORT YOUTH KNOWLEDGE AND SKILLS DEVELOPMENT PROMOTING HEALTHIER DIETS

Enhancing food security and nutrition among youth requires targeted efforts that engage with both young people and their families. While families, especially parents, play a vital role in shaping youth's dietary habits, targeted programmes that build young people's knowledge, skills and self-efficacy in food preparation, decision-making and healthy eating practices, can reinforce and complement family influences. Programmes that promote self-efficacy in meal preparation from an early age can encourage lifelong healthy dietary habits, such as increased fruit and vegetable intake and reduced fast food consumption later in life.[86–88] Food literacy initiatives in both school and community settings, as well as early engagement of youth in food-related decisions, also foster self-regulation and internalization of healthy eating norms among youth.[89]

School-based nutrition programmes play a critical role in shaping dietary behaviours,[90, 91] but they often have mixed impact on nutrition[92] and growth outcomes[93, 94] due to the high variability in meal composition, implementation

> "FOOD LITERACY INITIATIVES AND EARLY INVOLVEMENT OF YOUTH IN FOOD DECISIONS PROMOTE LIFELONG HEALTHY DIETARY HABITS.

and regularity. Establishing robust nutrition standards for school meals can ensure consistency in quality and accessibility.[94–97] Combining nutrition education with environmental changes, such as regulating unhealthy food sales near schools, can reinforce positive dietary behaviours.[95, 98–100] Expanding these initiatives to reach more youth, especially those outside formal education systems, is essential to addressing nutritional disparities.

Community and digital platforms offer effective channels for reaching out-of-school youth. Peer educators, community-based initiatives and faith-based organizations have successfully engaged young people in nutrition and health education.[101] In Kenya, for example, community-based initiatives have reduced geophagia (the practice of eating soil or rocks).[102] Social media and mobile health interventions also provide additional opportunities to deliver nutrition information, behavioural support and food literacy programmes at scale.[103] In Brazil and Mexico, for example, digital programmes have effectively promoted fruit and vegetable consumption.[104] However, while digital platforms can promote healthy diets, they also expose youth to unhealthy food advertising, which can influence their consumption behaviours and have a negative impact on their long-term health.

STRENGTHEN FOOD MARKETING REGULATIONS TO PROTECT YOUTH

Strengthening food marketing regulations is essential to protect youth from exposure to unhealthy food advertising. While protections from harmful marketing exist for children, they tend to weaken with age, leaving youth increasingly vulnerable. Regulatory approaches vary globally, consisting of a mix of self-regulation, co-regulation and statutory instruments.[105] Although mandatory regulations have reduced exposure to unhealthy food advertisements,[106] no country has fully restricted all forms of unhealthy food marketing.[107] Loopholes and lax enforcement[105] allow unhealthy food promotion to persist, particularly through digital and social media channels, where influencers amplify brand messaging and normalize unhealthy food choices.[108]

Expanding regulations to cover internet-based advertising can help better protect youth.[108] Additionally, disseminating food literacy programmes can equip youth to navigate the marketing landscape.[109] To ensure meaningful impact, governments and regulatory bodies must also strengthen enforcement mechanisms, close existing loopholes and increase transparency in food marketing practices.[105, 107] Engaging youth in public health discussions and leveraging their voices in advocacy efforts can further drive policy improvements.[110–112]

Youth-led movements and initiatives can advocate for sustainable, culturally relevant agrifood systems, countering the aggressive marketing of unhealthy foods. Promoting traditional diets rich in fruits, vegetables, whole grains and locally sourced nutrient-dense foods can help to reverse dietary shifts towards ultra-processed, nutrient-poor options. The participation of youth in food policy discussions and social movements for food justice plays a vital role in ensuring that healthy foods are accessible, affordable, desirable and convenient. For example, youth movements have advocated for transparent food labeling,[113] sugar taxes[114] and healthier school meals,[115] pushing for policies that support healthy diets.[116] In addition, young entrepreneurs have created sustainable food ventures, offering locally sourced, affordable alternatives to ultra-processed foods.[117] Strengthening such youth engagement in food policy and nutrition education will accelerate the shift toward healthier food environments and empower young people to make informed dietary choices.

STRENGTHENING YOUTH RESILIENCE IN AGRIFOOD SYSTEMS

As highlighted in Chapter 6, youth respond to shocks and stressors differently from adults, with further variations between young women and men. Available evidence provides insights into strategies and interventions that can strengthen youth's ability to navigate the impacts of adverse shocks and stressors on their wellbeing and their transition to adulthood in agrifood systems. A few key approaches are discussed below.

EDUCATE YOUTH ON PRODUCTIVITY- AND RESILIENCE-ENHANCING TECHNOLOGIES

Limited access to information and lack of technical expertise hampers young people's productivity and resilience.[118] Ecosystem-based approaches and climate adaptive agricultural practices, such as soil and water conservation practices, intercropping or the use of improved seeds, have been shown to increase yields and incomes and foster resilience to shocks.[119, 120] Crop diversification also plays an important role in the resilience of young households in areas of protracted crisis. Yet not all climate adaptive practices might be suitable for young farmers. Smaller landholdings and financial constraints present obstacles to implementing land- and capital-intensive practices such as agroforestry and erosion prevention infrastructure.[121] Addressing these barriers through tailored policies, access to credit and innovative financing mechanisms will be crucial in enabling young farmers to adopt and benefit from resilience-enhancing technologies.

LEVERAGE SOCIAL PROTECTION TO HELP YOUTH IMPLEMENT RESILIENCE STRATEGIES

Too often, up-front costs associated with the adoption of long-term climate adaptive strategies, such as irrigation systems or agroforestry, are high, risky and often take time to yield returns. Young farmers need financial resources to cover the start-up costs and to manage uncertainties and risks related to the long-time horizon.[122] Given limited access to traditional financial services, social protection (see Box 7.1) can play a crucial role in providing incentives for the adoption of income diversification and climate adaptive livelihood strategies, thus supporting rural youth in adopting new approaches and diversifying their incomes, which can in turn lead to greater resilience.[123] [122, 124]

BOX 7.1 SOCIAL PROTECTION AND YOUTH

Social protection encompasses policies and programmes designed to prevent and mitigate poverty, vulnerability and social exclusion throughout the life cycle, with a focus on the most vulnerable groups.[i]

Social protection interventions are generally grouped into three main pillars: social assistance, social insurance and labour market interventions. Social assistance encompasses all non-contributory schemes targeted at households without alternative means of support and incorporates cash transfers (including cash plus or public works programmes) and in-kind transfers (including school feeding programmes). Contributory programmes established or mandated by governments to protect people from potential financial losses linked to life cycle-related events (e.g. pregnancy or old age), livelihood risks (e.g. unemployment or illness) or climate-related stresses (e.g. droughts or floods), are grouped under the social insurance pillar. Examples include unemployment insurance or pensions. Finally, labour market interventions comprise measures for the working age population that aim to enhance employment opportunities, improve workers' skills and offer livelihood support, and can include skills transfer programmes or employment guarantee schemes.[ii]

Well-crafted social protection interventions developed for youth play a fundamental role in supporting the transition to adulthood, especially for the most vulnerable.[iii] Social protection schemes can be specifically designed for youth: examples include scholarships, student loans and livelihood training developed to benefit young people with the objective of enhancing access to schooling, thereby increasing school attainment and employability. A study conducted in Ghana reveals that a scholarship programme targeted at students in secondary schooling greatly enhanced school attainment, modestly improved maths and reading comprehension, and improved tertiary schooling completion.[iv]

Additionally, more transversal social protection programmes (e.g. cash for work or cash plus) can be designed in ways to enhance opportunities for youth by employing dedicated targeting criteria. These programmes can have various objectives. For instance, key objectives for programmes prioritizing youth living in rural areas, who rely on agriculture as a source of livelihood, is to reduce their vulnerabilities and increase their adaptability to climate change, as discussed in this chapter.

Notes: Refer to the Notes section for full citations.

Cash transfers have been shown to increase investments in farm inputs and productive assets, improving productivity and, thereby, contributing to more resilient agricultural livelihoods.[125, 126] Moreover, in some contexts cash transfers encourage recipients to acquire assets, including farmland.[126] This is particularly relevant for young farmers, who are often constrained by smaller farm sizes.[122] Social protection can also promote access to information, support or training/extension services, for example on input use, marketing and market assets, entrepreneurial skills or agricultural value chain development) to assist young participants in utilizing the cash assistance provided, based on their needs and aspirations.[127]

Social protection programmes can also help farmers manage risks resulting from uncertain weather conditions, volatile prices and psychological stress.[126] For instance, Ethiopia's Productive Safety Net Program (PSNP) has successfully lowered the adverse impact of droughts on food security, benefiting particularly land poor households.[128] Meanwhile, social protection for youth working in the off-farm sector can complement job creation policies.[124] In Rwanda, cash transfers directed to youth in low-income households increased hours worked, income and the accumulation of productive asset and savings.[129] A programme in Sierra Leone, which provided small cash transfers conditional on attendance of business training during the Ebola outbreak, improved

employment and earning outcomes, while increasing food consumption in the households of female trainees and the accumulation of assets among male trainees.[130]

Similarly, Uganda's unconditional cash transfer programme for young entrepreneurs led to sustained improvement in earnings, business formality and job creation four years after the intervention.[131] Nine years after the grant distribution process, the income effects had levelled out, but recipients still owned more durable assets and were more likely to work in a skilled trade.[132] Social protection also allows young people to complete their education during times of economic downturn. In Malawi, both conditional and unconditional cash transfers to young women reduced school dropout rates, while unconditional transfers to out-of-school girls lowered early pregnancy and marriage rates.[133,134–137,138]

"SOCIAL PROTECTION ENHANCES YOUTH RESILIENCE, ESPECIALLY WHEN BENEFITS ARE ADEQUATE, SUSTAINABLE, AND TAILORED TO THEIR SPECIFIC NEEDS.

These examples show how social protection can promote youth resilience by enhancing enabling factors, such as education outcomes, skills development, labour market participation, entrepreneurship asset accumulation and agricultural productivity. However, to maximize the impact of social protection for youth, it is essential to integrate specific components that address youth needs, such as training, business development and climate-resilient agriculture, and to adopt a long-term perspective that considers benefits adequacy and sustainability.

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IN SMEDEREVO, SERBIA, MARIJA STOJILJKOVIĆ GROWS CUCUMBER IN HER GREENHOUSE.

INCREASING YOUTH VOICE AND AGENCY

In recent decades, the value of involving youth in policy dialogues has been increasingly acknowledged, yet their participation in agrifood systems decision-making is still constrained, as highlighted in Chapter 3. Barriers to meaningful youth engagement include limited training, restrictive social and legal norms, inadequate funding and logistical support, under–representation and tokenism in global forums. Rural and marginalized youth face additional challenges, such as exclusion from institutional platforms, economic pressures and gender bias.[139–141] While digital technologies have the potential to open up new spaces for youth engagement, connectivity gaps, lower smartphone ownership and limited digital literacy in remote rural areas remain major obstacles to meaningful youth inclusion, particularly for young women (see Chapter 3).[142, 143] Initiatives have been undertaken to foster youth inclusion in decision-making, however many of these lack rigorous assessment, although some promising approaches have emerged.

PROMOTE INCLUSIVE COLLECTIVE ACTION

For vulnerable or more disadvantaged youth, collective action often proves more effective than individual action in exercising agency.[144, 145] By joining or forming groups, whether through formal producers' organizations, cooperatives and community-based organizations, or more informal networks and associations, young people can pool resources, expand their influence and navigate power relations more effectively.[146–148] Membership in formal or informal collectives can grant rural youth greater visibility in policymaking for agrifood systems. This impact can be seen in youth-driven networks in Colombia, Rwanda and Uganda, all of which have contributed to shaping national development strategies and policies.[149,150] Apex organizations, like the Asian Farmers Association for Sustainable Rural Development (AFA), have also made efforts to include youth.

Despite efforts by cooperatives, rural institutions and apex organizations to empower young farmers and promote their leadership, young people still encounter a variety of obstacles in attempts to harness collective action through formal rural organizations. Membership criteria such as land ownership or fees may exclude those reliant on small family parcels, although some cooperatives and producers' organizations have tried to mitigate land-access barriers by allowing families to use

> "YOUTH COLLECTIVE ACTION THROUGH COOPERATIVES AND YOUTH ORGANIZATIONS OFTEN PROVES MORE EFFECTIVE THAN INDIVIDUAL EFFORTS IN EXERCISING AGENCY.

shared land as collateral.[152] Mistrust and scepticism about collective initiatives, as well as inadequate organizational skills, often lead youth to work in isolation rather than forming or joining groups.[146, 151, 153–155] In the context of agrifood systems and particularly in rural settings, youth-led networks frequently lack cohesive leadership and robust organizational frameworks, which may result in top-down structures and limited engagement of under–represented groups (e.g. young women, youth with disabilities, those under 18, Indigenous youth, migrants, refugees, IDPs).[154] For example, a recent mapping of African youth organizations working in agricultural development and climate change reveals persistent gender disparities in leadership positions.[156] Removing entry barriers and strengthening these organizations' capacity to adopt transformative, intersectional and socially inclusive approaches can make them more equitable and effective.[151–153]

STRENGTHEN SOCIAL CAPITAL

Exercising agency means acquiring the knowledge, skills and capabilities needed to envision valued goals or futures, and to pursue them through free and informed decision making.[157, 158] In rural settings, these competencies are not always provided by existing education systems. Investing in both the human and social capital of young people is paramount to elevating their voices, especially in the public sphere.

Strategies such as peer-to-peer exchanges and learning that harness common group identity, as well as personal initiative training sessions, have proven to be effective in strengthening youth agency, cultivating new skills and fostering proactive entrepreneurial mindsets.[159–161] Youth individual and group agency in agrifood systems is significantly boosted by young "champions" as well as by youth-led organizations and networks, as seen in the examples of networks in Uganda and Senegal.[162, 163] Furthermore, relational approaches that strengthen intergenerational collaboration in the family or the local community, such as mentorship, role models or broader youth-adult partnership approaches,[163–165] can play a powerful role in smoothing the transfer of resources across generations, preserving traditional knowledge and culture, and building youth life skills and social networks.

Strengthening youth capacity and leadership also helps to challenge discriminatory norms and empower young people to meaningfully shape the future of their rural communities. For example, community-led gender-transformative initiatives, such as FAO's *Dimitra Clubs*,[166] have had a visible impact on the quality of life of young women and men, strengthening their leadership and self-development skills.[167] Similar participatory approaches that encourage young people to analyse and address local issues have successfully boosted the agency of youth, particularly girls, by fostering critical thinking and communication skills. For instance, in rural Malawi, youth-led *Reflection-Action Circles* facilitated by Action Aid have successfully addressed issues such as discrimination against youth with disabilities, securing commitments from local leaders to improve access to education,[167] and advocated for youth inclusion in governance. Similarly, Tostan's *Community Empowerment Program*[167] successfully stimulated community dialogue and action on female genital mutilation, child marriage and gender equality, achieving a comprehensive shift in attitudes and behaviours across over 7 200 rural communities in sub-Saharan Africa.

PROMOTE INTER-GENERATIONAL RENEWAL, PARTICULARLY IN LABOUR-SCARCE SETTINGS

Given that power dynamics between generations can constrain youth agency and resource access, policies that promote intergenerational transfer or renewal of agrifood systems employment are critical. Such policies are particularly important in countries where youth populations are low or declining. This section examines experiences and lessons learned from policy approaches working to address these concerns, the majority of which come from industrialized agrifood systems in Asia or Europe.

Issues of land access and land succession affecting predominantly young people have been an important focus of policies fostering generational renewal in agriculture, particularly in Europe. However, the evidence shows that programmes addressing this challenge have not yielded strong positive results. For example, the Fresh Start Initiative, implemented in the United Kingdom of Great Britain and Northern Ireland, was designed as a matchmaking facility to help identify and facilitate joint venture agreements between older farmers and new entrants. However, the programme failed to successfully

generate new joint venture arrangements because of wide variance in motivations and expectations between older farmers and new entrants, as well as concerns regarding their respective responsibilities in working relationships.[168] Similarly, an evaluation of the European farmers' early retirement scheme, which sought to incentivize farmers between the ages of 55 and 66 to retire and transfer their land to younger farmers, found only a minimal impact on the age structure of European farmers, and failed to encourage new entrants into farming.[169] In most of the cases, transfers that occurred under the programme were between members of the same family.

Financial incentives to encourage the entry of young people into farming have also yielded mixed results. The Young Farmer Payment, which provides financial support to farmers under the age of 40 through Europe's Common Agricultural Policy, was found to support intergenerational succession of farms by addressing capitalization and financial constraints faced by farm successors, but proved insufficient to support the establishment of new farming businesses by young entrants.[170] In contrast, the Setting up Aid (SUA) scheme under Europe's Rural Development Programme successfully fostered the transition of young hired farmers to farm managers, while increasing income from farming and farm survival in Sweden.[171] The success of the SUA compared to the Young Farmer Payment scheme is attributed to two factors: the requirement to submit a farm business plan, which obliges participants to deliberate on the future development of their farm, and the larger lump sum transfer provided by SUA, which proved more effective than the smaller payments spread over five years offered by the Young Farmer Payment scheme.

Young farmer payment schemes and policies designed to financially incentivize farm succession may underperform because they fail to engage with social and psychological factors that drive young people to enter farming or older farmers to leave. A study in the United Kingdom of Great Britain and Northern Ireland found that payments had little influence on older farmers' willingness to exit. Instead, factors such as involvement in farm management, a good understanding of the farm's situation, and strong social identification with farming fostered through family and social ties to agriculture, were more influential in promoting the entry of young farmers.[172] To improve the impact of these payment schemes, complementary actions are needed to facilitate young farmers' integration into the farm business, promote more positive perceptions of farming as an occupation, and strengthen the integration of young people into farm communities.[172]

Support for modernization and the use of modern farming technologies can help overturn perceptions of farming as a lower-status occupation and attract young people to the sector. In Ireland, for example, the uptake of innovative practices improved farm viability and encouraged the next generation of young farmers to consider farming as a long-term occupation.[173] Similarly, in Spain, lack of modernization was identified as a key barrier to generational change in the sector.[174] The promotion of technological advancement among both older and younger farmers thus has the potential to both attract and maintain young people in agriculture.[175]

Additionally, the development of niche and specialty markets (e.g. organic and direct marketing systems) and farm diversification (including agrotourism) both contribute to driving young people's entry into agriculture.[173,176,177] These farming systems can help boost economic returns and reduce the uncertainty of agricultural livelihoods, while also aligning with social and environmental concerns held by many young farmers.[32,175]

In labour-scarce settings, agrifood systems increasingly rely on migrant workers, including youth, to address labour shortages, particularly where labour-intensive crops and food processing and distribution are concerned.[178] Bilateral Labour Migration Agreements (BLMAs) and Seasonal Migration Schemes facilitate the mobility of agricultural workers,[179] and have been adopted in several countries,[180, 181] including the United States of America,[182] Canada,[183] Australia,[184] New Zealand,[185] the Republic of Korea[186] and the European Union.[187] While evidence on their impact is scarce, New Zealand's Recognised Seasonal Employer scheme has shown positive impacts. The scheme aims at easing labour shortages in horticulture and viticulture by accepting foreign workers, in particular from Pacific countries.[185] The programme has increased incomes and consumption among households in countries of origin, with other notable impacts including a rise in school attendance rates by 20 percentage points for 16–18 year olds in Tonga.[188]

ENHANCING YOUTH SKILLS

Knowledge and skills profoundly influence the nature of youth engagement in agrifood systems and determine their potential contributions to agrifood systems transformation. Improved skills levels expand youth employability, boost earning potential, facilitate entrepreneurship and improve productivity – whether in farming or off-farm activities.[8,154] Skilled youth are also better positioned to access vital resources such as land, credit and technology, enhancing their competitiveness while fostering valuable networks to share knowledge and influence policy.[189, 190] Entrepreneurship thrives when young people possess specialized skills to innovate, develop new products in response to changing consumer demands and ultimately stimulate local economies. [191–193] As the agricultural sector contends with technological changes, shifting markets and environmental concerns, having a skilled workforce is pivotal to sustaining food security and economic stability.

Reflecting this priority, skills development dominates youth-focused labour market programmes,[194,195] representing more than half of interventions in a recent large-scale meta-analysis of youth-focused active labour market interventions.[194,196] Lessons from these programmes points to some design elements, successful methods, and areas of investment for delivering skills and training and enhancing education in rural areas or among agrifood system workers.

ENHANCE SKILLS TRAINING THROUGH PRACTICAL, CONTEXT-RELEVANT AND MARKET-ALIGNED APPROACHES

Programmes aimed at building youth-relevant skills for agrifood systems vary considerably in their content, duration, delivery methods and target population. Their focus can range from technical agricultural knowledge to business acumen and soft skills, with training lengths spanning brief workshops to multi-month courses.[195,197] Delivery methods include in-person sessions, online courses and hands-on learning, often supplemented by mentorship. Some programmes are integrated into formal education at both the secondary and tertiary levels,[148,198] and may target a wide array of youth groups (e.g. rural and urban youth, young women or marginalized communities), sometimes incorporating additional services like financing or market access to overcome broader barriers.[199]

The effectiveness of these skills training programmes varies significantly according to their design and implementation, the local context and the specific needs of participants. Although a complete understanding of what works best across different settings and objectives is still evolving, certain design features consistently emerge in successful initiatives. First, programmes that combine various skill sets with complementary support services such as mentorship, market linkages and access to resources tend to deliver better employment outcomes.[9,148,200] Such a comprehensive perspective fosters a deeper appreciation of how different components of agrifood systems intersect, empowering youth to either create their own opportunities or seek employment in existing ventures.[194,195]

Second, programmatic models that emphasize hands-on, practical activities – such as internships, apprenticeships, fieldwork and project-based tasks – allow young participants to apply their newly acquired skills in real-world conditions and improve their employability.[154,201,202] These experiential learning processes reinforce theoretical understanding, bolster confidence and facilitate networking with professionals, all of which are essential for sustained career growth. To further address challenges with skills mismatch (see Chapter 3), the literature emphasizes the importance of strengthening linkages between youth skills development programmes and employers. Such collaborations can help identify

concrete skill gaps[201] and ensure that these insights are systematically fed back into education and training systems to make them more responsive to labour market demands.

Third, initiatives that tailor their content and structure to a specific economic and social environment are better positioned to succeed.[28, 159] In regions with high demand for particular skills, targeted training can result in measurable improvements in labour outcomes, whereas in areas with limited opportunities or mismatched training, the impact may be negligible.[203] Furthermore, programmes that address intersectional factors, such as gender, socioeconomic background and cultural context, are more likely to engage participants effectively.[194] By ensuring that training aligns with local market needs and addresses the realities of target youth populations, such interventions increase the likelihood of positive employment outcomes and, consequently, contribute to wider economic advancement.[194]

In addition, peer-to-peer approaches in agrifood systems-related training can enhance the effectiveness of skills development and complement more formal training programmes or extension services, while helping to building social capital and youth agency. Such approaches leverage social learning and peer influence,[160] demonstrably improve the overall performance of agripreneurship initiatives,[159] and are among the most appreciated components by youth within entrepreneurship initiatives supported in multiple countries.[149, 204]

STRENGTHEN EDUCATION IN AGRIFOOD SYSTEMS

Substantial and long-term public investments in education are needed to ensure equitable access to high-quality learning, to enable the development of skills demanded by rapidly changing agrifood systems. Such investments should prioritize the modernization of educational curricula to reflect current labour market conditions and the specialized competencies required in agrifood systems. This is particularly important in lower-income countries, where youth populations are large and agrifood systems constitute a key economic pillar.[209] Given the lack of access to secondary education in less transitioned agrifood systems and in rural areas, as highlighted in Chapter 3, incorporating agrifood systems-relevant skills early, ideally at the primary school level, can expose students to practical agrifood systems-related knowledge. For example, in Mozambique, Junior Farmer Field and Life Schools have successfully integrated farming and life skills into the primary school curriculum.[210] Such early exposure to agrifood system-related knowledge has been shown to spark children's interest in agrifood systems careers and contribute to nurturing a generation of well-informed, skilled practitioners.[204]

Much employment across agrifood systems roles relies on foundational literacy, numeracy and problem-solving abilities, which could be acquired without a university education.[211] Nevertheless, investments at the university level are vital for spurring innovation and productivity, and increasing the supply of researchers, practitioners and trainers, who may directly train youth and shape the quality of training that young people receive. Agricultural universities play a pivotal role in the research and development of improved breeding methods, agronomic practices and cutting-edge food technologies. In the United States of America, for instance, land-grant universities have historically driven major breakthroughs in agricultural productivity while developing a skilled workforce to power the agrifoods industry.[212] Universities are also increasingly driving digital innovation in agriculture by providing young entrepreneurs with tools, mentorship and platforms. In India, universities have launched digital agriculture R&D programmes, incubating startups like *HarSar farmAR*, which provides an immersive virtual farm experience. Similarly, Rwanda's *kLab* innovation hub supports youth-led, ICT-driven agricultural solutions by connecting young entrepreneurs with farmers to address real-world agricultural challenges.[154,213] Similar investments are needed elsewhere to nurture a critical mass of innovators who can design sustainable solutions for the pressing challenges facing agrifood systems.

While long-term investment in education remains essential, immediate opportunities for engaging youth often come through expanded access to high-quality Technical and Vocational Education and Training (TVET) – formal education that provides practical skills and knowledge for specific trades and prepares individuals for the workforce through hands-on-training. However, the data on the impacts of TVET on employment outcomes is mixed. While TVET facilitates the school-to-work transition for youth, labour market outcomes over time are often higher for those with general education, even after accounting for individual characteristics.[214]

This is in part due to the generally low effectiveness of TVET systems, particularly in low- and middle-income countries.[214] Traditional TVET systems focus on equipping youth with specific technical skills to facilitate their entry into a particular occupation, but do not usually strengthen adaptability, job mobility or increased productivity over the life cycle, especially in contexts of rapid technological and economic change.[215, 216] Agricultural TVET programmes, in particular, have been criticized for an overly theoretical focus and insufficient emphasis on entrepreneurship and business skills.[217, 218] Moreover, TVET offerings in many developing countries, particularly in rural areas, are often underfunded, carry a stigma of being "less professional" or fail to align curricula with labour market needs.[27, 214, 219]

Addressing these gaps by updating TVET curricula to include cutting-edge agricultural and climate-smart practices – as well as the latest agribusiness technologies – could greatly improve job and self-employment prospects for low-skilled youth in agrifood systems.[214] A recent review shows that incorporating modern technologies, such as drones, GPS and AI-based platforms into educational modules at TVET institutions, alongside agricultural entrepreneurial skills training, significantly improved students' decision-making abilities and their readiness to pursue entrepreneurial opportunities in agriculture.[220]

EXPAND YOUTH ACCESS TO RURAL ADVISORY SERVICES AND AGRIBUSINESS TRAINING

Expanding skill training opportunities for youth, particularly those outside the formal education system, is essential for youth engagement in agrifood systems. Rural advisory services (RAS) provide information and support to producers and other economic participants in agrifood systems and play a key role in improving livelihoods and developing technical, organizational and management skills and practices.[221,222] These services, which include market information, financial guidance and agribusiness training are often provided by a variety of public, private, NGO and cooperative institutions.[223] To be effective, rural advisory services must be adapted to changing economic, social and environmental conditions, the demands of today's agrifood systems and the specific needs of youth.[224]

©VISIONTIME/MELANIE BOUTROS
IN CHISINAU, MOLDOVA, A TVET TRAINEE PRACTICES PRECISION IN A FOOD-PROCESSING WORKSHOP, ARRANGING EMPTY JARS ON A CONVEYOR BELT—AN EXAMPLE OF HOW HANDS-ON VOCATIONAL TRAINING OPENS NON-FARM AGRIFOOD CAREER PATHWAYS FOR YOUTH.

Agricultural policies are increasingly prioritizing youth involvement in extension services, both as beneficiaries and providers.[207] In Pakistan, engaging youth in extension and advisory services helped to disseminate knowledge and promote sustainable and climate-smart farming practices.[208] Similarly, innovative platforms like Shamba Shape Up in East Africa and Digital Green in India involve youth in producing television and community-led video content, which helps to overcome informational barriers to agricultural productivity.[205,206] Scaling these initiatives in ways that reflect young people's preferences, circumstances and evolving needs in modern agrifood systems could significantly expand youth engagement in agrifood systems.

The integration of ICTs has transformed the delivery of rural advisory services, particularly in sub-Saharan Africa.[225] Such services, which make use of mobile applications and digital platforms, often involve youth serving as village-based digital advisors and agricultural extension service providers. Digital platforms like *E-Vuna* and *MyAgro*, which actively engage with youth, have created employment opportunities for young people and strengthened rural advisory services, while making their advice more relevant and practical.[213] The provision of technical information via mobile phone has also been shown to improve yields and increase the adoption of agricultural practices.[226] Nonetheless, challenges with the accessibility and affordability of digital technologies need to be addressed to make them inclusive of vulnerable youth groups and maximize their impact.[227, 163]

Agribusiness training programmes and incubation hubs have emerged as a potentially effective strategy among various labour market interventions.[228] These platforms encourage innovation by helping youth to develop and test business ideas within a supportive environment, providing technical and business training, and linking youth to markets, resources and new technologies. Youth-centred incubators that supply resources, mentorship and networks have yielded significant gains in skills, income and job creation.[199,230] Furthermore, research in this field highlights the greater impacts of approaches that focus on personal initiative or action-oriented mindset change in agripreneurship training compared to traditional business training.[159, 229]

Yet, access to these kinds of opportunities remains limited, particularly for marginalized youth, due to geographical, financial and institutional barriers such as strict eligibility requirements. Strategically placed rural incubation

> "YOUTH-CENTERED INCUBATORS PROVIDING RESOURCES, MENTORSHIP, AND NETWORKS HAVE SIGNIFICANTLY BOOSTED SKILLS, INCOME, AND JOB CREATION.

hubs and intentional targeting of marginalized youth[231] coupled with reduced financial and structural barriers could help close the skills gap. Similarly, the adoption of a network approach leveraging and connecting existing service providers and institutions would favour youth access to an array of integrated services spanning extension, business advisory and finance. This incubation approach, known as "without walls", may prove a cost-efficient and sustainable solution.[231,232] Incorporating low-bandwidth digital approaches – such as mobile apps or online platforms for agribusiness courses and market information – can further enhance these efforts, especially for remote youth without sufficient digital access.[233]

While agribusiness training and incubators enhance entrepreneurial mindsets and skills, there is limited likelihood that youth beneficiaries will create viable enterprises immediately. Research shows that most successful job-creating businesses are led by those aged over 25, as younger individuals often face additional constraints in terms of experience, resources and networks.[25,26] In challenging economic contexts, youth may establish necessity-based ventures which are often prone to low productivity and limited growth.[26] As a result, programmes and policies need a broader scope, addressing financial, educational and regulatory hurdles instead of simply encouraging entrepreneurship. Long-term incubator programmes offering sustained capacity building, mentorship and technical training, and startup financial support yield positive effects on both employment and earnings.[25,199,148]

EXPANDING YOUTH ACCESS TO RESOURCES

Enhancing youth access to essential productive resources such as land, finance and digital technology, as well as markets, is crucial for their meaningful participation in agrifood systems. As discussed in Chapter 3, rural youth encounter a range of structural, financial, legal and social barriers that hinder their ability to access these vital resources. Improving young people's access to productive resources requires a combination of targeted interventions that address these constraints. A number of promising approaches and areas of investment effectively enhance access to various resources and improve youth engagement and outcomes in agrifood systems.

ADDRESS YOUTH RESOURCE ACCESS CONSTRAINTS USING AN INTEGRATED APPROACH

Evidence suggests that resource access interventions targeting youth combined with other types of support achieve better effects than resource access alone.[234,238] For example, financial exclusion should be addressed in combination with other forms of asset and resource gaps affecting youth. Common approaches combine skills training with access to finance and/or agricultural inputs.[234–236, 239] One programme in India offered training in agricultural practices to rural youth not in education, employment or training (NEET). Upon completion, participants received agricultural inputs (animal feed and poultry chicks) that enabled them to launch or improve their agribusinesses. This intervention led to increased job creation and reduced distress migration.[234]

A recent World Bank study confirms that well-designed economic inclusion programmes can yield considerable benefits for vulnerable or more disadvantaged populations, including youth.[240] However, scaling such integrated programmes often demands significant investment, with several of the most successful resource-access initiatives embedded in national government-led programmes.[235,239,237] Scaling-up also requires changes in how market systems work, so that youth can benefit from more accessible business models. However, market-based approaches to improving youth resource access require careful design, as the pursuit of higher profitability can lead to unintended consequences for vulnerable or more disadvantaged groups. For example, in Mozambique, a project that partnered with the private sector to enhance access to certified seeds inadvertently intensified land competition, resulting in the consolidation of land control among household heads while marginalizing women and perpetuating the exclusion of youth.[241] Ignoring how markets function and the potential distortions that interventions can generate can be counterproductive. In a case in Uganda, an initiative that offered agricultural input subsidies to youth faced high demand, straining market supply and creating market tensions.[242]

PROMOTE INCLUSIVE POLICIES THAT ADDRESS RESOURCE GAPS

Promising resource access interventions are often rooted in policies that explicitly recognize and prioritize the needs of youth and other vulnerable groups. These include redistributive reforms aimed at redressing power and resource imbalances between

older and younger generations without compromising the legitimate needs of the elderly.[163, 243]

Issues related to land titling and secure tenure rights highlight the central role of national policies in supporting youth engagement in the sector. A recent study from the United Republic of Tanzania found that land titling and inclusive reforms introduced since the 1990s have encouraged greater youth involvement in agriculture.[244] Additional research highlights the importance of facilitating farm succession as a key to youth entry into farming while simultaneously addressing persisting gender-discriminatory social norms favouring male-line succession.[245] An assessment in Ethiopia documented land formalization programmes that integrate gender- and age-sensitive parameters to protect intra-household rights and foster inclusive access to land that benefits youth.[249] Nonetheless, the possible pitfalls of land formalization initiatives seeking to improve the land rights of youth and other vulnerable groups should be considered in each given context, given the ample evidence[246–248] of the potential risk of increased conflict between different stakeholders, including individuals within communities.

Other important mechanisms for facilitating access to agricultural land for young people – particularly those from households with little or no land – include the development of land rental markets, the rehabilitation of abandoned plots, and the allocation of unused communal or public land. Evidence from Ethiopia shows that rental markets have successfully facilitated land access for landless and near-landless youth. However, over 90 percent of the land rental contracts were established for sharecropping, reflecting young people's limited access to cash and the high perceived risks of agriculture.[250] Access to rental land is also essential in Europe, where agricultural land for purchase is often scarce and expensive.[251] Rental arrangements are often informal in nature which may increase precarity and disincentivize investment in land, limiting agricultural productivity over the long term.[251] These arrangements can also be exploitive if young people have few other options.[252] Young women are less likely to be able to access land through rental markets,[250, 251] pointing to the need for gender-responsive complementary interventions to overcome the barriers they face. Meanwhile, initiatives focused on the rehabilitation of abandoned land or the allocation of unused communal or public lands have facilitated youth access to land across diverse contexts, including in Burkina Faso, Egypt,[253] Ethiopia, Italy[254] and Mexico.

Governments must carefully consider how agricultural and other policies affect the rights and interests of young people and future generations. For example, land reforms have historically excluded women and youth.[253] Additionally, agricultural policies such as subsidies can reduce farmers' incentives to transfer land either through sales of bequests.[251] Inadequate old-age social protection benefits among agricultural populations can further reduce intergenerational transfers of land.[256, 257]

When governments integrate and mainstream youth considerations into national agricultural policies, they can directly address youth-specific challenges and support more equitable access to productive resources for inclusive agrifood systems.[243] Indeed, many global,[258–261] regional[262, 263] and national policies mainstream youth as a target demographic. FAO's analysis of 82 countries indicates that the majority of national agricultural strategies reviewed (71 percent) incorporate youth into their objectives, activities and performance indicators (see Box 7.2). However, to ensure that policies genuinely facilitate equitable resource access, national governments must not only endorse policies but also demonstrate a commitment to effective implementation. This includes providing education and awareness around rights to resources, which can empower youth to navigate and advocate for their rights effectively.

LEVERAGE COLLECTIVE ACTION TO EXPAND RESOURCE ACCESS

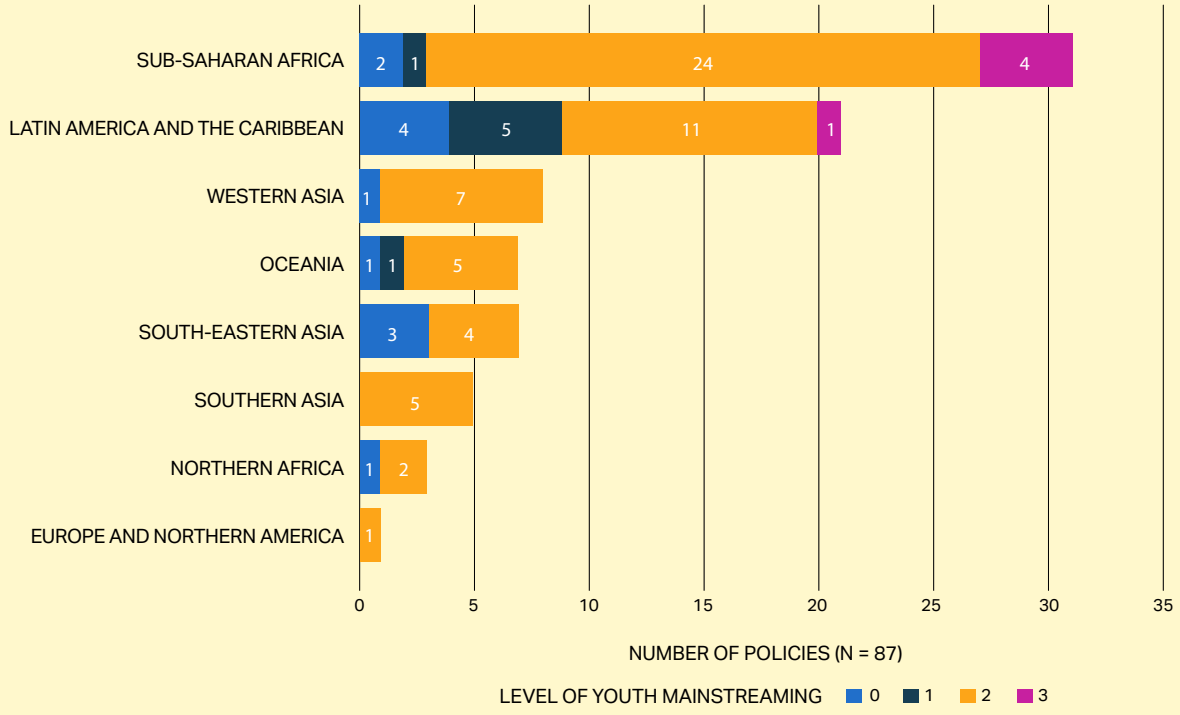
Collective action can enhance youth access to resources.[264] Beyond economic and financial benefits, cooperatives provide essential services that support youth, including informal emergency funds, savings and credit programmes, and risk-sharing mechanisms. Youth organizations can strengthen collective agency and engage in lobbying the government to safeguard young people's land rights,[254] for example by establishing youth quotas in land management institutions to amplify young people's voice and influence in decisions that affect their future access to land.[254] Additionally, facilitating access to financial resources, such as low-interest loans and grants, will enable these cooperatives to offer critical services such as emergency funds

BOX 7.2 YOUTH MAINSTREAMING IN NATIONAL AGRICULTURAL POLICIES

FAO's analysis of agricultural policies and strategies shows that youth are relatively well-integrated as a target group into most policies. The policies analysed were drawn from the FAOLEX Database and the FAO Decent Rural Employment (DRE) Policy Database.[i] Out of 116 countries with available policy documents, 87 written in English, French, Portuguese and Spanish, from 82 lower-income countries, were retained for analysis.

The selected policies were ranked using a four-point scale (0–3) in accordance with their level of youth mainstreaming. Level 0 indicated that youth were either not mentioned or referenced only once or twice in relation to minor activities. Level 1 policies recognized youth as a target or priority group, but without specific results, indicators, or activities. Level 2 policies included youth-specific results, activities and/or indicators, demonstrating a more focused approach to addressing youth issues. Level 3 represents the highest level of youth mainstreaming, going beyond Level 2 criteria to include dedicated strategies for youth in agriculture or agribusiness. While this focus on policy formulation excludes any assessment of implementation – a possible limitation – the policy discourse is a good indicator of government commitments towards youth.

FIGURE A. YOUTH INTEGRATION IN AGRICULTURAL POLICIES SHOWS REGIONAL VARIATIONS



Source: Author's own elaboration.

BOX 7.2 YOUTH MAINSTREAMING IN NATIONAL AGRICULTURAL POLICIES

Most countries (71 percent) were categorized as level 2, indicating meaningful mainstreaming of youth through specific activities and outcomes. About 6 percent achieved a level 3 classification, having a dedicated policy for youth in agriculture, along with well-integrated youth aspirations and concerns in broader policies. Conversely, 13 percent of countries were assessed as level 0, indicating either minimal or no mention of youth.

Regional variations exist in the level of youth mainstreaming. Generally, youth mainstreaming was strongest in Africa, probably as a reflection of long-term regional commitments on youth. The starting point was the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, which made a concrete commitment "to create job opportunities for at least 30 percent of the youth in agricultural value chains". More recently, the 2022 African Agribusiness Youth Strategy urged countries to integrate specific elements on youth agribusiness building into existing agriculture and/or youth policies.[ii] Countries such as Kenya, Rwanda, Uganda and the United Republic of Tanzania are notable for their youth-specific strategies and high levels of youth mainstreaming in policy. Outside Africa, a few countries such as Fiji and Jamaica have also established dedicated strategies targeting youth integration in agriculture.

In comparison, youth integration is less evident or explicit in agricultural policies for Southeast Asia and Latin America and the Caribbean. In both regions, multiple countries fall into the level 0 category, although in some cases ministries of agriculture have begun to develop rural youth policies. A more mixed level of integration was found in other regions, such as the rest of Asia and Oceania.

A more granular analysis focused on African countries revealed that some policy areas are still overlooked. These areas include youth-friendly enabling environments (integrating youth participation and rights) as well as innovation. In comparison, aspects relating to livelihoods, access to resources, skills, entrepreneurship, TVET and financial literacy are more commonly addressed. Areas never covered include formalization, job matching, occupational safety and health, intergenerational transfer of land and succession planning, youth engagement in public procurement, digital connectivity dimensions and data protection. Areas very rarely covered include youth rights, diversity and representation in policy making, labour rights violations, labour laws and wages, mentorship and peer-to-peer approaches, youth-led research, soft skills and leadership, youth-centred social protection interventions, education programmes, data collection to enhance the reflection of youth needs and intra-generational transfer of knowledge including Indigenous knowledge.

Notes: Refer to the Notes section for full citations.

and savings programmes.[264] Cooperatives also facilitate access to vital resources such as retailers, health services, transportation and digital tools.[265–267] Participation in these organizations enables youth members to influence the types of services offered and the terms under which they are provided, and fosters a sense of belonging and community.[265–267] Capacity-building programmes focusing on cooperative management and financial literacy can also boost the collective power of youth-oriented cooperatives. By encouraging partnerships between cooperatives and service providers, policymakers can ensure that these organizations effectively tackle the unique challenges faced by rural youth, ultimately contributing to their empowerment and resilience.

© FAO/STUART TIBAWESWA IN MUKONO, UGANDA, SIMON WAMBEDDE HARVESTS MULBERRY LEAVES FROM HIS THREE-ACRE PLANTATION TO FEED SILKWORMS,

HARNESS DIGITAL TECHNOLOGIES TO ACCELERATE PROGRESS

Agrifood systems present diverse opportunities to leverage digital technologies to create jobs and make agrifood systems more appealing to youth.[268, 269] Several proven strategies and models have successfully increased youth participation in digital agriculture.

Mobile technology has become a key enabler of digital solutions, integrating financial and non-financial services for young farmers. In sub-Saharan Africa, over half of the Digitalization for Agriculture (D4Ag) platforms[k] bundle multiple services like market access and financial tools into scalable digital ecosystems.[270] Research shows that bundled services within one-stop digital marketplaces are the most effective FinTech solution for young agripreneurs, increasing efficiency and reducing costs.[270] As an example, *Agrikore*, a blockchain-powered e-commerce platform, developed by *Cellulant*, links farmers, processors, traders and logistics companies in ways that ensure transparency, trust and efficiency in agricultural transactions.[271]

Youth-led FinTech startups are also improving access finance by offering digital credit, insurance and investment solutions tailored to young farmers and agriprenuers. *FarmCrowdy*, a youth-led Nigerian-based crowdfunding platform, enables individuals to invest in crop and livestock production cycles and has expanded into input and equipment financing, digital insurance and market aggregation services. It also identifies and trains young entrepreneurs to manage tech-enabled farm product aggregation[272, 273] Similarly, *ThriveAgic* provides youth-friendly financial solutions such as loans backed by digital collateral and weather-indexed crop insurance, aligning repayment with agricultural cash flow cycles, allowing farmers to repay loans post-harvest.[272]

k Digitalization for agriculture (D4Ag) platforms integrate digital technologies, innovations and data to enhance productivity, market access, financial inclusion and sustainability of agricultural value chains. It includes tools and services such as mobile applications, digital advisory services, e-commerce platforms, precision farming technologies and data analytics.

WAY FORWARD TOWARDS YOUTH-INCLUSIVE AGRIFOOD SYSTEMS

Youth-inclusive agrifood systems that provide decent jobs, healthy diets and food security, while bolstering resilience, are both achievable and vital to addressing the challenges faced by today's young people. Realizing this vision, however, requires robust commitments from diverse stakeholders and a multifaceted approach across research, policy and investment tailored to the varying contexts in which youth live. This report has provided a comprehensive assessment of the evidence to date on youth engagement in agrifood systems and highlighted key approaches and areas of investment that improve youth engagement and outcomes in agrifood systems. While acknowledging the progress made, more is needed to sustain and scale the impacts of ongoing efforts towards youth-inclusive agrifood systems. Specifically, there is a need to inquire more, include more, and invest more:

> **"YOUTH-INCLUSIVE AGRIFOOD TRANSFORMATION DEMANDS STRONG STAKEHOLDER COMMITMENTS, ROBUST EVIDENCE, INCLUSIVE VOICES, AND TARGETED INVESTMENT.**

- Inquire more means bridging knowledge and data gaps and strengthening the evidence for youth inclusive agrifood systems.
- Include more means amplifying the voices of diverse youth in policy and decision-making processes to ensure that agrifood systems transformation reflects their needs and realities.
- Invest more means driving structural change and targeted investments to expand economic opportunities for youth and empower them to fully participate in and benefit from agrifood systems transformation.

INQUIRE MORE – STRENGTHENING EVIDENCE FOR YOUTH-INCLUSIVE AGRIFOOD SYSTEMS

Youth challenges in agrifood systems are complex, dynamic and deeply rooted in structural and sociocultural factors that vary across context.[274, 275] Hence, it is essential for policies and programmes to be evidence-based, adaptive and responsive to youth realities. However, despite progress in recent decades, critical data and research gaps persist, limiting effective youth-focused interventions.

To bridge this gap, there is a need for more systematic data collection and actionable research to capture youth realities in agrifood systems, including their employment status, working conditions, food security and nutritional intake, and access to services, assets and social protection. While initiatives such as the Living Standard Measurement Study (LSMS)[276] have improved age-disaggregated data, coverage remains limited, especially for marginalized youth, including Indigenous youth, migrants and persons with disability, as well as for under-represented agrifood systems sub-sectors like fisheries and forestry. Moreover, the tendency of these surveys to focus on heads of households, most of whom are not young, limits their usefulness for youth-focused analysis. Longitudinal data necessary to identify causal drivers of change are relatively scarce. Expanding these efforts to a broad range of countries and youth subgroups is therefore crucial for informed policymaking. The existence of varying age-based definitions of youth[262, 277] poses an additional challenge for data comparability and interpretation. Similarly, while digitally enabled agricultural services are extensively documented,[278] high-quality empirical data on the actual adoption and outcomes are limited, leaving significant gaps in the understanding of how digital solutions impact youth engagement.

Beyond data, research on policy and programme effectiveness is lacking. Most evaluations of agrifood policies focus on public expenditures[279] rather than youth-specific impacts,[280] and cost-effectiveness analyses of interventions are rare.[201] Additionally, a key step in advancing broad-based productivity is to invest in R&D and robust extension systems that enable a two-way flow of information between researchers and agrifood systems' end users. By generating context-specific knowledge, developing innovative technologies and ensuring their effective dissemination, these initiatives can address a spectrum of challenges – including climate-related threats – while boosting productivity across diverse local settings.[16, 17] Additionally, policies and strategies often bridge adolescence to women of reproductive age, including youth, but only rarely tailor interventions specifically for them. Lastly, ensuring healthy diets within agrifood systems transformation requires better data on youth dietary patterns to inform policies and strategies.

To drive meaningful change, youth-specific policy monitoring and evaluation mechanisms need to be established. Closing data and research gaps will enable the development of evidence-driven policies and the scaling up of successful models to improve youth livelihoods in agrifood systems.

INCLUDE MORE – INVOLVING YOUTH IN POLICYMAKING

Young people are the ultimate experts of their own reality, and their voices must be more actively integrated into policymaking to ensure that policies and programmes reflect their needs and lived experiences. Moving beyond tokenism, youth inclusion requires policies and governance structures that are developed with youth, not just for them.

As discussed in Box 7.2, significant progress has been made in mainstreaming youth in agricultural policies. Yet, major gaps remain related to policy implementation coherence and diversification to address the heterogeneity of youth. Ensuring meaningful youth inclusion demands stronger policy implementation and coherence across sectors, including social protection, financial inclusion, land tenure, employment, education, innovation and climate change. Governments must not only endorse youth-inclusive policies and recommendations that emerge from youth consultative processes but also commit to their effective implementation. Globally, millions of youth work in agrifood systems under unsafe conditions with little to no labour protection and social security. Strengthening legal frameworks to uphold youth labour rights and occupational safety standards to ensure decent employment is crucial. Finally, policies must uphold the human rights of all young people, align with global human rights frameworks, and ensure equity regardless of gender, socioeconomic status or background.[102]

Additionally, institutions that include and work with youth must actively engage with them as partners, equipping them with the necessary resources, skills and structured platforms to shape decision-making processes. Strengthening youth organizations and networks, establishing youth advisory councils and funding youth leadership programmes can provide critical avenues for young people to express their concerns, contribute solutions and influence policy directions. Social media platforms also provide an effective means to reach and mobilize young people, promote their collaboration and amplify their voice, ensuring their input is both

solicited and integrated into interventions. Amplifying youth voices, strengthening policy coherence and implementation, and fostering inclusive dialogue will create more responsive, dynamic and equitable agrifood systems that young people have the opportunities and agency to shape and benefit from.

INVEST MORE – SAFEGUARDING THE FUTURE OF YOUTH AND AGRIFOOD SYSTEMS

The future of agrifood systems and youth depends on the investments and policy actions made today. To thrive, young people need to be well-nourished, well-educated, gainfully employed in decent jobs and resilient to shocks. However, as this report reveals, significant deficits persist, requiring targeted investments across multiple domains to unlock youth potential and ensure the long-term sustainability of agrifood systems.

First, youth is a critical period for physical and cognitive development, making investments in human capital, including nutrition, education and skills training, essential for their long-term success and productivity.[281, 282] Food insecurity, malnutrition and limited access to quality education continue to hinder youth productivity and earning potential.[283] Expanding nutrition programmes alongside improving access to quality, market-driven education and training in both the formal and informal sectors will not only ensure that youth are healthier, but also prepare them for entrepreneurship and employment.[8] Investments could prioritize scaling up promising models such as rural advisory services, agribusiness incubation, Agricultural Technical and Vocational Education and Training; integrating agrifood system topics into school curricula; and promoting experiential learning through apprenticeships and mentorships.[214]

Second, dynamic and inclusive agrifood systems hinge on investments that improve market access and enhance productivity. It is of critical importance to invest in dynamic agrifood system businesses on and off-farm with the greatest potential for young people's decent employment. Connectivity remains another critical challenge. While most rural youth live in areas with relatively good agricultural potential, inadequate infrastructure – both physical and digital – limits their market participation and mobility within and beyond national boundaries (Chapter 2). The growing importance of spatial connectivity and functional territories, where households live, work, belong and maintain ties across multiple locations, highlights the role of youth migration, including temporary and seasonal movements. Small towns and intermediary cities, particularly in Africa and Asia, have emerged as key hubs that integrate rural and urban livelihoods, providing essential services and employment opportunities. These centres enable youthful and mobile workforce to access opportunities in agrifood system across multiple locations while strengthening rural-urban linkages.[284–286] Targeted investments in roads, energy, storage facilities and digital infrastructure can enhance market connectivity and create new economic opportunities.[3, 5, 179, 284, 285, 287, 288] Promoting digital literacy and fostering youth-led agritech innovations are also proven pathways for young people to participate in agrifood systems in transformative ways. Additionally, promoting safe and legal pathways for international migration, including through rights-based Bilateral Labour Migration Agreements and seasonal migration schemes, can help align labour supply with demand in areas facing shortages or surpluses.[3, 5, 179, 284, 285, 287, 288]

Third, persistent barriers in accessing productive resources such as land, finance and technology continue to constrain youth participation in agrifood enterprises.[8,9,289] Fostering greater youth engagement demands investments in youth-friendly financial products, including grants, loans and blended finance models that lower collateral requirements and provide flexible repayment terms. Complementary initiatives such as expanded financial literacy programmes and support for youth savings and credit associations can enhance financial inclusion. Secure access to land is also a paramount concern (Chapter 3). Policies that facilitate youth land access such as land tenure reforms, rental markets and co-ownership schemes are necessary to overcome structural barriers related to inheritance norms and land fragmentation.[250, 290] Additionally, providing affordable access to mechanization and other productivity-enhancing technologies can incentivize youth to remain in, or return to, farming and agribusiness, thus spurring innovation and growth in agrifood systems.[291, 292]

Finally, climate change poses a growing threat to the livelihoods of young people in agrifood systems. An estimated 395 million rural youth live in areas where climate change is projected to depress agricultural

productivity (Chapter 2). Without targeted adaptation strategies, these shifts could jeopardize economic prospects for a generation of young people. Targeted investments in climate-smart and sustainable agricultural practices can build resilience and create sustainable employment opportunities.[122] Funding youth-led initiatives in climate innovation, providing incentives for sustainable farming and expanding access to climate risk insurance will further enhance youth resilience. Social protection measures, including cash transfers, unemployment benefits and skills retraining programmes, will be critical for safeguarding youth economic security, particularly in climate-affected areas.[125, 126] Migration policies that support youth mobility while ensuring fair labour conditions can also provide alternative livelihood pathways for young people facing climate-induced displacement.

Investing in youth today secures the future of agrifood systems. By prioritizing human capital development, infrastructure and decent employment, equitable resource access and climate resilience, policymakers and stakeholders can nurture more inclusive and dynamic agrifood systems that provide meaningful opportunities for youth while ensuring long-term food security and economic prosperity. The potential gains are substantial. Using the data on youth employment shares in agrifood systems presented in Chapter 4 and ILO's estimates of the shares of youth outside the labour force, FAO conservatively estimates that eliminating youth unemployment and integrating NEET youth aged 20–24 into the workforce could boost global gross domestic product (GDP) by 1.4 percent – equivalent to USD 1.5 trillion. Agrifood systems alone would generate 87 million of these jobs, contributing about 45 percent of the estimated GDP growth (USD 680 billion) (see Appendix 4). Promoting youth engagement in agrifood systems is not only a moral imperative but also a strategic investment in global prosperity.

> **"YOUTH INCLUSION FOSTERS GLOBAL PROSPERITY. INTEGRATING UNEMPLOYED AND NEET YOUTH AGED 20-24 INTO THE WORKFORCE COULD RAISE GLOBAL GDP BY USD 1.5 TRILLION, WITH AGRIFOOD SYSTEMS CONTRIBUTING USD 680 BILLION.**

©VISIONTIME/MELINDA TORES AT THE CENTRAL DE ABASTOS WHOLESALE MARKET IN BOGOTÁ, COLOMBIA, A YOUNG TECHNICIAN SCANS AND PACKS CRATES OF MANGOES IN A COLD-STORAGE WAREHOUSE, SHOWCASING HOW YOUTH ARE POWERING THE POST-HARVEST SUPPLY CHAIN IN AGRIFOOD SYSTEMS.

YOUTH MOVE FOOD FORWARD

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IN JUBA, SOUTH SUDAN, A YOUNG FEMALE PASTORALIST STANDING AMONG HER CATTLE IN BEADKUEITH CATTLE CAMP ALONG THE JUBA-TEREKEKA ROAD.

NOTES, APPENDICES AND GLOSSARY

NOTES

CHAPTER 1

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CHAPTER 3

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CHAPTER 4

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CHAPTER 5

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CHAPTER 6

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CHAPTER 7

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BOXES AND SPOTLIGHTS

CHAPTER 1

BOX 1.1 | TRADE-OFFS IN AGRIFOOD SYSTEMS TRANSITIONS

i. **Marshall, Q., Fanzo, J., Barrett, C.B., Jones, A.D., Herforth, A. & McLaren, R.** 2021. Building a global food systems typology: A new tool for reducing complexity in food systems analysis. *Frontiers in Sustainable Food Systems*, 5. https://doi.org/10.3389/fsufs.2021.746512
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BOX 1.2 | YOUTH AGENCY

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CHAPTER 2

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CHAPTER 3

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CHAPTER 4

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APPENDIX 2

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8. **FAO.** 2022. *Investment guidelines for youth in agrifood systems in Africa*. Rome. https://doi.org/10.4060/cb9001en

© FAO/BELOUMOU OLOMO DANIEL IN YAOUNDÉ, CAMEROON, THÉRÈSE ANGOULA, COCOA FARMER, TURNS OVER COCOA BEANS IN A DRYER.

APPENDIX 1
AGRIFOOD SYSTEMS TYPOLOGY AND DEFINITION OF SPACES

AGRIFOOD SYSTEMS TYPOLOGY

This report adopts the agrifood systems typology developed for *The State of Food and Agriculture 2024*.[1,2] Building on the work of Marshall *et al.* (2021),[3] the typology uses four structural and functional indicators to characterize national agrifood systems:[1, 3]

1. *Value added per worker in agriculture, forestry and fisheries,* a measure of productivity associated with the stage of rural and structural transformation within a country and how effectively labour is utilized.

2. *Percentage of calories not derived from staples* (cereals, roots and tubers), which gauges dietary diversity and, by extension, food security and nutritional quality.

3. *Number of supermarkets per 100 000 people,* which highlights the role of modern retail in shaping food supply chains and consumer behaviour.

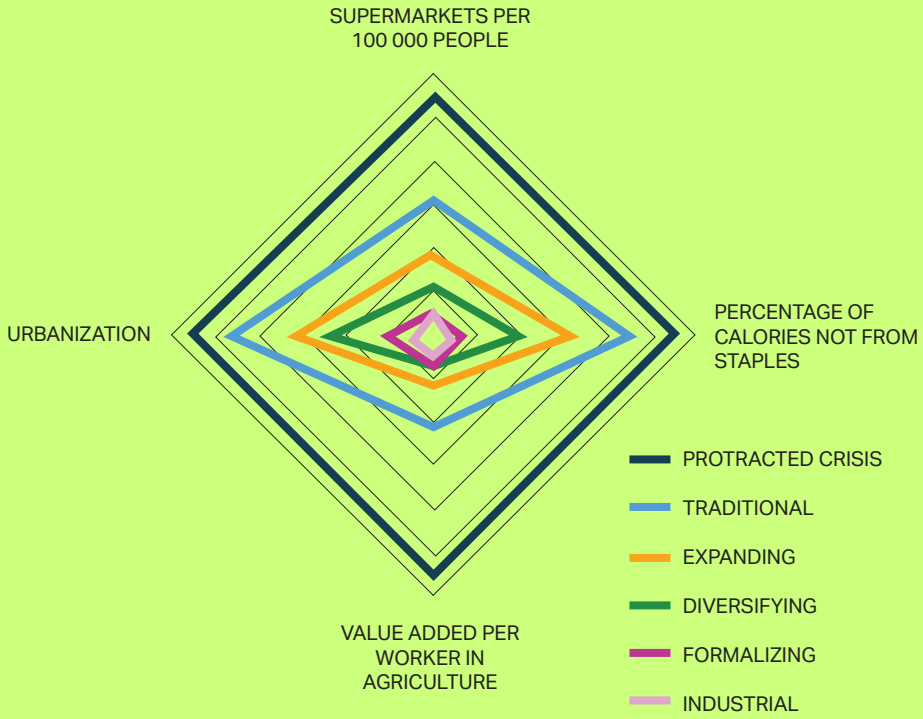
4. *Percentage of the population living in urban areas,* which serves as a proxy for how urbanization alters food environments.1, 3

Each country was ranked on these four variables, and their average ranking was used to calculate a composite index. Based on this index, countries were grouped into five equally sized categories that reflect different stages of agrifood systems transition: *traditional, expanding, diversifying, formalizing and industrial*.[2] A sixth category, *protracted crisis*, encompassing countries identified by FAO as being in protracted crisis as of September 2023, was added to capture the unique food security challenges of countries and territories caused by prolonged economic, climatic and political crises. Figure A1.1 presents a radar chart illustrating the variable rankings across the six agrifood systems categories.[2]

The agrifood systems typology aligns broadly with income levels but provides a more nuanced view. For instance, although most high-income countries fall into the industrial category, some are classified as formalizing or even diversifying. Likewise, lower-middle-income countries appear across all categories except industrial, including several countries in protracted crisis. The six agrifood systems categories do not imply a unidirectional progression from a "less desired" traditional state to a "fully desired" industrial state. Rather, they represent a snapshot of where countries are in agrifood systems transition, and each is associated with unique opportunities and challenges related to productivity, inclusivity, sustainability and resilience[3, 4] (see Chapter 1, Box 1.1 on the trade-offs associated with agrifood systems transition).

FIGURE A1.1

VARIABLE RANKINGS FOR THE AGRIFOOD SYSTEMS TYPOLOGY



Note: The values of the variables in the radar graphs are standardized between 0 and 1 for ease of presentation.

Source: Arslan *et al.* 2024. 2 A typology for agrifood systems. Background paper for The State of Food and Agriculture 2024. Rome, FAO. https://openknowledge.fao.org/server/api/core/bitstreams/9aa2f64e-f9b5-44f2-b6e7-dfb6eedbc7df/content

DEFINING RURAL AND URBAN SPACES

The meaning of "rural" varies across contexts. Researchers and policymakers often rely on administrative classifications that define rural spaces based on criteria such as population size, economic dependence on agriculture and natural resources, and geographic isolation.[5,6] However, this approach has two limitations. First, administrative definitions vary across countries, particularly in terms of population thresholds. What constitutes an "urban" area may range from 5 000 to 50 000 people, which complicates cross-country and regional comparisons of rural and urban statistics.[7] Second, these definitions tend to emphasize a strict urban–rural divide, which oversimplifies the relationship between urban and rural areas.[5] This dichotomy overlooks the growing interconnections between these spaces, driven in part by the transformation of agrifood systems, which are strengthening the social and economic linkages between rural and urban areas.[8, 9] Indeed, the rise of secondary cities, rural densification and the growth of rural towns are blurring the physical and conceptual boundaries between urban and rural spaces. A more fluid definition, viewing spaces along a continuum, can better capture these complexities.[9, 10]

To address the challenges of comparability and the increasingly intertwined nature of urban and rural areas, this chapter has adopted a high-resolution global geospatial method known as the Urban-Rural Catchment Area (URCA) approach to define rural spaces.[11] The

URCA framework defines spatial categories primarily by travel time to urban centres and the population size of those centres. Urban centres are first stratified into categories based on their population (from 20 000 to over 5 million).[11] There are 30 URCA categories in total, where category one represents the largest cities, and the last category corresponds to the most remote areas. Adapting an approach from Cattaneo *et al.*,[18] the first nine categories are grouped as "Urban", the next three as "Peri-urban", the following nine as "Peri-rural" and the final two as "Hinterland". These groupings reflect differences in infrastructure, employment prospects and access to essential services. For broader comparative analyses, these four categories are collapsed into a simpler distinction between "urban" and "rural" areas. This is done by denoting as "rural" those areas classified as *peri-urban*, *hinterlands* and *peri-rural*. This approach not only improves cross-national and regional comparability of demographic and socioeconomic data, it also recognizes the increasing interconnectedness of rural and urban areas.[9,10] By incorporating travel time, it goes beyond static administrative boundaries and basic population threshold to account for actual accessibility and the functional relationships forged through shared labour markets, food value chains and services.[11, 12]

ECONOMIC OPPORTUNITY SPACE AT THE SUB-NATIONAL LEVEL

The extent of rural transformation and the availability of economically viable opportunities for rural youth can vary significantly across different regions within a single country, shaped by biophysical and socioeconomic factors.[13, 14] In resource-based sectors such as crop and livestock production, the agroecology of an area including soil type, climate and altitude determines which types of commodities can be produced.[13, 15] Their economic viability is further shaped by marketability, which depends on proximity to markets, population centres and the quality of rural infrastructure.[13, 15] While agroecological zones provide insights into agricultural potential, effective market access is essential for assessing commercialization opportunities.[15] Together, these elements create localized "economic opportunity spaces" that define the potential opportunities and constraints facing rural youth, subject to the broader developmental status of their national economy.[14] This means that even in countries with limited economic development or under-transformed agrifood systems, favourable agroecological conditions and effective market access can foster viable opportunities for youth engagement in agrifood systems.[16]

To explore how these subnational "economic opportunity spaces" intersect with rural youth livelihoods – and how youth can engage with, benefit from or contribute to agrifood systems – this report builds on prior work by Wiggins and Proctor (2001)[15] and IFAD (2019)[12] to delineate opportunity spaces based on agricultural productivity and connectivity (commercialization) potential. Expanding upon this framework, the report utilizes alternative indicators to evaluate both aspects. Specifically, agricultural potential is assessed using a measure of land productivity potential derived from FAO's Global Agro-Ecological Zone (GAEZ) data.[17] This metric represents the maximum possible yield for specific crops under given agroclimatic, soil and terrain conditions, applying specific management assumptions and agronomic input. It employs an eco-physiological crop growth model that integrates soil moisture conditions along with other climatic factors, such as radiation and temperature, during various crop development stages to calculate potential biomass production and yield.[17] To exclude the influence of human-driven factors on productivity, the measure used here focuses on rainfed and low-input farming systems, ensuring its exogeneity with respect to human variables.[17] Using the potential agricultural productivity as a measure of agricultural potential offers several advantages: it provides a theoretical upper limit on yield, enables characterization of agricultural spaces on a global scale, including areas beyond cultivated land, and utilizes inputs that generate potential yields which change slowly over time, thus offering a broader temporal reference not restricted to specific years or production levels.

Connectivity (commercialization) potential rises with increasing connectivity to urban centres and their markets and is, hence, proxied by a connectivity index, which reflects a rural area's physical and virtual access to markets, services and employment opportunities. Physical connectivity is assessed by measuring travel time and distance to various cities, categorized by population size following the URCA approach serving as a proxy for market access.[18, 19] This dimension reflects how easily rural youth can reach urban centres to access critical inputs or markets for their products. Digital connectivity is assessed by examining the availability of communication technologies, ranging from advanced

5G networks to older 1G systems, as well as areas lacking coverage entirely. The analysis uses cell tower data from OpenCellID,[l] the largest global project for collecting GPS positions of cell towers, which provides a representative sample[m] of cell phone coverage.[20] To effectively integrate these two dimensions into a single metric, a principal component analysis was applied. This statistical technique allowed the complex data to be distilled into a more manageable form, using the first principal component as a proxy for total connectivity.[21] By integrating both physical and digital connectivity into a single metric, it is possible to better understand the overall accessibility of rural areas and the potential opportunities available to youth.

By capturing both agroecological capacity and market dimensions, this economic geography framework offers a more comprehensive perspective on the economic spaces in which rural youth operate, ultimately informing strategies that can support their engagement and success in transforming agrifood systems. To facilitate interpretation, agricultural potential and commercialization potential were categorized into three ordinal classes each: low, middle and high. This two-step classification procedure begins by removing outliers, defined as the lowest and highest 3 percent of observations. Excluding outliers only for threshold computation safeguards against extreme values skewing the classification. Next, the remaining data range were divided into three equal-length intervals, reflecting the intrinsic scale and variability of the index rather than its statistical distribution. Unlike a quantile-based approach, which divides observations into groups of equal frequency and may cluster values tightly around common occurrences, this method preserves the full range of possible values, offering a more intuitive sense of the relative magnitude, particularly as the data are not evenly distributed and contain significant clusters around certain ranges.

Combining these ordinal categories of agricultural and commercialization potential yields five broad economic opportunity spaces, each representing unique configurations of opportunities and challenges for rural youth (Figure A1.2). These categories range from *diverse and high opportunities (HAHC)*, characterized by strong agricultural productivity potential and the greatest connectivity, to areas designated as *low opportunities* (LALC) that showcase weak connectivity potential with low agricultural potential. Between the two extremes are three broad intermediate categories. Spaces offering *moderate opportunities* are defined by combinations of at most medium levels of agricultural potential and commercialization potential (Medium Agricultural potential with Low Connectivity (MALC), Low Agricultural potential with Medium Connectivity (LAMC), and Medium Agricultural potential with Medium Connectivity (MAMC)). Additionally, rural spaces with strong connectivity potential but limited agricultural potential (Low Agricultural and High Connectivity (LAHC) and Medium Agricultural potential and High Connectivity (MAHC)) are designated as *strong market opportunities zones*, while those with limited connectivity but strong agricultural potential (High Agricultural potential but Low Connectivity (HALC) and High Agricultural potential and Medium Connectivity (HAMC)) are delineated as offering *strong agricultural opportunities.*

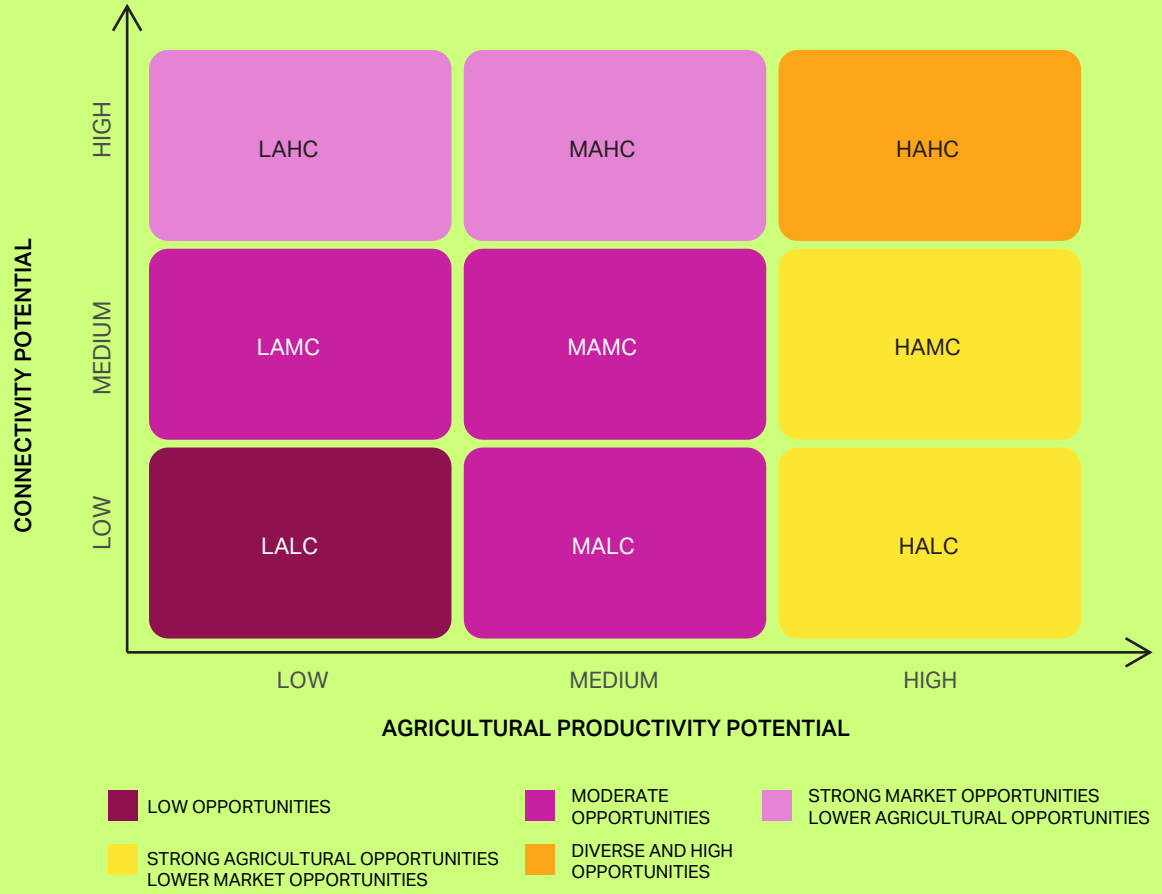
Each of these categories enables a granular understanding of the rural contexts in which rural youth live and work, enabling more tailored and context-sensitive interventions targeting critical constraints (e.g. inadequate infrastructure, low agricultural potential or insufficient digital connectivity) and promoting pathways that help youth thrive in agrifood systems.

l The OpenCellID database is an open-source initiative that provides a representative sample of mobile phone coverage and accessibility. It aggregates cell tower information from various telecommunication network providers, reflecting the coverage areas of each provider. Research has validated the accuracy of OpenCellID data in representing mobile phone coverage when compared to other sources.[20] For more information, visit https://opencellid.org.

m To ensure data quality, observations with fewer than 100 measurements and those with a range exceeding 10 km were excluded. Similarly, only one tower per location was retained when multiple towers were present.8, 9 The coverage area was calculated by creating buffer zones around each cell tower based on the provided range, allowing assessment of the total area covered and the intensity of the signal from overlapping ranges. For spatial analysis, cell towers were matched to a 55×55 km grid, employing a rolling spatial window of 10 km to count the number of towers within each grid cell and its surroundings.8 Finally, the coverage areas were rasterized, assigning a value of 1 to cells covered by any tower and 0 to those that were not, facilitating a comprehensive evaluation of cell tower coverage and signal intensity.8, 10

FIGURE A1.2

TYPOLOGY OF ECONOMIC OPPORTUNITY SPACES WHERE RURAL YOUTH LIVE



Source: Author's own elaboration.

APPENDIX 2 METHODOLOGY FOR GLOBAL ESTIMATES OF EMPLOYMENT IN AGRIFOOD SYSTEMS FOR YOUTH AND ADULTS

To provide the global estimates of employment in agrifood systems for youth and adults, this report adopted a definition developed by Davis *et al.*[1] This definition relies on employment data classified at the two-digit ISIC level to capture agrifood systems-related activities (see Table A2.1). Two ILO data series were used to derive age-disaggregated estimates of employment in agrifood systems:

1. Employment in agriculture by age (ILO modelled estimates, thousands | Annual)[2];
2. Employment by sex, age and economic activity (unpublished special tabulation, ISIC level 2, thousands | Annual).[3]

Agrifood systems employment is divided into agricultural employment and off-farm agrifood systems employment. Agricultural employment is estimated using ILO modelled data to ensure broader country-year coverage. Total agrifood systems employment is calculated as the sum of agricultural and off-farm agrifood systems employment.

To address missing data in off-farm agrifood systems estimates and enhance country-year coverage, a two-step approach was used:

1. **Linear interpolation:** Missing values between existing data points were estimated using linear trend interpolation, provided that at least two observations were available. This step helps to fill temporal gaps in the data, with the completeness of interpolated values illustrated in Figure A2.2.
2. **Econometric model:** For country-year pairs where gaps remained after interpolation, an econometric model was constructed to predict the share of youth in off-farm agrifood systems employment. This model incorporates economic conditions and demographic characteristics (Table A2.2). For countries with at least one observed data point, ordinary least squares (OLS) with country fixed effects were used; for countries with any observed data points, a fractional regression model was employed.

TABLE A2.1 AGRIFOOD SYSTEMS ACTIVITIES BASED ON THE UNITED NATIONS INTERNATIONAL STANDARD INDUSTRIAL CLASSIFICATION OF ALL ECONOMIC ACTIVITIES (ISIC) CODES

CATEGORIES	ISIC DIVISIONS	ISIC REV.4 2-DIGIT CODES
AGRICULTURE, FORESTRY AND FISHING	AGRICULTURE	01
	FORESTRY AND LOGGING	02
	FISHING	03
FOOD PROCESSING AND SERVICES	MANUFACTURE OF FOOD PRODUCTS	10
	MANUFACTURE OF BEVERAGES	11
	FOOD AND BEVERAGE SERVICE ACTIVITIES	56
	UNDIFFERENTIATED GOODS- AND SERVICES-PRODUCING ACTIVITIES OF PRIVATE HOUSEHOLDS FOR OWN USE	98
MANUFACTURE OF NON-FOOD AGRICULTURAL PRODUCTS	MANUFACTURE OF TOBACCO PRODUCTS	12
	MANUFACTURE OF TEXTILES	13
	MANUFACTURE OF LEATHER AND RELATED PRODUCTS	15
	MANUFACTURE OF WOOD AND OF PRODUCTS OF WOOD AND CORK, EXCEPT FURNITURE	16
	MANUFACTURE OF PAPER AND PAPER PRODUCTS	17
TRADE *Agrifood system share estimated	WHOLESALE TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES	46
	RETAIL TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES	47
TRANSPORTATION *Agrifood system share estimated	LAND TRANSPORT AND TRANSPORT VIA PIPELINES	49
	WATER TRANSPORT	50
	AIR TRANSPORT	51
	WAREHOUSING AND SUPPORT ACTIVITIES FOR TRANSPORTATION	52
	POSTAL AND COURIER ACTIVITIES	53

Note: The agrifood systems shares in total trade and transport are estimated using a methodology described in Davis, B., Mane, E., Gurbuzer, L.Y., Caivano, G., Piedrahita, N., Schneider, K., Azhar, N. et al. 2023. Estimating global and country-level employment in agrifood systems. FAO Statistics Working Paper Series, No. 23–34. Rome, FAO.

Source: Author's own elaboration.

TABLE A2.2 LIST OF VARIABLES

ECONOMIC CONDITIONS	GDP GROWTH	WORLD DEVELOPMENT INDICATORS
	GDP PER CAPITA	WORLD DEVELOPMENT INDICATORS
	AGRICULTURE, FORESTRY AND FISHING, VALUE ADDED	WORLD DEVELOPMENT INDICATORS
	MOBILE CELLULAR SUBSCRIPTIONS (PER 100 PEOPLE)	INTERNATIONAL TELECOMMUNICATIONS UNION
	INDIVIDUALS USING THE INTERNET (%)	INTERNATIONAL TELECOMMUNICATIONS UNION
	SHARE OF YOUTH WORKERS IN AGRICULTURE	ILO ESTIMATES BASED ON ILO MODELLED ESTIMATES, NOVEMBER 2023
	SHARE OF OFF-FARM AGRIFOOD SYSTEMS EMPLOYMENT IN TOTAL EMPLOYMENT	FAOSTAT AND ILO
DEMOGRAPHIC CHARACTERISTICS	SHARE OF YOUTH NOT IN EMPLOYMENT, EDUCATION OR TRAINING (NEET)	ILO MODELLED ESTIMATES
	SHARE OF YOUTH AMONG PEOPLE AGED 25–64	UNITED NATIONS POPULATION DIVISION
	SHARE OF YOUTH IN THE LABOUR FORCE	ILO MODELLED ESTIMATES
	RURAL POPULATION (% OF TOTAL POPULATION)	WORLD DEVELOPMENT INDICATORS

Source: Author's own elaboration.

TABLE A2.3 COMPARISON OF SUMMARY STATISTICS BETWEEN DEPENDENT VARIABLE AND PREDICTIONS FROM OLS REGRESSION

VARIABLE	NO. OBSERVATIONS	MEAN	STD. DEVIATION	MIN	MAX
SHARE OF YOUTH IN OFF-FARM AGRIFOOD SYSTEMS	1 296	0.182	0.071	0.014	0.491
PREDICTED VALUES OLS	1 746	0.184	0.064	0.054	0.439

Source: Author's own elaboration.

OLS MODEL FOR COUNTRIES WITH AT LEAST ONE DATA POINT

An OLS model was estimated with country and year fixed effects to control for unobserved heterogeneity. Country fixed effects account for time-invariant characteristics such as policies or cultural norms, while year fixed effects control for common macroeconomic shocks affecting all countries in a given year.

Although OLS does not restrict predictions to within a range of [0,1], the summary statistics (Table A2.3) show that all predicted values fall within this range. While fractional regression is typically preferred for modelling fractions due to its bounded nature, it does not allow for country fixed effects. Papke and Wooldridge[4] extended their 1996 fractional regression approach by incorporating the Mundlak[5] and Chamberlain[6] corrections to account for unobserved effects in panel data. However, this method requires a balanced panel, which limits its applicability for the present report. Therefore, an OLS with country fixed effects was adopted for countries with observed data.

The OLS regression is specified as follows:

$$y_{itf} = \beta_0 + \beta_1 X_{it} + \delta_i + \gamma_t + \mu_{it}$$

Where

$$y_{itf} = \frac{off-farm\ AFS_{ity}}{off-farm\ AFS_{ity} + off-farm\ AFS_{ita}};\ y_{itf} \in [0,1]$$

is the share of youth employed in off-farm agrifood systems out of all people employed in off-farm agrifood systems in country *i* in year *t*.

χ_{it} is the set of control variables mentioned above

γ_t refers to year fixed effects

δi refers to country fixed effects

Table A2.3 shows that the model performs reasonably well in predicting the share of youth in off-farm agrifood systems employment, as indicated by the close mean values, similar range, and variance between the observed data and the predicted values. Moreover, the distributions of the real and predicted values, depicted in Figure A2.1, show that the distribution behaves relatively well in comparison to the "real" data including around the mean and tails of the distribution.

FRACTIONAL MODEL FOR COUNTRIES WITHOUT ANY DATA

To estimate the share of youth in off-farm agrifood systems employment for countries without any data, a fractional regression model with a probit link function was used with dummy variables for the various subregions and agrifood systems typologies.

$$E(y_{it}|x_{it}, \gamma t, \delta_i) = \phi(x_{it}\beta, \gamma_t, \delta_i, \phi_i)$$

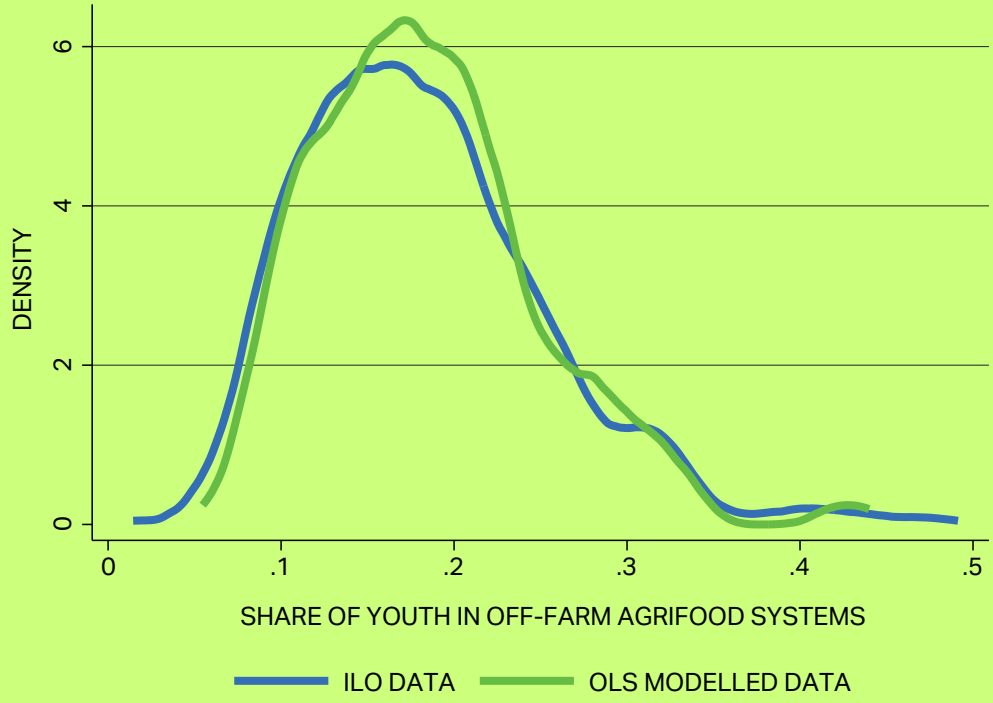
Where

δ_i reflects the subregional dummy variables

Φ_i reflects the agrifood system typologies

FIGURE A2.1

KERNEL DENSITY COMPARISON BETWEEN DEPENDENT VARIABLE AND PREDICTIONS FROM OLS REGRESSION



Source: Author's own elaboration.

To assess model performance, the fractional regression was compared to an OLS regression using an R squared-like measure based on squared errors, which is comparable to the R squared from OLS. Along with this R squared-like measure, for the in-sample assessment, a Mean Squared Error (MSE) was calculated using all observed data points to evaluate each model's fit with the existing data. The in-sample MSE provides an insight into how well the model captures patterns within the sample. To assess out-of-sample performance, the out-of-sample MSE was estimated by splitting the data into training and test sets. The model was run on the training dataset and the MSE was calculated based on the test set. The out-of-sample MSE reveals the model's predictive accuracy on unseen data. An estimation was also made of the out-of-sample R squared. Table A2.4 shows that the fraction model has higher in sample and out-of-sample R-squares and lower MSEs.

Figure A2.2 depicts the completeness of the panel after predicting $\hat{y}_{itf}$. After the various data imputation procedures, the final dataset comprised the share of youth in agrifood systems for 134 countries from 2005 to 2021, and a further 32 countries for which an incomplete time series was available. For 2021, it was possible to estimate the share of youth in agrifood systems for 153 countries, representing 97 percent of the youth population worldwide.

After predicting $\hat{y}_{iyt}$, the share of adults in the off-farm segment of agrifood systems employment was estimated as $\hat{y}_{ita} = 1\text{-}\hat{y}_{ity}$. The number of youth and adults employed in off-farm agrifood systems was then calculated by multiplying $\hat{y}_{ita}$ and $\hat{y}_{ity}$ by the number of people employed in off-farm agrifood systems estimated in FAOSTAT.[7]

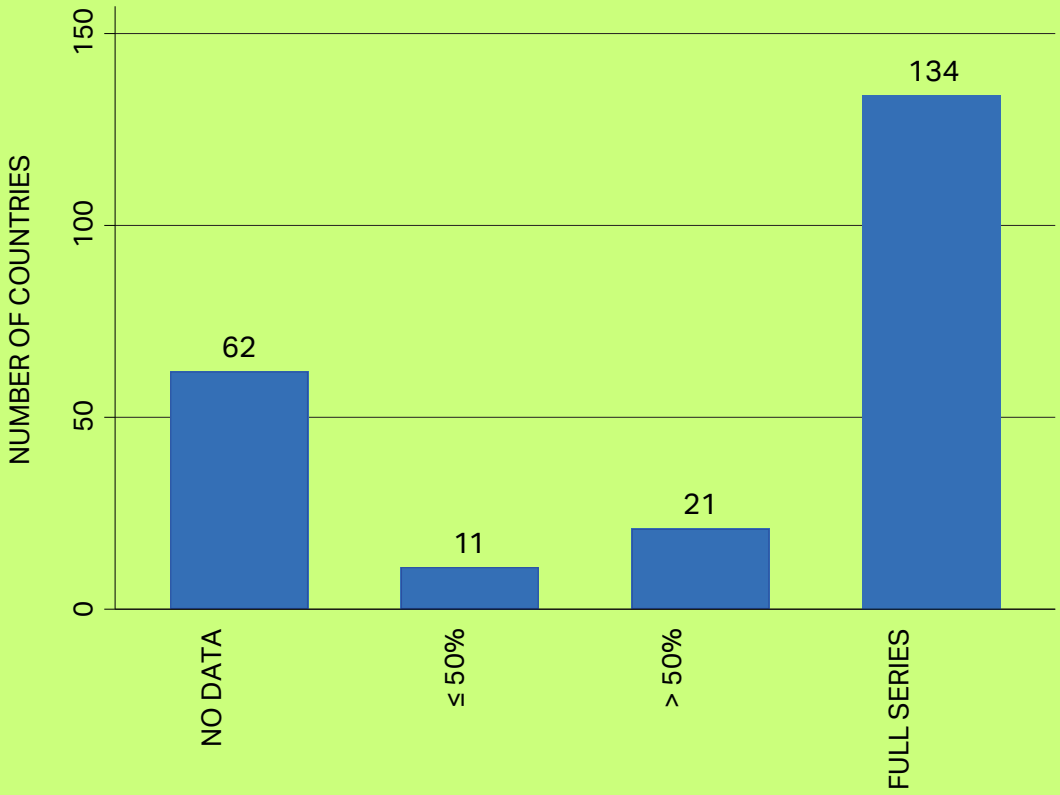
TABLE A2.4 CROSS-VALIDATION FRACTIONAL VS. OLS

	WITHIN SAMPLE		OUT-OF-SAMPLE	
	R SQUARED	MSE	R SQUARED	MSE
OLS MODEL	0.727	0.00133	0.69	0.00131
FRACTIONAL	0.789	0.00129	0.70	0.00127

Source: Author's own elaboration.

FIGURE A2.2

NUMBER OF COUNTRIES BY DATA AVAILABILITY AFTER MODELLING FROM 2005 TO 2021



Source: Author's own elaboration.

APPENDIX 3
SURVEY DATA: DATA SOURCES, DEFINITIONS OF VARIABLES AND METHODOLOGY

This appendix presents the survey data used in Chapter 4 and details the definitions of variables used in this chapter, namely the full-time equivalents and the intergenerational mobility probabilities, and how these were constructed.

MICRODATA SOURCES AND SURVEYS

This chapter uses microdata shared from Davis *et al.*[1] and builds on data from the Rural Livelihoods Information System (RuLIS).[2] More specifically, these data use national representative household surveys from up to 18 countries.[2] Table A3.1 shows the different surveys used for the different analyses in this chapter.

TABLE A3.1 LIST OF SURVEYS

COUNTRY	YEAR(S)	SURVEY	FIGURES IN THIS CHAPTER
BENIN	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
BOLIVIA (PLURINATIONAL STATE OF)	2008	ENCUESTA DE LOS HOGARES	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
BURKINA FASO	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
GEORGIA	2013	INTEGRATED HOUSEHOLD SURVEY	FIG. A (SPOTLIGHT 4.1), FIG. 4.14
	2016		FIG. 4.11, FIG. 4.13, FIG. 4.14
GUATEMALA	2014	ENCUESTA NACIONAL DE CONDICIONES DE VIDA	FIG. 4.11, FIG. 4.13, FIG. 4.14 FIG. A (SPOTLIGHT 4.1)
GUINEA-BISSAU	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
CÔTE D'IVOIRE	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
MALAWI	2013	INTEGRATED HOUSEHOLD SURVEY	FIG. 4.14
	2017		FIG. 4.13, FIG. 4.14
	2020		FIG. 4.12, FIG. A (SPOTLIGHT 4.1)
MALI	2014	ENQUÊTE AGRICOLE DE CONJONCTURE INTÉGRÉE 2014	FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14
MOZAMBIQUE	2009	INQUÉRITO SOBRE ORÇAMENTO FAMILIAR	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)

TABLE A3.1 LIST OF SURVEYS

COUNTRY	YEAR(S)	SURVEY	FIGURES IN THIS CHAPTER
NIGER	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
NIGERIA	2013	GENERAL HOUSEHOLD SURVEY	FIG. 4.11, FIG. 4.14
	2016		FIG. 4.12, FIG. 4.13, FIG. A (SPOTLIGHT 4.1)
	2014		FIG. 4.14
	2019		FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
PERU	2014	ENCUESTA NACIONAL DE HOGARES	FIG. 4.14
	2019		FIG. 4.11, FIG. 4.12, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
SENEGAL	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
SIERRA LEONE	2018	INTEGRATED HOUSEHOLD SURVEY	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
TOGO	2019	ENQUÊTE HARMONISÉE SUR LES CONDITIONS DE VIE DES MÉNAGES (EHCVM)	FIG. 4.11, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
UNITED REPUBLIC OF TANZANIA	2015	NATIONAL PANEL SURVEY	4.12, FIG. 4.13, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
UGANDA	2011	THE UGANDA NATIONAL PANEL SURVEY	FIG. 4.14
	2016		FIG. 4.12, FIG. 4.14, FIG. A (SPOTLIGHT 4.1)
	2020		FIG. 4.11, FIG. 4.13, FIG. 4.14

Source: Author's own elaboration adapting the list of surveys from Davis *et al.*[1]

COMPUTING FULL-TIME EQUIVALENTS

Beside the binary employment and engagement variables, full-time equivalents were computed for individuals aged 15 and above, using five surveys from Malawi, Nigeria, Peru, the United Republic of Tanzania and Uganda (see Figure 4.12 and Table A3.1). Full-time equivalents, calculated over a 12-month recall period, can provide a more complete picture of engagement in labour markets,[3, 4] accounting also for seasonality of work in agriculture and agrifood systems in general. It also enables comparison of time spent by different individuals across different sectors, functional categories and contexts.[3]

In the five countries, the time worked by each individual in different sectors and types of jobs was computed, using information from the respective agriculture, employment and, whenever applicable, non-farm enterprises modules of the surveys. Adapting an approach from IFAD's *2019 Rural Development Report*,[3] full-time equivalents were computed for the time worked in seven categories, including (1) on the household farm, (2) in agricultural self-employment, (3) in agricultural wage employment, (4) in off-farm agrifood systems self-employment, (5) in off-farm agrifood systems wage employment, (6) in non-agrifood systems self-employment, and (7) in non-agrifood systems wage employment. The classification of ISIC codes employed by Davis *et al.*[1] was used to allocate the different jobs to the different sectors of agrifood systems or outside agrifood systems. Table A3.2 below provides more information on the different sources of information used to compute the total number of hours worked in each sector.

To compute the full-time equivalents, the total amount worked in each category over the 12-month recall period was computed in Malawi, Nigeria, the United Republic of Tanzania and Uganda. In Peru, the information was available on a weekly basis. For each category, the total amount of time worked was converted to full-time equivalents. Following IFAD's 2019 Rural Development Report, the total workload and schedule over a year was estimated at 2 016 hours (12 months per year, 4.3 weeks per month and 40 hours per week).3 Full-time equivalents were obtained by dividing the total hours worked in each sector and type of employment by 2 016 (or 40 hours in the case of Peru). Full-time equivalents below and above 1 represent a situation of underemployment and overemployment, respectively.3

ASSESSING INTERGENERATIONAL MOBILITY

As countries develop and agrifood systems evolve, labour productivity expands, and greater agrifood systems output is achieved with a falling share of the labour force employed in agrifood activities. This transformation is also characterized by a rising share of the labour force participating in higher-paying sectors, mostly outside agriculture. Such processes can also happen over generations, leading to intergenerational economic migration between sectors – an expected outcome of expanding countries and their agrifood systems.

The analyses presented in Figures 4.13 and Figure 4.14 emphasize such intergenerational economic sectoral migration. Inspired by the indicator of intergenerational mobility developed by Alesina *et al.*,[5] this analysis examines the probability of younger cohorts (20–24 years old) being employed outside agriculture or the agrifood systems sector, while their parents are employed in either primary agriculture or agrifood systems employment more broadly. The focus on the 20–24 age cohort is linked to the fact that analyses examine intergenerational economic sector mobility, which would not be a sensible indicator for younger cohorts that have not fully entered the labour force.

This analysis also focuses on upward mobility, that is, youth aged 20–24 who work outside agrifood systems while their parents work in agriculture or broader agrifood systems. Adapting the approach from Alesina *et al.*,[5] a binary variable of upward intergenerational sector mobility is constructed as follows:

- IM_up_i equals 1 if a youth *i* aged 20-24 works outside agrifood systems, given that their parents are working in agriculture or agrifood systems, and 0 otherwise.

The approach focused on a measure of absolute intergenerational mobility,[5] reflecting youth's likelihood of working in a different sector than their parents. For each country, the likelihood of intergenerational mobility is computed for all youth whose parents work in agriculture or agrifood systems. The analysis is also disaggregated by gender (Figure 4.14) by computing these likelihoods separately for young women and young men.

TABLE A3.2 INFORMATION USED TO COMPUTE THE TOTAL AMOUNT OF HOURS WORKED IN EACH SECTOR AND TYPE OF JOBS

COUNTRY	YEAR	SURVEY	SOURCE OF INFORMATION		
			AGRICULTURAL MODULE	EMPLOYMENT MODULE	NON-FARM ENTERPRISE MODULE
MALAWI	2020	INTEGRATED HOUSEHOLD SURVEY	■ HOUSEHOLD FARMING (12-MONTH RECALL)	■ FIRST AND SECOND WAGE JOBS (12-MONTH RECALL) ■ GANYU WORK (12-MONTH RECALL)	■ WORK IN HOUSEHOLD ENTERPRISE (12-MONTH RECALL)
NIGERIA	2016	GENERAL HOUSEHOLD SURVEY	■ HOUSEHOLD FARMING (12-MONTH RECALL)	■ FIRST AND SECOND WAGE JOBS (12-MONTH RECALL)	■ WORK IN HOUSEHOLD ENTERPRISE (12-MONTH RECALL)
PERU	2019	ENCUESTA NACIONAL DE HOGARES	■ HOUSEHOLD FARMING (7-DAY RECALL)	■ FIRST AND SECOND JOBS (7-DAY RECALL)	N/A
UNITED REPUBLIC OF TANZANIA	2015	NATIONAL PANEL SURVEY	■ HOUSEHOLD FARMING (12-MONTH RECALL)	■ FIRST AND SECOND WAGE JOBS (12-MONTH RECALL)	■ WORK IN HOUSEHOLD ENTERPRISE (12-MONTH RECALL)
UGANDA	2016	THE UGANDA NATIONAL PANEL SURVEY	■ HOUSEHOLD FARMING (12-MONTH RECALL)	■ FIRST TO FOURTH JOBS (12-MONTH RECALL)	■ WORK IN HOUSEHOLD ENTERPRISE (12-MONTH RECALL)

Source: Author's own elaboration.

APPENDIX 4 METHODOLOGY TO ESTIMATE THE BENEFITS OF ELIMINATING YOUTH UNEMPLOYMENT

This appendix outlines the methodology used to estimate the potential impact on gross domestic product (GDP) of eliminating youth unemployment and creating employment opportunities for youth aged 20–24 who are currently not in employment, education or training (NEET). This analysis also assesses the specific contribution of agrifood systems under this scenario, both in terms of GDP growth and the number of jobs generated.

This approach builds on the share of youth employment in agrifood systems presented in Chapter 4, combined with data on the share of youth who are outside the labour force or classified as NEET, based on ILO modelled estimates. The estimations are calculated for the whole world as well as for each region separately. The results show that eliminating youth unemployment and providing employment opportunities for youth aged 20–24 who are currently NEET would increase global GDP by 1.4 percent, or USD 1.5 trillion (Table A4.1). In terms of the contribution of agrifood systems, agrifood systems employment would provide an additional 87 million jobs for unemployed and NEET youth (Table A4.2) and contribute 45 percent of the estimated GDP increase, corresponding to USD 680 billion (Table A4.1).

ESTIMATED MODEL

Assuming that national GDP is defined by an aggregate production function, $F(K,L)$, GDP can be defined as:

$$(1)\quad Y = F(K,L).$$

The effect of increasing employment in GDP would be:

$$dY = \frac{\partial F(K,L)}{\partial L} \cdot dL,$$

or in percentage terms, the effect of increasing labour can be approximated as:

$$(2)\quad \Delta \ln Y \approx \frac{\partial \ln Y}{\partial \ln L} \cdot \Delta \ln L \equiv \varepsilon_L \cdot \Delta \ln L.$$

The aim here is to focus on the 15–24 year-old cohort. In terms of activity, the total population cohort can be classified as (N_{15-24}):

$$N_{15-24} = L_{15-24} + O_{15-24}.$$

Those that are in the labour force are classified as (L_{15-24}), and those who do not participate in the labour force as O_{15-24}. In turn, each group can be further divided: those in the labour force can either work L^L_{15-24}, or be currently unemployed, L^U_{15-24}.Similarly, those out of the labour force can either be in school O^S_{15-24}, or out of education and the labour force O^N_{15-24}. Hence, the youth cohort can be classified by activity, as follows:

$$(3)\quad N_{15-24} = L^L_{15-24} + L^U_{15-24} + O^S_{15-24} + O^N_{15-24}.$$

If youth unemployment was eliminated, then the labour force would grow, $\Delta \ln L \approx L^U_{15-24}/L$, and following the relationship shown in (2), the impact on GDP growth of eliminating this form of unemployment can be approximated. However, this would lead to an overestimation of the impact of youth labour on GDP, because younger workers are less productive. However,

if the approximate wage gap between the young and the labour force is known, it is possible to adjust the elasticity. Note that:

$$(4)\quad \varepsilon_L \equiv \frac{\partial F(K,L)}{\partial L} \cdot \frac{\mathrm{L}}{Y}.$$

Given that the marginal product in (4) under market conditions is equal to the wages, it is easy to show that:

$$(5)\quad \frac{\varepsilon_L^{15-24}}{\varepsilon_L} = \frac{w_{15-24}}{w}.$$

Thus, knowing the youth wage gap, it is possible to approximate the impact of eliminating youth unemployment on GDP, transforming slightly (2):

$$(6)\quad \Delta \ln Y \approx \varepsilon_L \cdot \left(\frac{\varepsilon_L^{15-24}}{\varepsilon_L}\right) \cdot \Delta \ln L.$$

Furthermore, not all youth employment goes to the agrifood sector. Given that youth employment can be divided into agrifood systems and non-agrifood systems employment:

$$L_{15-24}^{L} = L_{15-24}^{AFS} + L_{15-24}^{NAFS},$$

then a portion $\frac{L_{15-24}^{AFS}}{L_{15-24}^{L}}$, of the employed would participate in agrifood systems, if employment sector shares remain constant.

The number of jobs in agrifood systems, should youth unemployment be eliminated, is computed by multiplying the share of youth employed in agrifood systems, globally and in each region, by the corresponding number of unemployed youth (15–24) and youth that are NEET (20–24), reflecting the current labour markets sectoral composition (Table A4.2).

TABLE A4.1 IMPACT OF ELIMINATING YOUTH UNEMPLOYMENT ON GROSS DOMESTIC PRODUCT

					EFFECTS ON GDP $\Delta \ln Y$			AGRIFOOD SYSTEMS CONTRIBUTION $\Delta \ln Y$			
	ε_L [1]	$\frac{L_{15-24}^{U}}{L}$ [3]	$\frac{\varepsilon_L^{15-24}}{\varepsilon_L}$ [2]	$\frac{O_{20-24}^{N}}{L}$ [3]	Eliminating Youth Unemployment	Provide employment to Youth NEET	TOTAL	$\frac{L_{15-24}^{AFS}}{L_{15-24}^{L}}$ [3]	Eliminating Youth Unemployment	Provide employment to Youth NEET	TOTAL
CENTRAL ASIA	0.263	0.876	0.019	0.127	0.44	2.93	3.37	0.41	0.18	1.20	1.38
EASTERN ASIA	0.463	0.909	0.003	0.013	0.12	0.53	0.65	0.27	0.03	0.14	0.18
EUROPE AND NORTHERN AMERICA	0.547	0.576	0.012	0.010	0.37	0.33	0.70	0.24	0.09	0.08	0.17
LATIN AMERICA AND THE CARIBBEAN	0.390	0.656	0.019	0.028	0.50	0.71	1.20	0.38	0.19	0.27	0.46
NORTHERN AFRICA	0.288	0.797	0.025	0.107	0.57	2.46	3.03	0.43	0.24	1.06	1.30
OCEANIA	0.529	0.654	0.014	0.031	0.49	1.06	1.55	0.36	0.18	0.38	0.56
SOUTHEASTERN ASIA	0.393	0.766	0.012	0.027	0.36	0.82	1.18	0.45	0.16	0.37	0.53
SOUTHERN ASIA	0.333	0.621	0.019	0.053	0.39	1.10	1.49	0.51	0.20	0.56	0.76
SUB-SAHARAN AFRICA	0.307	0.562	0.017	0.038	0.29	0.66	0.95	0.68	0.20	0.45	0.65
WESTERN ASIA	0.343	0.680	0.043	0.081	1.01	1.88	2.90	0.31	0.31	0.58	0.90
TOTAL	0.408	0.636	0.017	0.036	0.43	0.94	1.37	0.45	0.19	0.42	0.62

Source: Author's own elaboration.

TABLE A4.2 NUMBER OF JOBS CREATED IN AGRIFOOD SYSTEMS TO ELIMINATE YOUTH UNEMPLOYMENT

	$\frac{L^{U}_{15-24}}{L}^{3}$	$\frac{O^{N}_{20-24}}{L}^{3}$	$\frac{L^{AFS}_{15-24}}{L^{L}_{15-24}}^{4}$	Total labour force (in millions)	Youth 15–24 unemployed (in millions)	Youth NEET (in millions)	Number of jobs in agrifood systems for youth 15–25 (in millions)
CENTRAL ASIA	0.019	0.127	0.41	32.27	0.61	4.10	1.93
EASTERN ASIA	0.003	0.013	0.27	915.21	2.75	11.90	3.82
EUROPE AND NORTHERN AMERICA	0.012	0.010	0.24	317.65	6.04	8.89	5.68
LATIN AMERICA AND THE CARIBBEAN	0.019	0.028	0.38	65.69	1.64	7.03	3.72
NORTHERN AFRICA	0.025	0.107	0.43	550.65	6.61	5.51	2.93
OCEANIA	0.014	0.031	0.36	22.42	0.31	0.69	0.36
SOUTHEASTERN ASIA	0.012	0.027	0.45	347.35	4.17	9.38	6.12
SOUTHERN ASIA	0.019	0.053	0.51	801.92	15.24	42.50	29.53
SUB-SAHARN AFRICA	0.017	0.038	0.68	500.77	8.51	19.03	18.75
WESTERN ASIA	0.043	0.081	0.31	112.08	4.82	9.08	4.31
TOTAL	**0.017**	**0.036**	**0.45**	**3666.01**	**62.32**	**131.98**	**87.06**

Source: Author´s own elaboration.

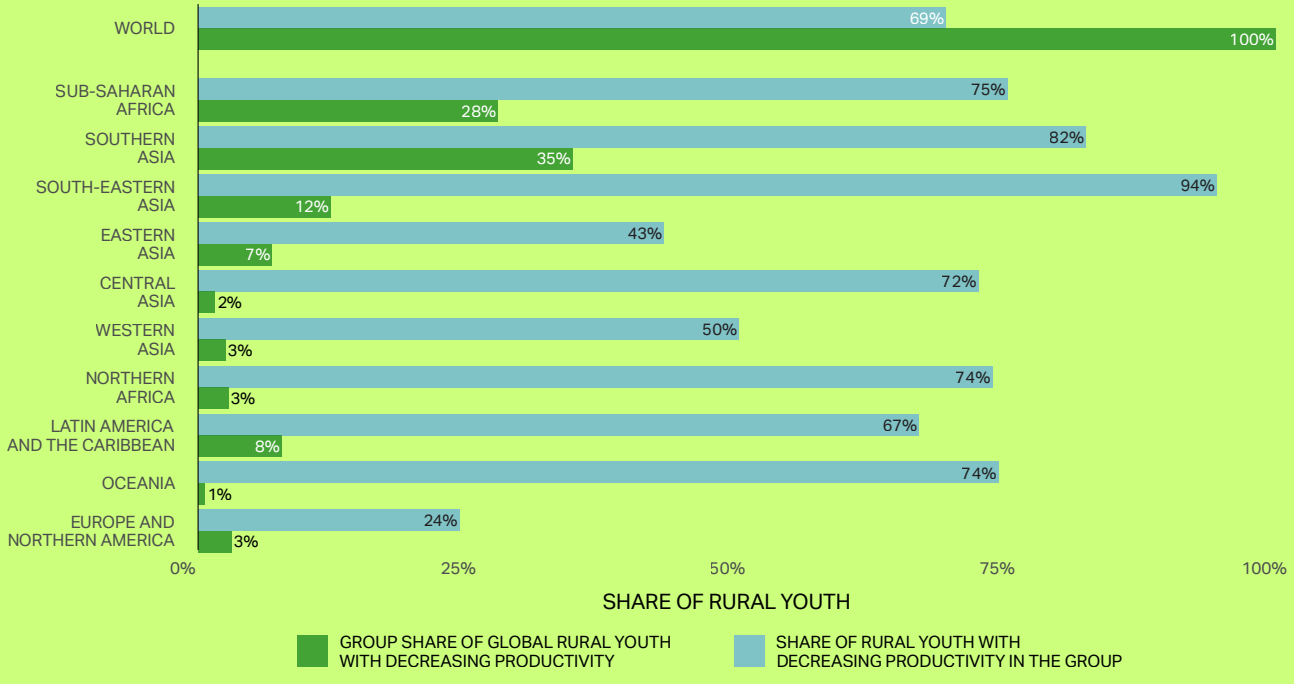
1. Obtained from the wage bill, from the UN National Accounts database **https://unstats.un.org/unsd/nationalaccount/data.asp**.
2. Computed based on data from ILO Harmonized Microdata using the indicator "Average hourly earnings of employees by sex and age – Annual" **(https://ilostat.ilo.org)**.
3. The shares of youth unemployed and NEET were computed based on annual data from the ILO Harmonized Microdata **https://ilostat.ilo.org)** and YouthSTATS databases.
4. As reported in Chapter 4. Own elaboration, using ILO estimates based on ILO modelled estimates, November 2023.

APPENDIX 5 ADDITIONAL FIGURES AND TABLES

CHAPTER 2

FIGURE A5.1

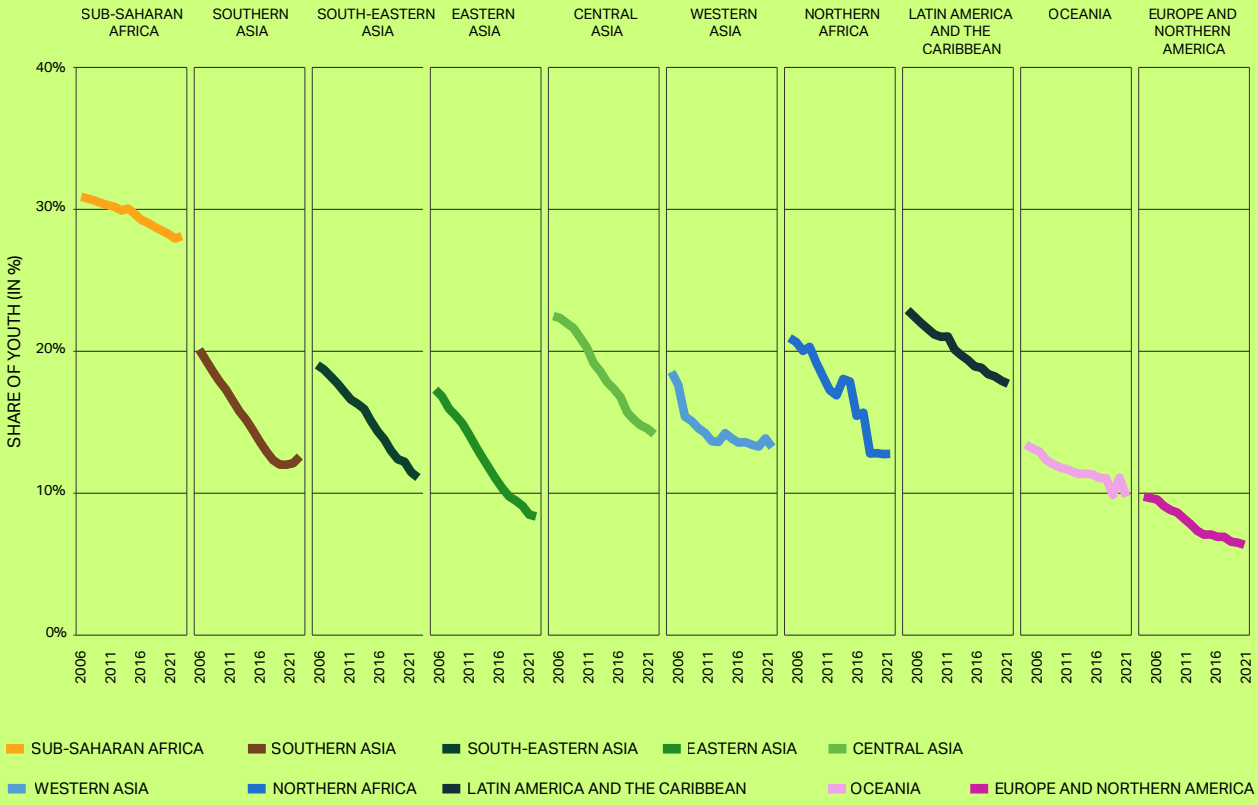
REGIONAL DISTRIBUTION OF RURAL YOUTH LIVING IN AREAS WITH EXPECTED DECLINING PRODUCTIVITY FROM CLIMATE CHANGE



Source: Authors' own elaboration based on population count estimates for 2020 from WorldPop (www.worldpop.org – School of Geography and Environmental Science, University of Southampton; the Department of Geography and Geosciences, University of Louisville; the Departement de Geographie, Universite de Namur); the Center for International Earth Science Information Network (CIESIN), Columbia University. 2018. Global High Resolution Population Denominators Project, funded by the Bill and Melinda Gates Foundation (OPP1134076) (https://dx.doi.org/10.5258/SOTON/WP00647); Cattaneo, Nelson and McMenomy. 2020. Urban-rural continuum. figshare. Dataset (https://doi.org/10.6084/m9.figshare.12579572.v4).

FIGURE A5.5

SHARE OF YOUTH OUT OF ALL WORKERS IN AGRICULTURE HAS DECLINED IN ALL REGIONS SINCE 2005



Note: Graph based on data from 134 countries: *Sub-Saharan Africa*: Burundi, Benin, Burkina Faso, Botswana, Cape Verde, Comoros, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Senegal, South Africa, Swaziland, Tanzania (United Republic of), Togo, Uganda, Zambia, Zimbabwe. *Southern Asia*: Afghanistan, Bangladesh, India, Iran (Islamic Republic of), Nepal, Pakistan, Sri Lanka. *Southeastern Asia*: Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Thailand, Timor-Leste, Viet Nam. *Eastern Asia*: China, Japan, Korea (Republic of), Mongolia. Central Asia: Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan. *Western Asia*: Azerbaijan, Cyprus, Georgia, Iraq, Israel, Jordan, Lebanon, Oman, Palestine, Saudi Arabia, Türkiye, United Arab Emirates. *Northern Africa*: Algeria, Egypt, Morocco, Tunisia.
Latin America and the Caribbean: Argentina, Bahamas, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay. *Oceania*: Australia, Fiji, New Zealand. *Europe and northern America*: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czechia, Denmark, Germany, Estonia, Finland, France, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova (Republic of), Netherlands (Kingdom of the), North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America.

Source: Author's own elaboration using ILO estimates based on ILO modelled estimates, November 2023.

TABLE A5.1 SHARE OF YOUTH OUT OF ALL WORKERS IN AGRICULTURE IN SELECTED COUNTRIES

AGRIFOOD SYSTEM TYPE	COUNTRY	SHARE OF YOUTH AMONG ALL AGRICULTURAL WORKERS (IN %)		CHANGE (IN %)
		2012	2021	
PROTRACTED CRISIS	ETHIOPIA	30.5	25.6	-16%
	PALESTINE	23.4	20.5	-12%
	SUDAN	21.8	30.7	41%
	ZIMBABWE	33.8	27.7	-18%
TRADITIONAL	BANGLADESH	20.9	18.1	-13%
	CAMBODIA	26.9	16.3	-39%
	INDIA	14.8	9.9	-33%
	LAO PEOPLE'S DEMOCRATIC REPUBLIC	25.9	23.2	-10%
	MADAGASCAR	31.9	30.8	-4%
	PAKISTAN	26.1	25.6	-2%
	PAPUA NEW GUINEA	24.7	22.7	-8%
	SENEGAL	27.9	28.6	3%
	TIMOR-LESTE	15.1	13.6	-10%
	TOGO	14.4	15.4	7%
	UGANDA	31.8	36.1	14%
	ANGOLA	21.9	29.3	34%
EXPANDING	BOLIVIA (PLURINATIONAL STATE OF)	21.1	18.4	-13%
	BOTSWANA	16.7	11.6	-31%
	EGYPT	19.2	17.4	-9%
	EL SALVADOR	28.1	20.6	-27%
	GAMBIA	29.5	29.0	-2%
	GEORGIA	7.6	3.9	-48%
	GUATEMALA	32.5	27.9	-14%
	HONDURAS	32.1	26.9	-16%
	KYRGYZSTAN	26.1	23.4	-10%
	PERU	23.1	18.8	-19%
	SAMOA	20.1	18.2	-9%
	SRI LANKA	7.7	4.3	-44%
	THAILAND	8.2	7.9	-4%
	VIET NAM	14.5	8.8	-39%
	ARMENIA	11.0	6.3	-43%

TABLE A5.1 SHARE OF YOUTH OUT OF ALL WORKERS IN AGRICULTURE IN SELECTED COUNTRIES

AGRIFOOD SYSTEM TYPE	COUNTRY	SHARE OF YOUTH AMONG ALL AGRICULTURAL WORKERS (IN %)		CHANGE (IN %)
		2012	2021	
DIVERSIFYING	BOSNIA AND HERZEGOVINA	4.5	4.9	10%
	ECUADOR	19.0	21.9	15%
	IRAN (ISLAMIC REPUBLIC OF)	15.5	7.4	-52%
	MEXICO	22.0	17.8	-19%
	PANAMA	20.8	20.9	1%
	SOUTH AFRICA	11.4	8.3	-27%
FORMALIZING	ALBANIA	10.5	10.5	0%
	ARGENTINA	16.2	14.2	-12%
	COSTA RICA	16.8	11.1	-34%
	DOMINICAN REPUBLIC	17.8	11.8	-34%
	MONGOLIA	14.3	11.0	-23%
	NORTH MACEDONIA	10.8	4.7	-56%
	PORTUGAL	2.2	4.5	107%
	TÜRKIYE	12.8	14.1	11%
INDUSTRIAL	AUSTRALIA	6.9	8.0	16%
	AUSTRIA	7.6	6.1	-20%
	CZECHIA	4.9	5.8	20%
	FRANCE	6.5	9.5	47%
	GREECE	3.5	2.5	-28%
	JAPAN	2.5	2.7	7%
	SWITZERLAND	10.0	8.0	-20%
	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	9.7	11.4	17%

Source: Author's own elaboration based on ILO Harmonized Microdata. https://ilostat.ilo.org

TABLE A5.2 YOUTH HAVE HIGHER DAILY DIETARY ENERGE NEEDS THAN OTHER GROUPS DUE TO RAPID PHYSICAL GROWTH AND ACTIVITY

	MALE			FEMALE[1]		
AGE (YEARS)	SEDENTARY[2]	MODERATELY ACTIVE[3]	ACTIVE[4]	SEDENTARY[2]	MODERATELY ACTIVE[3]	ACTIVE[4]
2	1 000	1 000	1 000	1 000	1 000	1 000
3	1 000	1 400	1 400	1 000	1 200	1 400
4	1 200	1 400	1 600	1 200	1 400	1 400
5	1 200	1 400	1 600	1 200	1 400	1 600
6	1 400	1 600	1 800	1 200	1 400	1 600
7	1 400	1 600	1 800	1 200	1 600	1 800
8	1 400	1 600	2 000	1 400	1 600	1 800
9	1 600	1 800	2 000	1 400	1 600	1 800
10	1 600	1 800	2 200	1 400	1 800	2 000
11	1 800	2 000	2 200	1 600	1 800	2 000
12	1 800	2 200	2 400	1 600	2 000	2 200
13	2 000	2 200	2 600	1 600	2 000	2 200
14	2 000	2 400	2 800	1 800	2 000	2 400
15	2 200	2 600	3 000	1 800	2 000	2 400
16	2 400	2 800	3 200	1 800	2 000	2 400
17	2 400	2 800	3 200	1 800	2 000	2 400
18	2 400	2 800	3 200	1 800	2 000	2 400
19–20	2 600	2 800	3 000	2 000	2 200	2 400
21–25	2 400	2 800	3 000	2 000	2 200	2 400
26–30	2 400	2 600	3 000	1 800	2 000	2 400
31–35	2 400	2 600	3 000	1 800	2 000	2 200
36–40	2 400	2 600	2 800	1 800	2 000	2 200
41–45	2 200	2 600	2 800	1 800	2 000	2 200
46–50	2 200	2 400	2 800	1 800	2 000	2 200
51–55	2 200	2 400	2 800	1 600	1 800	2 000
56–60	2 200	2 400	2 600	1 600	1 800	2 000
61–65	2 000	2 200	2 600	1 600	1 800	2 000
66–70	2 000	2 200	2 600	1 600	1 800	2 000
71–75	2 000	2 200	2 600	1 600	1 800	2 000
≥76	2 000	2 200	2 400	1 600	1 800	2 000

NOTES: Estimated energy needs for youth (aged 15–24 years) are shaded in green for males and orange for lifestyle that includes only the physical activity of independent living. Moderately active[3] means a lifestyle that includes physical activity equivalent to walking 1.5–3 miles per day at a speed of 3–4 miles per hour, in addition to activities of independent living. Active[4] means a lifestyle that includes physical activity equivalent to walking more than 3 miles per day at a speed of 3–4 miles per hour, in addition to activities of independent living.

Source: Adapted from Institute of Medicine (US) Panel on Micronutrients. 2001. *Dietary reference intakes for Vitamin A, Vitamin K, Arsenic, Boron, Chromium, Copper, Iodine, Iron, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc*. Washington, DC, National Academies Press. www.ncbi.nlm.nih.gov/books/NBK222310

© FAO/MUNIR UZ ZAMAN
A LIVESTOCK FARMER
IN SARANKHOLA,
BANGLADESH.

GLOSSARY

AGE COHORTS

Although the age brackets defining youth differ considerably across countries and regions, this report adopts the United Nations definition of individuals between the ages of 15 and 24. However, where data sources use alternative age cohorts, the corresponding figures reflect those definitions, with explanations provided in the relevant contexts. Individuals below the age of 18 are legally children. When turning 18, individuals reach legal age and are considered adults. As such, the 15–24 age range captures the upper range of children and the lower range of adults.

- Adolescent: 10–19 years
- Youth: 15–24 years
- Younger youth: 15–17 years
- Older youth: 18–24 years
- Adults: 25 years and above
- Younger adults: 25–34 years
- Older adults: 35 years and above

AGRIFOOD SYSTEMS

Agrifood systems comprise the entire range of actors and interlinked activities that add value in agricultural production and related off-farm activities such as food storage, aggregation, post-harvest handling, transportation, processing, distribution, marketing, disposal and consumption. Agricultural production refers to primary crop, livestock, fisheries and forestry production.[1]

AGRIFOOD SYSTEMS, RURAL AND STRUCTURAL TRANSFORMATION

The process by which low-income societies, in which agriculture absorbs most labour and generates most economic output, become high-income societies characterized by a relatively smaller but more productive agricultural sector. Structural transformation involves the reallocation of economic activities away from agriculture and natural resources to industry and services, expanded domestic and international trade, increased specialization and division of labour, and increased rural-urban migration. It also includes the urbanization of the countryside, combined with a reduction in birth rates and a greater participation of youth in the workforce. Agricultural transformation is both a cause and effect of structural transformation – involving productivity increases in agriculture and a shift from subsistence farming to commercial, highly diversified production systems and value chains. Rural transformation captures all aspects of agricultural transformation and also includes the emergence of livelihood and income-generating opportunities in the rural, non-farm sector.[1]

AGRIFOOD SYSTEMS TRANSITION

The process by which agrifood systems change through various shifts – for example, in practices, technologies or market dynamics from traditional to more modern, formalized and industrialized agrifood systems. This transition is not strictly linear and is reflected in different categories of agrifood systems, each with their specific status, challenges and opportunities in terms of sustainability, nutrition and inclusion. This process is distinct from the transformation of agrifood systems, which represents the normative change sought in agrifood systems, around a vision balancing sustainability, healthy diets, inclusion and decent livelihoods.

AGRIFOOD SYSTEMS TYPOLOGY

This report adopts the agrifood systems typology developed by Marshall *et al.*[2] and extended in *The State of Food and Agriculture 2024*.[3] The typology classifies countries using measures of productivity, dietary diversity, urbanization and modern retail infrastructure coverage to assess the degree of agrifood systems transition, with a separate category for countries in protracted crisis, producing six categories: 1) Protracted

Crisis, 2) Traditional, 3) Expanding, 4) Diversifying, 5) Formalizing and 6) Industrial.[2] These six agrifood systems categories do not suggest a linear progression from a "less desirable" traditional state to a "fully desirable" industrial state; rather, they serve to indicate where countries are situated along this agrifood systems transition.

AGRIPRENEURS

Individuals who establish and manage enterprises within agrifood systems by identifying business opportunities across the value chain, aiming to generate profit and returns on investment.[4,5]

ECONOMIC OPPORTUNITY SPACE (FOR YOUTH)

The set of viable economic opportunities that young people can harness to improve their livelihoods. These opportunities have strong spatial dimensions, reflecting variations in the structure of agrifood systems and the degree of rural and structural transformation within the country and local areas where youth reside. Youth opportunities may vary across rural areas within a given country, influenced by biophysical and socioeconomic context. Economic opportunity spaces are categorized in this report into five categories: 1) spaces with low opportunities, 2) spaces with moderate opportunities, 3) spaces with strong agricultural opportunities and lower market opportunities, 4) spaces with strong market opportunities and lower agricultural opportunities, and 5) spaces with diverse and high opportunities.

GENERATIONAL RENEWAL

Generational renewal in agriculture refers to the process of a new generation, especially young people, taking over and continuing the activities of an older generation, often in a family-run agrifood system business or farm. Generational renewal refers not only to replacing the older generation, but also includes empowering a new group with the skills, knowledge and resources to thrive and innovate. In places with declining and aging rural populations, generational renewal is critical for maintaining rural economic and social vitality and ensuring the long-term competitiveness of the agricultural sector.

INTERGENERATIONAL (IN RELATION TO YOUTH)

A relationship that occurs between different generations or involves two or more generations. For youth in agrifood systems, intergenerational is often used in the context of transmission of resources (e.g. land) and knowledge transfer, between youth and adults, both within families (e.g. from parents to their children through inheritance) and beyond families (e.g. between community members).[5]

INTERSECTIONALITY (IN RELATION TO YOUTH)

An approach used to study, understand and respond to the ways in which the status of being a youth intersect with other social factors and/or personal characteristics/identities linked to gender, ethnicity, education, wealth, health status and disability status, and includes how these intersections combine to influence unique experiences of privilege, social exclusion and discrimination.[1]

NEET

Young people who are not in education, employment or training.

URBAN-RURAL CATCHMENT AREA (URCA) FRAMEWORK

The URCA framework defines spatial categories primarily by travel time to urban centres and the population size of those centres. Urban centres are first stratified into categories based on their population (from 20 000 to over 5 million). There are 30 URCA categories in total, where category one represents the largest cities, and the last category corresponds to the most remote areas. Adapting an approach from Cattaneo *et al.*,[6] the first nine categories are grouped as "Urban", the next three as "Peri-urban", the following nine as "Peri-rural" and the final two as "Hinterland". These groupings reflect differences in infrastructure, employment prospects and access to essential services.

YOUTH-ABUNDANT COUNTRIES

Countries characterized by a substantial pool of children and youth which offers a strong potential workforce that can be leveraged for agricultural activities and drive innovation and rural livelihood diversification at least for the next two decades. Most youth-abundant countries are still in the early stages of agrifood systems transition, where agrifood systems, and in particular primary agriculture and related activities, remain the dominant source of livelihood for the growing youth population.

YOUTH AGENCY

The capacity of young people, individually or collectively, to act independently, to take control over the direction of their lives and to influence the direction of changes in society more generally. Young people's agency is bounded by their position in intersecting structures of inequality and exclusion based on age/generation, class, gender, heteronormativity and ethnicity, among others, but also involves their efforts to change these structures.[7]

YOUTH-INCLUSIVE AGRIFOOD SYSTEMS

An agrifood system that actively engages young people as key stakeholders, beneficiaries and decision-makers across all stages – from production to consumption – while addressing the specific needs, aspirations, constraints and potential of youth to ensure equitable participation, decent employment and sustainable livelihoods in agriculture and food systems.[8]

YOUTH MAINSTREAMING

The process of assessing the implications for youth and non-youth of any planned action – including legislation, policies and programmes – in any area and at all levels. It is a strategy for making the concerns and experiences of youth and non-youth an integral part of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that they benefit equally and inequality is not perpetuated.[1]

YOUTH-SCARCE COUNTRIES

Countries characterized by an aging rural workforce and lower share of youth in the population, and where a demographic deficit is a key driver of workforce shortages in agriculture. Many of these countries have undergone demographic transitions and rural and structural transformation processes. Their agrifood systems have also transitioned to more modern and industrialized forms and experienced economic diversification, with more non-agrifood system employment opportunities, increasing competition for the shrinking pool of youth labour.

YOUTH-SPECIFIC FACTORS

Youth-specific factors encompass unique characteristics, constraints or opportunities disproportionately affecting young people during this transitional life stage. They include demographic characteristics (e.g. gender, ethnicity and disability status), skill levels, agency and access to productive resources and assets (e.g. land, finance or technology).

YOUTH MOVE FOOD FORWARD

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