Food and Agriculture Organization of the United Nations

Women's employment in agrifood systems

Background paper for

The status of women in agrifood systems

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Abstract

Tackling poverty and food insecurity requires research and policies that go beyond the agricultural sector and consider the entire agrifood system. Women play important roles in agrifood systems – as farmers, processors, traders and consumers – but their work in the different segments of agrifood systems is poorly captured. This paper produces global and regional estimates of the share of working women and men employed in agrifood systems, differentiating between primary agricultural production and off-farm agrifood-system activities. It looks at the gender patterns of employment in the different activities of agrifood systems between 2005 and 2019 and at how these patterns changed during the first year of the COVID-19 pandemic. The study finds that, despite decreases in the share of working men and women employed in agrifood systems over the past 15 years, agrifood systems remain an important source of livelihood for both men and women, but especially for women in low- and middle-income countries. However, women's working conditions tend to be more vulnerable than men's in both agriculture and off-farm agrifood systems. The paper also highlights methodological issues around the measurement of women's employment in agrifood systems, which can have important implications for the design of livelihoods interventions.

Acknowledgements

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1 Introduction

Agrifood systems (AFS) – which include activities related to the production, processing, distribution, sale and consumption of products originating from agriculture, forestry and fishery – play an important role in reducing poverty and food insecurity. An estimated 1.23 billion people globally work in AFS (as of 2019); jobs in AFS represent 62 percent of total employment in Africa, 40 percent in Asia, 23 percent in the Americas, 17 percent in Oceania and 13 percent in Europe (Davis *et al.*, 2023).

Women engage in all segments of AFS, including as farmers, entrepreneurs, wage employees and unpaid contributing family workers (Christiaensen, Rutledge and Taylor, 2021; Fanzo *et al.*, 2021). Moreover, rural women are often involved in multiple livelihood strategies, such as engaging in agricultural wage work, processing and preparing food, tending to animals, and collecting fuel and water (Patil and Babus, 2018). However, to the best of our knowledge, robust estimates of women's and men's employment and status of employment (e.g. self-employment, wage worker) in AFS are lacking. Understanding the nature of women's and men's work is crucial for designing and targeting policy and programming interventions to enhance the welfare of all workers within AFS and to increase gender equality and women's empowerment in line with the 2030 Agenda for Sustainable Development.

This study contributes to filling these gaps. It provides new global estimates of women's and men's employment in the various segments of AFS since 2005 by expanding the method first developed by Davis *et al.* (2023). The study also looks at gender inequalities in the number of hours worked and status of employment (e.g. contributing family workers, own-account workers, employers and employees) and examines how women's and men's employment patterns in AFS changed during the first year of the COVID-19 pandemic.

Our results show that AFS are a particularly important source of livelihood for women in low- and in middle-income countries. In sub-Saharan Africa (SSA) about 66 percent of working women are employed in AFS, compared with 60 percent of working men. Similarly, in southern Asia, 71 percent of female workers are engaged in AFS, in contrast to 47 percent of male workers. However, gender inequalities are particularly stark when we look at the status of employment and hours worked in both agriculture and off-farm AFS activities. Women work fewer hours for pay or profit than men and are more likely than men to engage as contributing family workers or own-account workers – forms of vulnerable employment. Our findings also suggest that the COVID-19 pandemic disproportionately impacted women, particularly those working in the off-farm segment of AFS.

The study is structured as follows. Section 2 describes the data and methods used to estimate employment in AFS disaggregated by sex. Section 3 presents the results for the share of working men and women employed in the AFS and its segments. It also looks at how these patterns have varied over time, between regions and with gross domestic product (GDP) per capita. Changes in employment patterns in AFS in the first year of the COVID-19 pandemic are also discussed, as are the gender patterns of vulnerable employment and hours worked. We also examine the sensitivity of the AFS employment estimates to changes in the data sources used and how employment is defined. Section 4 provides a summary of the key findings.

2 Definitions, data and methodology

2.1 Operational definition of employment in agrifood systems

In this study, we define *employment* as any work performed for pay and for the production of goods, whether for profit or own use (such as subsistence farming) during the last seven days. This is in line with the resolution of the Thirteenth International Conference of Labour Statisticians (ICLS).[1] To define *employment in the agrifood system*, we follow Davis *et al.* (2023) and classify activities into AFS or non-AFS employment based on the two-digit level of the International Standard Industrial Classification of All Economic Activities (ISIC) (ILO, 2023a).[2] The two-digit-level ISIC codes provide the minimum level of disaggregation necessary to accurately identify economic activities that fall within AFS (Davis *et al.*, 2023). This definition comprises the entire range of activities in food production (e.g. agriculture, livestock, forestry, fishing, aquaculture and hunting) and non-food production (e.g. manufacture) together with food storage, food product processing, logistics, transportation, distribution, marketing and consumption (see Table A2 in the Appendix). Thus, *total employment* in AFS is measured as the sum of employment in agriculture, employment in off-farm AFS and employment outside the AFS.

We checked the sensitivity of our employment estimates against two separate definitions. First, we used the broader definition of *engagement* from Davis *et al.* (2023). This definition includes respondents' primary, secondary, tertiary or quaternary job, regardless of whether it is for pay, profit or own consumption. It also allows for longer recall periods, such as the last 30 days, the last 12 months or other commonly used reference periods as available in household surveys that were used in the study. Second, we used the definition of employment from the Nineteenth ICLS, which is narrower in scope. It includes only the respondent's main job (work for pay or profit) in the last seven days (see Table A1 in the Appendix).

2.2 Data

Employment estimates are based on data from several different sources. First, we used employment data from ILOSTAT's *Employment by sex and economic activity ISIC level 2 (thousands)* database (ILO, 2023b), which provides cross-country employment data over time disaggregated by sex. These employment estimates are based on the individual's main job carried out in the past seven days and are provided at the two-digit ISIC level to categorize economic activities in AFS. However, these data contain gaps for several country–year pairs. To fill in the data gaps, we used the series for employment by sex and economic activity from the estimates modelled by the International Labour Organization (September 2022) (ILO, 2023c). The modelled estimates, however, are only disaggregated by broad sectors (e.g. agriculture and total employment), which is not sufficient to measure

[1] See 'Employment' in Table A1 in the Annex. We do not use 'Employment – revised definition' adopted by the Nineteenth ICLS in 2013, which defines employment more narrowly to include only work for pay or profit, because only a few countries have updated their labour-force surveys accordingly. As a consequence, it wouldn't have been possible to compare employment data over the last ten years across countries using the revised definition.

[2] The International Standard Industrial Classification of All Economic Activities (ISIC) is the classification of economic activities grouped according to the similarities of the goods and services produced, the use of the goods and services produced.

employment in AFS. To address this issue, we used the estimates for employment in agriculture and total employment from estimates modelled by ILO and developed an econometric model to impute the missing non-agricultural AFS employment. The imputation model is described in detail below. Our final dataset has data for more than 120 countries from 2000 to 2020.[3] However, the main estimates of employment in AFS focus on the pre-pandemic period (until 2019) as this period is more likely to represent long-term employment trends. We provide separate estimates of the changes in employment between 2019 and 2020, which capture the initial impact of the COVID-19 pandemic on the employment of men and women in AFS.

In addition, following Davis *et al.* (2023), we used microdatasets from the FAO Rural Livelihoods Information System (RuLIS)[4] to identify and quantify additional men and women who had a job in AFS by considering multiple jobs (main, second and third, or fourth whenever available) and longer recall periods – referred as *engagement* in AFS in the same study. Similarly, to Davis *et al.* (2023), the household surveys used in our analysis are restricted to those that have information on multiple jobs and participation in household farming activities.

Finally, we analysed status in employment and hours of work of women and men in AFS. Data for this analysis are based on a special tabulation using ILOSTAT's *Employment by sex, status in employment and economic activity (thousands)* database (ILO, 2023d) and *Mean weekly hours actually worked per employed person by sex, and economic activity ISIC level 2 (thousands)* database (ILO, 2023e). We analysed how women and men engage in AFS, differentiating between own-account workers, contributing family workers, employers and employees. Own-account workers are self-employed workers who do not hire employees on their enterprise. Contributing family workers are "helpers" on the family farm or in a business with often limited decision-making power and no direct remuneration. Own-account and contributing family work tends to be informal, with no access to work-based social protection, and are thus forms of *vulnerable self-employment* (ILO, 2013).

2.3 Methodology

The first step to disaggregate AFS employment by sex is to identify the number of people employed in AFS for each country–year pair. As mentioned above, we used the total number of people employed in AFS based on ISIC two-digit-level codes from ILOSTAT's *Employment by sex and economic activity ISIC level 2 (thousands)* database (ILO, 2023b).[5] We categorized AFS employment into agricultural and off-farm AFS. Agricultural employment refers to people employed in primary agriculture, fishing and forestry, while off-farm AFS employment is the sum of people employed in food processing and services, manufacturing of non-food agricultural products, trade and transportation based on the ISIC codes outlined in Table A2 in the Appendix. For country–year pairs where only the modelled estimates are available, we estimated the number of men and women employed in the off-farm sector of AFS. To do so, we began by running a fractional regression to predict the share of women employed in off-farm AFS, as follows.

$$y_{itf} = \frac{off-farm\ AFS_{itf}}{off-farm\ AFS_{itf} + off-farm\ AFS_{itm}}$$

[3] Data for China was provided by the Chinese Academy for Agricultural Sciences (CAAS).
[4] For more information on RuLIS, please visit the website: https://www.fao.org/in-action/rural-livelihoods-dataset-rulis/resources/en.
[5] See Davis *et al.* (2023) for a more in-depth explanation.

where:

- y_{itf} is the share of women employed in off-farm AFS out of all people employed in off-farm AFS in country i in year t.
- $off-ag\ AFS_{itm}$ refers to the number of men employed in off-farm AFS in country i in year t.
- $off-ag\ AFS_{itf}$ refers to the number of women employed in off-farm AFS in country i in year t.

We used the following fractional regression model to determine the share of women in the off-farm segment of AFS:

$$E[y_{itf}|share\ ag\ employ_{itf}, share\ ag\ employ_{it}, urban\ pop\ share_{it}, \ln(gdp\ per\ capita_{it}), pop_{it}, share\ ag\ GDP_{it}, YEAR_t, \delta_t]$$

where:

- $share\ ag\ employ_{itf} = \frac{agricultural\ employment_{itf}}{total\ employment_{itf}}$
- $share\ ag\ employ_{it} = \frac{agricultural\ employment_{it}}{total\ employment_{it}}$
- $urban\ pop\ share_{it}$ refers to the share of the population living in urban areas in country i in year t
- $share\ ag\ GDP_{it}$ is the share of agriculture value added in total GDP in country *i* in year *t*
- $YEAR_t$, is a vector of years
- δi refers to regional fixed effects

We predicted $\hat{y}_{itf}$, and estimated the share of men in the off-farm segment of AFS employment as $\hat{y}_{itm} = 1 - \hat{y}_{itf}$.

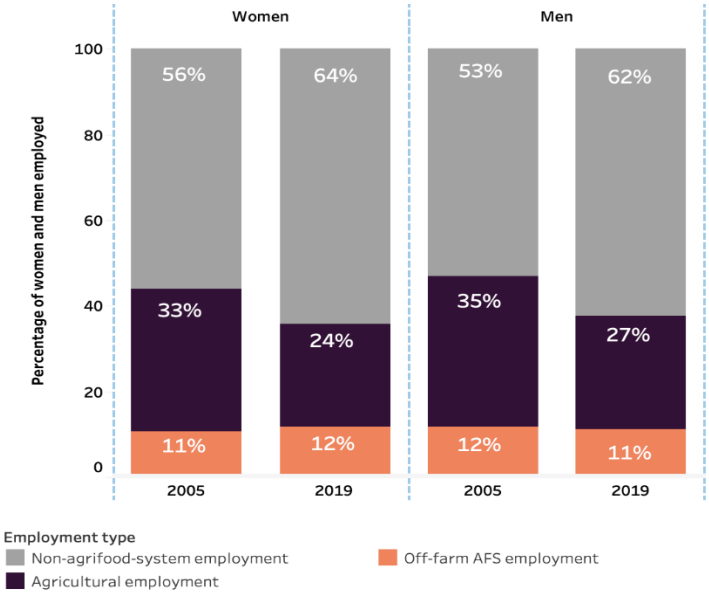
Finally, the number of men and women employed in off-farm AFS was estimated by multiplying $\hat{y}_{itm}$ and $\hat{y}_{itf}$ by the total number of people employed in off-farm AFS estimated by Davis *et al.* (2023) to ensure consistency between the two papers.

3 Results

3.1 Employment in agrifood systems: global and regional trends

Globally, in 2019, 36 percent of working women and 38 percent of working men were employed in AFS (Figure 1). This reflects an overall decrease of 8 and 9 percentage points since 2005 for women and men, respectively. The decrease was primarily driven by a reduction in agricultural employment, whereas the share of off-farm AFS employment has remained relatively constant since 2005.

Figure 1. Share of agrifood-system employment in total employment in 2005 and 2019, by sex and agrifood-system subcomponent



Note: AFS – agrifood systems.
Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

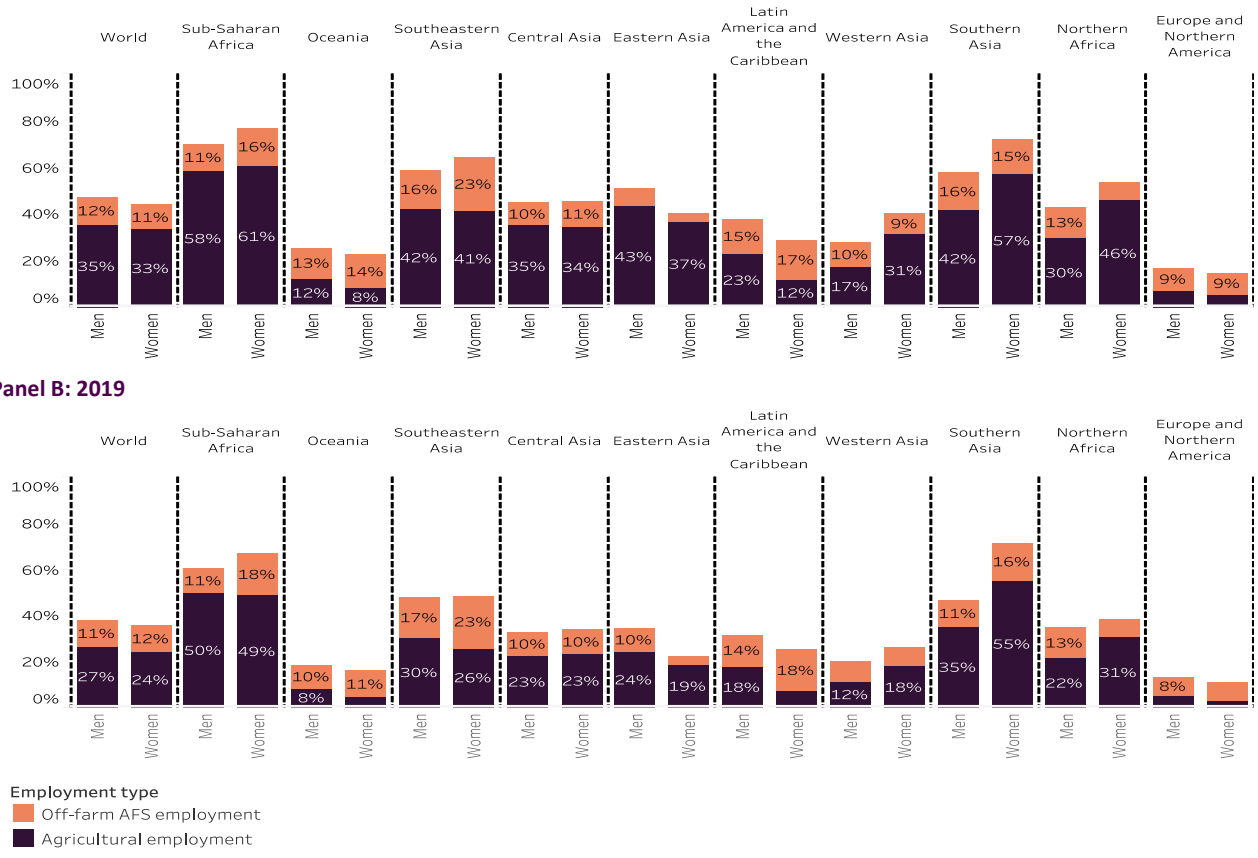
Agrifood systems are an important source of livelihood for women and men in all regions, especially SSA and southern and southeastern Asia (Figure 2). In SSA, 67 percent of working women and 61 percent of working men were employed in AFS in 2019, representing a decrease of 10 percentage points for women and 9 percentage points for men since 2005. In southeastern Asia, we observed that nearly half of the working women and men

were employed in AFS in 2019, but their participation has significantly decreased by 15 percentage points for women and 12 percentage points for men since 2005.

The largest share of women employed in AFS was in southern Asia, where 71 percent of working women were employed in AFS in 2019, compared with 47 percent of working men. This reflects a decrease of 11 percentage points for men since 2005, while women's participation in AFS has remained broadly stable over the past decade. Most jobs for both men and women within the AFS in SSA, southern and southeastern Asia are in the primary agricultural sector.

The off-farm segment of AFS in southeastern Asia, SSA and Latin America and the Caribbean (LAC) employs a large share of working women relative to other regions. An estimated 23 percent of working women in southeastern Asia and 18 percent in SSA and LAC were engaged in the off-farm AFS sector, compared with a global average of 12 percent in 2019.

Figure 2. Share of agrifood-system employment in total employment by sex and region, 2005 and 2019



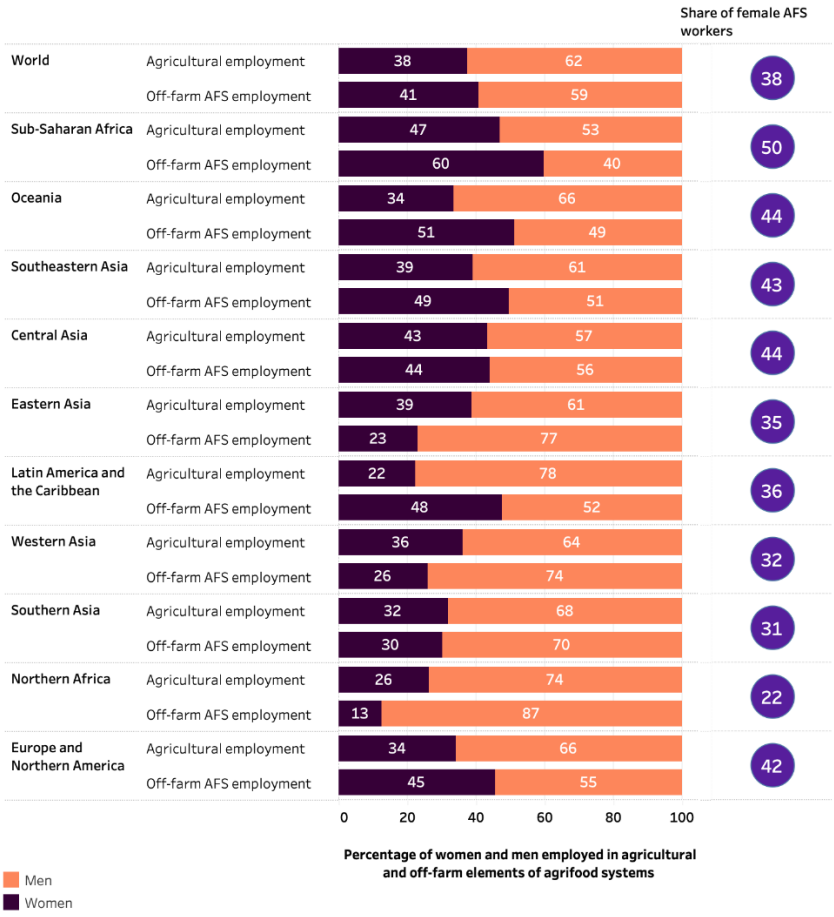
Note: AFS – agrifood systems.

Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT. Geneva*, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

Globally, 38 percent of AFS workers were women in 2019, ranging from 50 percent in SSA to 22 percent in northern Africa (Figure 3). Women represented 41 percent of all off-farm AFS workers worldwide and this share increased up to 60 percent in SSA (Figure 3).

We further observed that women comprised 38 percent of all agricultural workers in crop, livestock, fisheries and forestry in 2019, with significant variation between regions. On average, women made up 47 percent of agricultural workers in SSA – the highest share worldwide – while only 13 percent of agricultural workers in northern Africa were women. The share of women among agricultural workers was also rather low in LAC, where only 22 percent of agricultural workers were women. However, this share has increased over the past 20 years.

Figure 3. The distribution of women and men in total agrifood-system employment, by subcomponent of agrifood systems in 2019

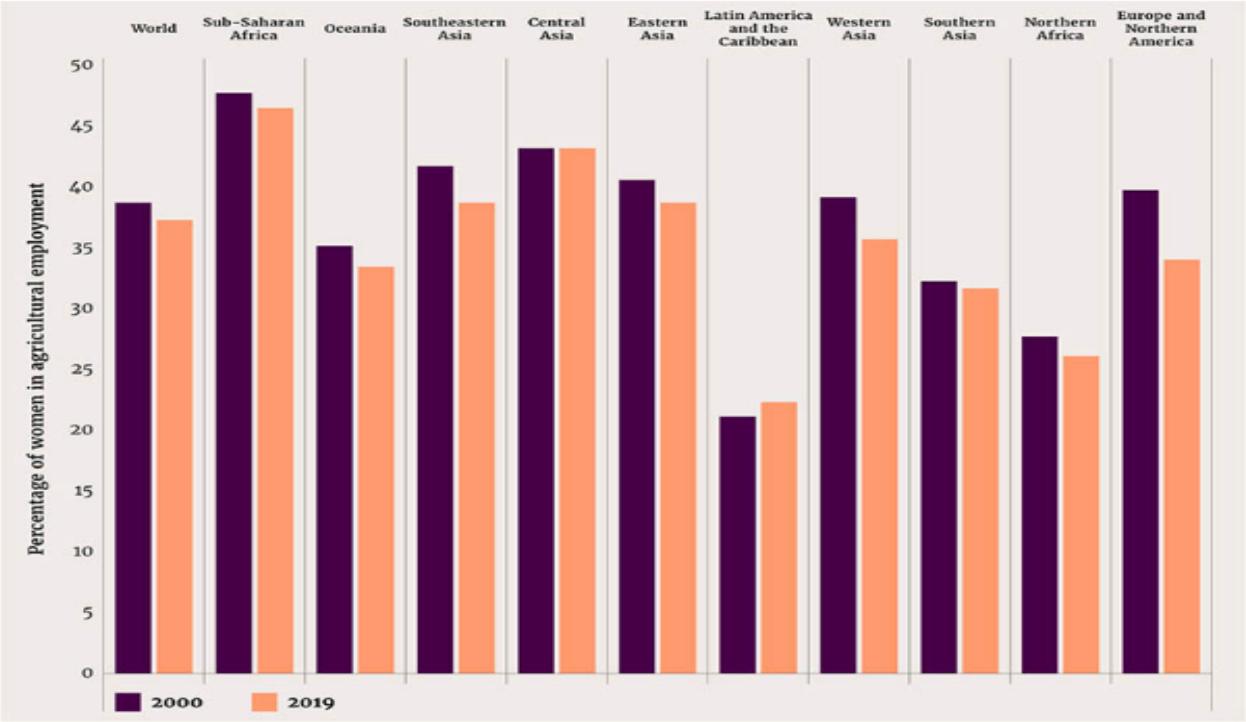


Note: AFS – agrifood systems.

Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

Figure 4 illustrates the change in the female share of agricultural employment since 2000. Globally, and in most regions, the share of women in agriculture has been decreasing. LAC is the only region with an increasing share of women in agriculture, whereas in Central Asia the share has remained stable. Thus, we observed no evidence of the feminization of agriculture globally and in most regions, despite the attention the topic has received over the last two decades. Recent studies have challenged certain narratives (or "myths") around the feminization of agriculture and highlighted the importance of understanding and better capturing the complex dynamics and nuances, and the multiple and diverse contexts and time-specific factors around the feminization of agriculture (Farnworth *et al.*, 2023; Kawarazuka *et al.*, 2022).

Figure 4. Share of women out of all workers employed in agriculture, 2000 and 2019

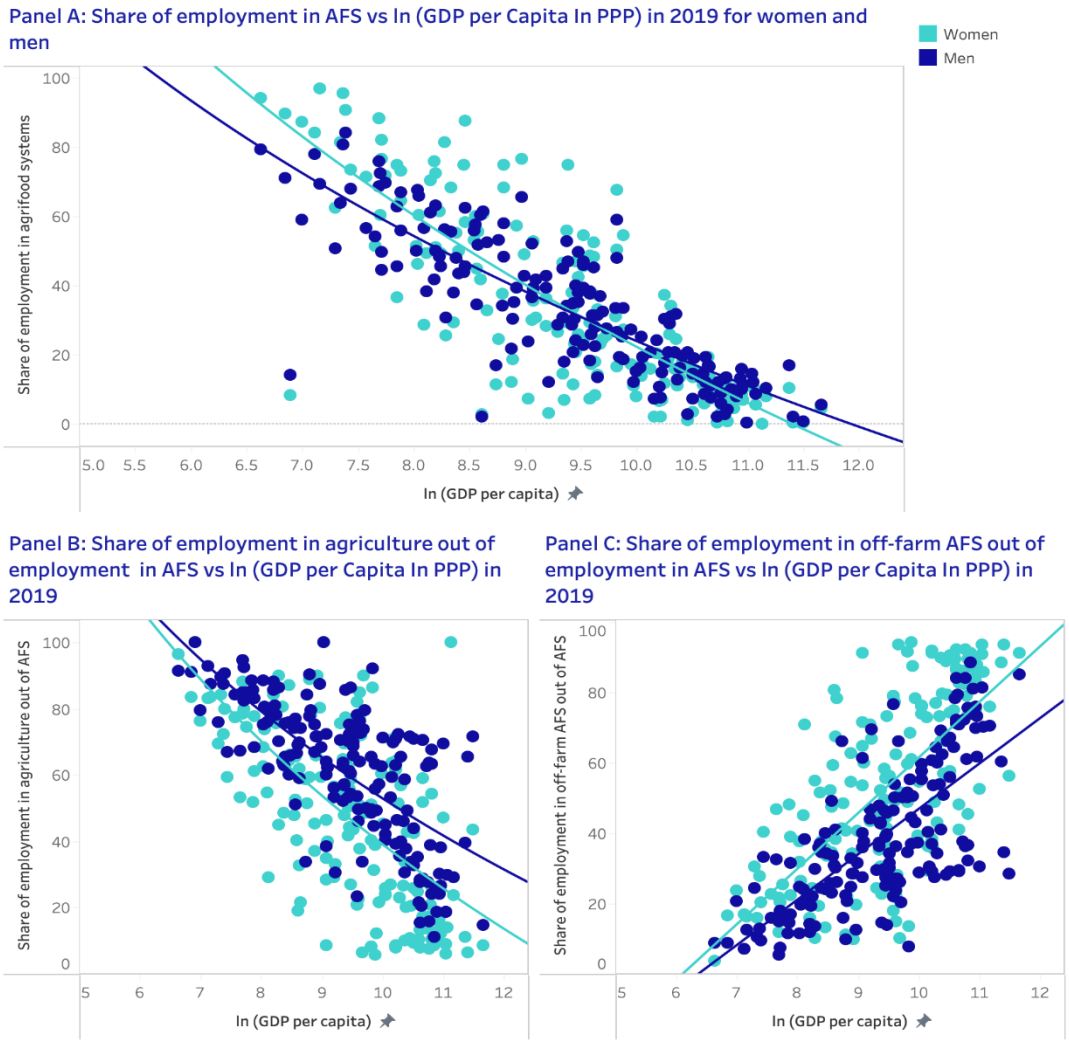


Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

We further examined the relationship between employment in AFS and economic development, measured by the logarithm (ln) of GDP per capita. The (ln) GDP per capita indicator comes from the World Bank's *World Development Indicators* database (World Bank, 2022). Figure 5 shows that countries with a higher GDP per capita have a smaller share of their workforce in AFS (Panel A). The trend holds for both men and women and is consistent with the process of structural transformation: as economies grow, both men and women begin to move out of agricultural employment, and a larger share of men than women are engaged in AFS activities. Panels B and C show that even within AFS, as countries develop people move out of agriculture and into off-farm activities such

as processing, transport, trade, storage and marketing. At any level of development, a larger share of men's employment than women's employment is in agriculture (Panel B); the opposite holds for off-farm AFS (Panel C).

Figure 5. Share of men and women employed in agrifood systems, with countries ordered by (ln) GDP per capita, 2019

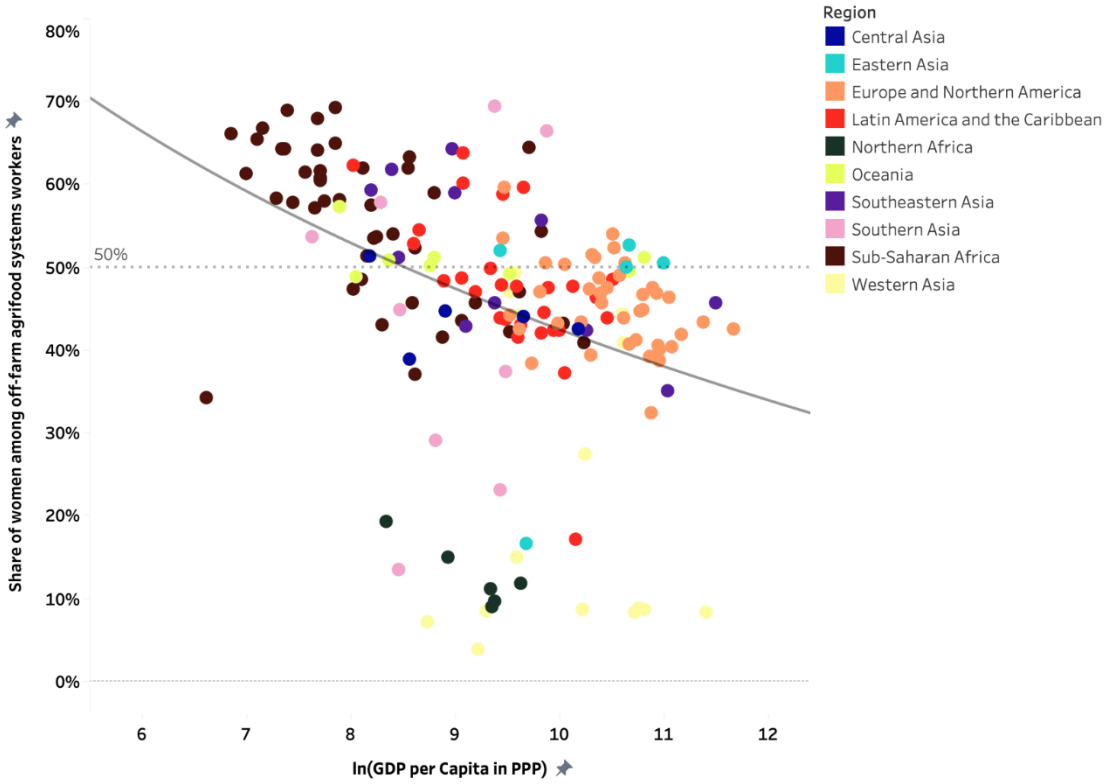


Notes: PPP – purchasing power parity, AFS – agrifood systems.
Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A, **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A and **World Bank**. 2022. GDP per capita (current US$). In: *The World Bank – Data*. Washington, DC. [Cited September 2022]. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

Next, we looked at how the gender distribution of workers in the off-farm AFS sector changes as countries' GDP per capita increase. Figure 6 shows that, particularly in countries at lower levels of economic development, the off-farm AFS sector is dominated by female workers. As economies grow, more and more men find employment

in the off-farm sector of AFS. Very few women are found in the off-farm segment of AFS in contexts where women's mobility is particularly constrained because of discriminatory social norms that prevent them from travelling long distances and interacting with outsiders, as is the case in many countries in western Asia and northern Africa (World Bank, 2019). In addition, western Asia and northern Africa are highly dependent on agrifood imports, which can contribute to fewer opportunities to grow the off-farm AFS sector (OECD, 2018).

Figure 6. Share of women in off-farm agrifood-system employment versus GDP per capita, 2019

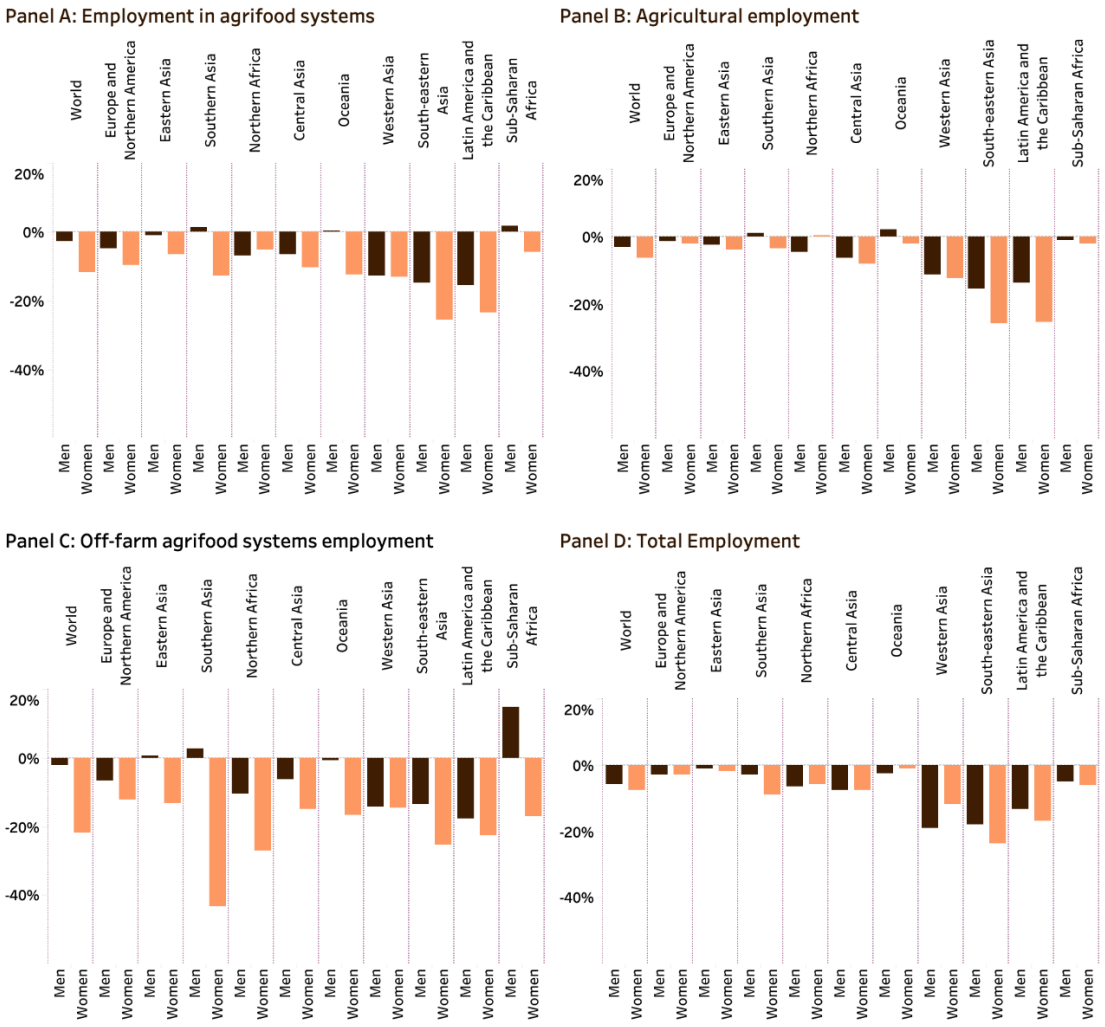


Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

Finally, we also investigated the changes in AFS employment between 2019 and 2020, the first year of the COVID-19 pandemic.[6] This showed that women working in AFS experienced greater employment losses than men in the first year of the pandemic (Figure 7, Panel A). This was primarily driven by a decrease in off-farm employment: in 2020, there were 22 percent fewer women working in off-farm AFS than in 2019, while men's employment in the same sector decreased by only 2 percent (Panel C). The gender gap in employment losses was especially pronounced in LAC and western and southeast Asia (Panel A).

[6] Large changes may sometimes be driven by a break in the data due to a change in data source for instance from ILOSTAT to the ILO-modelled estimates.

Figure 7. Changes in employment in agrifood systems from 2019 to 2020



Sources: Author's computation using data from **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

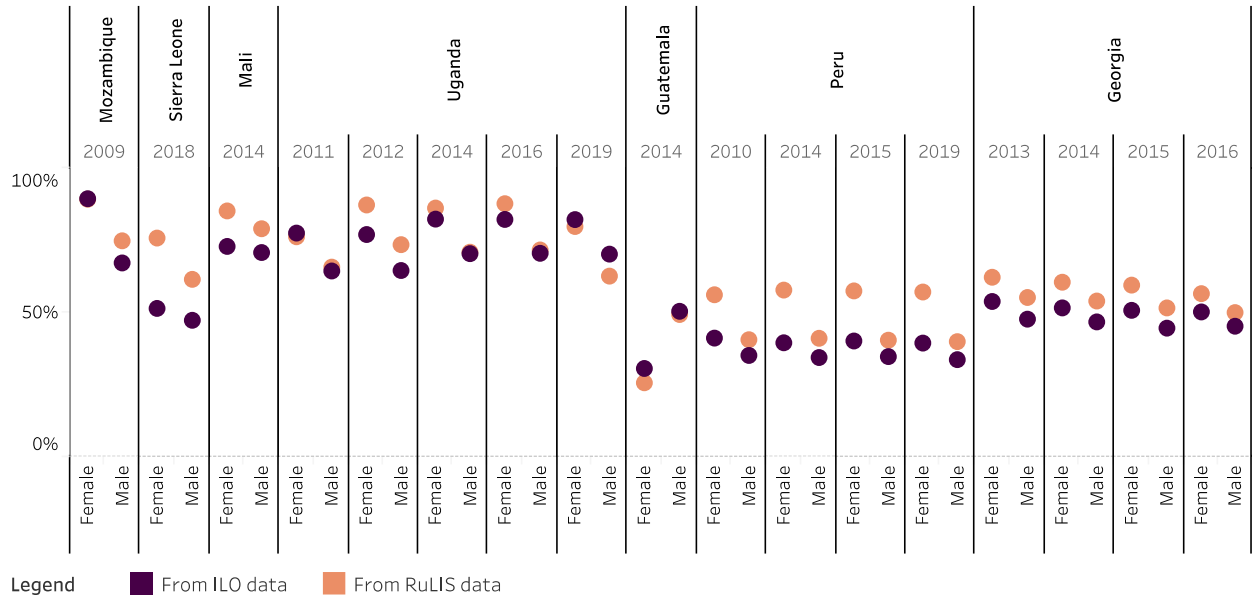
3.2 Checking the sensitivity of estimates of women's and men's employment in agrifood systems across data sources and definitions

Estimates of employment in AFS may differ across data sources (Davis *et al.*, 2023). This may be because the sources of the microdata differ: some statistics may come from labour-force surveys while others are drawn from living standards surveys. In addition, several countries in the ILO dataset use the definition of employment from the Nineteenth ICLS, which excludes people whose work is done for own consumption, whereas others continue

to define employment more broadly to include subsistence-oriented farming. Differences may also arise from the more detailed ISIC coding available in some household surveys and not in others (Davis *et al*., 2023).

Figure 8 shows a comparison of AFS employment estimates using data from FAO's RuLIS (FAO, 2023) and ILOSTAT (ILO, 2023b; ILO, 2023c). ILO's data are disaggregated at the two-digit ISIC level while additional analysis of the surveys in the RuLIS database, carried out by Davis *et al*. (2023), disaggregated AFS employment estimates at the four-digit ISIC level. The different level of disaggregation may generate different employment estimates within the same countries. Moreover, there are differences in the underlying microdata (i.e. the source of survey) that ILOSTAT and RuLIS draw on. Figure 8 shows that the estimates based on RuLIS data tend to be higher than the estimates from ILOSTAT data, but the difference is not stark across most countries for which we have data. It is, however, more pronounced with respect to measures of women's employment compared with men's employment. In 12 out of the 17 surveys examined, the difference between the data sources is larger for women than for men. While the difference may be at least partially due to different survey tools and/or sampling strategies used, it also suggests that more detailed disaggregation of economic activities is needed to accurately classify women's work in AFS.

Figure 8. Share of employment in agrifood systems in total employment by sex



Sources: Estimates based on data from **FAO**. 2023. RuLIS – Rural Livelihoods Information System. In: *FAO*. Rome. [Cited 24 January 2023]. https://www.fao.org/in-action/rural-livelihoods-dataset-rulis/en/ , **ILO**. 2023b. Employment by sex and economic activity ISIC level 2 (thousands) – Annual. In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer33/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A and **ILO**. 2023c. Employment by sex and economic activity – ILO modelled estimates, Nov. 2022 (thousands). In: *International Labour Organization –ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer34/?lang=en&id=EMP_2EMP_SEX_ECO_NB_A

Estimates of employment in AFS may also differ depending on the number of jobs and the recall periods used for measuring employment. As mentioned in the methodological section, Davis *et al.* (2023) define *engagement* in

AFS based on respondents' primary, secondary, tertiary or quaternary job and also allow for longer recall periods, such as the last 30 days, the last 12 months or other commonly used reference periods. Figure 9 compares estimates of *employment* in AFS (which focus on the main job in the last seven days) with estimates of *engagement* using the same surveys from FAO's RuLIS database. Davis *et al*. (2023) found that, among the countries studied, 19 percent of workers (31 million) held multiple jobs. Of these 31 million workers, 27 million held at least one job in AFS. Therefore, unsurprisingly, the *engagement* estimates in AFS for men and women tended to be higher than the *employment* estimates. The difference is not stark across most countries for which we have data. The largest difference between *employment* and *engagement* estimates was reported in Uganda for 2011 through 2016; the difference disappeared in data from 2019 and 2020. While in earlier surveys, the questionnaire inquired about the third and even fourth jobs undertaken in the last 12 months, in the 2019 and 2020 rounds, the questionnaire asked about only the main and secondary jobs in the last seven days (Davis *et al.*, 2023). This difference in the level of detail of employment information can help explain the drop in the engagement estimates in the later surveys in Uganda.

Overall, both *employment* and *engagement* in AFS for men and women are lower in higher-income countries than in lower-income countries. The share of women *engaged* in AFS as their primary or secondary job ranged from 78.53 percent in Mozambique (2009) to 20 percent in Guatemala (2014), while the share of men ranged from 70 percent in Mali (2014) to 37.75 percent in Peru (2014). In most of the surveys examined, a greater proportion of women than men were employed in AFS, with a notable exception in Guatemala, where 10.29 percent of women were employed in AFS in 2014 compared with 41.37 percent of men. Similarly, in Mali more men than women were employed in AFS, but the difference was less than 10 percentage points. In Uganda and Georgia, there was a decrease in the share of men and women employed in AFS over the last ten years, especially for men. These findings are consistent with a decrease in AFS employment as economies grow (as also seen in Figure 5).

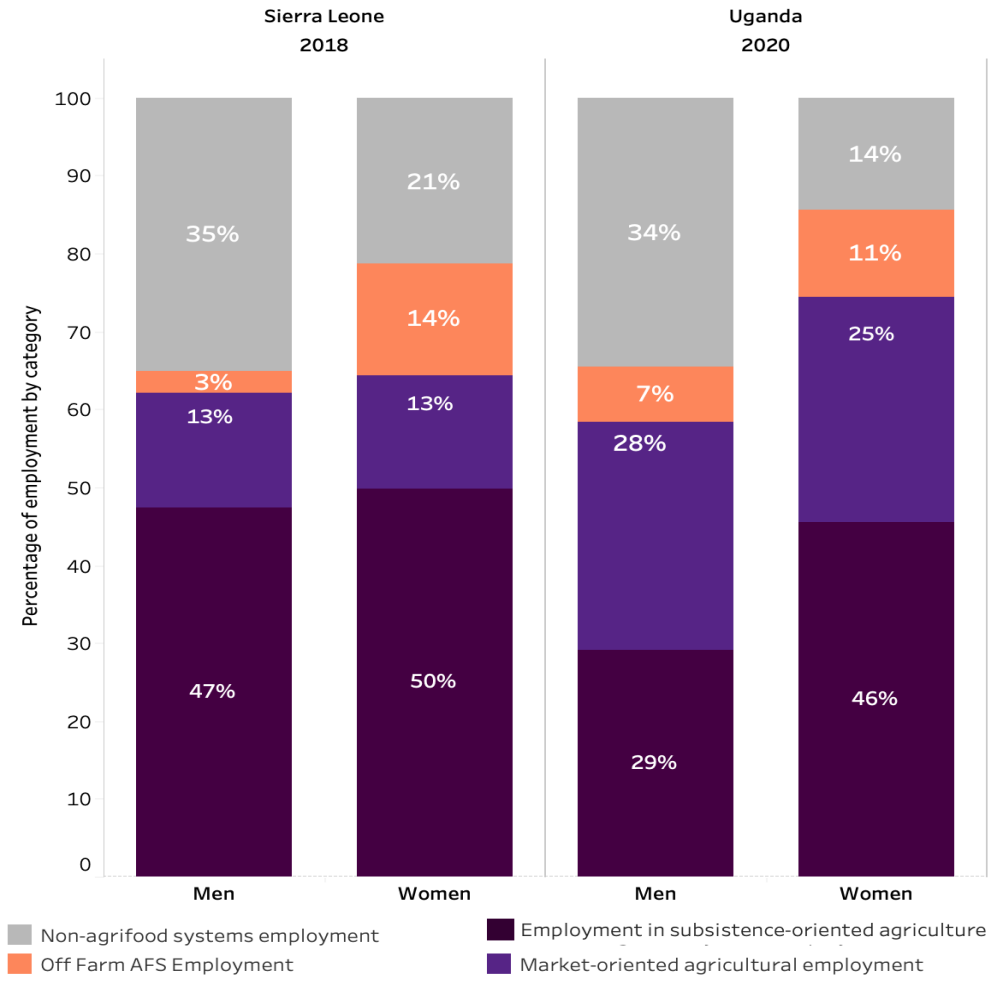
Figure 9. Share of women and men engaged and employed in agrifood systems

Source: Estimated based on data from **FAO**. 2023. RuLIS – Rural Livelihoods Information System. In: *FAO*. Rome. [Cited 24 January 2023]. https://www.fao.org/in-action/rural-livelihoods-dataset-rulis/en/

We also explored how AFS employment estimates change if we excluded subsistence farmers in line with the revised definition of employment from the Nineteenth ICLS. For this analysis, we used the Uganda National Panel Survey (2020) and the Sierra Leone Integrated Household Survey (2019) as case studies.[7] Figure 10 shows that including subsistence farming in employment has large repercussions for the estimates of employment, especially for women's employment. In Sierra Leone, 79 percent of working women were employed in AFS, of whom 50 percent were in subsistence agriculture. Similarly, in Uganda 86 percent of working women were employed in AFS, of whom 46 percent were subsistence farmers. While almost half of working women were involved in subsistence-oriented agriculture in Uganda, 29 percent of working men were subsistence farmers. Participation rates in market-oriented agriculture were similar between men and women in both countries. However, a larger share of working women than working men relied on off-farm AFS for their livelihoods: 14 percent of women compared with 3 percent of men in Sierra Leone, and 11 percent of women compared with 7 percent of men in Uganda. Therefore, the proportion of women working in AFS remained higher than the proportion of men, regardless of whether subsistence farming was included in the definition of employment. But given the fact that subsistence farming is highest among women and in low- and middle-income countries, these findings have important implications for the design of livelihoods interventions, particularly for women and the most vulnerable populations.

[7] Uganda and Sierra Leone are the only RuLIS countries where it was possible to measure subsistence agriculture in AFS. All the surveys examined in Figure 9 did not include questions for capturing subsistence agriculture in agrifood system.

Figure 10. The relative importance of subsistence farming in agrifood systems using the definition of the Thirteenth International Conference of Labour Statisticians versus the revised definition



Notes: AFS – agrifood systems. The Thirteenth ICLS definition of employment comprises off-farm agriculture, employment in subsistence-oriented agriculture and market-oriented agricultural employment, while the revised definition comprises only the market-oriented agricultural employment.
Source: Estimated based on data from **FAO**. 2023. RuLIS – Rural Livelihoods Information System. In: *FAO*. Rome. [Cited 24 January 2023]. https://www.fao.org/in-action/rural-livelihoods-dataset-rulis/en/

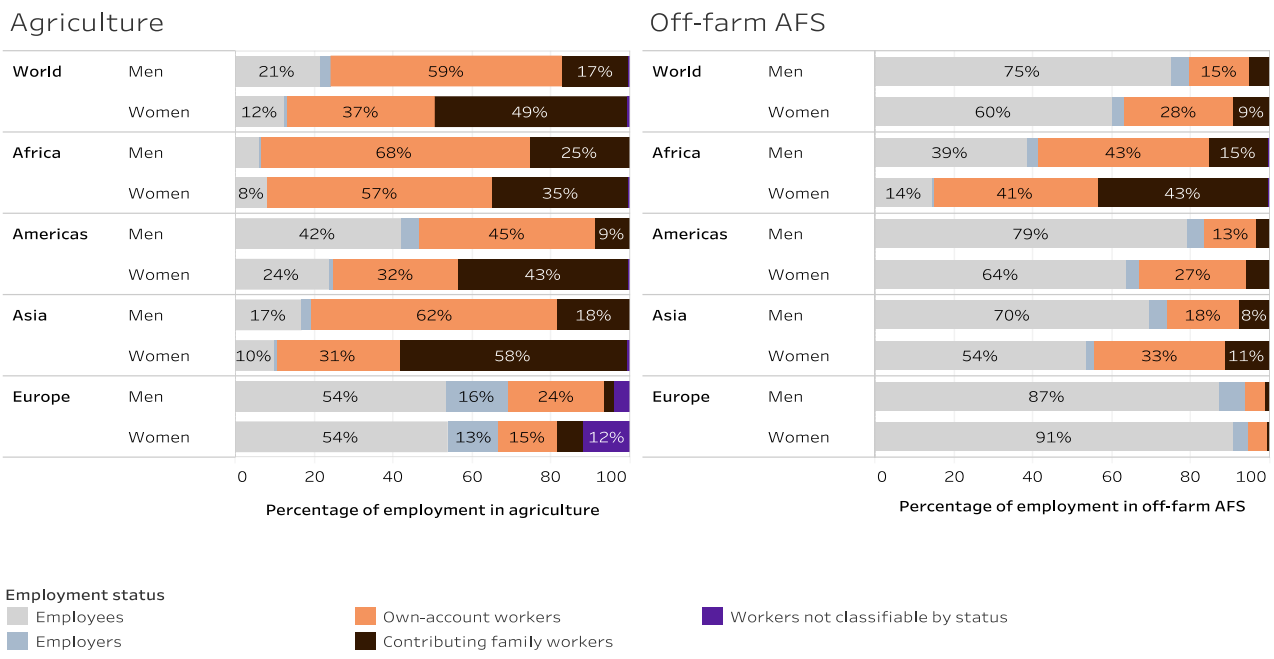
3.3 Gender differences in status in employment and in the number of hours worked in agrifood systems

Our review of status in employment and hours of work of women and men in AFS showed that a larger share of working women than men globally in both agriculture and off-farm AFS are in vulnerable forms of self-employment. As mentioned in section 3.2, own-account and contributing family workers are forms of vulnerable self-employment (ILO, 2013). Vulnerable employment is significantly more common in agriculture than in the off-farm segment of AFS, and it is particularly high in Africa and Asia. Globally, 86 percent of female workers in

agriculture are either own-account or contributing family workers, compared with 76 percent of male workers, and women are nearly three times as likely as men to be contributing family workers (Figure 11). Contributing family work is significantly less common in the off-farm segment of AFS, where 9 percent of working women are identified as contributing family workers, compared to 5 percent of men.

Wage employment accounted for most of the off-farm AFS employment for both men and women in all regions, except for Africa. However, women continue to be disadvantaged in access to wage employment: globally, 60 percent of working women are in wage employment in the off-farm segment of AFS, compared with 75 percent of working men. In Africa, 39 percent of men work for wages in the off-farm AFS sector, whereas only 14 percent of women do so. A large share of women's employment in the off-farm segment of AFS in Africa (84 percent) continues to be vulnerable, either as own-account workers (often as microentrepreneurs in the informal sector) or as contributing family workers.

Figure 11. Employment in agriculture and in off-farm agrifood systems by status in employment and sex



Note: AFS – agrifood systems.
Source: Author's computation using data from **ILO**. 2023d. Employment by sex, status in employment and economic activity (thousands). In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer25/?lang=en&id=EMP_TEMP_SEX_EC2_NB_A

While a similar share of men's and women's employment globally is in AFS (38 percent versus 36 percent) (Figure 1), there are appreciable differences in the number of hours men and women work in AFS. In most regions, women work fewer than 40 hours in both agriculture and total AFS, whereas men's employment (slightly) exceeds 40 hours (Figure 12). This suggests that women are more likely than men to be in part-time and irregular employment in both agriculture and total AFS. Eastern Asia is the only region where women and men work long hours in AFS,

including agriculture, which could also be linked to the greater commercialization and intensification of agriculture and value chains in this region. Working hours are lowest for both men and women in Central Asia, with women working fewer hours than men.

Figure 12. Hours worked by women and men in agriculture and agrifood systems in the previous seven days

Source: Author's computation using data from **ILO**. 2023e. Mean weekly hours actually worked per employed person by sex, and economic activity ISIC level 2 (thousands). In: *International Labour Organization – ILOSTAT*. Geneva, Switzerland. [Cited September 2022]. https://www.ilo.org/shinyapps/bulkexplorer10/?lang=en&id=EMP_TEMP_SEX_STE_ECO_NB_A

4 Conclusion

This study provides the first documented global estimates of the share of women and men employed in AFS. Globally, 36 percent of working women and 38 percent of working men are employed in AFS. These estimates reflect a decline of 8 and 9 percentage points for men and women, respectively, between 2005 and 2019, driven almost exclusively by a reduction in employment in primary agriculture. While globally a larger number of men than women are employed in AFS, women constitute over 50 percent of all AFS workers in SSA and over 40 percent of all AFS workers in several other regions. We further observed that, consistent with a process of structural transformation, as economies grow, people begin to move out of agricultural employment into off-farm activities such as processing, transport, trade, storage and marketing. These findings are consistent for both men and women. Nonetheless, within the AFS sector, at any given level of development, a larger share of men's employment is in agriculture and a larger share of women's employment is in the off-farm segment of AFS.

The study also showed that the COVID-19 pandemic disproportionately impacted women, particularly those working in the off-farm segment of AFS. In 2020, 22 percent of women working in the off-farm segment of AFS lost their jobs, compared with only 2 percent of men working in the sector during the same period.

Additionally, we showed that employment estimates may vary depending on data source, recall period and definition of employment. One of the most important implications from a gender perspective is around the treatment of subsistence farming in employment estimates. A larger share of working women than working men engage in subsistence farming, particularly in low-income countries, and a lack of recognition of this work can lead to misguided policy and programming interventions.

Finally, we found that while a similar share of men's and women's employment globally is in AFS, women are more likely to be in vulnerable forms of employment (i.e. own-account workers or contributing family workers) and to work fewer hours than men.

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Appendix

Table A1. Definitions of employment used in the analysis

	Definition	Measurement	Variables	Source
Employment	Employment comprises any work performed for pay and the production of goods, whether the goods are for profit or for own use	Main job, last 7 days	(i) Paid employment (ii) Self-employment (iii) Subsistence farmers	ILO (1982)
Employment – revised definition	Employment comprises any work performed for others in exchange for pay or profit	Main job, last 7 days	(i) Paid employment (ii) Self-employment	ILO (2013)
Engagement	Engagement comprises any activity performed for pay/profit or self-consumption	Multiple jobs, last 7 days/12 months	(i) Paid employment (ii) Self-employment (iii) Subsistence farming	Davis *et al*. (2023)

Sources:

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Table A2. Definition of agrifood systems employment variables

Categories	ISIC divisions	ISIC Rev. 4 2-digit codes	Share of women, detailed (%)	Share of women (%)
Agriculture, forestry and fishing	Agriculture	1	35	38
	Forestry and logging	2	21	
	Fishing	3	16	
Food processing and services	Manufacture of food products	10	44	51
	Manufacture of beverages	11	29	

Food processing and services	Food and beverage service activities	56	55	
	Undifferentiated goods- and services-producing activities of private households for own use	98	41	
Manufacture of non-food agricultural products	Manufacture of tobacco products	12	47	38
	Manufacture of textiles	13	51	
	Manufacture of leather and related products	15	42	
	Manufacture of wood and products from wood and cork, except furniture	16	19	
	Manufacture of paper and paper products	17	28	
Trade	Wholesale trade, except of motor vehicles and motorcycles	46	35	50
	Retail trade, except of motor vehicles and motorcycles	47	53	
Transportation	Land transport and transport via pipelines	49	8	15
	Water transport	50	14	
	Air transport	51	44	
	Warehousing and support activities for transportation	52	24	
	Postal and courier activities	53	32	

Notes: ISIC – United Nations International Standard Industrial Classification of All Economic Activities. The shares are calculated based on varying samples of countries for which detailed information disaggregated by economic activity is available (around 80 countries).
Source: **ILO (International Labour Organization).** 2023a. International Standard Industrial Classification of All Economic Activities (ISIC). In*: International Labour Organization – ILOSTAT.* Geneva, Switzerland. [Cited 19 October 2023]. https://ilostat.ilo.org/resources/concepts-and-definitions/classification-economic-activities/

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