

# The Structure of the Labor Force and Employment In Sudan

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# SLMPS 2022 Data



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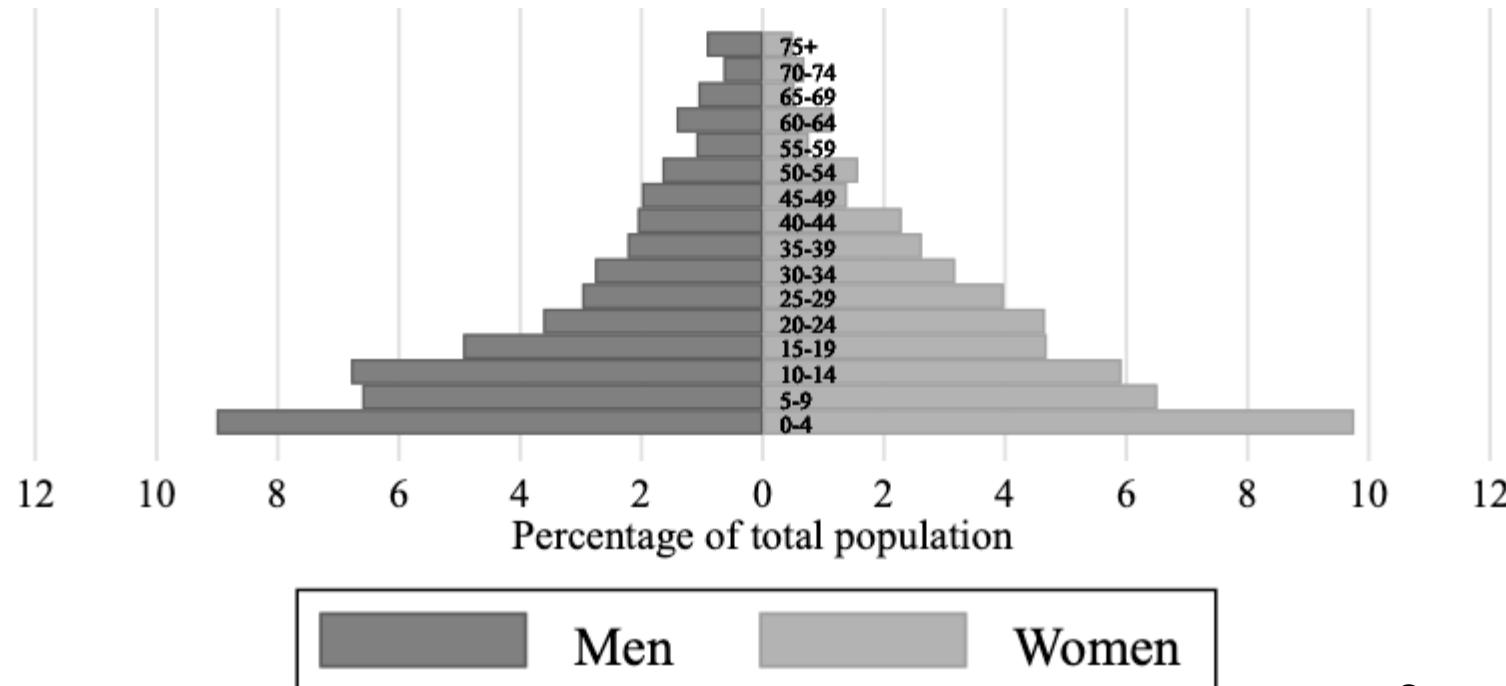
- Analyze labor supply and structure of employment using SLMPS 2022 data
  - Collected by Sudan's Central Bureau of Statistics, in collaboration with the Economic Research Forum and Ministry of Labor and Administrative Reform
- Topics covered in this presentation (and working paper):
  - Demographics
    - Age structure
    - Marriage (Kaplan-Meier estimator)
    - Fertility (Age-specific and total fertility rates)
  - Education
    - Attainment
    - Enrollment
  - Labor supply
    - Labor force participation
    - Employment rates
    - Unemployment rates
    - Different definitions
    - By urban/rural, age, and education
- Structure of employment
  - Institutional sector (employment status; agriculture vs. non-agriculture; formality, public vs. private sector)
    - By sex, location, education, household wealth
  - Economic activity (industry)
  - Occupation
- Working conditions for private sector wage workers
  - Formality (social insurance coverage)
  - In an establishment
  - Irregular
  - Firm size
  - Benefits (employer-based health insurance and leaves)

# Demographics

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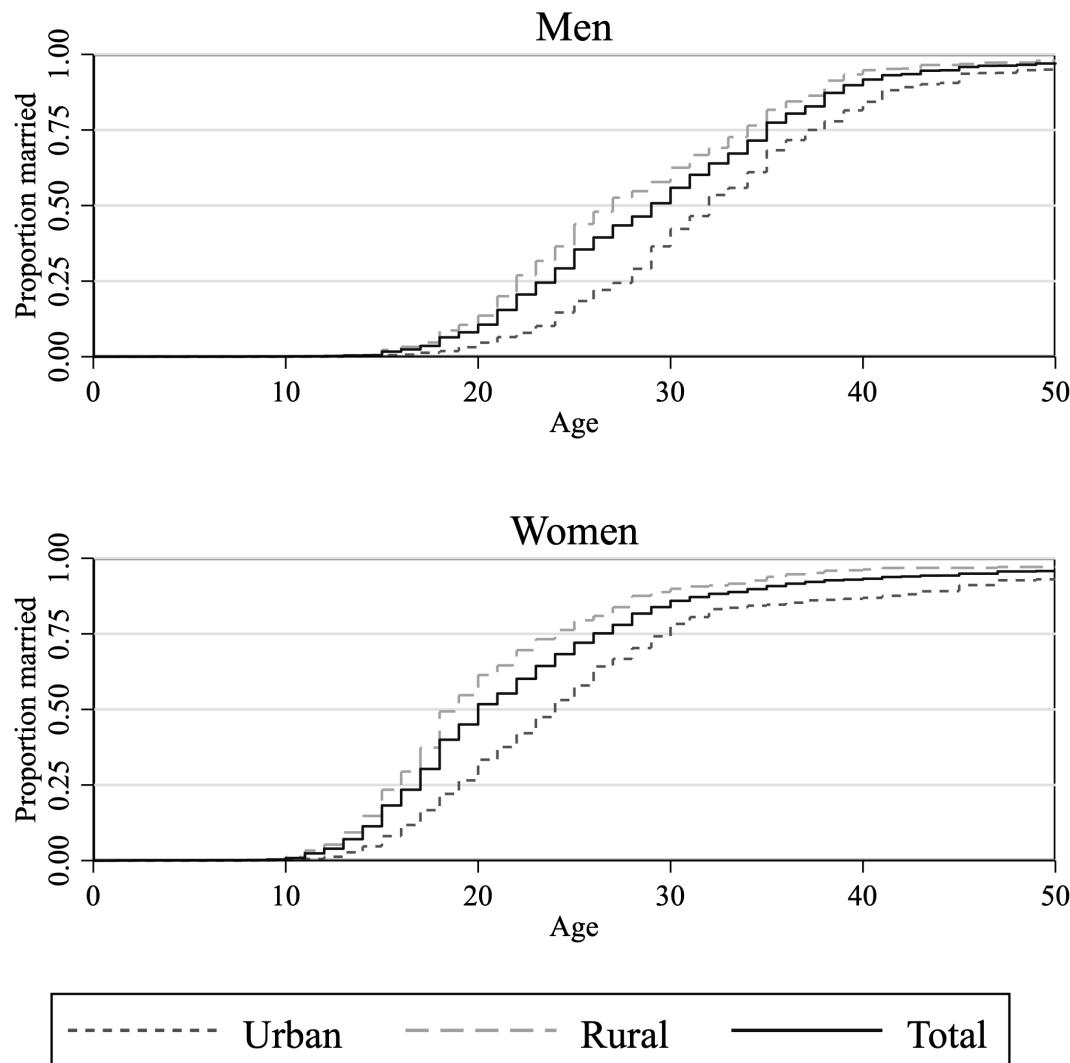
# Sudan's population is young

Population pyramid (percentage of the population by age group and sex), 2022



- Young population: 63% aged 0-24
  - 45% children aged 0-14
  - 18% youth aged 15-24
- Rural population is younger with 65% aged 0-24 vs. 57% in urban areas
  - Share of children in rural areas 48% vs. 37% in urban areas

Source: Authors' calculations based on SLMPS 2022



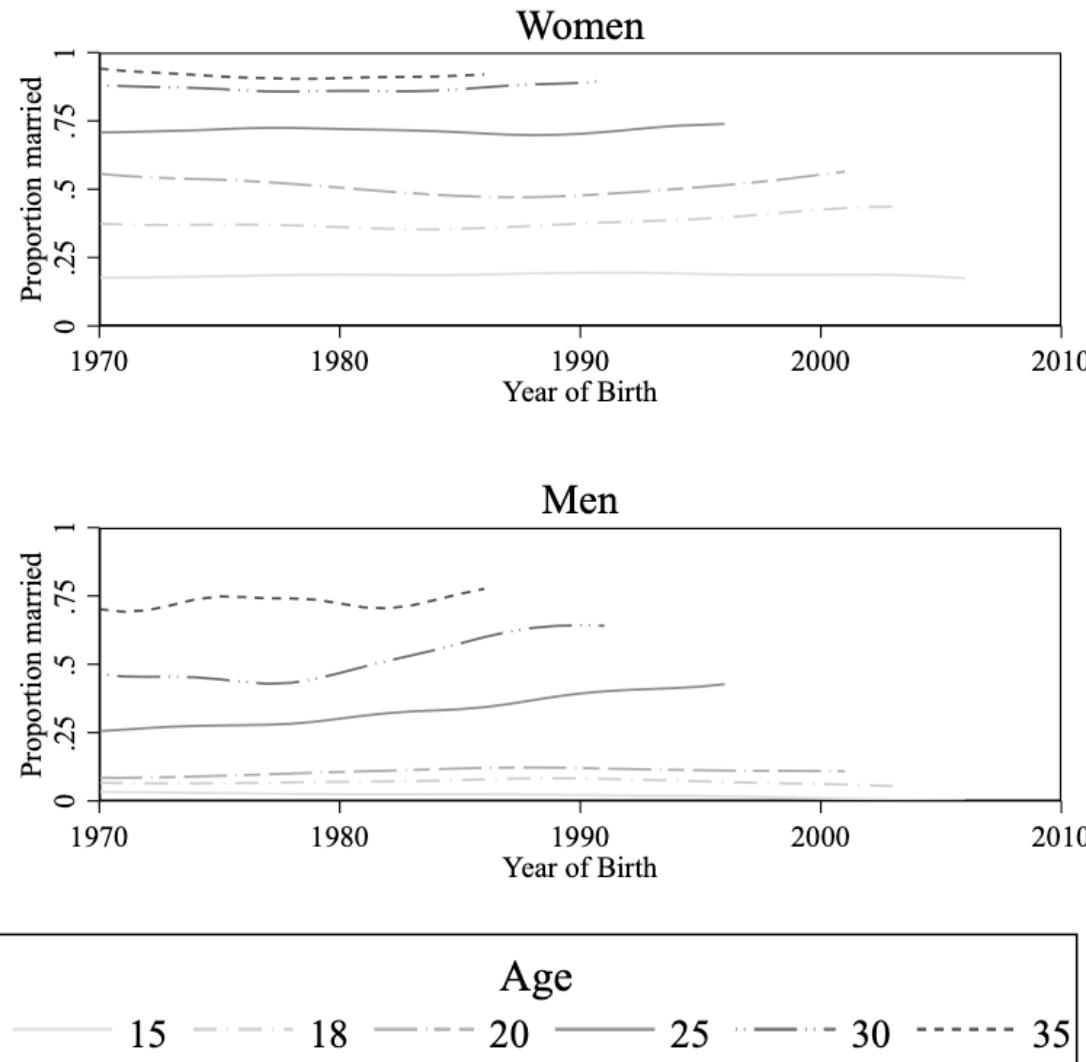
Source: Authors' calculations based on SLMPS 2022

Notes: Kaplan-Meier estimator

# Marriage is near universal and often early

Proportion (ever) married by age, sex, and location, ages 15-59 in 2022

- Marriage is near universal for both men and women in Sudan
  - More than 95% of each group marrying by age 50.
- The median age at marriage was 20 for women and 29 for men
  - Earlier marriage in rural areas
- Early marriage is common: 18% of women aged 15-59 married before age 16 and 30% before age 18.

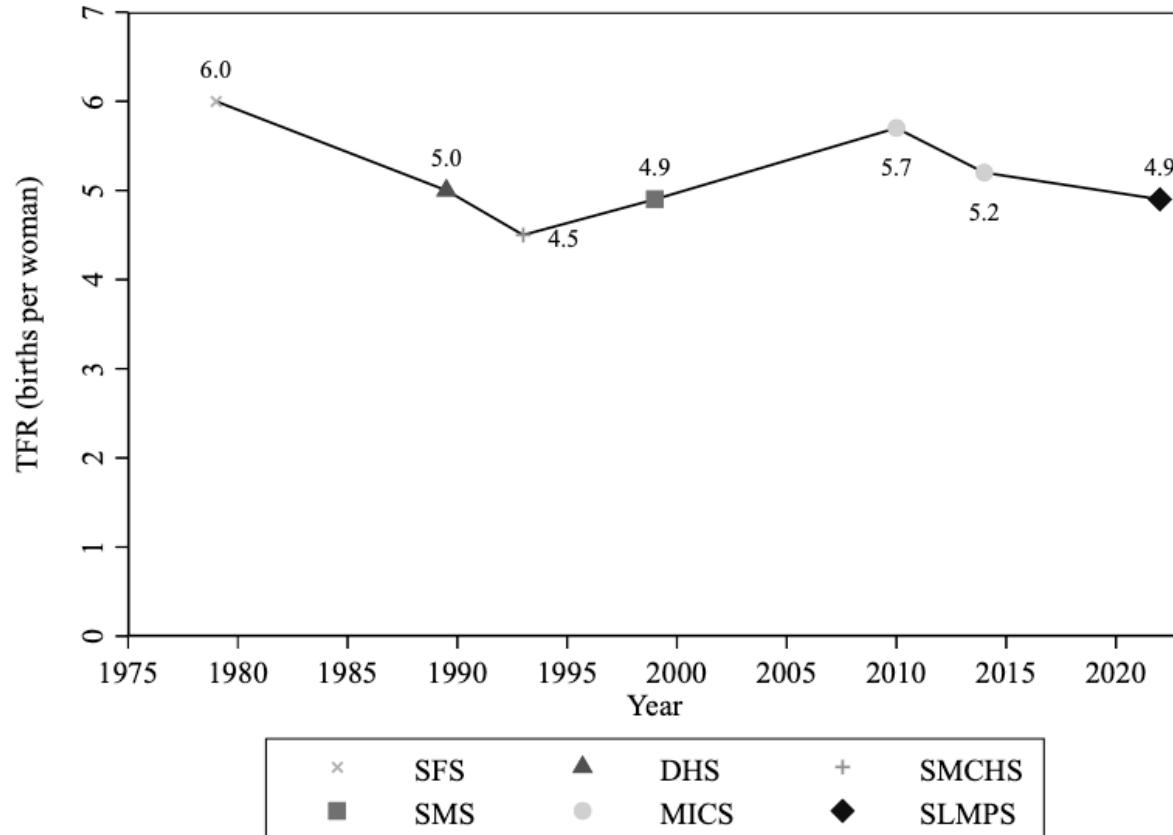


## Limited shifts in age at marriage, to earlier ages

Proportion (ever) married by different ages, year of birth, and sex

- Women's age at marriage has not changed much across birth cohorts
  - Fewer married by 18, 20 for 1980-1990 cohorts, but then increases early 1990s-2000s
- Share marrying by a given age increased more for men over time
  - For example, while only 25% of men were married by age 25 among those born in 1970, increased to around 45% for cohorts born in the 1990s

Source: Authors' calculations based on SLMPS 2022



Source: Authors' calculations for SLMPS 2022; Central Bureau of Statistics (CBS) and UNICEF Sudan (2016) for Multiple Indicator Cluster Survey (MICS) 2014; Government of Sudan Federal Ministry of Health Central Bureau of Statistics (CBS) (2012) for MICS 2010; Mahfouz (2009) for 1999 Safe Motherhood Survey (SMS); Population Council (1995) for Sudan Maternal and Child Health Survey (SMCHS) 1993; Department of Statistics (Sudan), Ministry of Economic and National Planning (Sudan), Demographic and Health Surveys, Institute for Resource Development/Macro International Inc. (1991) for Demographic and Health Survey (DHS) 1989/90 and Sudan Fertility Survey (SFS) 1979.

Notes: SLMPS based on three years preceding the survey

# Fertility stall

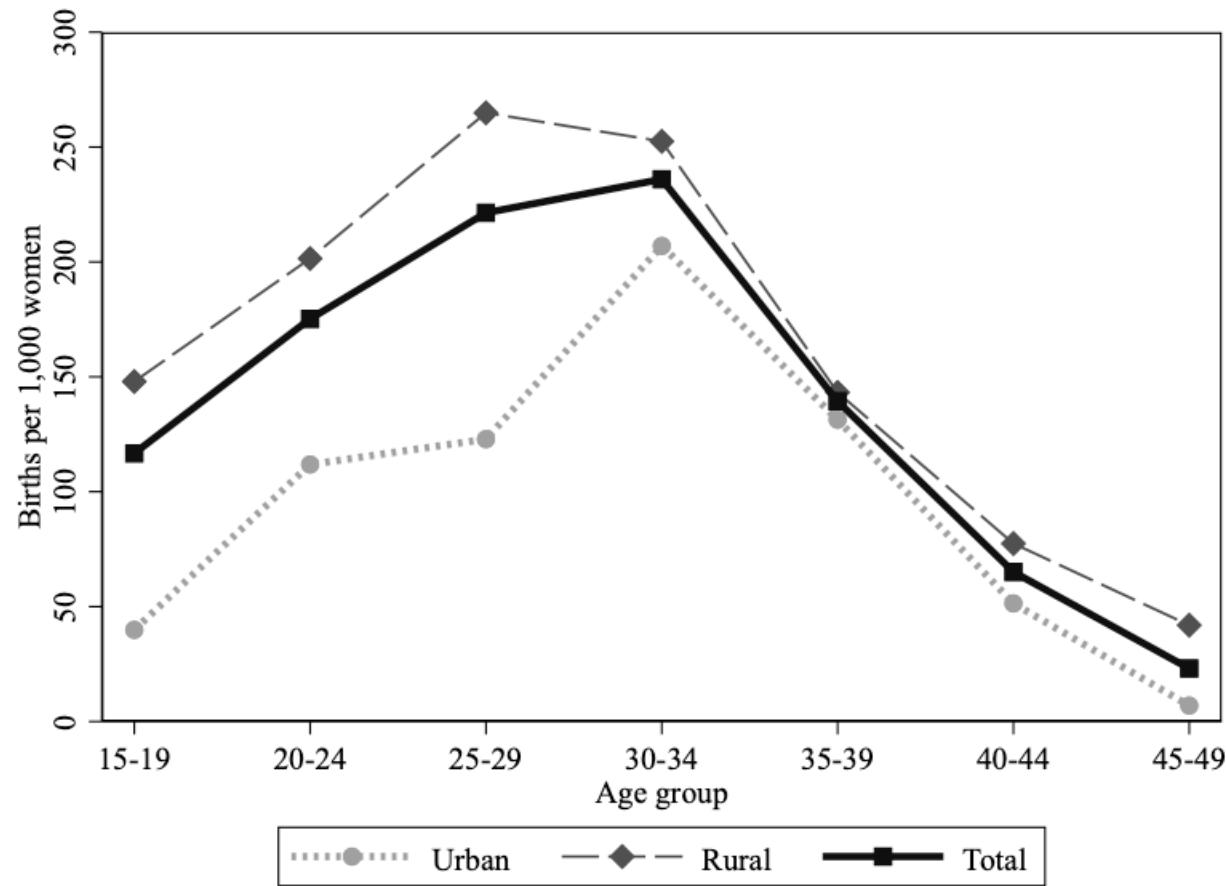
Total fertility rate (TFR, births per woman), 1979-2022

- Sudan's TFR, has remained consistently high with a number of fluctuating decreases and increases since 1979
  - Highest in 1979 at 6.0 births per woman
  - Lowest point in 1993 with 4.5 births per woman
  - Increased back up to 5.7 births per woman in 2010
  - Falling to 5.2 births per women in 2014.
- In 2022, based on the SLMPS, the TFR in Sudan was estimated at 4.9 births per woman

# Fertility higher in rural areas

Age-specific fertility rates (births per thousand women), by urban/rural location, 2022

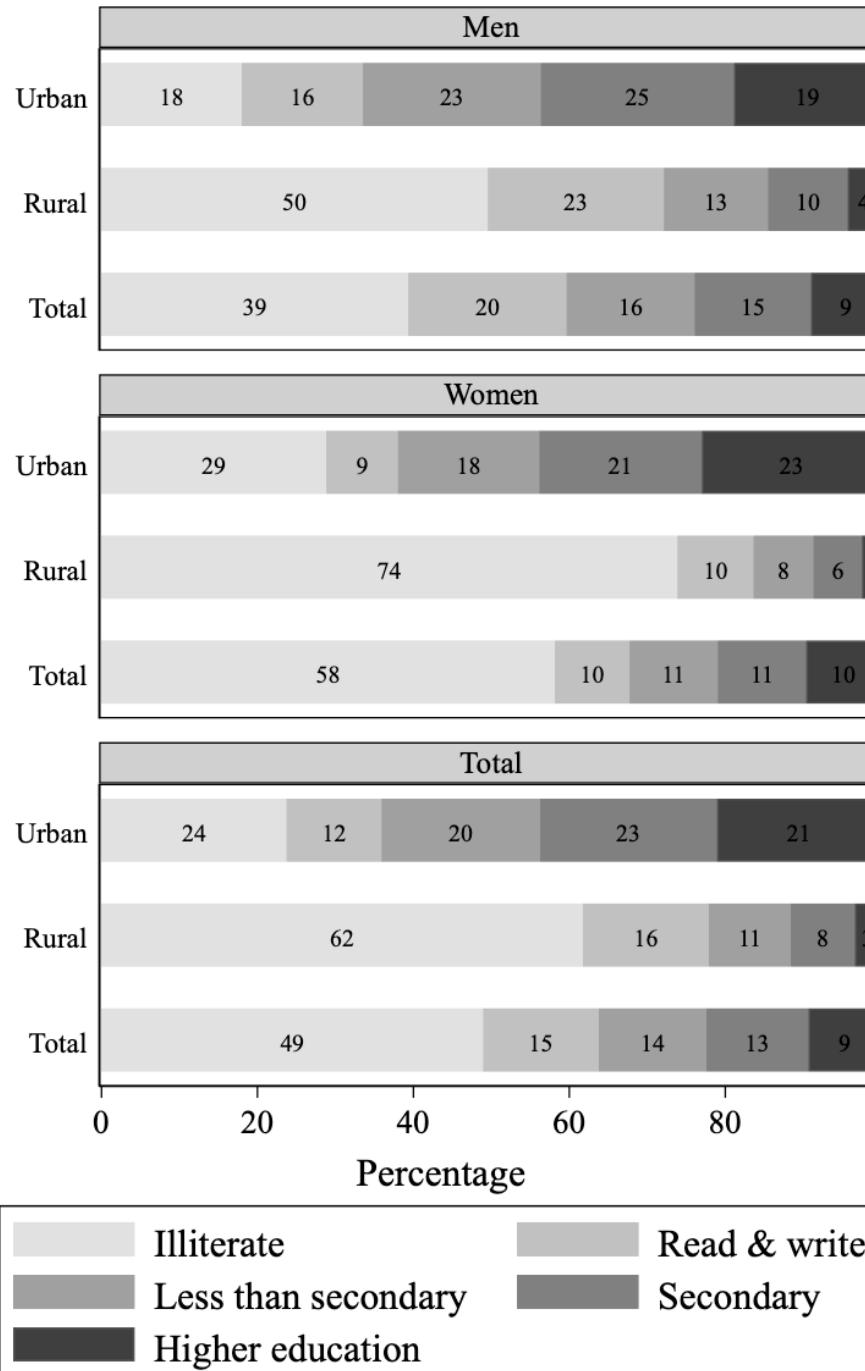
- Fertility is substantially higher in rural areas (TFR of 5.6 births per woman) than urban areas (TFR of 3.4 births per woman)
- Age-specific fertility rates (ASFRs) peak at age 30-34 at 236 births per thousand woman
  - Peak at age 25-29 in rural areas at 265
  - Peak at age 30-34 in urban areas at 207
- Rural ASFRs higher 15-34, converge thereafter



Source: Authors' calculations based on SLMPS 2022

# Education

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# Disparities in education

Educational attainment (percentage), by sex and location, ages 25-64, 2022

Nearly half (49%) of those ages 25-64 are illiterate

- 39% of men and 58% of women

15% of adults can read and write but have not completed any level of school

- 20% of men and 10% of women

A further 14% have attained a less than secondary level, and 13% a secondary level

- Fewer women than men doing so

About a tenth of adults have attained a higher education

- Slightly higher share among women than among men

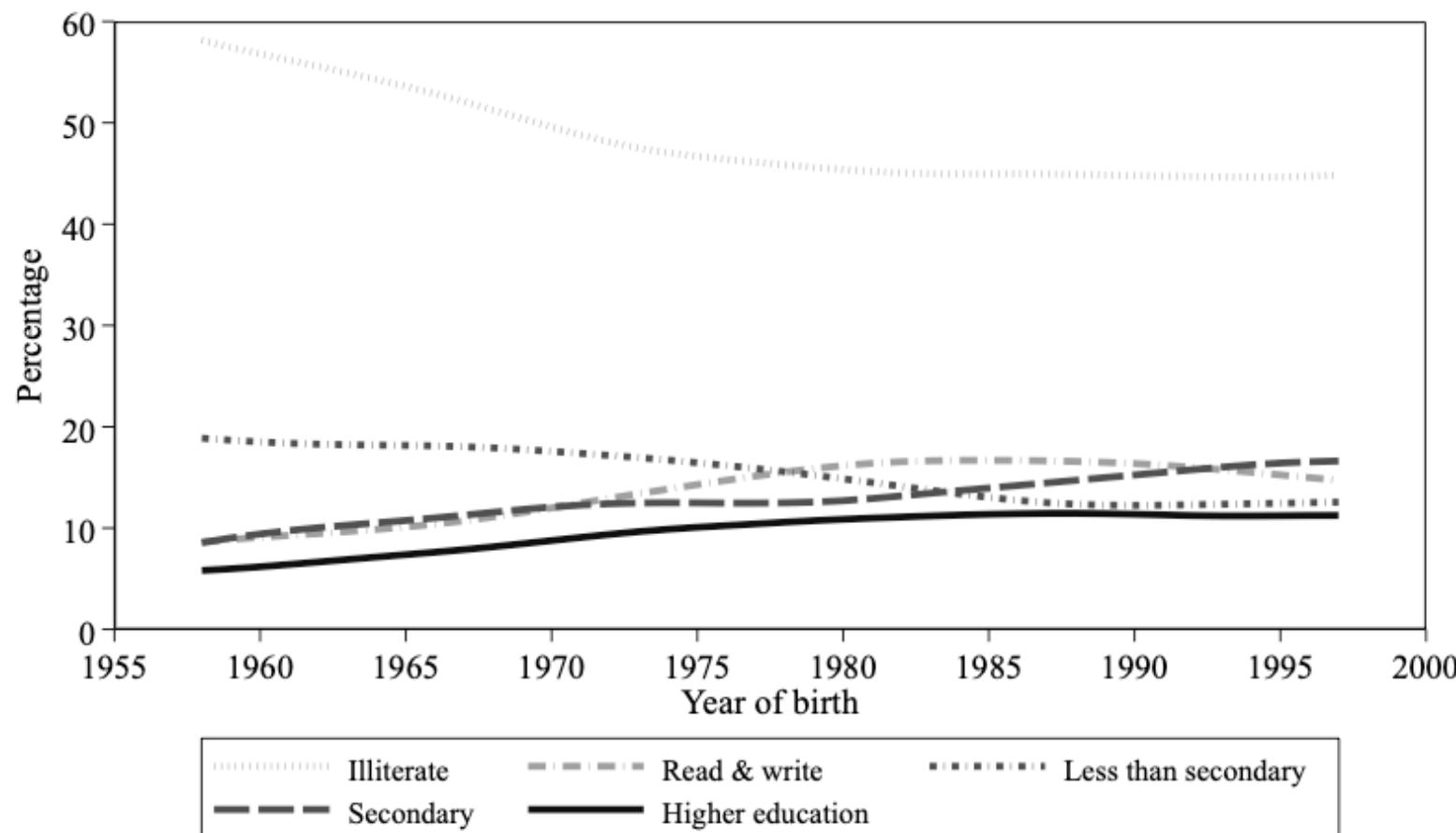
Rural respondents and rural women have lower educational attainment

Source: Authors' calculations based on SLMPS 2022

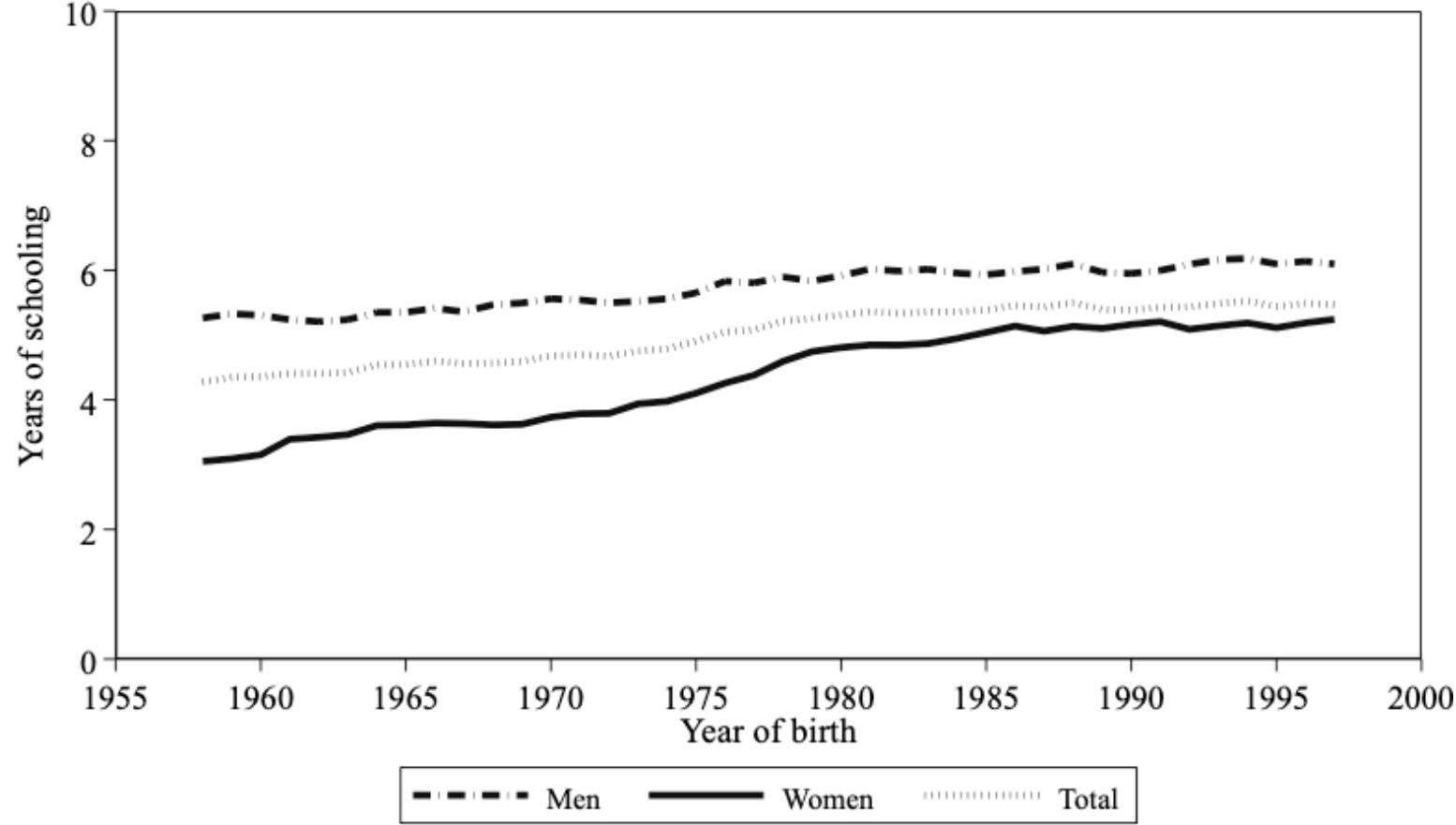
# Progress and stall in expanding education

Educational attainment (percentage), by birth cohort

- Increases in education clear from 1950s-1970
  - Especially reducing illiteracy, expanding secondary and higher education
- Progress plateaued thereafter



Source: Authors' calculations based on SLMPS 2022



## Progress but persistent gender gap in years of schooling

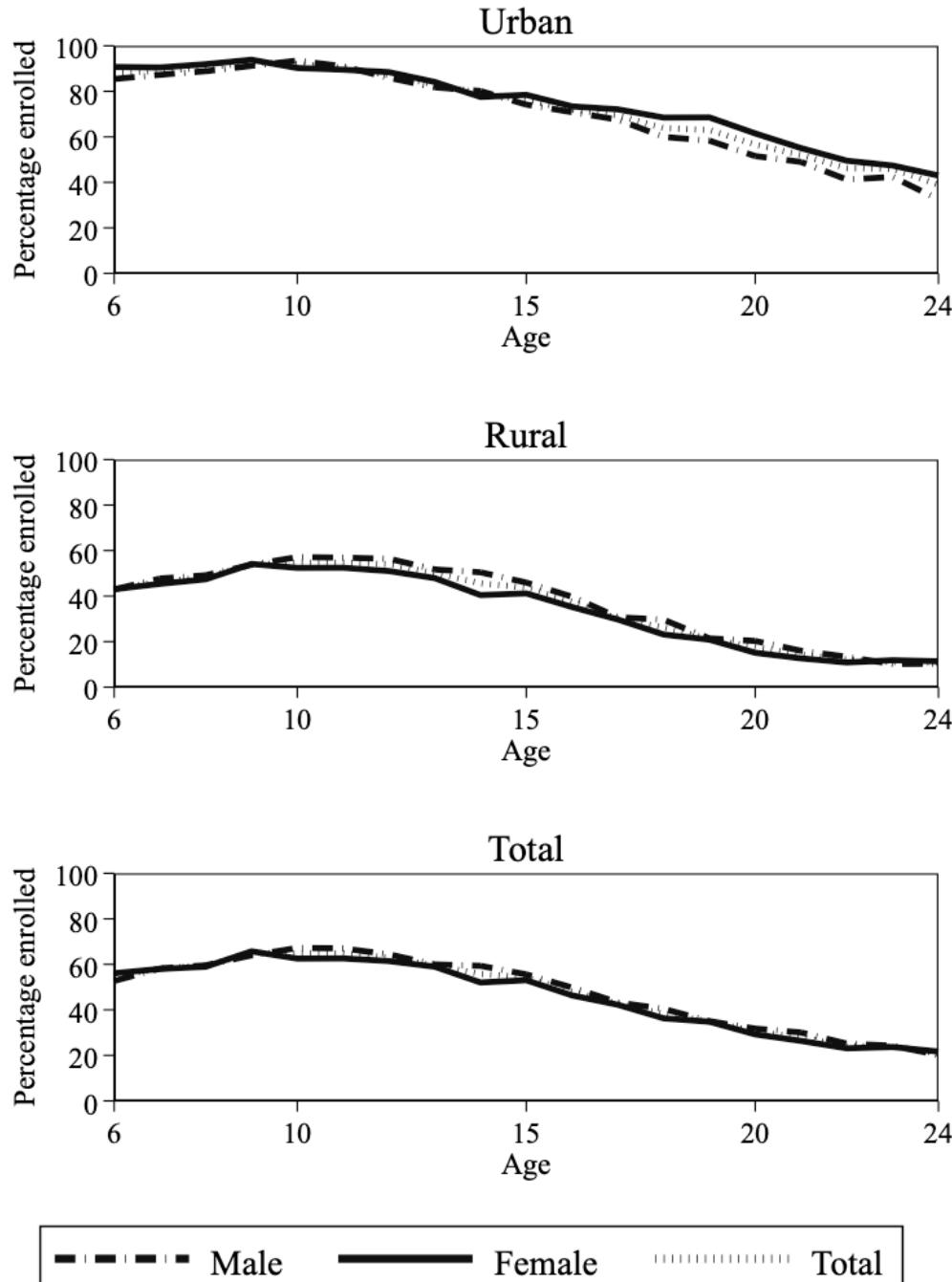
Average years of schooling, by sex and birth cohort

- Men, on average, more schooling than women
  - Gap decreased from 1950s-1985 then stalled
- Average years of schooling reached 6 for men by the 1995 cohort
- Average years of schooling reached 5 for women by the 1995 cohort

Source: Authors' calculations based on SLMPS 2022

Notes: Lowess running mean smoother with bandwidth two.

Showing for birth years corresponding to ages 25-64 in 2022.



## Gaps in enrollment, especially in rural areas

Enrollment rates (percentage) by age, sex and location, ages 6-24, 2022

- Net enrollment rates (the percentage of those of primary age enrolled in primary and likewise for secondary)
  - 56% for primary
  - 23% for secondary
- Starting at age six, at approximately 85%, enrollment rates in urban areas are higher than in rural areas, 45%
- Enrollment rates increase slightly (late entry) through age 10
  - ~Gender parity
- Children in urban areas are more likely to stay enrolled in school until close to age 15
  - Children in rural areas decline in enrollment past age 10
  - Boys higher enrollment at older ages in rural areas, girls in urban areas

Source: Authors' calculations based on SLMPS 2022

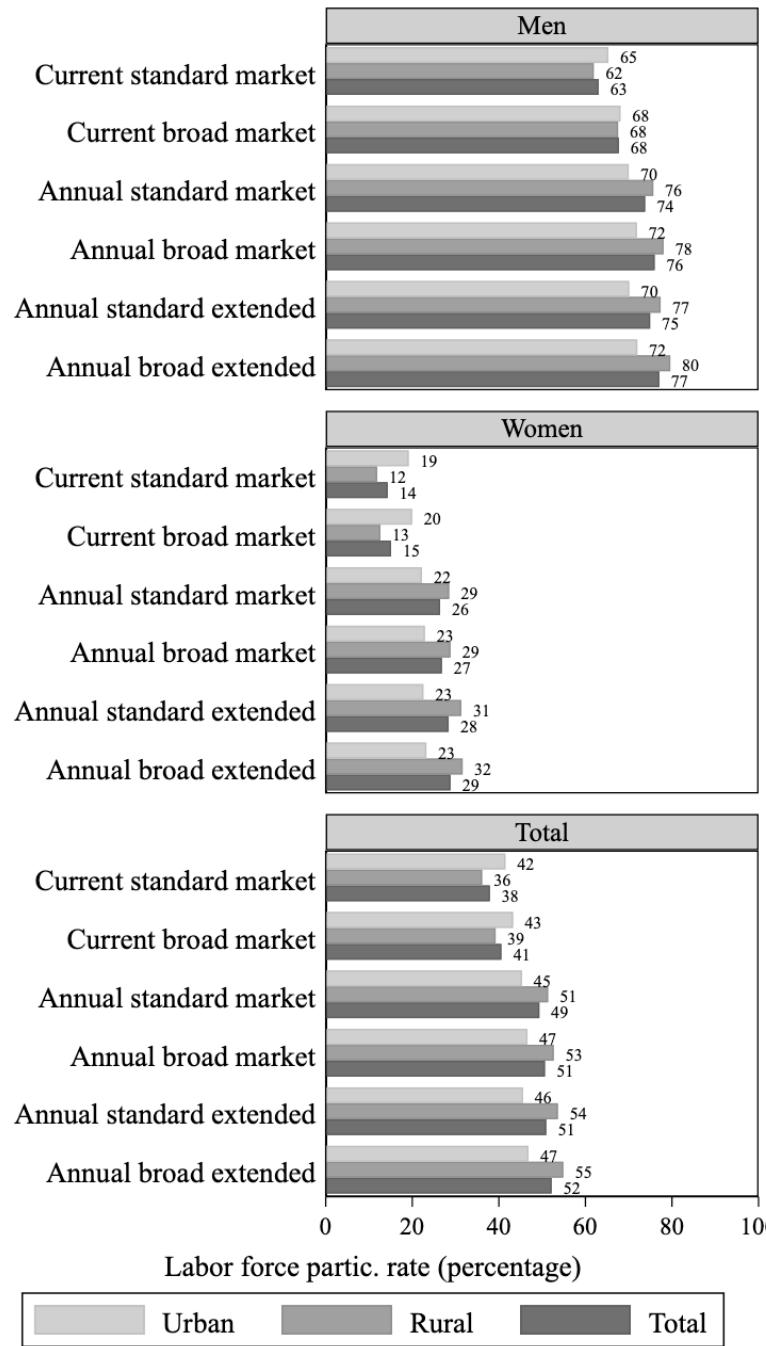
Labor force participation,  
employment,  
unemployment

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# Definitions of the labor force

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- Labor force is those who are either employed or unemployed (i.e., those seeking employment)
- Follow guidance of the 19th International Conference of Labour Statisticians: employment is work for pay or profit ("market")
- Reference periods: 7-day ("current"), 3-month ("usual"), one-year ("annual")
  - 7-day and 3-day individual questionnaire
  - One-year adds to individual questions participation in household enterprises
    - Can distinguish for annual market vs. subsistence, market + subsistence is "extended" or "work" rather than employment
- For unemployment, standard measure: not employed past 7-days, not attached to a job, wanted to work, ready and available, took search activities (4 weeks)
  - Broad measure: drops search, includes discouraged unemployed
- Different combinations of employment & unemployment define labor force

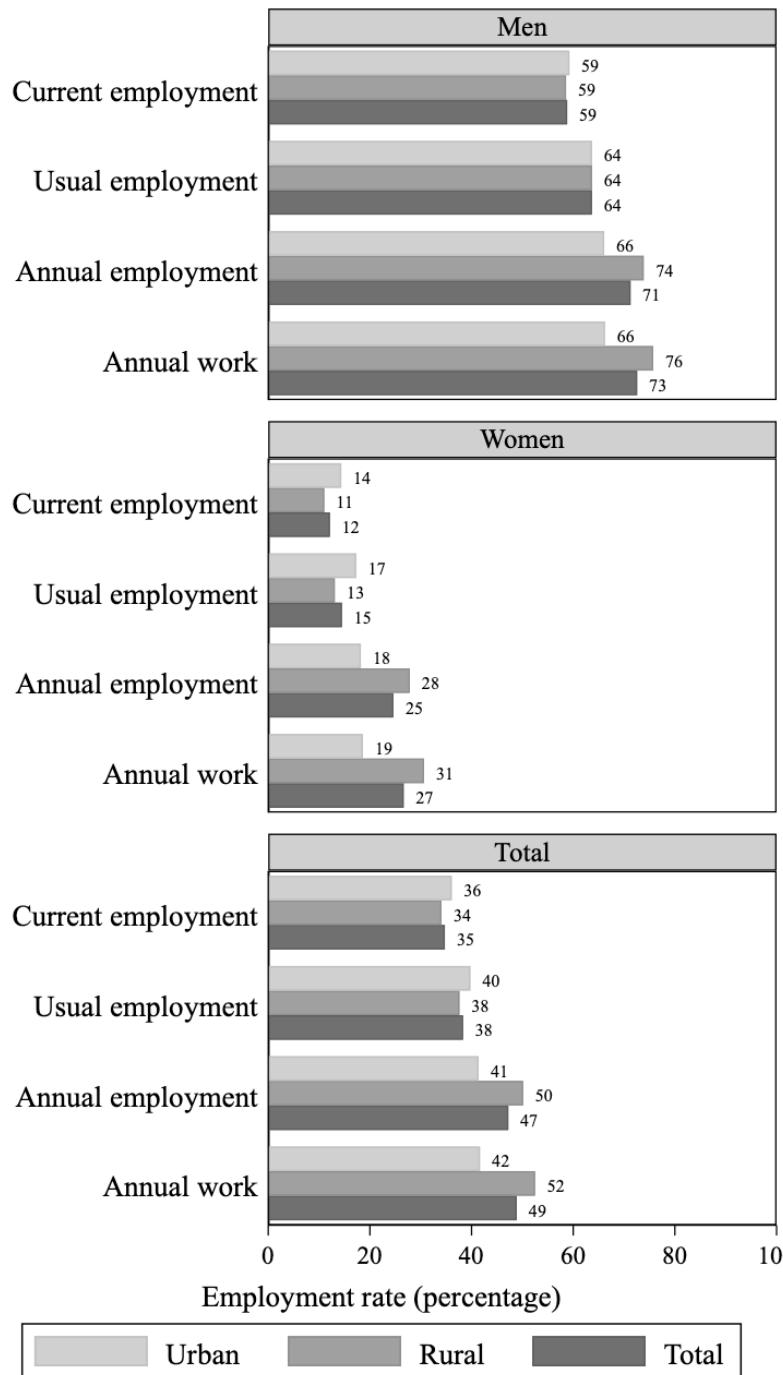


# Participation varies substantially across definitions

Labor force participation rate (percentage, various definitions), ages 15-64, by sex and location, 2022

- Sudan's labor force participation rate using the current standard market definition 38% in 2022
  - 63% for men and 14% for women
- Rises to 41% when the current broad market labor force definition is used (adding the discouraged unemployed)
- 51% with the annual broad market labor force and annual standard extended labor force, and 52% with the annual broad extended labor force
- Rates lower in rural areas with current standard market definition, higher in rural areas with annual broad extended definition
- Gender gap in participation narrows somewhat with other definitions
  - 77% for men and 29% for women with annual broad extended definition
  - Particularly large jump moving from usual to annual – additional measurement of women's participation in household enterprises

Source: Authors' calculations based on SLMPS 2022

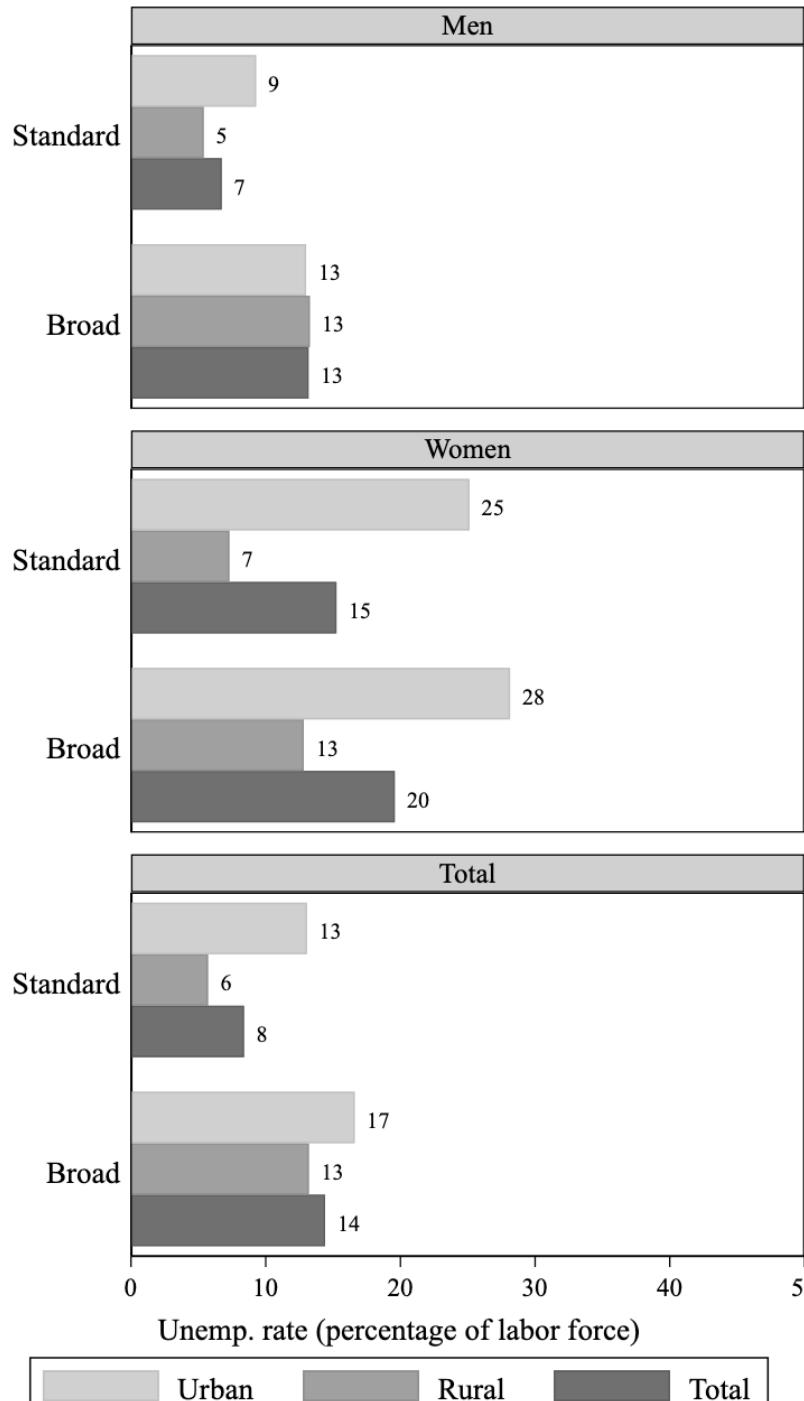


# Sizeable gender differences in employment rates

Employment and work rates (percentage, various definitions), ages 15-64, by sex and location, 2022

- The total current employment rate for working-age adults is 35%
  - The usual employment rate is 38%
  - The annual employment rate is 47%.
  - Adding subsistence work raises the annual work rate to 49%
- For men, employment rates are 59% under the current definition and reach 71% under the annual definition
  - Male work rate increases further to 73% when subsistence work is added
- For women, current employment rates are 12% but reach 25% under the annual employment definition
  - Adding subsistence work raises women's work rates to 27%
- Under the current and usual definitions of employment, there are no urban/rural disparities for men, while women are more likely to be employed in urban areas than rural areas
- With the annual definitions, rural men and women are more likely to be employed than their urban counterparts

Source: Authors' calculations based on SLMPS 2022



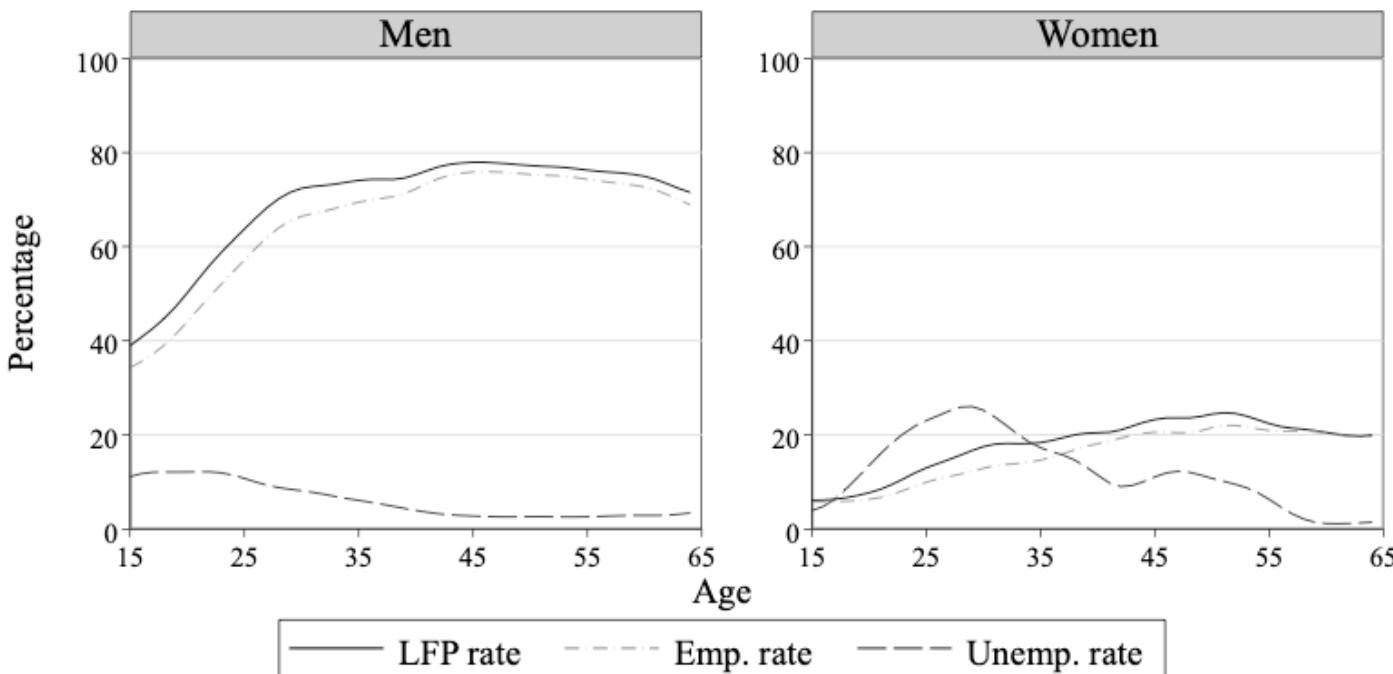
# Urban women have the highest unemployment rates

Unemployment rate (percentage of the labor force, various definitions), by sex and location, 2022

- For unemployment, we focus on the current (7-day) definitions
  - Since search refers to within the past four weeks
- Unemployment rates are calculated as a percentage of the labor force
- Total standard (search required) unemployment rate is 8%
  - Broad unemployment rate is 14%
- Unemployment rates are higher for women (15% under the standard definition and 20% under the broad definition) than for men (7% under the standard definition and 13% under the broad definition)
- Discouragement, and thus the difference between standard and broad measures, is much higher in rural than urban areas
- Urban women have the highest unemployment rates, 25% under the standard definition and 28% under the broad definition

Source: Authors' calculations based on SLMPS 2022

# Participation and employment rise, unemployment falls with age



Source: Authors' calculations based on SLMPS 2022

Labor force participation rate (percentage of the population), employment rate (percentage of the population), and unemployment rate (percentage of the labor force), ages 15-64, by sex and age, 2022

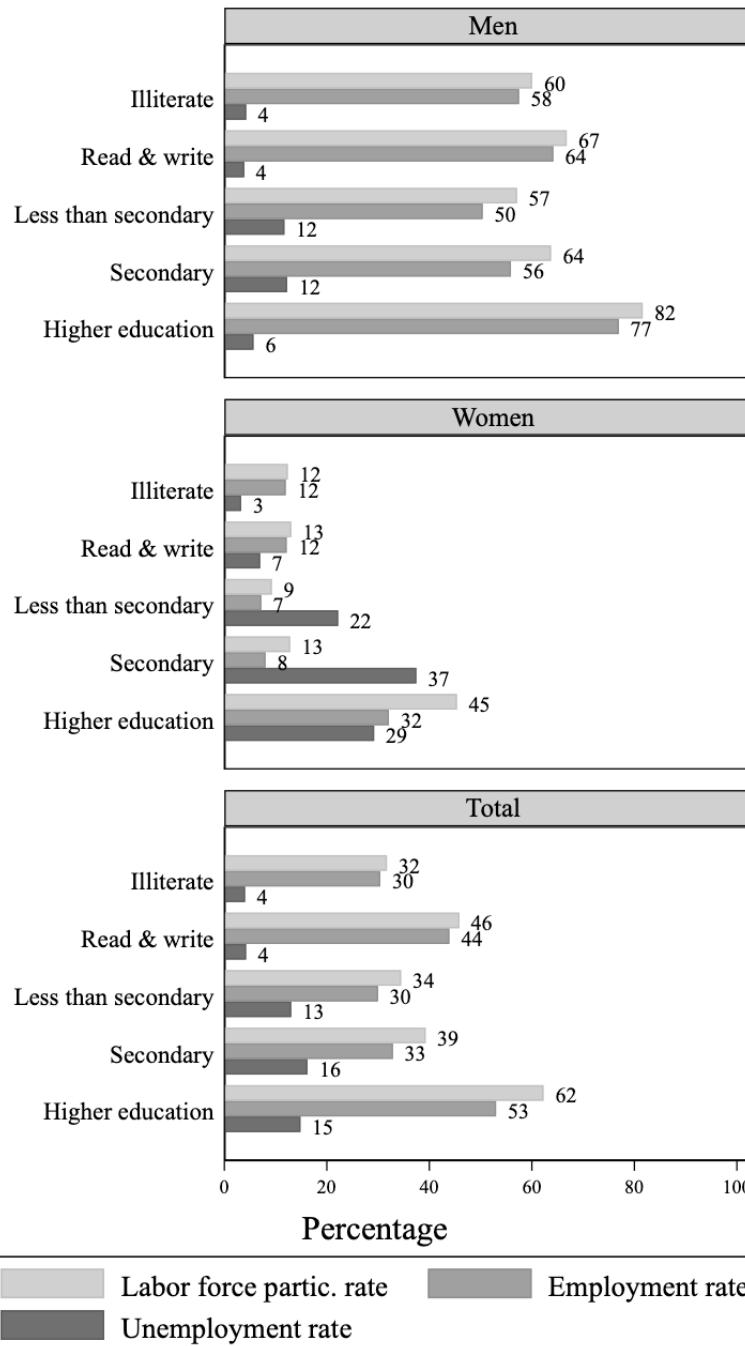
For men, participation and employment increase sharply between ages 15 (from just below 40%) to 25 (slightly below 70% for participation)

For women, participation and employment are low, less than 10%, at age 15

- Rise with age, with participation peaking around 25% just before age 55

Unemployment, in contrast, is primarily a youth phenomenon, particularly among men

- Unemployment rates for men are above 10% from age 15 until around age 25, and then decline steadily between the ages of 25 and 45
- Women's unemployment rises from below 10% at age 15 to peak at more than 25% around age 30.
  - Unemployment then declines somewhat through age 40



## Limited variation in participation by education

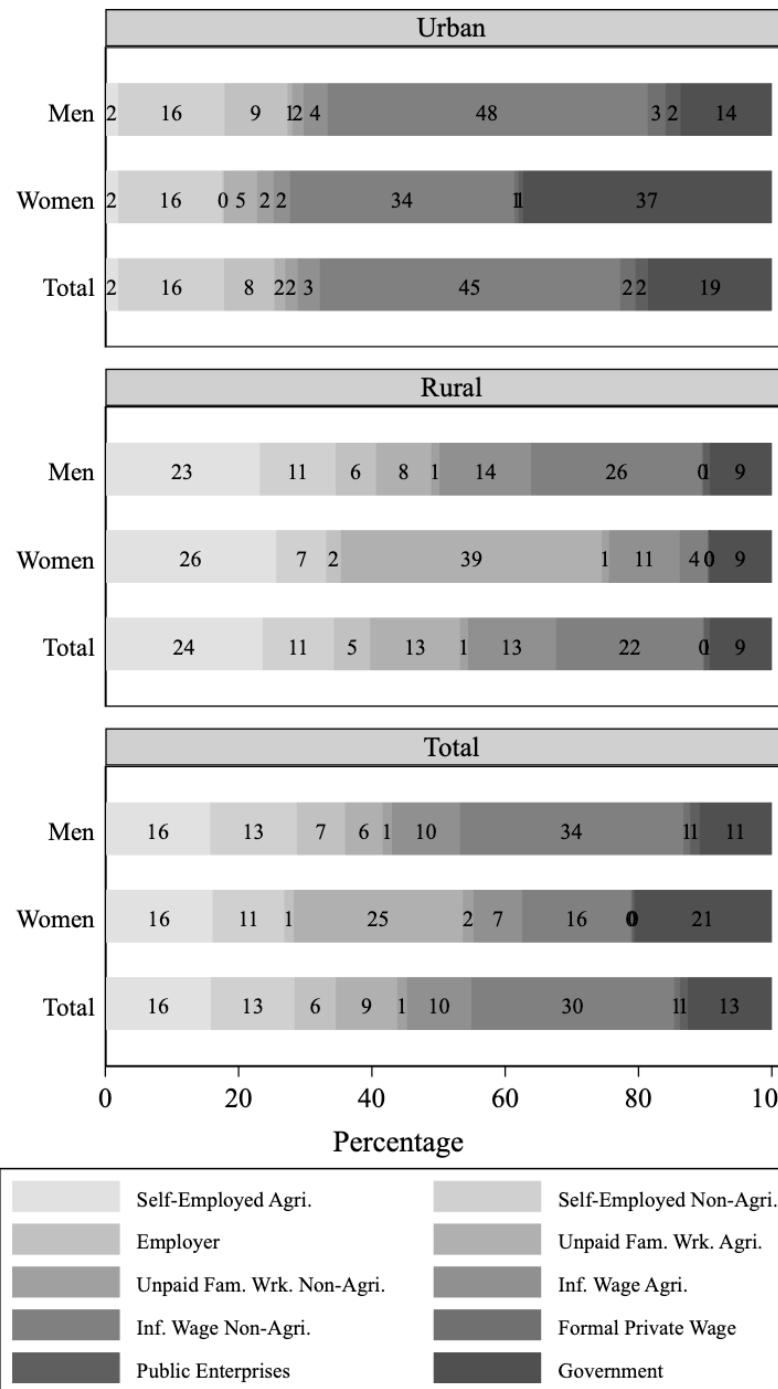
Labor force participation rate (percentage of the population), employment rate (percentage of the population), and unemployment rate (percentage of the labor force), by sex and education, 2022

- Labor force participation and employment are highest for those with higher education in Sudan
  - The participation rate for those with higher education is 62% and the employment rate 53%
  - Among men, 77% of those with higher education are employed and among women, 32%
- There are not, however, very clear patterns of participation by education at other levels, as other research has also noted (Ebaidalla and Satti 2021; Krafft, Nour, and Ebaidalla 2022)
- Unemployment rates are higher for those with more education
  - The overall unemployment rate is 4% for those who are illiterate or read and write, 13% for less than secondary, 16% for secondary, and 15% for higher education
  - Both men and women with higher education have lower unemployment rates (6% for men, 29% for women) than those with secondary education (12% for men, 37% for women)

Source: Authors' calculations based on SLMPS 2022

# Structure of employment

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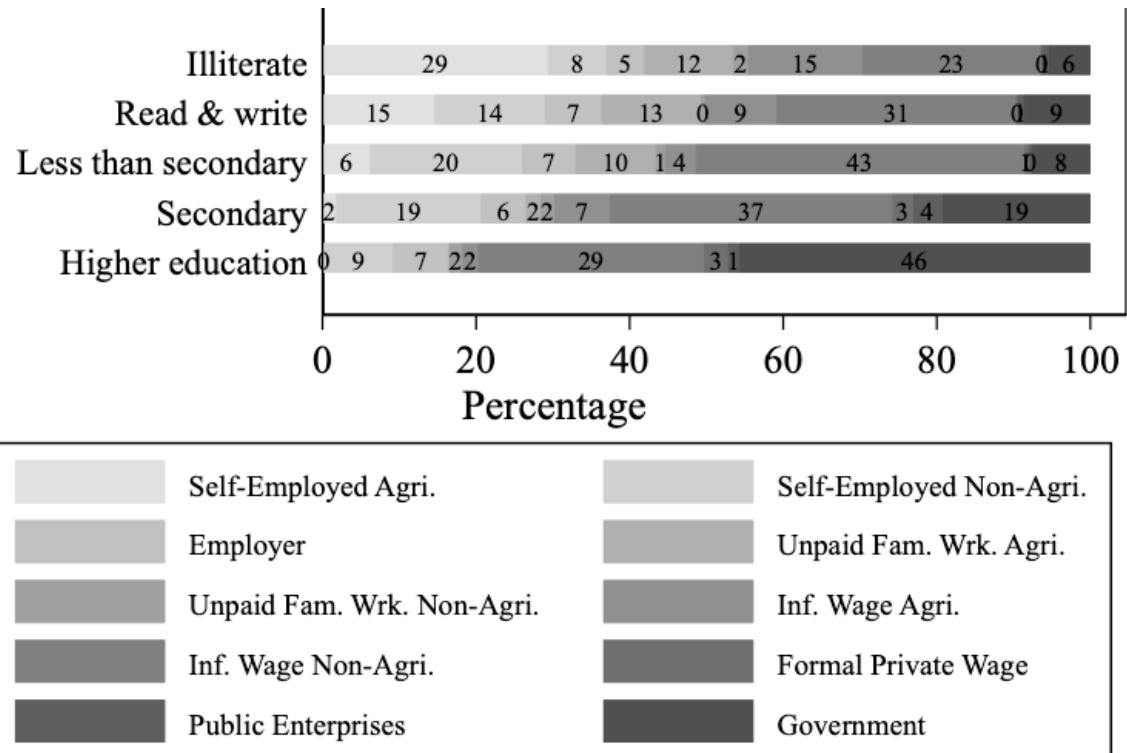
# Employment is often agricultural, non-wage work, or informal wage work

Distribution of employment (percentage) by institutional sector, location, and sex, employed individuals ages 15-64, 2022

- Overall, 39% of employment is in agriculture, although this share of course increases if definitions other than current market employment are considered
- A sizeable share of employment is self-employment; 16% in agriculture and 13% in non-agriculture
- 6% of workers are employers
- Unpaid family work is most common in agriculture (9% of employment) and rare in non-agriculture (1% of employment)
- 10% of employment is in informal wage work in agriculture and 30% of employment in informal wage non-agricultural work
- There is very little formal private sector wage work (1%) or public enterprise work (1%), but 13% of employment is in government
- Rural areas have more non-wage work and work in agriculture
- Women are disproportionately in agriculture, government employment

# Employment differentiated by education

Distribution of employment (percentage) by institutional sector, education, and sex, currently employed aged 15-64, 2022

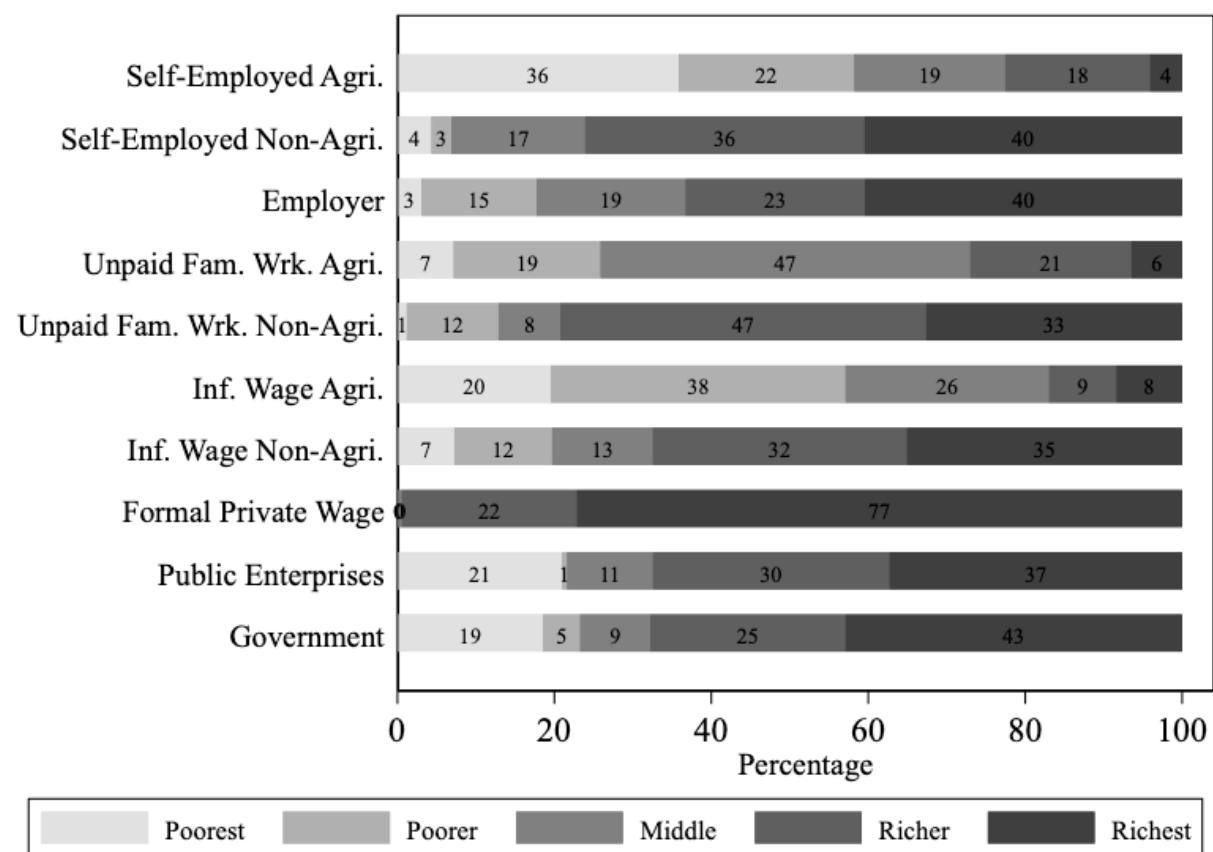


- Self-employment in agriculture is particularly among those who are illiterate (29%)
  - Followed by those who can read and write (15%)
- Self-employment outside agriculture is common for those who can read and write or have up through a secondary education (14-20%)
- Unpaid family work in agriculture is common for illiterate through less than secondary educated workers (10-13%)
- Informal wage work in agriculture is most common for the illiterate (15%)
- Informal wage work outside of agriculture rises at first with education, from 23% among the illiterate up to 43% of those with less than secondary before falling somewhat to 29% among those with higher education
- Even among those with secondary or higher education only 3% have formal private wage employment
- Although there is some government employment at lower levels of education (6-9%), secondary (19%) and higher education (46%) have the most government employment

Source: Authors' calculations based on SLMPS 2022

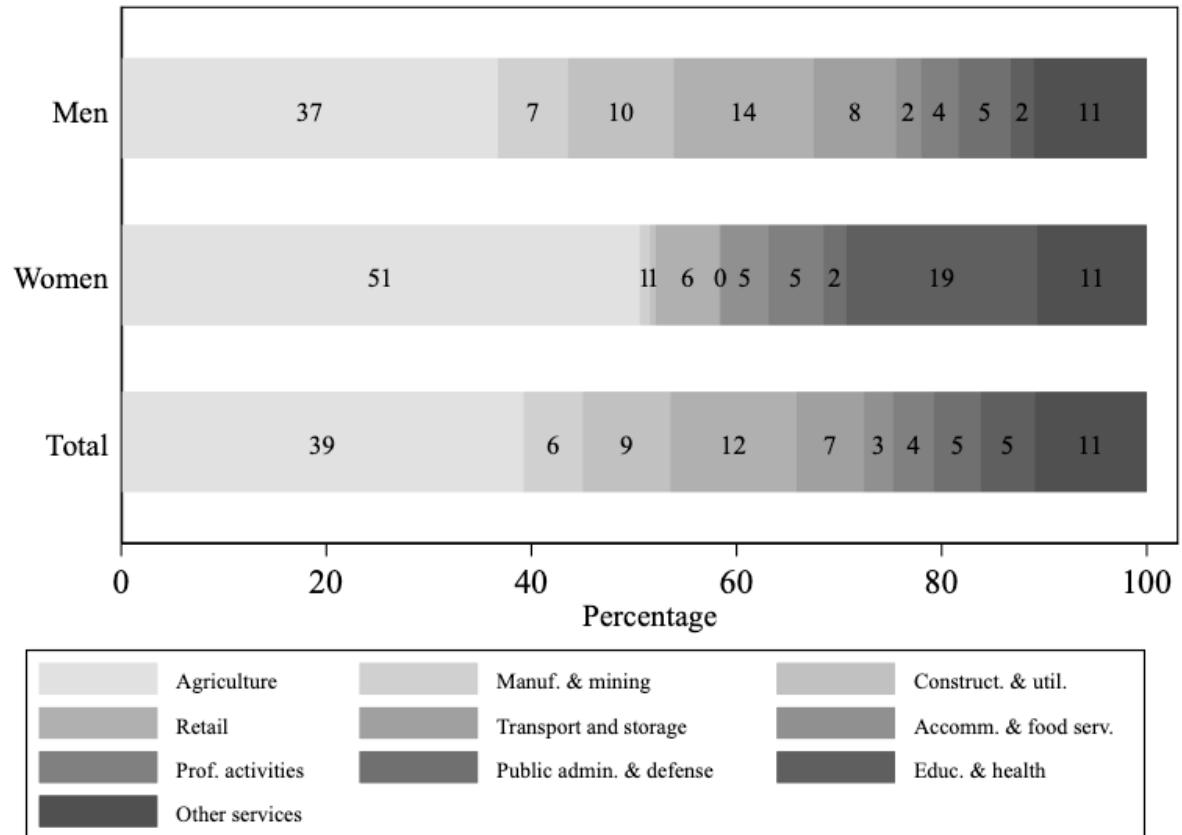
# Large differences in wealth by type of work

Distribution of wealth quintile (percentage) by institutional sector, currently employed aged 15-64, 2022



Source: Authors' calculations based on SLMPS 2022

- Self-employed agricultural workers are particularly likely to be in the poorest (36%) quintile of households
- Self-employed non-agricultural workers and employers are much more likely to be in the richest quintile (40%)
- Unpaid family workers are more likely to be in households towards the middle of the wealth distribution for those in agriculture and towards the richer side outside of agriculture
- Informal wage workers in agriculture are most often from the poorer (20-39th percentiles) households (38%), followed by the middle (26%) and poorest (20%)
- Informal wage workers outside of agriculture are predominantly from the richest (35%) and richer (32%) households
- Private formal wage workers are quite select, with 77% from the richest households
- Public enterprise workers are most often from the richest households (37%) or next richest quintile (30%)
- Likewise 43% of government workers are from the richest quintile and 25% from the next richest quintile



## Economic activity dominated by agriculture

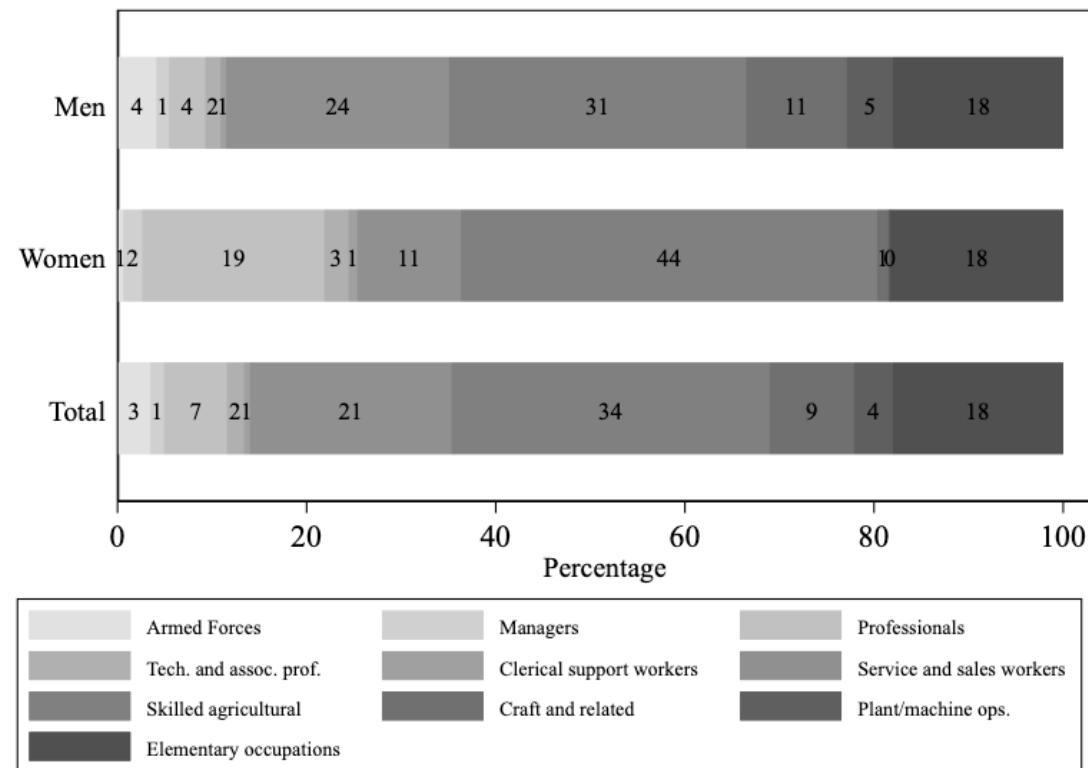
Distribution of employment (percentage) by economic activity and sex, currently employed, ages 15-64, 2022

- 39% of employment is in agriculture
  - 51% for women and 37% for men
  - Next largest sector is trade and retail (12%), followed by other services (11%), and construction (9%)
  - 7% of employment is in transportation and storage, and 6% in manufacturing and mining
  - Along with 5% in public administration and defense, there is a further 5% in education and health
  - Only 4% of employment is in professional activities and 3% in accommodation and food services
  - As well as in agriculture, women are over-represented in education and health (19%), professional activities (5%) and accommodation and food services (5%), and under-represented in all other industries

Source: Authors' calculations based on SLMPS 2022

# Limited professional employment

Distribution of employment (percentage) by occupation and sex, currently employed, 2022

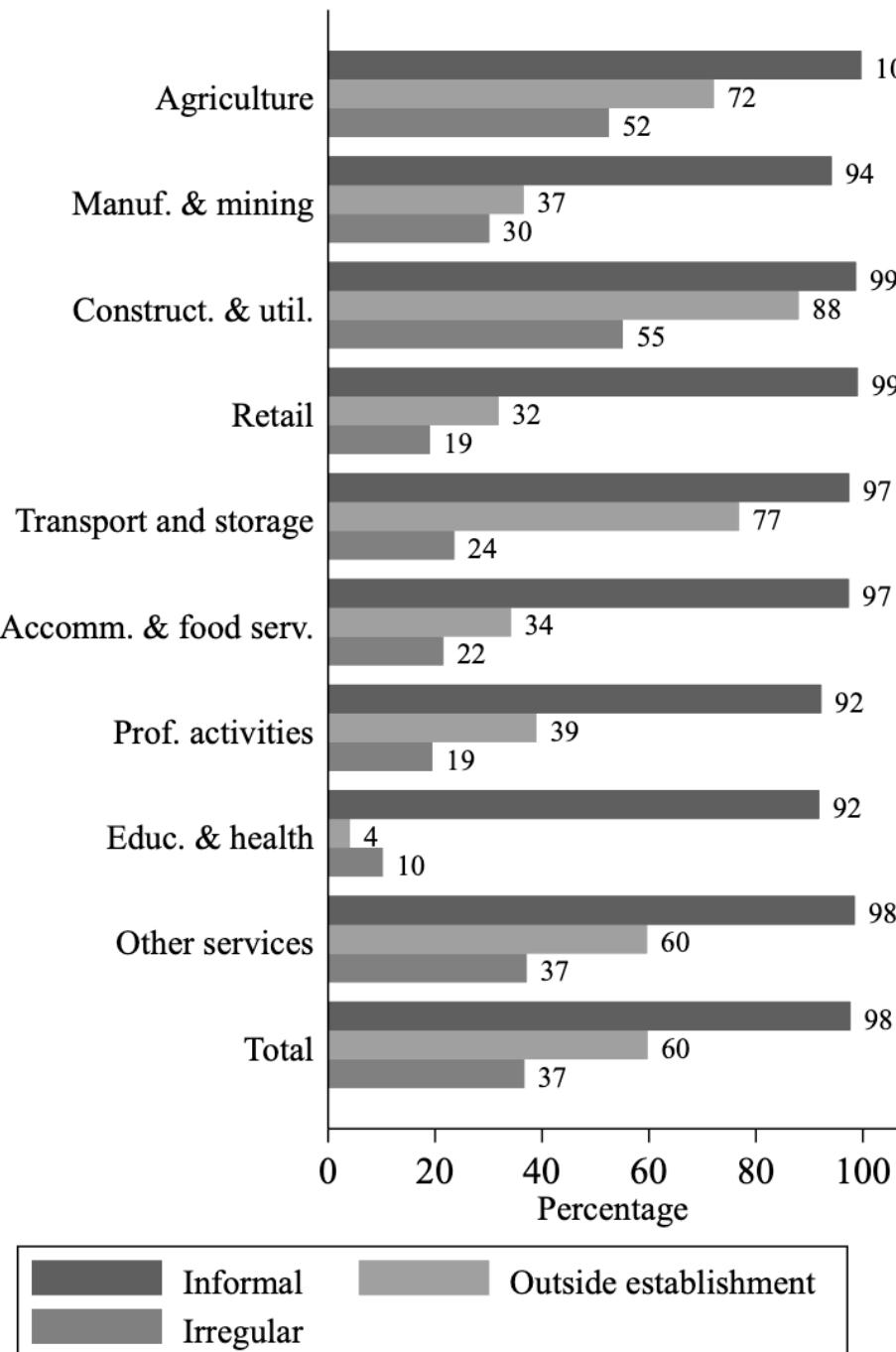


Source: Authors' calculations based on SLMPS 2022

- The most common occupation is skilled agricultural work (34%)
- Followed by service and sales occupations (21%), and elementary occupations (18%)
- A further 9% of workers are craft and related trades workers, 7% professionals, and 4% plant and machine operators
- Only 1% are managers, 2% technicians and associate professionals, and 1% clerical support workers.
- Women are particularly likely to be professionals (18%) or agricultural workers (44%).

# Working conditions for private sector wage worker

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## Vulnerable employment in the private sector

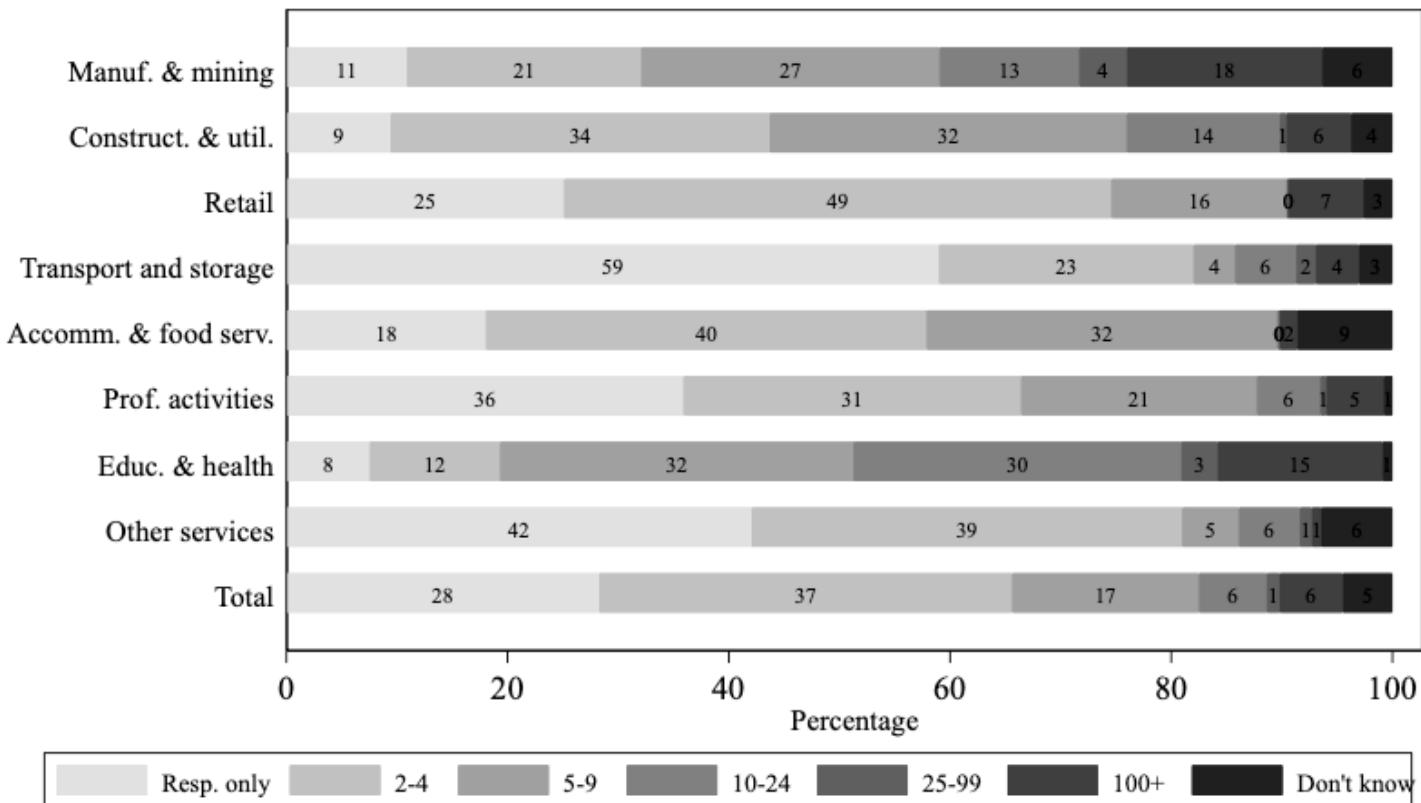
Informality, working outside establishments, and irregularity (percentages), by economic activity, private sector wage workers, currently employed, aged 15-64

- Informality in private sector wage work is near universal (98%)
- Working outside a fixed establishment is also quite common (60% of private sector wage work)
  - Particularly true in construction (88%), transport and storage (77%), agriculture (72%)
- Irregular work is also common (37%).
  - Especially in construction (55%), agriculture (52%)

Source: Authors' calculations based on SLMPS 2022

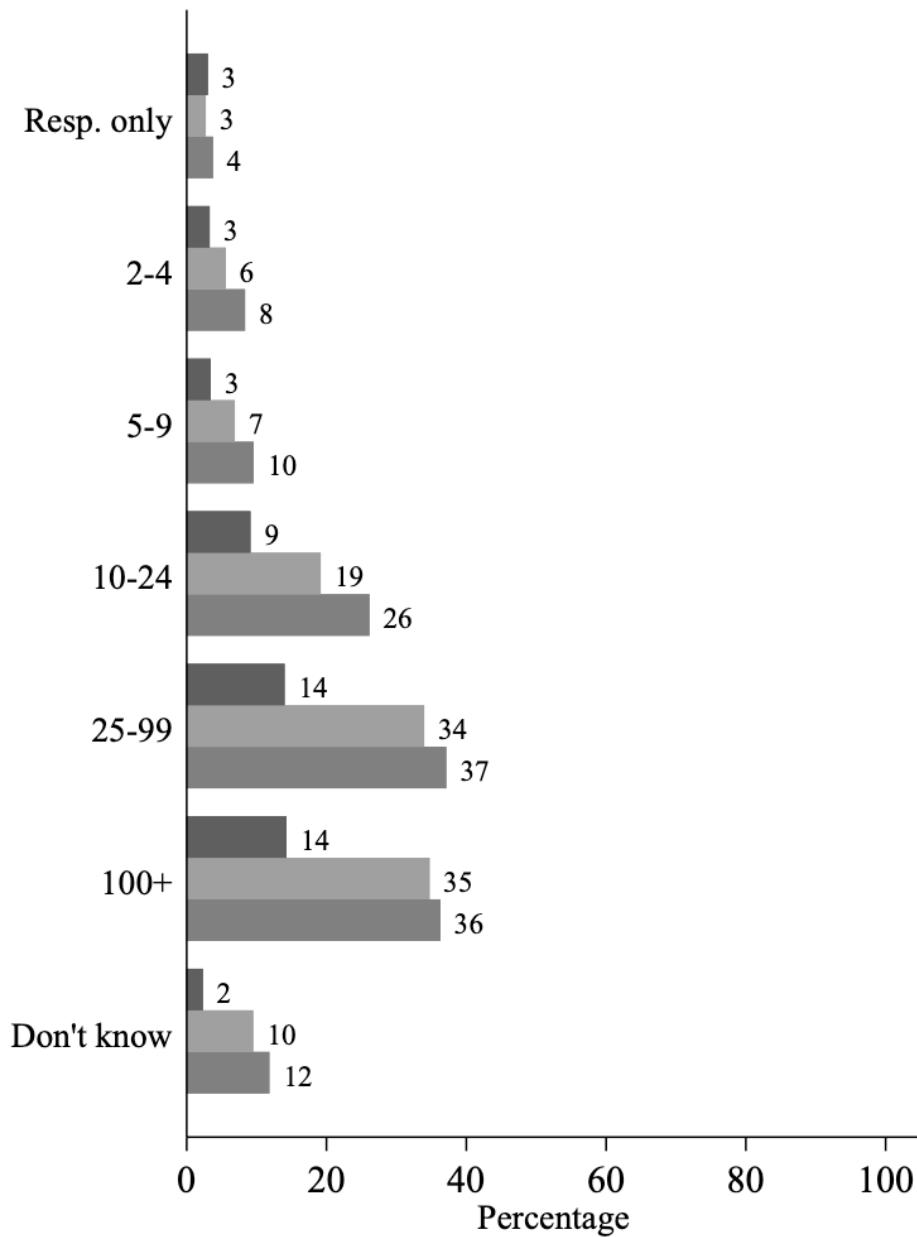
# Most employment in micro and small firms

Distribution of private sector wage employment (percentage) by economic activity and firm size, non-agriculture, currently employed, aged 15-64



- Most employment is in microenterprises
  - 28% the respondent only
  - 37% 2-4 workers
- A further 17% of employment is in firms with 5-9 workers
- 6% in firms with 10-24 workers
- Only 1% is in firms with 25-99 workers
- 6% in firms with 100 or more workers (includes “very large, don’t know”)
  - 4% don’t know at all
- There are slightly larger firms in manufacturing and mining, as well as education and health

Source: Authors' calculations based on SLMPS 2022



## Employment benefits rare

Employment-based medical insurance, paid leave, and paid sick leave, (percentages), by firm size, private sector wage workers, currently employed, aged 15-64

- Overall, only 2% of workers have employer-based medical insurance
  - 10% paid leave and 12% paid sick leave
- Benefits are rarest in micro firms, and still held by only a minority of workers in firms 10+
- Benefits are again best for 25-99 worker firms, with 14% of workers having medical insurance, 34% paid leave and 37% paid sick leave
  - There are similar rates for firms with 100+ workers

Source: Authors' calculations based on SLMPS 2022

# Conclusions

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- Results highlight both shifts that are potentially the result of the pre-2022 shocks and longstanding structural issues
- Young and rapidly growing population
  - TFR (4.9 births per woman) high and fertility stall
  - Marriage near universal, early marriage common, marriage trending younger especially for men
- Education expansion for cohorts born pre-1980, progress stalled
  - 56% primary net enrollment rate, 23% secondary, lowest in rural areas
- Women's labor force participation low, may be sensitive to both shocks and measurement
- Life-cycle patterns of employment, unemployment, but not large differences by education
- Agriculture central (39% of employment) along with non-wage and informal wage work
- Private sector wage work vulnerable: informal (98%), often irregular, outside establishments, lacks benefits
  - Primarily in microenterprises
- Findings only "scratching the surface" of SLMPS data
  - Hope data public good facilitates additional research
- Labor market situation has surely worsened since conflict in April 2023
  - Ending conflict and stabilizing the security/political situation essential pre-requisites to addressing economic and labor market challenges
  - Additional data collection and research is needed to understand the impact of the recent conflict on Sudan's society and economy and to inform efforts trying to ameliorate some of its harms

# Thank you

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