



**LABOUR MARKET AND
SKILLS INTELLIGENCE**

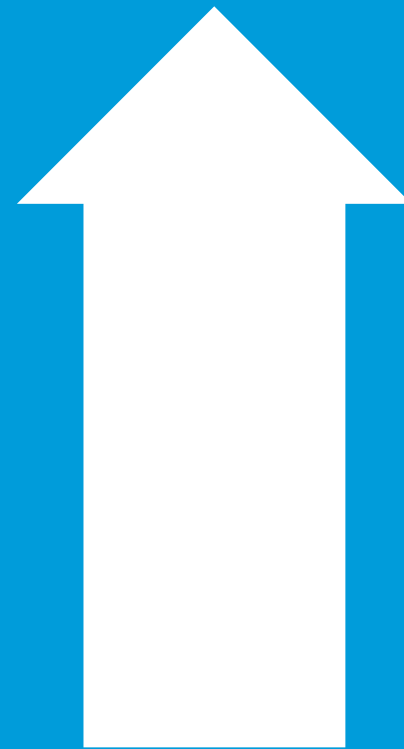
SKILLS MISMATCH MEASUREMENT

**SKILLS
FOR THE
FUTURE**



Managing Transition

SKILLS MISMATCH MEASUREMENT



WHAT AND WHY

Objectives:

- To document comparable sets of mismatch indicators across countries
- To support PCs expand / consolidate relevant statistics (e.g. VET vs general education; gender, narrower age groups)
- To engage PCs and ETF in similar global/European research initiatives

Collaboration:

- National Statistical Offices
- Country institutions and organisations relevant for skills and employment areas
- International community (ILO, CEDEFOP, Eurostat)

Method:

- Data retrieve (LFS microdata) – available online, microdata shared or remote statistical assistance
- Calculation script files shared with NSOs
- Exchange/clarifications (esp. education classification) /refinement of results and publication

Action	Timeline
Access LFS microdata for the years 2016, 2017, 2018, 2019 (depending on data availability)	Q3/2020 – Q2/2021
Calculation of indicators, refinement of results, interpretation and report drafting - selected countries	Q4/2020 – Q3/2021
Cross - country knowledge sharing event (all PCs)	25 November 2021
Final cross – country report	April / May 2022

KEY MISMATCH INDICATORS

DIMENSION	TYPE	DEFINITION	METHOD
Vertical	Over-education (over-qualification)	Worker´s level of education (qualification) exceeds the required level for the job (occupation)	Subjective Normative (refers to the level of skills (education) required to work in a specific occupation category Empirical (the statistical or realized matches method) using either the mean or the mode of education within a occupation category ; Job evaluation method
	Under-education (under-qualification)	Worker´s level of education (qualification) is lower than the required level for the job (occupation)	As above
	Over-skilled	Worker´s level of education (qualification) exceeds the required level for the job requirements	Subjective (but rare to find datasets including questions such as “to what extent are your skills utilized in this work?”
	Under-skilled	Worker´s level of education (qualification) is below the required level for the job requirements	As above
Horizontal	Field of education to occupation mismatch	The field of study does not match the occupational area of the job	Subjective (e.g. is your job matching your field of education?) Objective (using ISCO and ISCED-F codes)

SKILLS MISMATCH INITIATIVE 2020-2021

Data: Labour Force Survey data sets (microdata) for 2016, 2017, 2018 and 2019 (if available)

Options:

- if access to LFS microdata is granted, the supporting research team (Economix) can run the calculation and share the results for checks and validation (including calculation scripts for future replication)
- If access cannot be granted, research team can supply calculation scripts for calculating the indicators (in STATA, Python, R or SPSS) and support/guide the process of script running and interpretation of results
- Use of LFS datasets available on international data / research platforms.

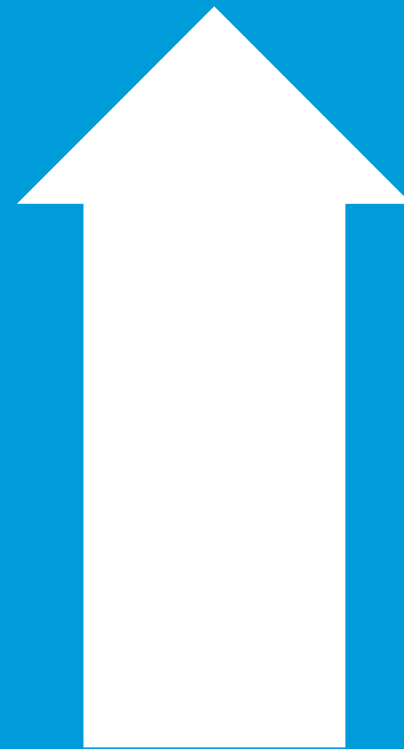
Deliverables:

- Calculation scripts (adjusted to each country specificities) for future replication by country authorities
- Short country overview of mismatch measurement results
- ^{*} ^{*} ^{*} Cross country report

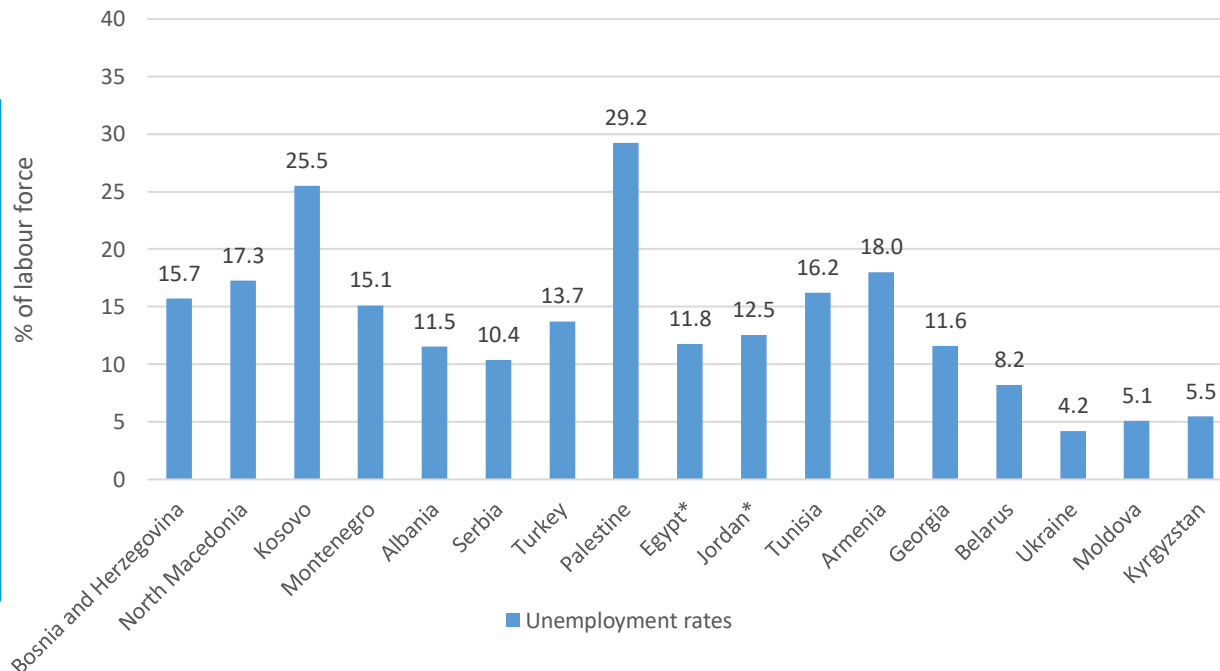
INDICATORS

Main indicators	
Occupational mismatch (vertical mismatch)	The ratio of people with a given education level (ISCED) working at an inappropriate skill level (measured by the International Standard Classification of Occupations – ISCO) to all workers within that ISCED level
Horizontal Mismatch	Calculation of share of employees with horizontal mismatch: % not in occupations matched to field of studies;
Over-education, Under-education (Empirical method)	Percentage with education level above required or identified level of education in occupation (group)
Context indicators	
Unemployment rates	$U/(E+U)$
Ratios	For example U/E , I/POP , E/POP , $(U+I)/E...$
Not in Employment, Education or Training	NEET/POP
Optional indicators	
Beveridge curve	Development of Unemployment (U) vs. short-term employment (STE) or vacancies (V), if available
Coefficient of Variation	Ratio of standard deviation to the mean, e.g. compares the distribution of skills within different groups in an attempt to determine the variation between the two distributions
Variance of relative (un)employment rates	Calculation of the variance of the (un)employment rates of various groups shows how different the (un)employment rates between these groups are.
Duration of unemployment by educational attainment levels	The duration of unemployment by each level of educational attainment

SKILLS MISMATCH AMONG ETF PARTNER COUNTRIES



UNEMPLOYMENT RATE ACROSS COUNTRIES IN 2019

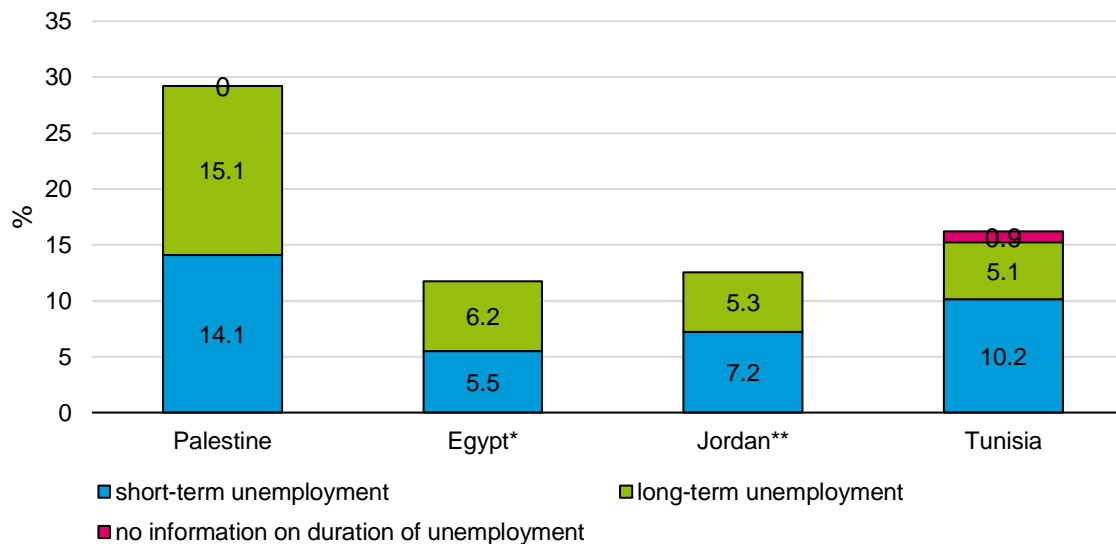


(* Last year available in Egypt (2017), last year available in Jordan (2016))

- In all the South-Eastern European countries, the unemployment rate decreased between 2016 and 2019 (except Turkey), even if not homogeneously across groups (age, gender, education level).
- In SEMED countries, the indicator was relatively stable over time.
- In most EaP countries and in Kyrgyzstan, the unemployment rate slightly decreased over time (except for Armenia, where it was stable).

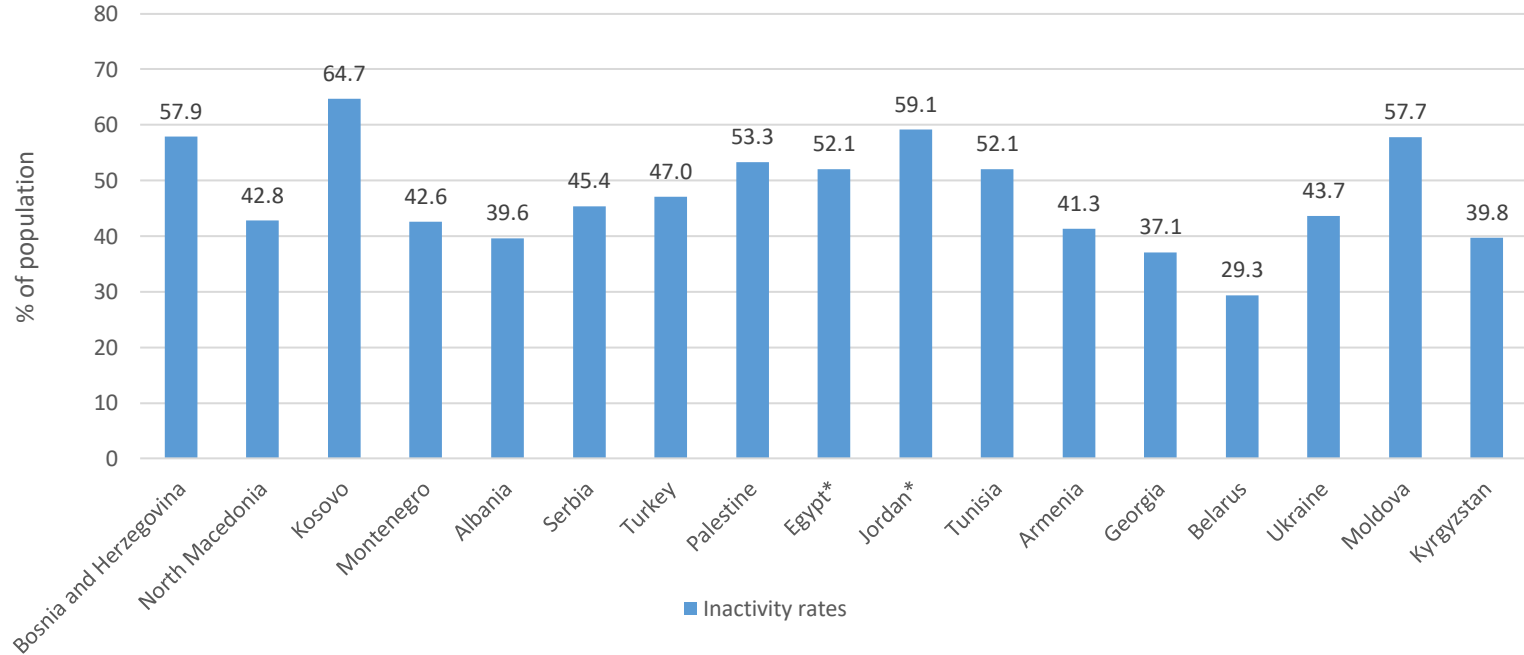
RATES – UNEMPLOYMENT RATES (BY UNEMPLOYMENT DURATION) 2019

Unemployment rate by unemployment duration, 2019



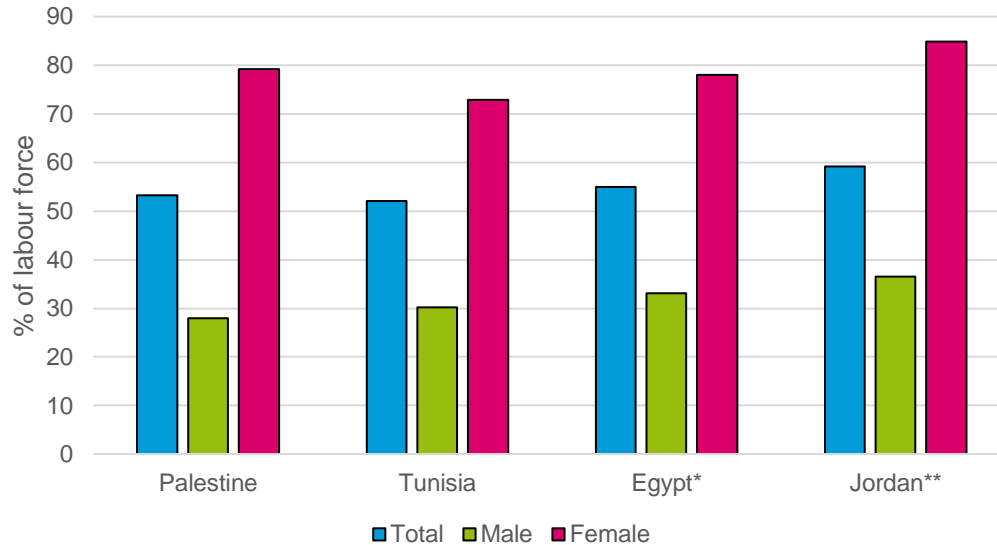
Notes: The population of reference is the one above 15 years old. *The last year available for Egypt is 2017. **The last year available for Jordan is 2016.

INACTIVITY RATE ACROSS COUNTRIES IN 2019



(* Last year available in Egypt (2017), last year available in Jordan (2016))

RATES – INACTIVE RATES (BY GENDER) 2019

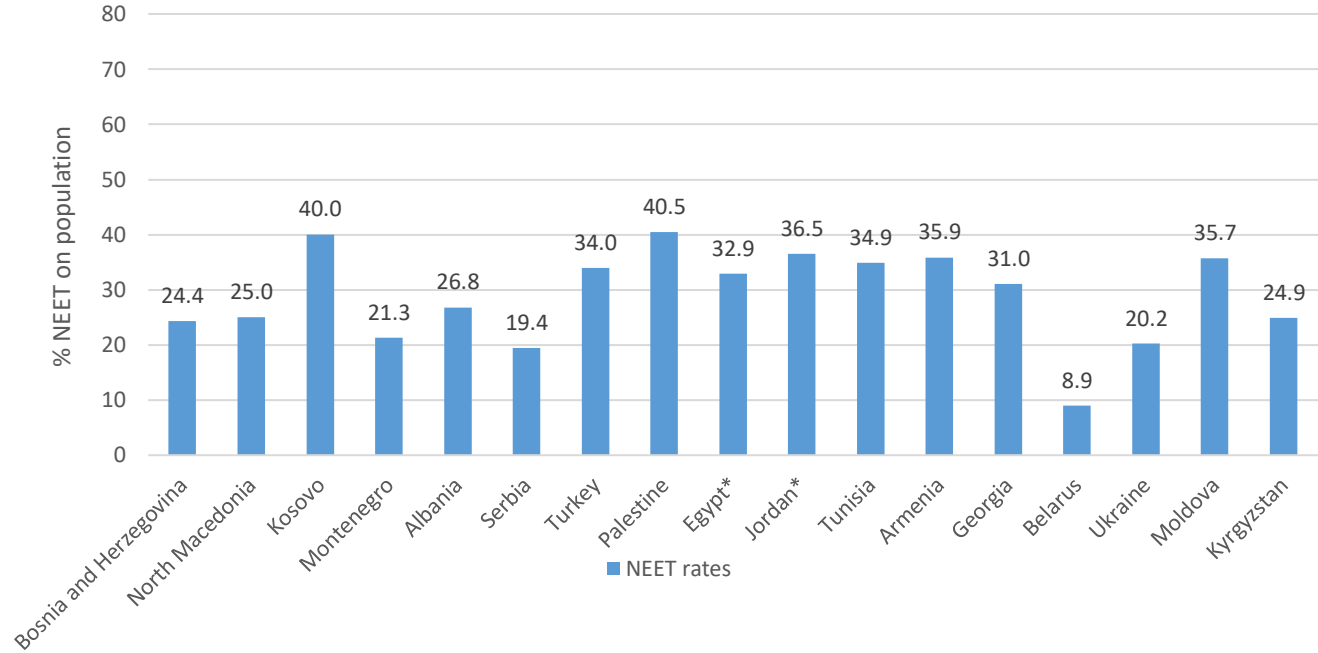


Notes: The population of reference is the one above 15 years old. *The last year available for Egypt is 2017. **The last year available for Jordan is 2016.

Source. Author's calculation based on national LFSS

NEET RATE ACROSS COUNTRIES IN 2019

- In South-Eastern European countries, the NEET rates decreased between 2016 and 2019, especially among youth (15-29 years), suggesting an improvement in the school-to-work transition (Exception: Kosovo and Turkey).
- In Palestine, the NEET rates were stable over time yet high. In Tunisia and Egypt (between 2016 and 2017), the NEET rate slightly decreased.
- In all the EaP countries part of this study, the NEET rate was slightly decreasing over time and persistently high (except for Belarus and Moldova, where it was stable)



(*) Last year available in Egypt (2017), last year available in Jordan (2016)

VERTICAL MISMATCH: THE EMPIRICAL METHOD

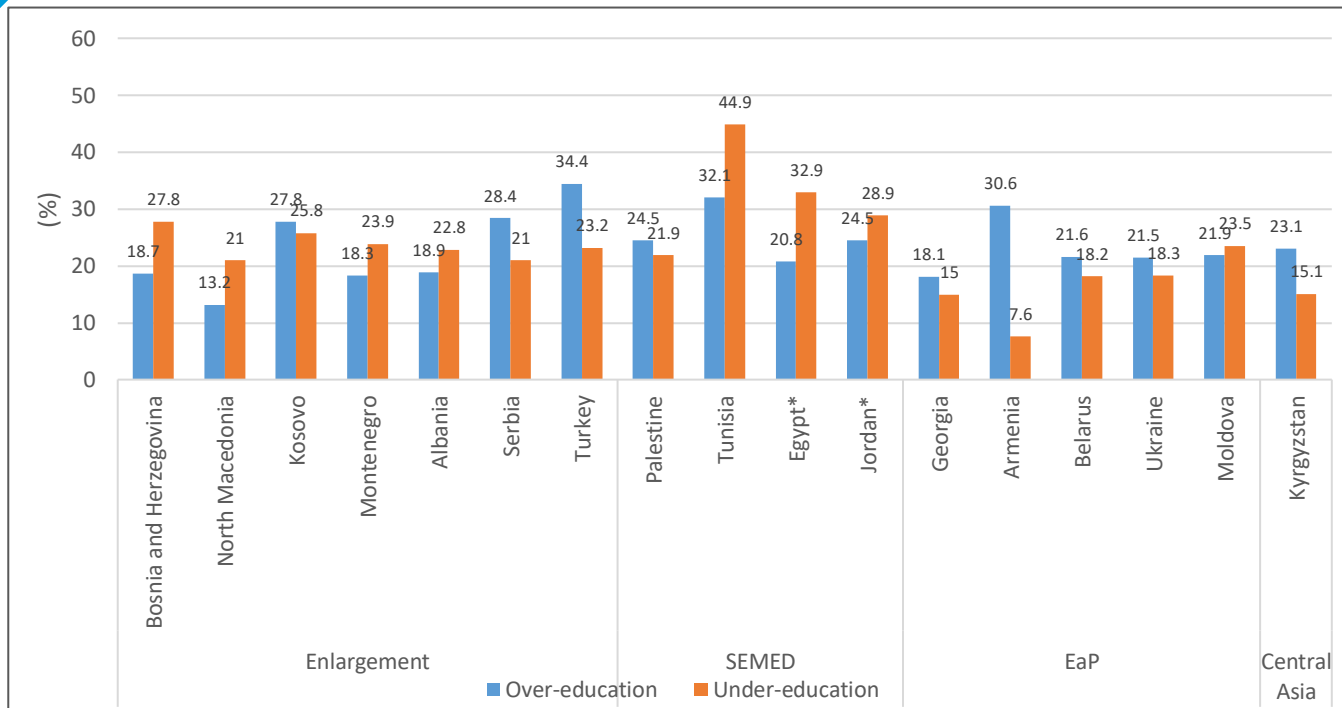
- The empirical method determines from the most common qualification in an occupation to be the required level.
- We follow the ILO in using the mode of the qualification.
- A mismatch occurs if there is a deviation from the required qualification.

Overeducation: the qualification level is above the required qualification

Undereducation: the qualification level is below the required qualification

OVER AND UNDER-EDUCATION (EMPIRICAL METHOD) ACROSS COUNTRIES IN 2019

- No clear trends across countries for over- and under-education.
- Under-education was more common in South-eastern European countries, while over-education was more likely to exist in EaP and Central Asian countries.
- Most countries experience a reduction in both over- and under-education rates between 2016-2019.

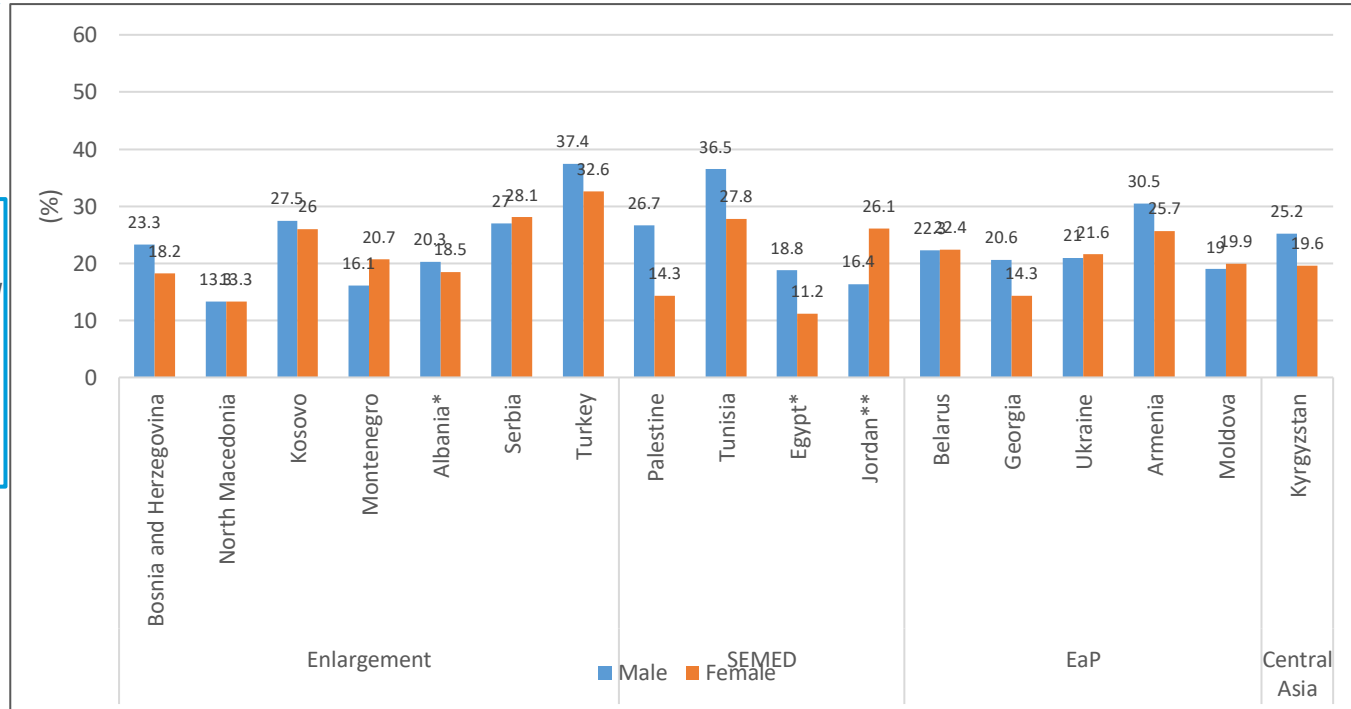


(*): Data are available in Egypt (2017), Jordan (2016)

OVER AND UNDER-EDUCATION (EMPIRICAL METHOD)

OVER-EDUCATION BY GENDER, ACROSS COUNTRIES IN 2019

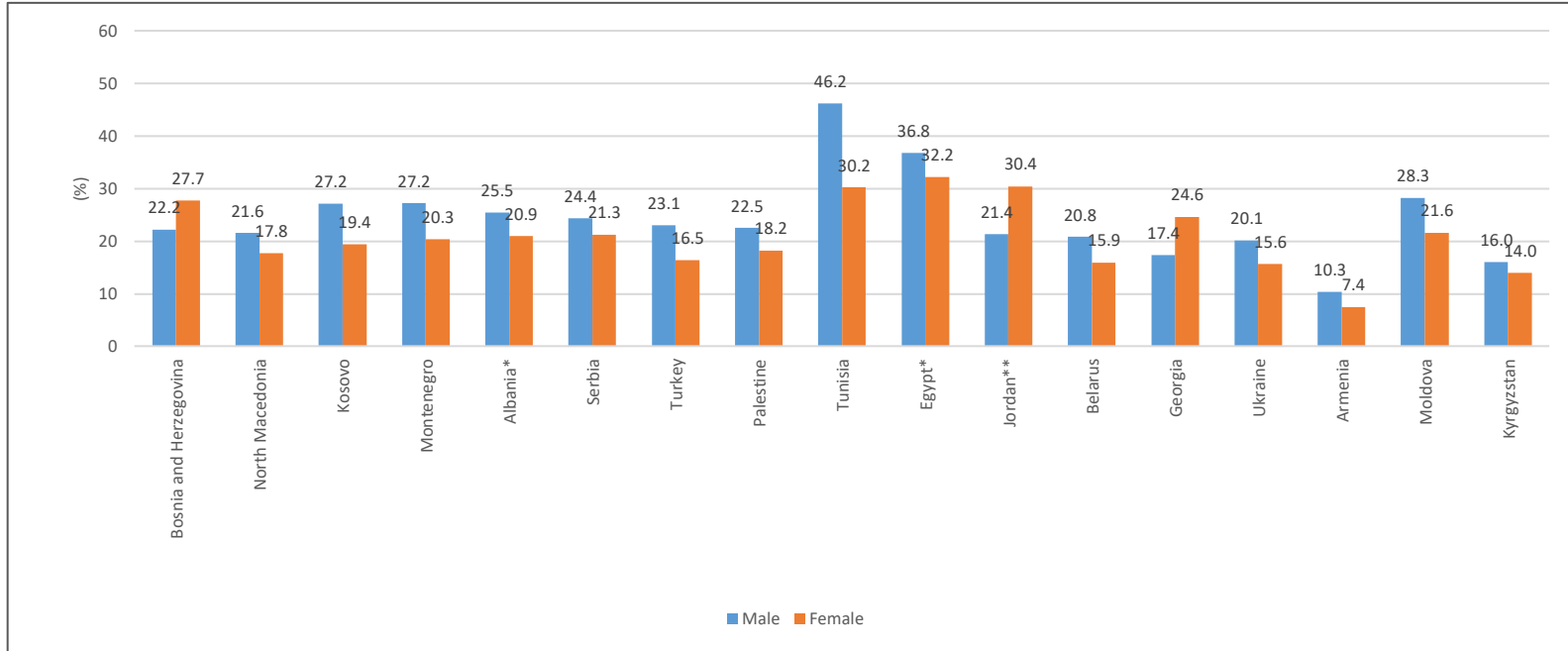
- Comparing within the group, male workers were more likely to experience both over- and under-education.
- The gender gap in over-education mismatch is relatively lower than under-education mismatch.



(*): Data are available in Egypt (2017), Jordan (2016)

OVER AND UNDER-EDUCATION (EMPIRICAL METHOD)

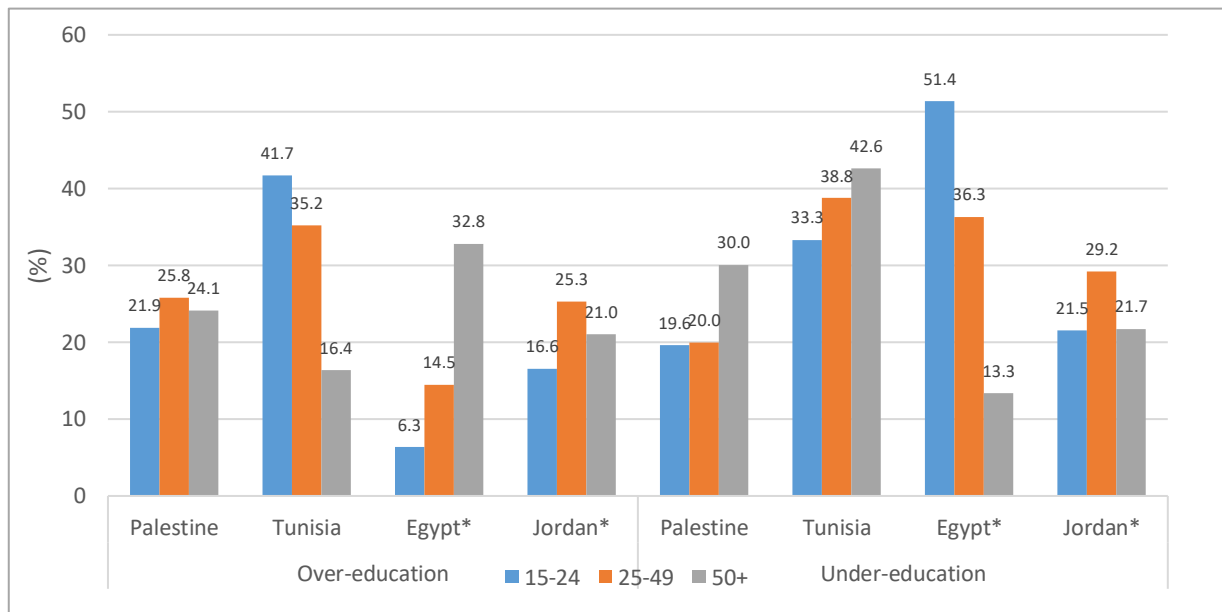
UNDER-EDUCATION BY GENDER, ACROSS COUNTRIES IN 2019



(*): Data are available in Egypt (2017), Jordan (2016)

OVER AND UNDER-EDUCATION (EMPIRICAL METHOD) BY AGE GROUP, (IN SEMED COUNTRIES), 2019

- *There are no clear trends across age groups.*
- *In general, youth aged 25-49 experienced relatively high vertical mismatch across countries.*



(*): Data are available in Egypt (2017), Jordan (2016)

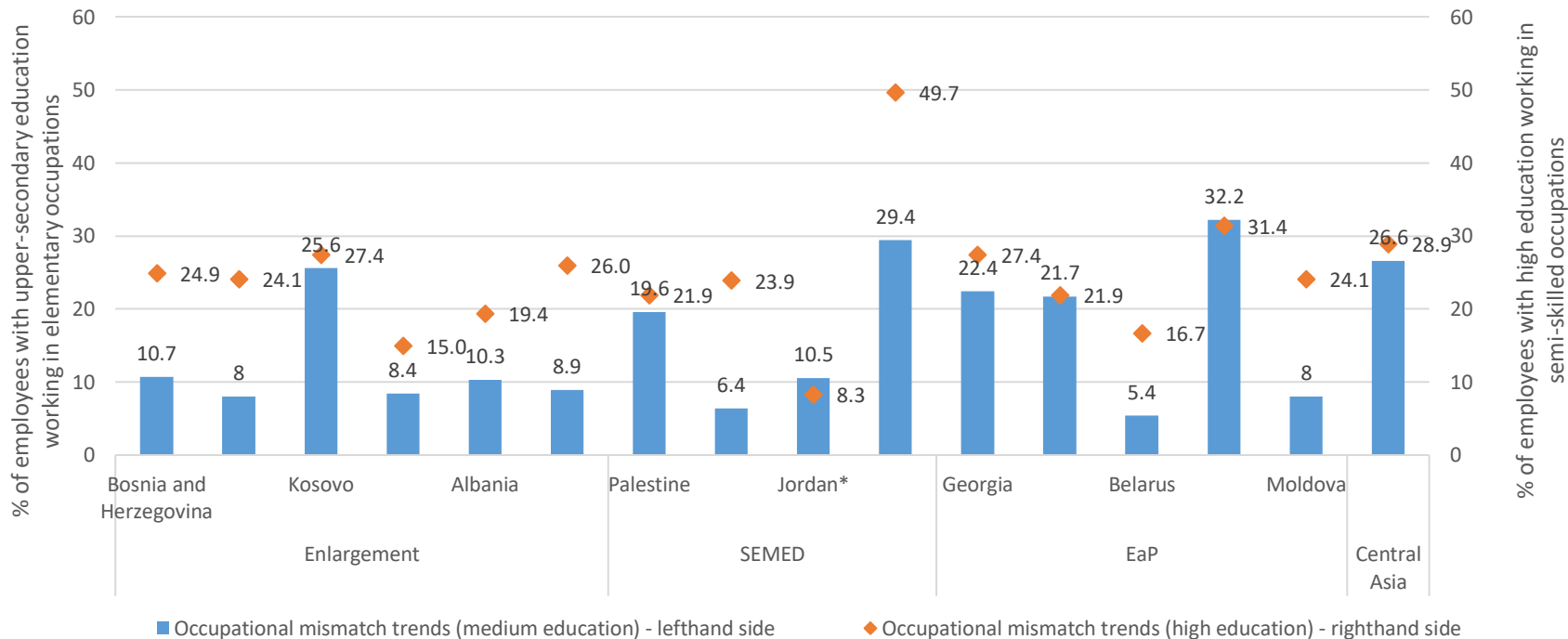
OCCUPATIONAL MISMATCH

This method is based on comparisons of the ratio of employees with a given education level (ISCED) working in an occupation that does not require such a level of skills, as measured by the International Standard Classification of Occupations (ISCO).

Medium: upper secondary education working at skill level 1 (ISCO 9)

High: tertiary education degree, working at skill levels 1 (ISCO 9) or 2 (ISCO 4-8)

OCCUPATIONAL MISMATCH (NORMATIVE METHOD) ACROSS COUNTRIES, IN 2019



■ Occupational mismatch trends (medium education) - lefthand side

◆ Occupational mismatch trends (high education) - righthand side

(*): Data are available in Egypt (2017), Jordan (2016)

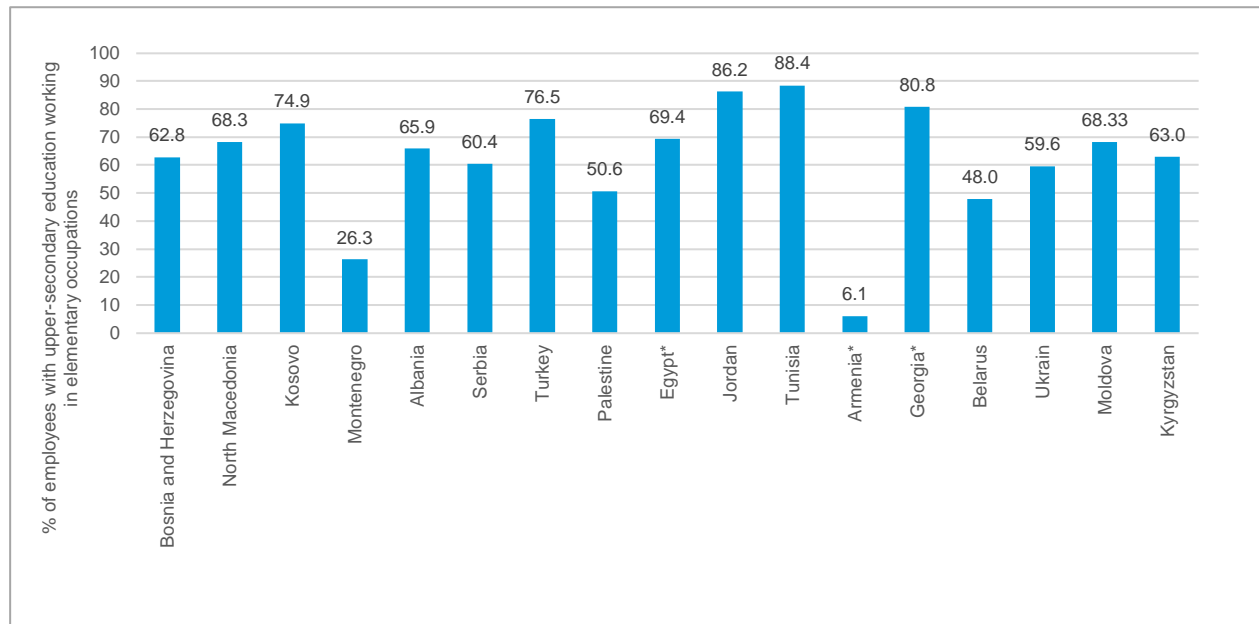
HORIZONTAL MISMATCH

The field of study does not match the occupational area of the job

- Discrepancy between a person's current occupation and their field of education related to the highest level of education attainment.
- The basic criterion used when assigning occupational codes to a field of education is the assumed congruence of skills acquired through the field of education and those needed on the job.

HORIZONTAL MISMATCH ACROSS COUNTRIES, IN 2019

- The horizontal mismatch rate was high across countries
- Results are sensitive and depend on occupation classification (ISCO 88/08 at 1,2, or 3-digit levels, or national classification)
- Challenges to comparability across countries; within-country and across-time interpretation are recommended

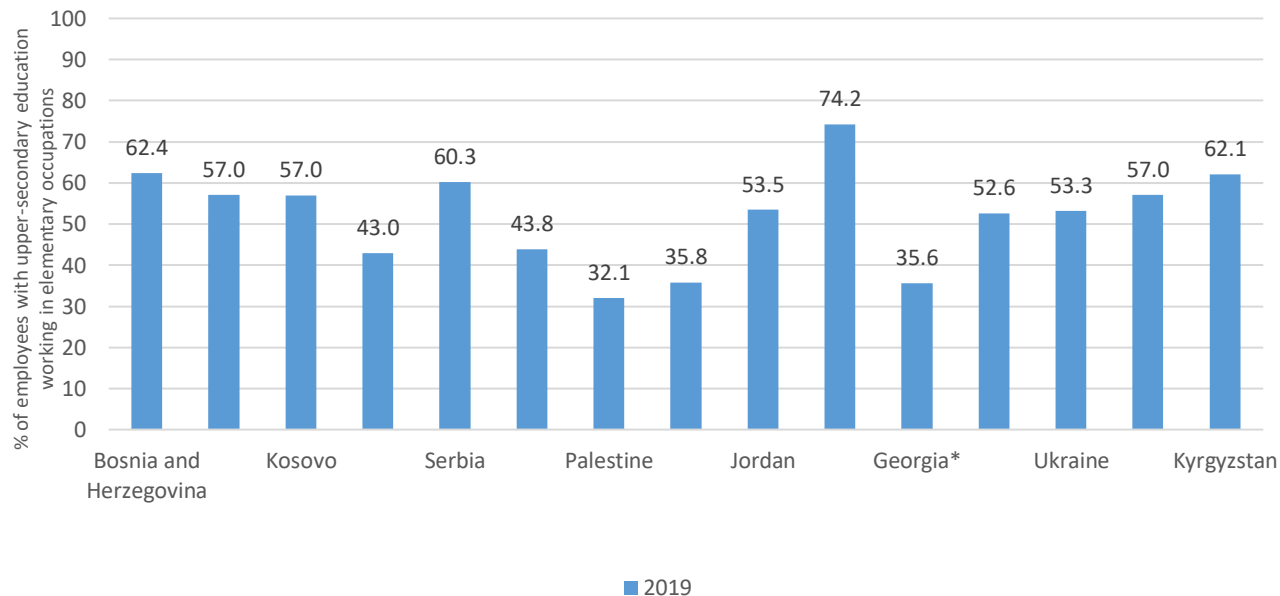


Note:

- In Armenia: Occupation is defined at the one-digit level
- In Georgia: Occupation is matched with profession (both ISCO-88, 3 digits)
- In Ukraine: Occupation and field of education are defined according to the national classification
- In Moldova: In 2019 the sampling and the survey weights differ from the previous years (not strictly comparable)

HORIZONTAL MISMATCH (TERTIARY EDUCATION) ACROSS COUNTRIES, IN 2019

- The horizontal mismatch rate was high across countries
- Results are sensitive and depend on occupation classification (ISCO 88/08 at 1,2, or 3-digit levels, or national classification)
- Challenges to comparability across countries; within-country and across-time interpretation are recommended



Note:

- In Armenia: Occupation is defined at the one-digit level
- In Georgia: Occupation is matched with profession (both ISCO-88, 3 digits)
- In Ukraine: Occupation and field of education are defined according to the national classification
- In Moldova: In 2019 the sampling and the survey weights differ from the previous years (not strictly comparable)

APPENDIX

EDUCATION CLASSIFICATION (JORDAN)

Aggregated level	Country
	Jordan (national classification)
Low	Illiterate
	Read and write
	Primary
	Preparatory
	Lower secondary
Intermediate – non-VET	Academic secondary
	Post-secondary or equivalent
Intermediate – VET	Professional/vocational
High	University
	High diploma
	Masters
	Phd

CONCLUSIONS ON RESULTS AND METHOD

Data / Methodology

- Standardize the classification of the field of education to the latest ISCED-F (ISCED-F 2013) for all education levels
- Occupation codes at the 3-digit level (ISCO classification)
- Where possible, keep the education classification consistent over time
- Specify which level of education is VET/high education
- Possibly: re-run the scripts directly on the national LFS to enable quicker updates and more recent results

Policy implications:

- High NEET rates and relatively high mismatch according to some indicators.
- Improve labour market matches for highly educated youth (overeducation, danger of potential human capital loss)
- Necessary to align skills supply (fields of education) with skills required on the labour market (coordination between stakeholders)
- Determinants of overeducation and horizontal mismatch?

Next steps:

- Improve survey design of the LFS and the availability of the data
- Improve / enhance additional sources of Labour Market Intelligence:
 - Skills surveys
 - Register data (LMI)
 - Online vacancy surveys

REFERENCES

Eurostat – skills mismatch statistics

<https://ec.europa.eu/eurostat/web/experimental-statistics/skills>

ILO / International Conference of Labour Statisticians - Guidelines concerning measurement of qualifications and skills mismatches of persons in employment

https://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_648557.pdf

CEDEFOP - Insights into skill shortages and skill mismatch

<https://www.cedefop.europa.eu/en/publications-and-resources/publications/3075>

ETF resources on skills mismatch

[Cross country event on skills mismatch | ETF \(europa.eu\)](#)

[Skills mismatch measurement in ETF partner countries](#)

[Skills mismatch measurement in Moldova](#)

[Skills mismatch measurement in Georgia](#)

[Skills mismatch measurement in Montenegro](#)

[Skills mismatch measurement in North Macedonia](#)

[Skills mismatch measurement in Serbia](#)