

# SKILLS MISMATCH IN ETF PARTNER COUNTRIES

## KEY FINDINGS AND RESEARCH INSIGHTS

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**SKILLS  
FOR THE  
FUTURE**

**Managing Transition**

# WHAT AND WHY

## Objectives:

- To document comparable sets of mismatch indicators across countries
- To support partner countries (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 National Statistical Offices (NSOs)
- Exchange/clarifications (esp. education classification) /refinement of results and publication

# 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) could run the calculation and share the results for checks and validation (including calculation scripts for future replication)
- If access could not 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.

## Timeline:

- Phase I: June 2020 - February 2021 (calculations for the first group of countries);
- Phase II:
  - April – August 2021: checks / calculation / validation
  - September – November 2021: dissemination in country events (dates tbc) and international workshop (25 November)

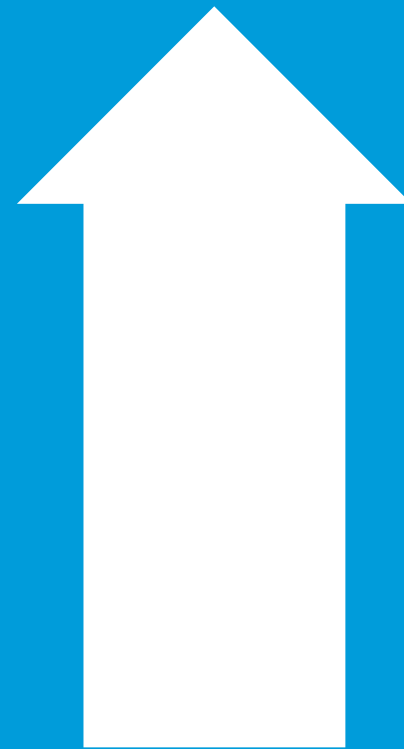
## Deliverables:

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

# KEY MISMATCH INDICATORS (IN ADDITION TO BACKGROUND ONES)

<b>Vertical</b>	<b>Over-education (over-qualification)</b>	Worker's level of education (qualification) exceeds the required level for the job (occupation)	Subjective <b>Normative</b> (refers to the level of skills (education) required to work in a specific occupation category) <b>Empirical</b> (the statistical or realized matches method) using either the mean or the mode of education within a occupation category; Job evaluation method
	<b>Under-education (under-qualification)</b>	Worker's level of education (qualification) is lower than the required level for the job (occupation)	As above
<b>Horizontal</b>	<b>Field of education to occupation mismatch</b>	The field of study does not match the occupational area of the job	<b>Subjective</b> (e.g. is your job matching your field of education?) <b>Objective (using ISCO and ISCED-F codes)</b>
<b>Horizontal</b>	<b>Field of education to occupation mismatch</b>	The field of study does not match the occupational area of the job	<b>Subjective</b> (e.g. is your job matching your field of education?) <b>Objective (using ISCO and ISCED-F codes)</b>
<b>Background</b>	<b>Unemployment</b>	Proportion of unemployed	Standard ILO definition. Breakdown by age groups and gender
	<b>NEET</b>	Not in employment, education, or training	Proportion of young not in employment, education or training relative to the total population of the agegroup (15-19; 20-24; 25-29).

# KEY FINDINGS



# VERTICAL MISMATCH: THE EMPIRICAL METHOD

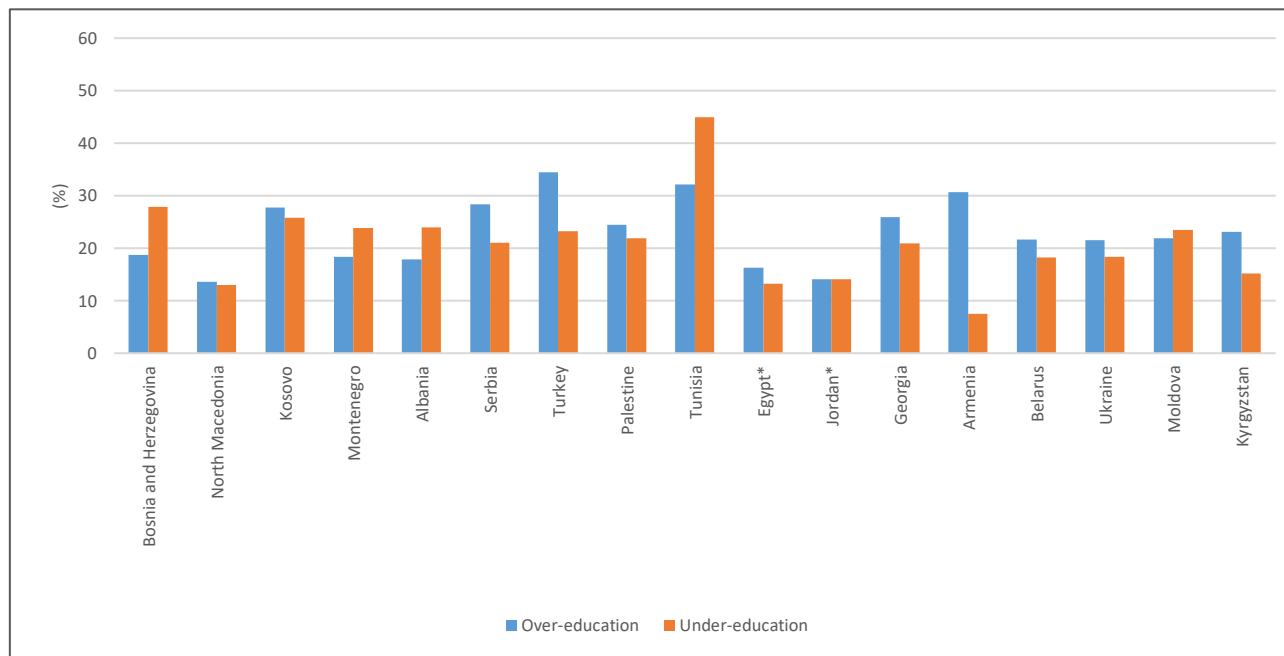
- The empirical method determines from within the data the most common qualification in an occupation to be the required level.
- We follow the ILO in using the mode of the qualification.
- A mismatch occurs if there is a deviation from the required qualification.

**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)

## RESULTS SUMMARY

### In 2019:

- In most of the selected ETF partner countries about one in four employees was either over- or under-educated in 2019, (in Egypt, Bosnia and Herzegovina, and North Macedonia the share is lower).
- Among all countries, Turkey and Armenia had the highest share of over-educated employees (about 35% and 30,6% in 2019) while the highest share of under-educated ones can be found in Tunisia (almost 45%), Bosnia and Herzegovina, Moldova and Montenegro (about one-fourth).

### Gender differences:

- In Kosovo, Bosnia and Herzegovina, Ukraine and Georgia, Kyrgyzstan, men were more likely to be over-educated than women and in most of those countries, women were more likely to be under-educated than men.
- The opposite was true in almost all other countries of this study.



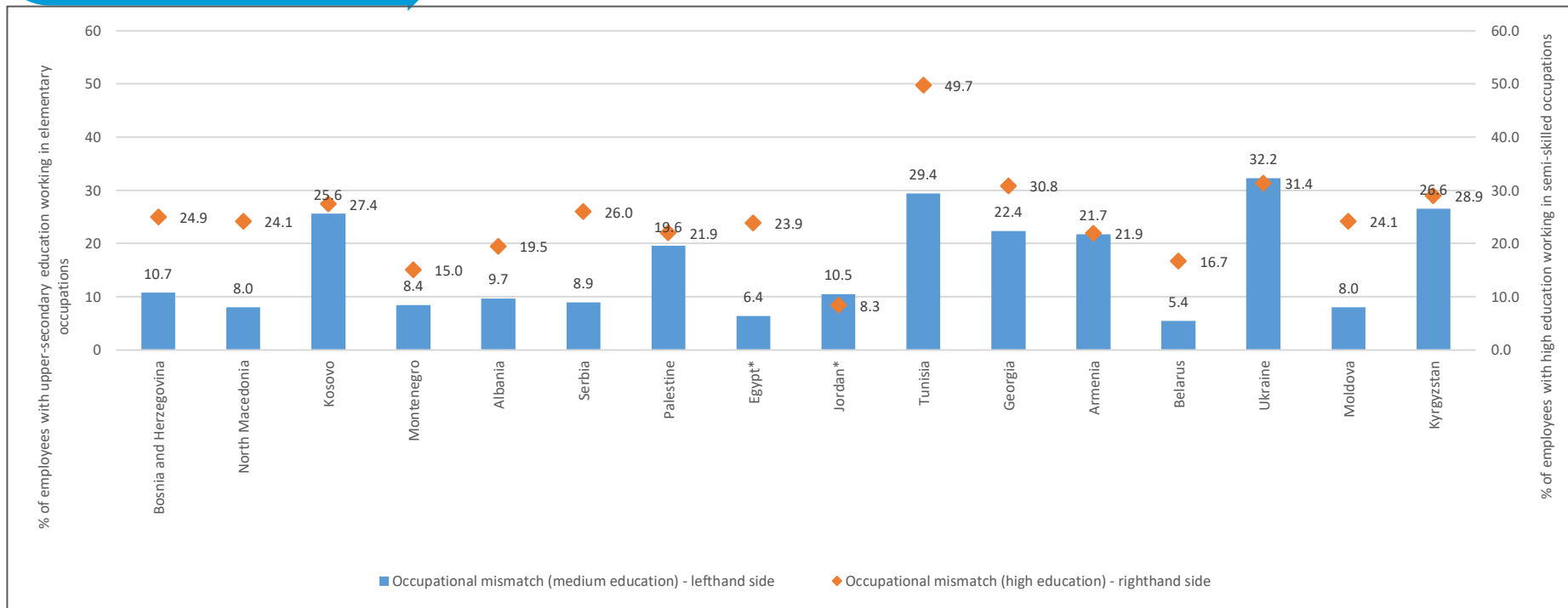
# OCCUPATIONAL MISMATCH

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 (NORMATIVE METHOD)

## RESULTS SUMMARY

- **Trends (2016-2019):**
  - High education mismatch increased in almost all SEE countries, but overall there were mixed outcomes;
  - Medium-education mismatch was overall stable with a few exceptions (increased in Armenia and Ukraine);
- **In 2019:** At least one in four employees was overeducated in most selected countries.
- **Overall:** Enlargement countries tended to experience higher shares of high-skilled mismatch while countries in the EaP were more likely to experience vertical skills mismatch at a medium education level;
- **Tertiary graduates:** at least one in four was overeducated in a vast majority of countries, but the incidence was higher (one in three) in Georgia, Turkey, and Ukraine, approaching one in two in Tunisia (for upper/post-secondary graduates the incidence is lower);
- **Young employees:** typically higher incidence for young employees in the vast majority of countries, (~40% of youth in Tunisia or Turkey and ~10% in Albania, Bosnia and Herzegovina and North Macedonia).

# OCCUPATIONAL MISMATCH (NORMATIVE METHOD)

## RESULTS SUMMARY

- **Gender differences:**

- High education mismatch is more common among women in Belarus and Kyrgyzstan, while the opposite was true in Moldova;
- Medium-skill mismatch was more common among women in Albania and Jordan

- **Differences across age groups:**

- Young tertiary graduates (15-24 years old) with tertiary education have a higher incidence of over-skilling: one-fourth or more were mismatched (i.e. have held jobs requiring lower levels of formal-ISCED qualifications)
- Graduation does not necessarily always lead to a matched integration in the labour market (human capital loss)
- Determinants of overeducation?

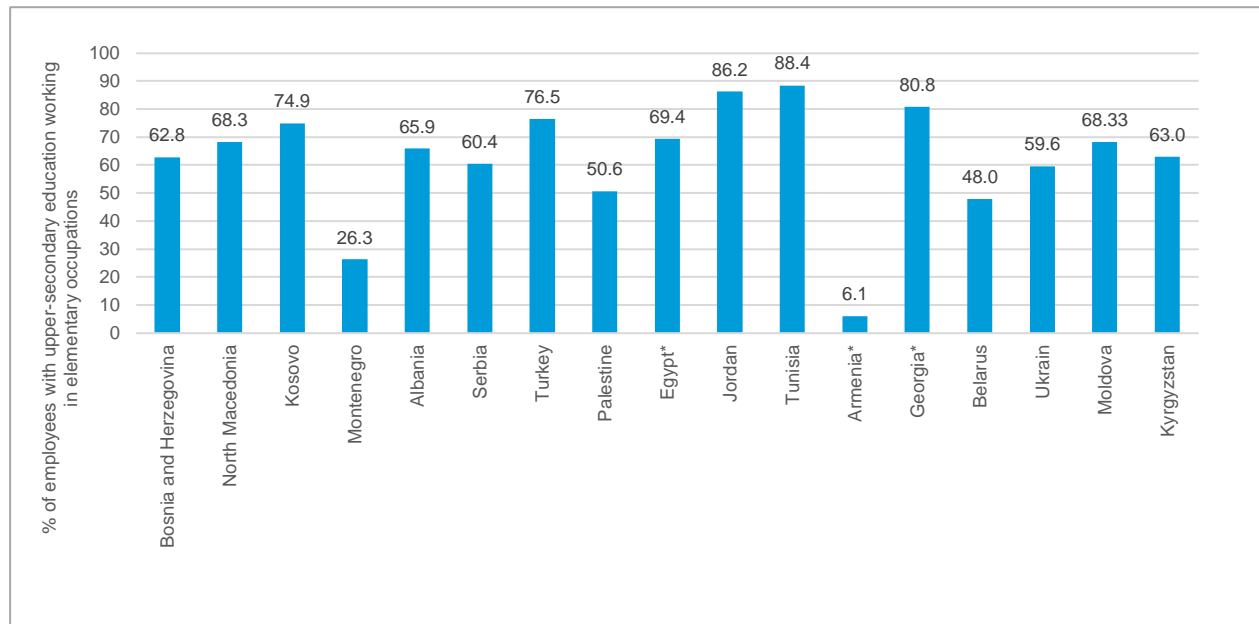
# HORIZONTAL MISMATCH

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.

## 2.3. 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:**

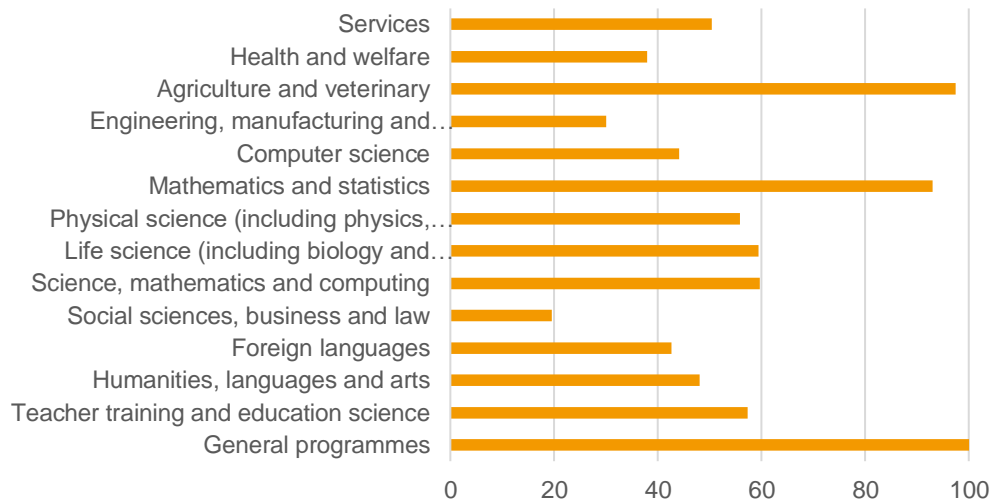
- In Armenia: Occupation is defined at the one-digit level
- In Georgia: Occupation is matched with profession (both ISCO-88, 3 digits)
- In Ukraine: Occupation and field of education are defined according to the national classification
- In Moldova: In 2019 the sampling and the survey weights differ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

## 2.3. HORIZONTAL MISMATCH

### WHICH QUALIFICATION ACCOUNT MOST FOR SKILLS MISMATCH?

- Where are the high levels of horizontal mismatch coming from and is this “real mismatch”?
- General programmes are ‘considered mismatch’ (which is not necessarily the case).
- The degree of mismatch also depends on the “width” of potential occupations: e.g., ‘Social sciences’ versus ‘Agriculture and veterinary’.

Percentage of Mismatch (in Field) 2019, Albania

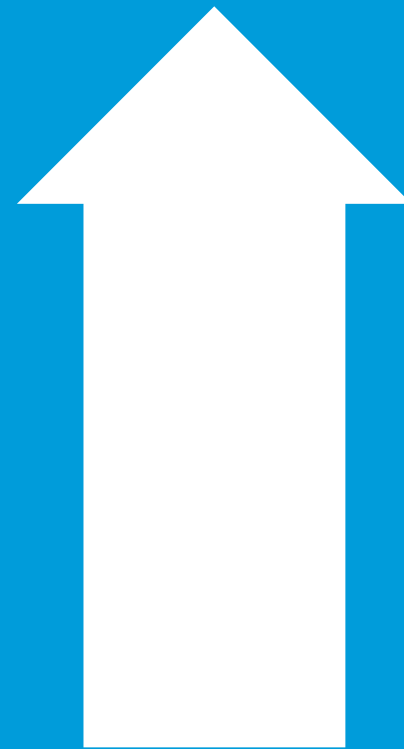


## 2.3. HORIZONTAL MISMATCH RESULTS SUMMARY

- **In 2019:**
  - The share of horizontal mismatch is 60% or above in most of the selected ETF partner countries with an exception for Armenia (6.1%), and Belarus (48%)
- **Gender differences:**
  - The share of horizontally mismatched employees is higher for men than for women in most of the countries;
  - Greatest gender gap: in Kosovo, Egypt, Kyrgyzstan and Tunisia followed by Albania, Turkey and Jordan
- Limitations in the interpretation of this indicator
- Challenges to its comparability across countries



# LIMITATIONS OF THE METHOD



# METHODOLOGICAL ISSUES

- The occupation classification sometimes was available only at the 1-2 digits level.
- The occupation classification sometimes followed a national classification (not ISCO, e.g. Ukraine).
- The field of education often followed national classifications that had to be re-converted in ISCED-F or was not always available (e.g. Kyrgyzstan).
- Not always possible to identify medium-VET education.
- Not always possible to identify upper-secondary education.
- The match between ISCED-F and ISCO-08 codes had to be defined when either the classification or the number of digits were different from those used by Wolbers (2013).

# COMPARABILITY ISSUES

- **Data comparability across survey waves**
  - For Moldova, the indicators calculated using the LFS survey wave of 2019 are not strictly comparable with those calculated using the previous survey waves;
  - For Georgia, the indicators calculated using the LFS survey wave of 2016 are not strictly comparable with those calculated using the previous survey waves
- **Indicator comparability across countries (sensitivity analysis)**
  - The horizontal mismatch indicator is higher when the level of digits increases (+10 pps. between one and two digits)
  - Vertical mismatch indicators slightly differ when calculated with occupations specified at a different digit level

# OTHER LIMITATIONS

## Informality

- Some indicators (e.g. those proxying skills using the qualification level) are less meaningful as on-the-job training and apprenticeships usually provide the necessary skills.

## Migration:

- If mismatched individuals migrate abroad, we might underestimate the incidence of mismatch.

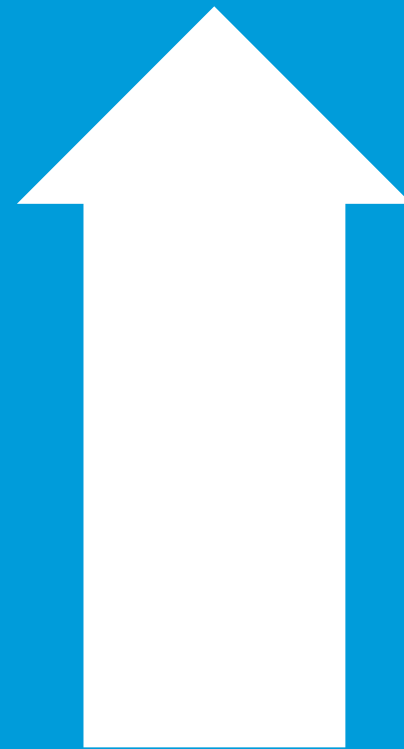
## Interpretability of the indicators:

- Empirical method: it is a mechanistic measurement and should be interpreted as a proxy;
- Horizontal mismatch: the magnitude of the indicator should not be interpreted too strictly.

# RECOMENDATIONS TO IMPROVE STATISTICS

- 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

# POLICY IMPLICATIONS AND NEXT STEPS



# CONCLUSIONS AND NEXT STEPS FOR SKILLS MISMATCH MEASUREMENT

**Interpretation of the indicators has limitations**

**Policy implications:**

- Necessary to improve labour market matches for highly educated youth (overeducation, potential human capital loss)
- Necessary to align CVs (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
- 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](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 reports on skills mismatch**

[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](#)