

# The future of taxation in changing labour markets<sup>1</sup>

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## Public Sector Economics Presentation

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<sup>1</sup>The content of this article does not reflect the official opinion of the European Commission.

# Presentation overview

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# Introduction

- Ongoing changes in labour markets could pose a challenge for tax-benefit systems of EU member states and therefore affect their role with respect to social cohesion (Dolls et al., 2017; 2019).
- Long-term trends, such as technological progress and ageing, are likely to affect the structure of the labour markets in terms of:
  - skills demanded and supplied (David and Dorn, 2013; Michaels, Natraj and Van Reenen, 2014)
  - earnings distribution, and
  - sustainability of welfare states (European Commission, 2018)

# Megatrends in Europe

- Cedefop and Eurofound projections suggest increasing job polarisation in Europe, though not uniform across all EU member states.
- COVID-19 had a server impact on the labour market (home-office, search behaviour,...).
- Population ageing coupled with job polarisation could impact tax revenues, inequality, income distribution, and social cohesion.

# Research Objective

- Assess fiscal and distributional consequences of changing labour markets due to megatrends till 2030 under a no policy-change assumption.
- Account for the impact of the COVID-19 pandemic on these megatrends.
- We use a reweighting approach and microsimulation techniques, combining EU-SILC survey dataset with labour market projections.

## EUROMOD

- EUROMOD is a microsimulation model covering all EU member states (Sutherland and Figari, 2013).
- It analyses the role of tax-benefit instruments in household disposable income formation.
- Simulations are based on EU-SILC 2017 data and run on tax-benefit rules as of June 30, 2019.
- Limitations include coverage of only the household side of the economy and exclusion of second-round and behavioural effects.

## EUROSTAT Population Projections

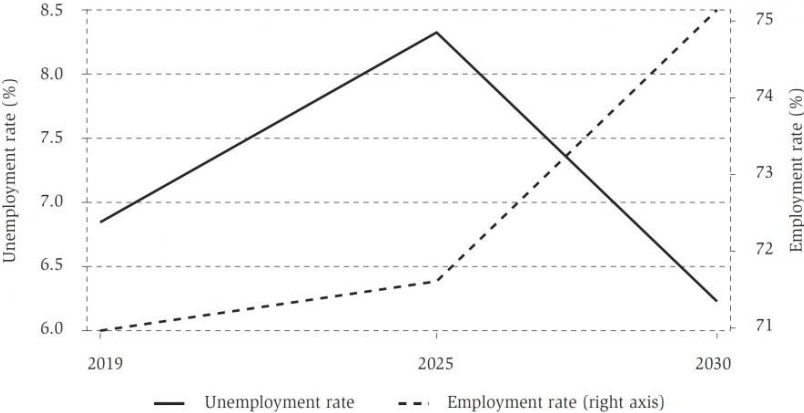
- EUROSTAT provides estimates of future changes in EU member states' populations.
- Population projections assume increasing fertility rates, decreasing mortality rates, and positive net migration in most countries.
- No changes were made to baseline projections due to COVID-19.
- Population ageing is expected, with over-65s projected to increase by 21% in the EU by 2030.

## CEDEFOP Skills Forecast

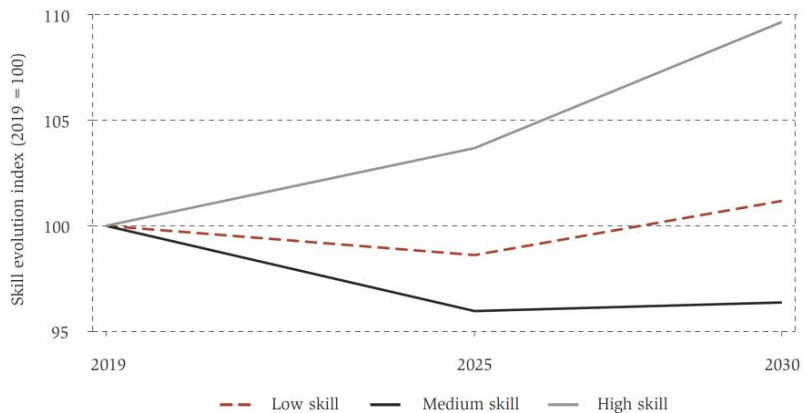
- Cedefop Skills forecast provides medium-term projections for skills demand and supply.
- The analysis incorporates projections for 2019-2030, including the impact of COVID-19 on skills demand and supply.
- Unemployment is expected to increase post-COVID-19 but fall below pre-COVID-19 levels thereafter.
- High-skill jobs are expected to rise by 10%, while medium-skill jobs decline and low-skill jobs remain stable.



# Data - EU Labour market development



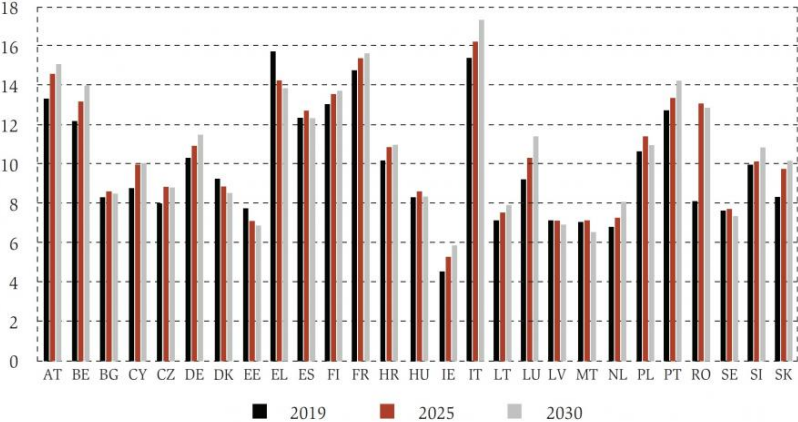
# Data - Skill composition EU



## Pension Expenditure Projections

- Data on pension expenditure are based on the 2021 Ageing Report, considering the impact of COVID-19.
- Pension expenditures are expected to increase in most EU member states, with some exceptions like Denmark, Estonia, and Sweden.

# Data - Pension Expenditures



# Methodology

- The empirical approach followed is based on reweighting (Pacifico, 2014), i.e. introducing changes in the population structure in the survey data such that expected macro trends are reproduced into our micro data.
- This allows us to analyse the impact of future changes in the labour market, but also the impact of ageing on government revenues, as well as public expenditures.

# Methodology

Let us consider a survey of  $N$  individuals and  $K$  variables:

$x_{i,k} = (x_{i,1}, x_{i,2}, \dots, x_{i,K})$  and the survey weight is defined as a vector  $s = (s_1, s_2, \dots, s_N)$  of all individual weights

The estimated  $1 \times K$  vector of survey totals is then given by:

$$t = \sum_{i=1}^N s_i * x_i \quad (1)$$

We compute a new vector of survey weights  $w = (w_1, w_2, \dots, w_N)$  that is as close as possible to the original weights and that respects the following calibrating conditions:

$$t_{new} = \sum_{i=1}^N w_i * x_i \quad (2)$$

where  $t_{new}$  is the  $1 * K$  vector of projected total values in the future for a given variable  $x$ .

# Methodology

Let us assume that the distance between the original and the new weights is following a distance function  $g(s_i, w_i)$ , then the new weights can be obtained by minimizing a Lagrangian function with respect to the new weights:

$$L = \sum_{i=1}^N g(s_i, w_i) + \sum_{k=1}^K \lambda_k * (t_k - \sum_{i=1}^N w_i * x_{i,k}) \quad (3)$$

where  $w = (\lambda_1, \lambda_2, \dots, \lambda_K)$  are the Lagrange multipliers.

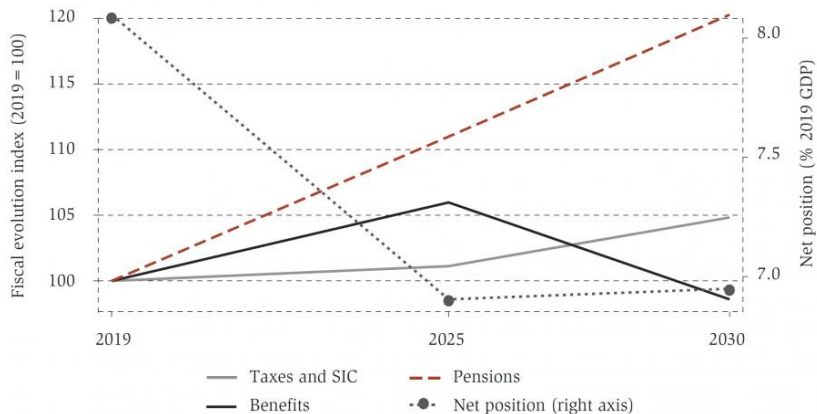
# Methodology

We reweight the EU-SILC data accordingly to the following conditions:

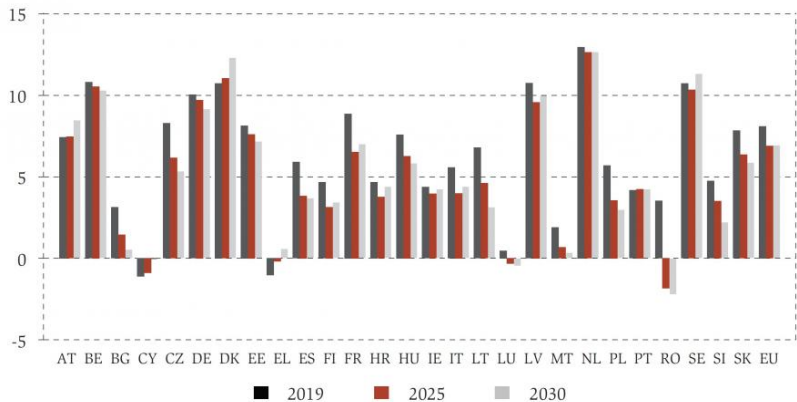
- First, we reweight the total employment by occupational groups, given the changes that are projected by the CEDEFOP skill forecast.
- Second, we adjust the unemployment level according to the expected unemployment growth rate of the CEDEFOP forecast.
- Third, we reweight the age groups of 0-15 years, 16 to 40 years, 41 to 65 years, as well as 65+ according to the EUROSTAT population forecasts.



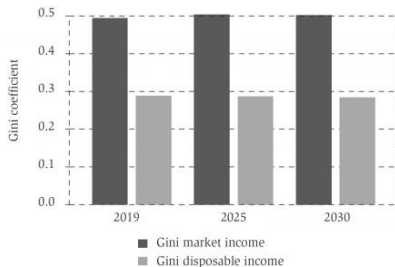
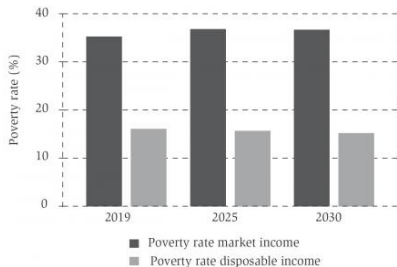
# Results - Fiscal impact EU



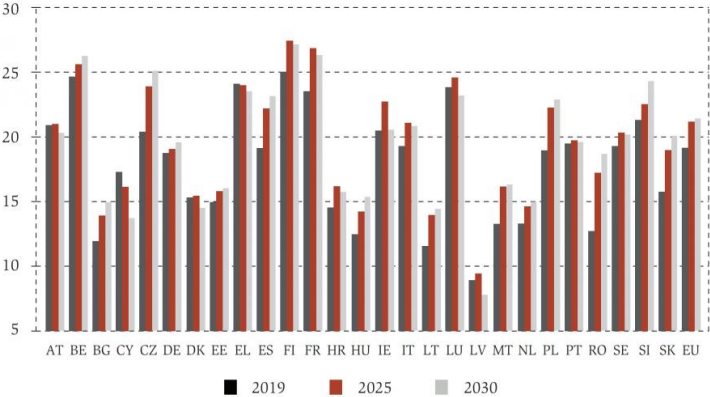
# Results - Fiscal impact EU MS



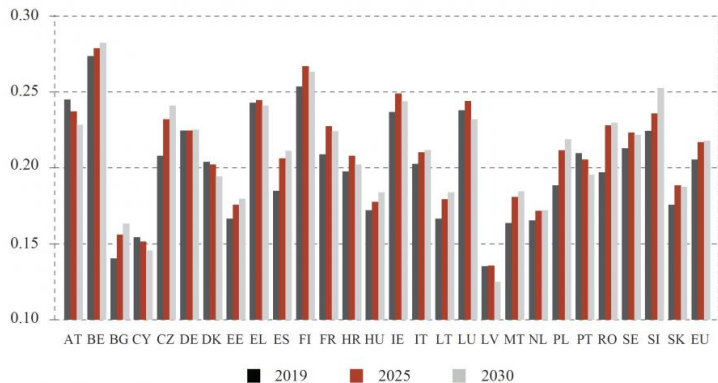
# Results - Poverty and Gini EU



# Results - Redistributive effect



# Results - Poverty reduction index



# Key Findings

- Macro-trends expected to deteriorate government net positions with respect to households in many EU member states, driven by increased pension expenditures.
- Government revenues from taxes and social insurance expected to increase in most countries.
- Stable or improved government net positions with respect to households observed when focusing on the working-age population.
- Expected more unequal distribution of market incomes and higher poverty risks, but tax-benefit systems expected to provide more redistribution and better poverty risk absorption.

# Caveats

- Using a weighting approach may not account for potential wage effects due to changing labour demand and supply.
- We assume a no-policy change scenario, not accounting for potential policy interventions in tax-benefit systems.

# References