The impact of COVID-19 on households' income in the EU

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Outline

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1. Introduction

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1. Introduction - Motivation

- The COVID-19 crisis has been one of the worst social and economic shocks that EU economies (and the world) have experienced
- The fiscal response to the crisis has been unprecedented, all EU countries adopted measures to protect jobs, households' incomes and aggregate activity
- Several studies focused on the impacts of the crisis and the cushioning role of fiscal policy for member states individually (Figari and Fiorio 2020, Italy; Beirne et al. 2020, Ireland; Christl et al. 2021, Germany; among many others)
- But no systematic and harmonised analysis for all EU member states and the EU as a whole

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1. Introduction - What we do

- In this paper, we make a first attempt at filling this gap, **assessing for each individual member state and the EU as a whole, in 2020**:
  - **The distributional impacts of the COVID-19 crisis**
  - **The cushioning effect of discretionary fiscal policy measures** adopted by each member state

- We do this by combining macroeconomic scenarios based on European Commission (EC) forecasts with the EUROMOD microsimulation model and reweighting techniques

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2. Methods

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2. Methods – Key elements

- Three **macroeconomic scenarios** for pre and post crisis economy:
  - Two given directly by EC macroeconomic forecasts:
    - (1) No COVID-19
    - (2) COVID-19 with fiscal policy interventions
  - One counterfactual, constructed by adjusting scenario (2):
    - (3) COVID-19 without fiscal policy interventions
- **EUROMOD** microsimulation model to simulate taxes, benefits and disposable income
- **Reweighting techniques** to translate macroeconomic conditions to microeconomic data

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2. Methods – Macro scenarios: EC forecasts

- **(1) No COVID-19 scenario (baseline)**:
  - Given by 2019 EC Autumn Forecast for 2020
  - Represents hypothetical 2020 EU economy without the COVID-19 crisis

- **(2) COVID-19 with fiscal policy interventions scenario**:
  - Given by 2020 EC Spring Forecast for 2020
  - Represents 2020 EU economy with the COVID-19 crisis and considering discretionary fiscal policy interventions taken or announced by EU governments at the time of the forecast, including those financed by EU support
  - Also includes effects of automatic stabilisers

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2. Methods – Macro scenarios: counterfactual

- **(3) COVID-19 without fiscal policy interventions scenario**:
  - Represents hypothetical, counterfactual, 2020 EU economy with the COVID-19 crisis if no discretionary fiscal policy measures had been adopted
  - Obtained by removing economic impact of fiscal policy measures taken to tackle the COVID-19 crisis from the 2020 EC Spring Forecast for 2020
  - This is done by estimating GDP growth and employment changes if no policy interventions had been adopted, following four main steps (see Annex)
  - Includes effects of automatic stabilisers, which are not removed

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2. Methods – EUROMOD

- The effects of each macroeconomic scenario on households disposable income, inequality and poverty are assessed using **EUROMOD, the EC tax-benefit microsimulation model** (see Sutherland and Figari 2013)
- EUROMOD is **used to simulate taxes, benefits and disposable income.** The simulations are based on data from the 2017 EU-SILC and 2019 policy systems (uprating 2017 data to 2019 values)
- Macroeconomic conditions in each scenario are then replicated in EUROMOD data using reweighting techniques (next slide), which produces three new datasets, one for each scenario, which allow for the assessment of the distributional impacts of the crisis

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2. Methods – Reweighting

- Reweighting is used to translate changes in several aggregate variables into changes at the microeconomic level (following the approach by Pacifico 2014)
- Starting from the EUROMOD data, **the weights attributed to each household are adjusted** such that changes in the aggregate value of key targets in the micro data replicate changes in the macro scenarios
- **Key targets** are: Employment, Unemployment, Wages and Self-employment income
- Procedure applied for each macro scenario, which generates **three new micro datasets**, then used for the distributional analysis

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3. Results

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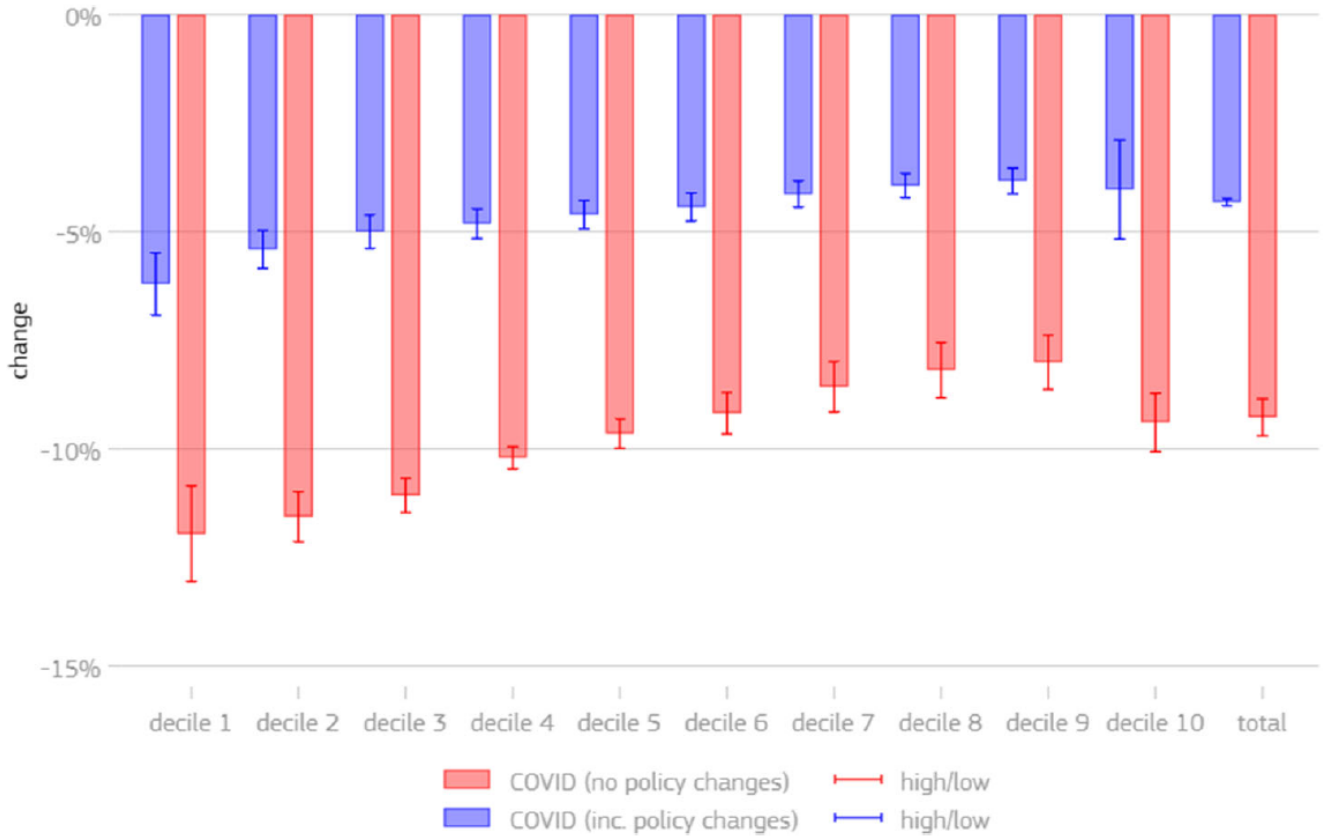
3. Results – Income distribution, EU as a whole

- On average, household disposable income would fall by -9.3% due to the impact of COVID-19, without fiscal policy measures. Policy intervention reduces this impact to -4.3%.
- Impact of the COVID-19 crisis is regressive, lower income deciles are hit relatively more than higher ones.
- Fiscal policy interventions reduce the regressivity, leading to a more homogeneous impact across the income distribution.

Figure 4: Impact of COVID-19 on household disposable income in the EU, by deciles (change relative to no COVID-19 scenario)



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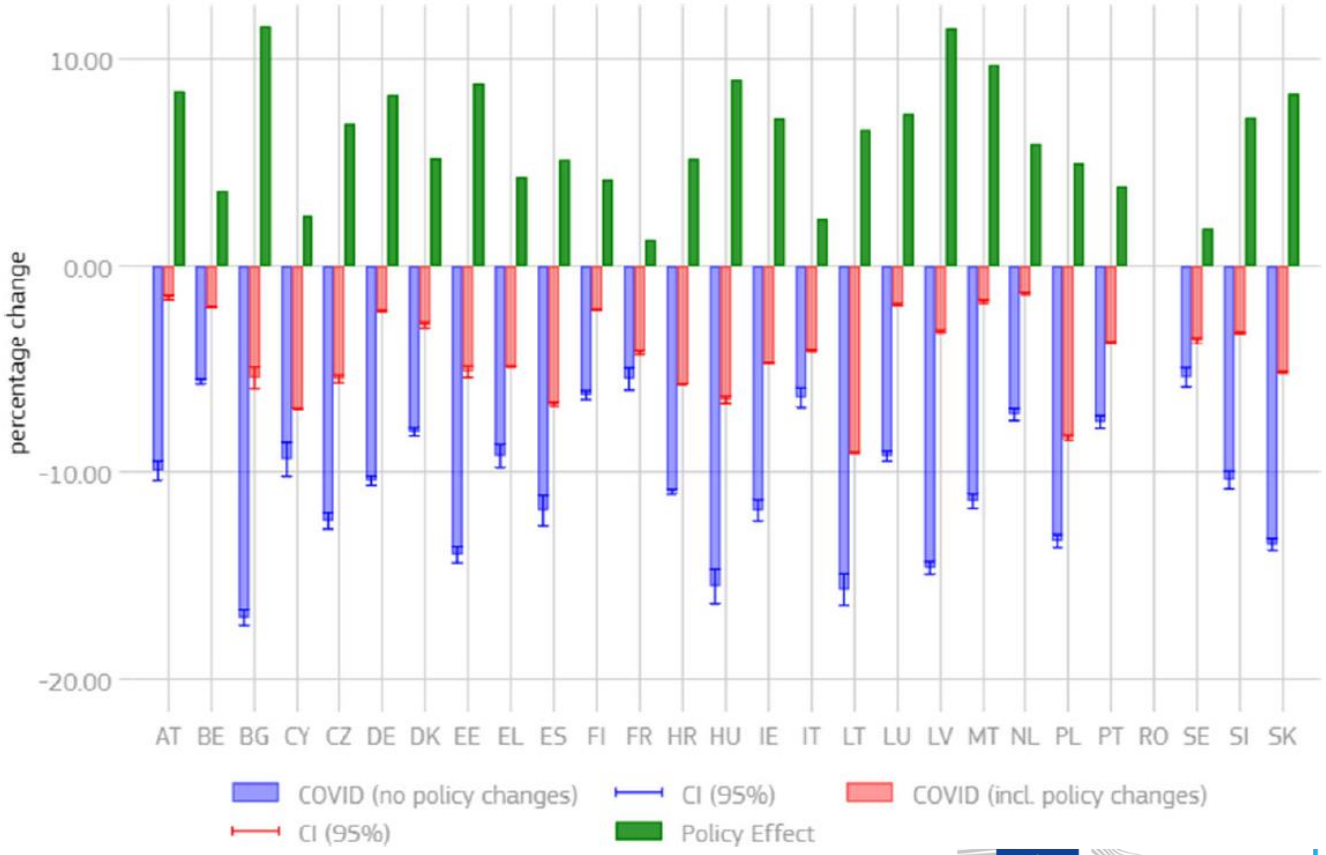
3. Results – Average income, EU member states

- For all countries, there are losses in average income in both COVID-19 scenarios.
- For all countries, policy interventions have a mitigating effect, reducing the size of the losses.
- There is significant heterogeneity on the size of the losses and policy effects across countries.

Figure 8: Impact of COVID-19 on household disposable income in EU member states, on average (change relative to no COVID-19 scenario)



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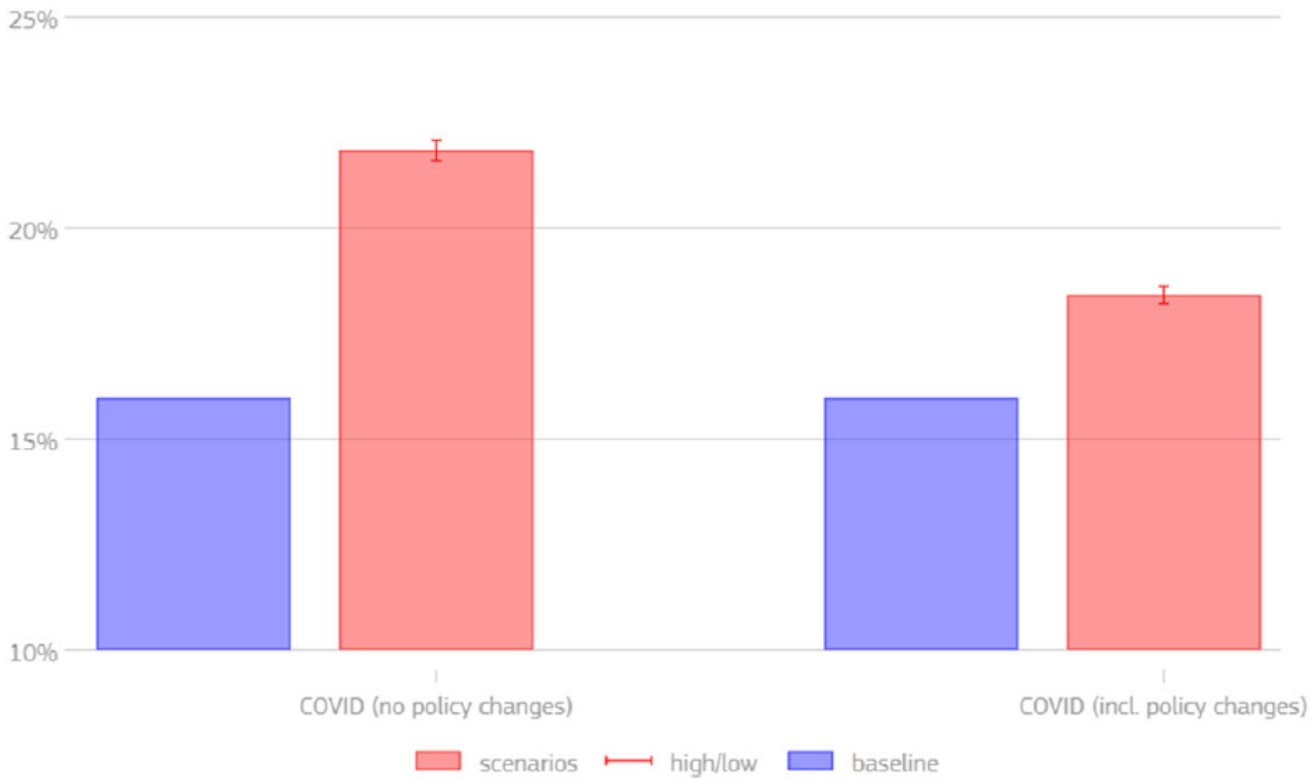
3. Results – Poverty, EU as a whole

- The At Risk of Poverty (AROP) rate in the EU increases significantly due to COVID-19.
- From 16% in the baseline to 21.8% in the COVID-19 without policy intervention.
- When accounting for policy measures, the increase is less pronounced, to 18.5%. Fiscal policy intervention mitigates the poverty effects of the crisis.

Figure 6: Impact of COVID-19 on the AROP rate in the EU (anchored poverty line, 60% of median income)



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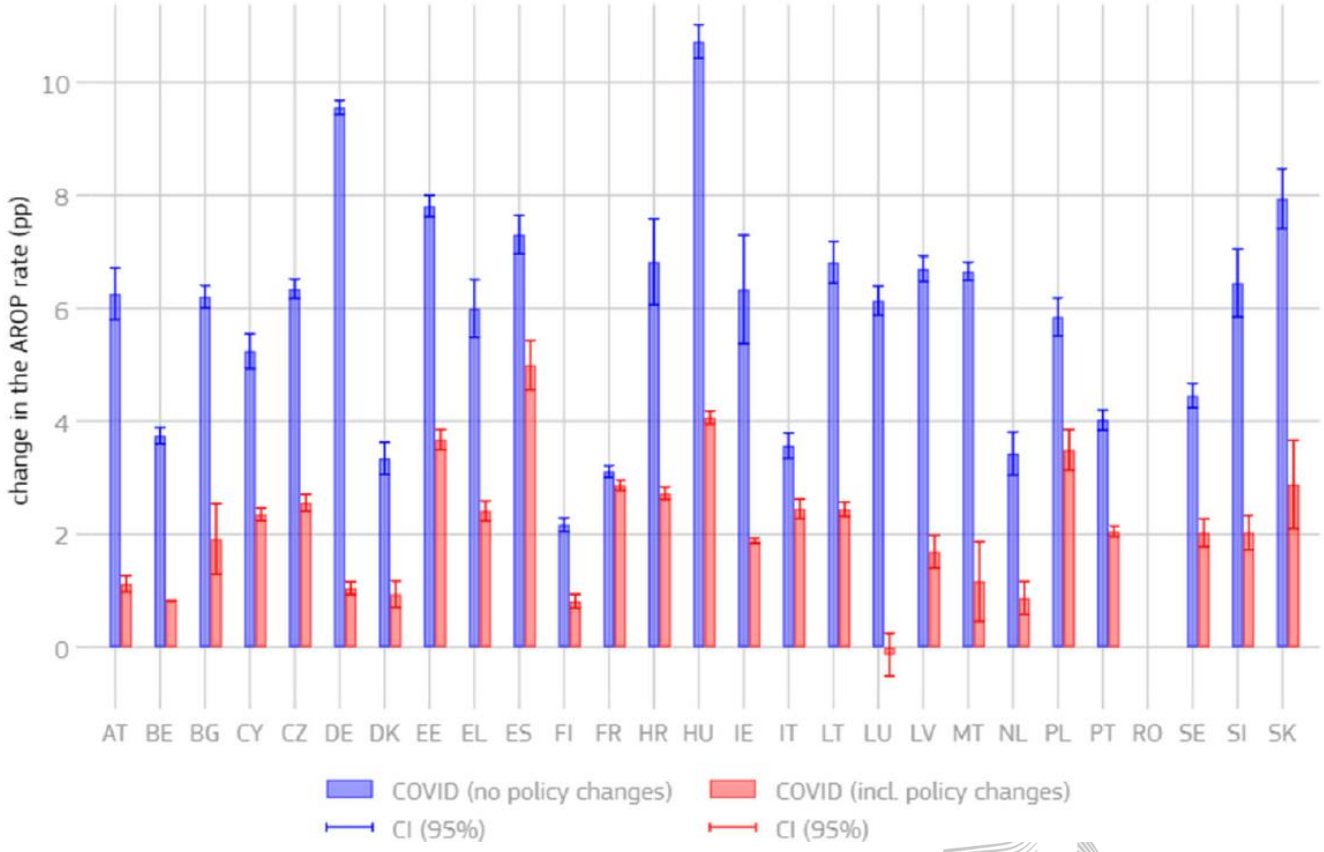
3. Results – Poverty, EU member states

- For all countries, the AROP rate increases in both COVID-19 scenarios, with several countries exhibiting substantial increases.
- For all countries, policy interventions have a mitigating effect, reducing the increase in poverty.
- Significant heterogeneity on the magnitude of poverty impacts and policy effects across countries.

Figure 9: Impact of COVID-19 on the AROP rate in EU member states (change relative to no COVID-19 scenario)



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4. Conclusion

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4. Main conclusions and policy implications

- **The COVID-19 crisis led to substantial losses in households' income** in all EU countries and in the EU as a whole
- These losses were heterogeneous across the income distribution, **with lowest income households being hit the most and poverty increasing**
- **Discretionary fiscal policies taken by EU member states and EU institutions were instrumental** in cushioning the income and poverty effects of the crisis
- Without the swift intervention of EU governments and institutions to design and adopt exceptional support for EU economies and households, the distributional and social impacts of the COVID-19 crisis would have been much more pronounced
- Important lesson for policy makers when dealing with future crisis, **a strong tax-benefit system can be key to cushion the impacts of an economic crisis**

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Thank you!

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Annex

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Steps to derive counterfactual macro scenario

- Step 1: Estimate the **budgetary impact** of COVID-19 related discretionary fiscal policy measures, using:
  - Stability and Convergence Programmes (SCP) submitted by EU member states for national spending and revenue measures
  - Information from the EC's DG for Budget for EU-funded public spending
- Step 2: Obtain estimates of **fiscal multipliers** from the literature, differentiating between revenues and spending
- Step 3: Multiply budgetary impacts (in % of GDP) by fiscal multipliers to get **impact on GDP** and subtract this from 2020 EC Spring Forecast
- Step 4: Use Trade-SCAN model to translate impact on GDP to **impact on employment** (see Roman et al. 2019)

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Robustness checks

- Three possible profiles for the quarterly evolution of **fiscal multipliers**, low, medium and high, reflecting different degrees of severity of lockdown measures and impact of policy interventions
- **Bootstrapping** procedure that allows the reweighting algorithm to be more flexible in the weight choice and to test the statistical significance of the results
- We consider a **sector-specific impact**, with wages being reduced only in those sectors that are most affected by the COVID-19 crisis

Some quantitative differences, but qualitatively all key results hold

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