

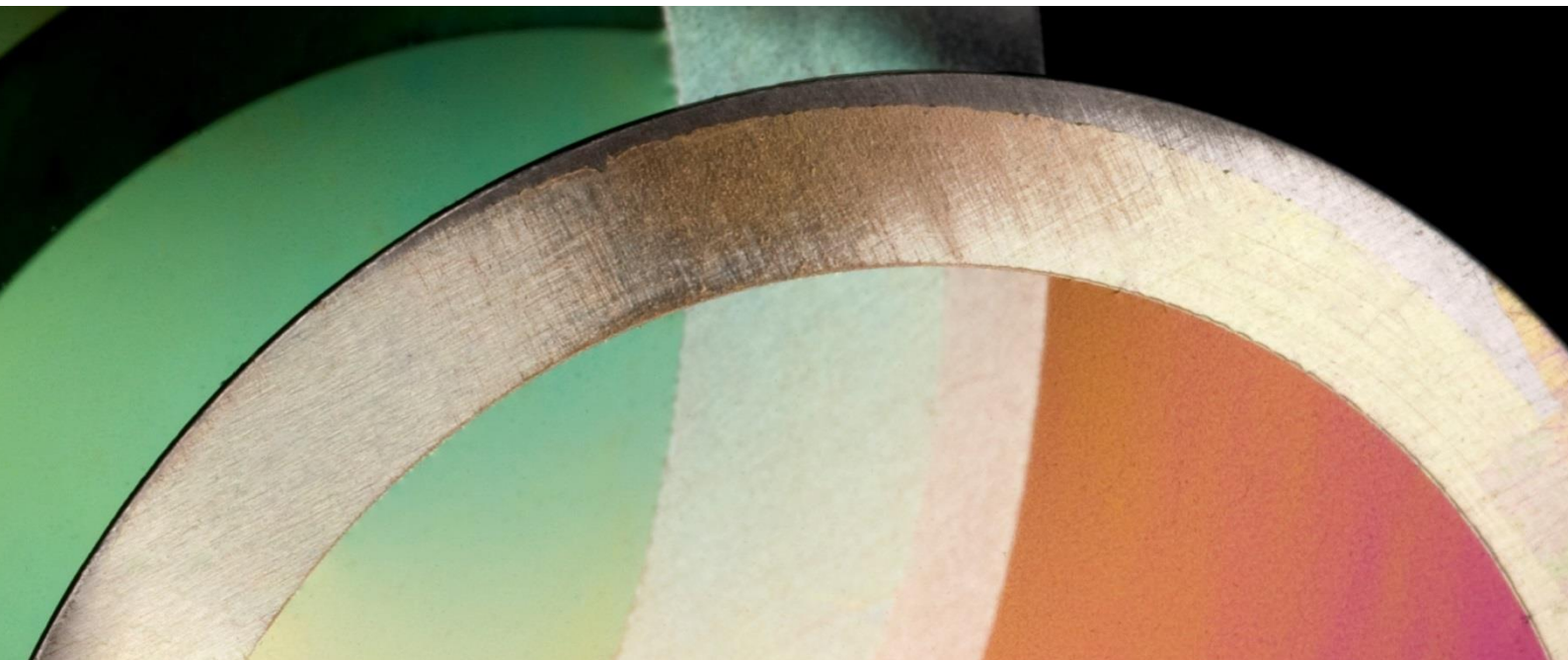


JRC TECHNICAL REPORT

The cushioning effect of fiscal policy in the EU during the COVID-19 pandemic

*JRC Working Papers on
Taxation and Structural
Reforms No 02/2021*

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JRC125567

Seville: European Commission, 2021.

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How to cite this report: Christl, M., De Poli, S., Figari, F., Hufkens, T., Leventi, C., Papini, A., Tumino, A., 2021. The cushioning effect of fiscal policy in the EU during the COVID-19 pandemic, JRC Working Papers on Taxation and Structural Reforms No 02/2021, European Commission, Joint Research Centre, Seville. RC125567

Executive Summary

- The COVID-19 pandemic hit Europe strongly in 2020, leading to a severe reduction in GDP across all EU Member States. Households faced an increased risk of unemployment due to lockdown measures and the general reduction in economic activity.
- Member States tried to withstand the crisis with specific policy measures. Among them, monetary compensation schemes aimed at compensating employees and self-employed for the reduction in their economic activity and played a major role in stabilising household incomes and demand. They allowed also a smoother return to economic activity for workers and firms.
- Our analysis makes use of EUROMOD, the EU microsimulation model with data from the 2018 EU Statistics on Income and Living Conditions (EU-SILC). We use detailed aggregate labour market statistics to simulate transitions from work into unemployment and monetary compensation schemes (e.g., job retention schemes and monetary support for self-employed) to adjust the labour market conditions of the micro-data (from 2018) to reflect those of 2020.
- We compare two alternative scenarios for the year 2020; one in which labour market transitions to unemployment and/or monetary compensation schemes did not occur, and one in which these transitions took place.
- We find that most EU countries experienced a large drop in market incomes during 2020, with poorer households hit hardest. However, our results suggest that the national tax-benefit systems were able to absorb a significant share of this market income shock (73.3% at the EU level). Additionally, we show that monetary compensation schemes played a major role in cushioning the effect of the COVID-19 shock (35.2% at the EU level).
- The regressive (inequality-enhancing) nature of the COVID-19 pandemic on market incomes was largely offset by the tax-benefit system in most EU Member States. At EU level, the Gini coefficient of market income increased from 0.499 to 0.505, while the Gini coefficient of disposable income slightly dropped from 0.289 to 0.287.
- We also provide evidence of increases in at-risk-of-poverty (AROP) rates in 2020 if measured using a fixed poverty line. On EU level, the AROP rate is expected to increase from 16.3% to 16.6%. However, when using a floating poverty line we find stable or slightly declining poverty rates in most member states. On EU level, the AROP rate falls from 16.3% to 15.9%.
- Overall, our results highlight that fiscal policy measures have not only prevented a large fall in household incomes during the COVID-19 pandemic, but also helped limiting the rise in income inequality and poverty risk related to the economic downturn.

The cushioning effect of fiscal policy in the EU during the COVID-19 pandemic

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Abstract

This paper analyses the extent to which the tax-benefit systems of the EU Member States have protected household incomes during the COVID-19 pandemic. We make use of EUROMOD, the EU tax-benefit microsimulation model based on 2018 EU-SILC data. Detailed aggregate labour market statistics combined with a novel approach to simulate transitions from work into monetary compensation schemes (short-time work schemes, as well as compensation schemes for self-employed) and into unemployment allows us to replicate the labour market conditions during the COVID-19 crisis in 2020 in the underlying EU-SILC data. Our analysis highlights that most of the countries analysed experienced a significant drop in market incomes, with poorer households hit the hardest. However, our findings also suggest that the tax-benefit systems of the EU Member States have been able to absorb a significant share of the COVID-19 shock, offsetting – or alleviating – its regressive nature on market incomes. Monetary compensation schemes implemented by EU Member States played a key role in cushioning against the fall in household income during the crisis.

The content of this article does not reflect the official opinion of the European Union. Responsibility for the information and views expressed in the article lies entirely with the authors. We are indebted to the many people who have contributed to the development of EUROMOD and of the LMA add-on, especially the EUROMOD developers at the JRC and at the University of Essex, the EUROMOD national teams and the flash estimates team in EUROSTAT. A special mention goes to Salvador Barrios and Ana Agúndez for their helpful comments and advice.

1. Introduction

The COVID-19 pandemic hit Europe severely in 2020, leading to a large reduction in GDP across all EU Member States. Households faced an increased risk of unemployment due to lockdown measures and the general reduction in economic activity. Member States tried to withstand the crisis with specific policy measures. In particular, monetary compensation schemes (short-time work schemes, as well as schemes for self-employed) aimed at compensating employees and the self-employed for the reduction in their economic activity played a major role in stabilising household incomes and demand, also allowing for a smoother return to economic activity for workers and firms. The European instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE), played a crucial role in providing financial assistance to Member States implementing measures aimed at protecting employees against the risk of jobs and income loss.

In addition to monetary compensation schemes, European governments adopted various policy measures in support of household income. This raises the question: to what extent have the tax-benefit systems of the EU Member States protected household incomes during the COVID-19 pandemic?

Our analysis estimates the cushioning effect of taxes and social transfers in the context of the COVID-19 pandemic making use of EUROMOD, the EU microsimulation model, with 2018 data from EU Statistics on Income and Living Conditions (EU-SILC). The study also employs detailed labour market statistics to simulate transitions from work into unemployment and monetary compensation schemes (e.g., short-term work schemes, monetary support for the self-employed) in order to nowcast labour market conditions of 2020 in the underlying EU-SILC data.

The use of labour market statistics as a base for the simulation of labour transitions represents a novel, simplified application of the nowcasting approach used by EUROSTAT in the production of the flash estimates of income inequality and poverty indicators. To the best of our knowledge, this work is the first one employing this approach to study the cushioning effect of taxes and social transfers in the context of the COVID-19 pandemic for each EU Member States and for the EU as a whole¹.

The paper contributes to the literature in the following ways. First, we apply an innovative nowcasting approach to study the consequences of changes in labour market conditions using

¹ The approach followed in this paper differs from the one used in the production of flash estimates in two main dimensions. First, while the flash estimates methodology employs model-based individual transition probabilities to identify observations experiencing labour market transitions, we employ statistics available at various level of disaggregation to simulate transitions for randomly chosen observations until the target number of transitions within each cell is reached. Although the extent to which the simulated transitions mimic the reality depends on the level of disaggregation of the statistics, our approach can be easily implemented in EUROMOD and applied to a large range of actual and hypothetical labour market shocks. Second, the simulation of transitions to monetary compensation schemes represents a novelty of EUROMOD I3.0+, developed by the JRC in close collaboration with the flash estimates team at EUROSTAT, EUROMOD national teams and the University of Essex. For more information on the flash estimates methodology see: <https://ec.europa.eu/eurostat/documents/7894008/11598903/Short-methodological-note.pdf>

the microsimulation model EUROMOD. It is a simplified application of the nowcasting methodology used by EUROSTAT in the production of the flash estimates of income inequality and poverty indicators². This approach allows to take into account the duration of labour market transitions at individual level. This is fundamental in the context of the COVID-19 crisis, given that some workers were hit only during the lockdown, while other workers suffered longer periods of losses in employment. At the same time, in some countries, monetary compensation schemes were in place only for some months and the maximum duration of unemployment benefits was less than one year. To estimate the impact of the COVID-19 shock at the micro-level and calculate the stabilizing effect of tax-benefit systems, it is very important not only to consider the duration of policy measures but also the duration of labour market transitions. Our methodology allows to easily adjust the underlying micro-data to labour market shocks (such as the new labour market characteristics related to COVID-19) as soon as this information becomes available. Additionally, it allows to model policy changes and counterfactual scenarios, which can be used for future analysis.

Second, to the best of our knowledge, this paper is the first EU-wide assessment of the cushioning effect of taxes and social transfers during the COVID-19 pandemic, including unemployment benefits and monetary compensation schemes (short-term work schemes and compensations for self-employed) using this novel methodology based on the labour market transition approach.

We find that most countries experienced a significant drop in market income during 2020, with poorer households hit harder than richer ones. The COVID-19 shock has been partly absorbed by the tax-benefit system, which caused disposable income to fall to a lesser extent and in a progressive way. We also find that monetary compensation schemes play a key role in cushioning the effect of the crisis, although in aggregate terms they represent a relatively minor component of household disposable income. Finally, we provide mixed evidence of the variation in at-risk-of-poverty (AROP) rates in 2020 depending on the usage of fixed or floating poverty lines, whereas we do not find evidence of a change in income inequality in the countries analysed.

The paper is organised as follows. Section 2 provides an overview of the related literature, Section 3 describes the data and the methods employed. Section 4 describes the results and Section 5 concludes.

² The approach followed in this paper differs from the one used in the production of flash estimates in two main dimensions. First, while the flash estimates methodology employs model-based individual transition probabilities to identify observations experiencing labour market transitions, we employ statistics available at various level of disaggregation to simulate transitions for randomly chosen observations until the target number of transitions within each cell is reached. Although the extent to which the simulated transitions mimic the reality depends on the level of disaggregation of the statistics, our approach can be easily implemented in EUROMOD and applied to a large range of actual and hypothetical labour market shocks. Second, the simulation of transitions to monetary compensation schemes represents a novelty of EUROMOD I3.0+, developed by the JRC in close collaboration with the flash estimates team at EUROSTAT, EUROMOD national teams and University of Essex. For more information on flash estimates methodology see: <https://ec.europa.eu/eurostat/documents/7894008/11598903/Short-methodological-note.pdf>

2. Literature overview

The literature on the impact of the COVID-19 pandemic on household income, and as a consequence on income inequality, is increasing rapidly. Given the lack of detailed up-to-date microdata, several different attempts have been made to get first insights on the depth of the crisis and the related income drop for households.

A first strand of the literature uses specific survey data, which was created solely for collecting additional information related to the COVID-19 crisis. However, the data are typically not very detailed (especially on income), leading to several shortcomings when analysing and interpreting the results. Clark et al. (2021) use the COME-HERE survey, a COVID-19-related survey for France, Germany, Italy, Spain and Sweden; they show that within the year 2020 both relative and absolute income inequality fell, indicating that poor households may have benefitted more than rich households from the policy measures implemented by governments. Similarly, Menta (2021) shows that using the COME-HERE data, poverty rates increased in the first half of 2020, but fell again in the second half of the year; however, these results vary across the five countries analysed. The author also finds that especially young individuals and women suffered a disproportionately high increase in poverty.

A second strand of the literature aims at nowcasting the underlying microdata to the new labour market characteristics by using different modelling approaches. There are several country studies that use microsimulation techniques to estimate not only the impact of COVID-19 on household income and income inequality but also the income stabilizing effect of policy measures implemented by governments. Brewer and Tasseva (2021) and Bronka, Collado, Richiardi (2020) show the extent to which earnings subsidies (Coronavirus Job Retention Scheme) stabilized household income in the UK. They both find that income losses are proportionally higher for rich households, leading to a small impact of the pandemic on income inequality. Overall, the authors highlight the important role of both COVID-19-related policies and automatic stabilizers in stabilizing not only household income but also income inequality during the COVID-19 crisis.

For Italy, Figari and Fiorio (2020) show that households have, on average, a net compensation rate of about 55%, meaning that only 55% of the loss in household income is offset by the tax-benefit system. They report the compensation rate in Italy is higher for low-income households than for high-income households. Additionally, wage supplementation benefits play a large role in stabilizing household income, as characterized by an inverted U shape along the income distribution. On the other hand, COVID-19-related benefits are especially important to protect the household income of low-income households in Italy.

For Germany, Bruckmeier et al. (2020) estimate the effect of income-stabilizing countermeasures introduced during the COVID-19 pandemic by the German government. The authors combine microsimulation techniques with macro modelling, showing that the impact of COVID-19 measures on labour income is slightly regressive. However, the tax-benefit system in combination with discretionary policy measures have an important role in stabilizing

household income. Taking into account the income stabilizing effect, they find that the impact of the COVID-19 pandemic might be even regressive.

For Finland, Kyrrä et al. (2021) show that the generous welfare state offered substantial automatic stabilization during the COVID-19 pandemic. According to their estimates, the pandemic had a slight poverty and income inequality enhancing effect in Finland, but the increase would have been much more significant if the tax-benefit system had not insured households against the income shock. About 70% of the poverty increase and 85% of the income inequality increase have been absorbed by the cushioning impact of automatic stabilization.

O'Donoghue et al. (2020) and Doorley et al. (2020) assess the impact of the COVID-19 pandemic in Ireland. Overall, they find that the crisis had an equalizing effect for both gross incomes and disposable incomes. Doorley et al. (2020) show that pandemic-related unemployment could have decreased household income by an average of 7% across the Irish population in the absence of implemented policies, but instead household disposable income fell by 3% on average due to the policy implementation.

Lastly, Cantò et al. (2021) analyse the impact of the COVID-19 pandemic in a cross-country framework for Belgium, Italy, Spain and the UK. The analysis highlights that the fiscal response of government helped to cushion the impact of the COVID-19 pandemic not only on household income but also on inequality. In all four countries, income inequality remained more or less stable during the pandemic. However, the tax-benefit systems seemed not to be well-equipped to counteract the poverty-increasing nature of the pandemic.

Using a different approach to update the microdata, namely by reweighting the underlying survey data, Almeida et al. (2021) analyse the impact of the COVID-19 pandemic on household income for all EU-27 countries and the EU. They make use of the differences in macroeconomic forecasts before and after the COVID-19 pandemic hit Europe to create counterfactual scenarios and estimate the cushioning effect of policy measures during the crisis. They find a substantial effect of policy measures taken by governments to cushion the income loss of households in the EU, lowering the income loss from -9.3% to -4.3% for the average equivalised disposable income. Additionally, the authors find that policy measures are key in reducing the regressive, poverty-increasing impact of the COVID-19 pandemic; however, they find substantial differences in the cushioning effect across the EU-27 countries.

As highlighted by Cantò et al. (2021), the approach of Almeida et al. (2021) has two drawbacks: First, reweighting assumes that new unemployed have similar characteristics as the unemployed observed in the underlying microdata. In times of crisis, this is a very strong assumption; especially during the COVID-19 pandemic the shutdown of specific sectors questions this assumption. Second, this approach takes the macro forecast of wages into account (which includes the impact of policy measures) to simulate the impact of the crisis. However, the heterogeneous effects of these policies at the micro level are not considered.

3. Data and modelling

The analysis makes use of the tax-benefit microsimulation model EUROMOD, version I3.0+, relying on data from the 2018 EU-SILC (2017 incomes).³ EUROMOD allows the simulation of direct tax liabilities and cash benefit entitlements in a comparable way across EU countries. Tax-benefits instruments that cannot be simulated due to lack of information in the underlying EU-SILC data are taken directly from the microdata. EUROMOD is a static tax-benefit simulator in the sense that it simulates the day-after effect of policy changes and disregards any potential behavioural response. The model has been validated at both the micro and macro level and has been tested in several applications. For a comprehensive overview, see Sutherland and Figari (2013).

This analysis is based on tax-benefit rules in place in 2020. Since the underlying data refer to 2017 incomes, monetary values of market incomes and non-simulated tax and benefit instruments are updated to the relevant year, making use of specific updating factors.⁴ In addition, the microdata have been adjusted to account for the significant changes in labour market conditions that occurred during 2020 as a consequence of the COVID-19 pandemic.

We employ statistics on the share of workers experiencing transitions to either unemployment or monetary compensation schemes in an effort to mimic the labour market conditions of 2020 as observed in the underlying EU-SILC data. Table 1 describes the statistics used in terms of their source, the period they cover and their level of disaggregation. Within each degree of disaggregation (gender, sector, self-employed or employees etc.), workers are randomly assigned into the new labour market status until the target number of transitions is reached.

Labour transitions are modelled using two main sources of data: administrative data collected by EUROMOD national teams and developers, and data provided by Eurostat.

With respect to the transition from work into unemployment, most countries use data from Eurostat based on the Q1-Q3 2020 EU Labour Force Survey (LFS) and forecasted for the whole 2020. In some countries, (e.g., Latvia), we use national administrative data, which refer to Q1-Q3 of 2020. The level of granularity of these transitions is typically based on gender and the duration of the unemployment spell for both employees and the self-employed; however, depending on data availability, this might differ slightly across countries.

Table 1: Sources of labour transitions data

Country	Data on transition to unemployment			Data on transition to monetary compensation (employees)			Data on transition to monetary compensation (self-employed)			Exogenous income shock for self-employed***
	data source	year	Disaggregation	data source	year	Disaggregation	data source	year	Disaggregation	
AT	National statistics	full	S,G	National statistics	full	S,G	Not modelled			Y (21.8%)
BE	ESTAT	full	G,ESE	National statistics	up to August	S	National statistics	Q1-Q2	S	N
BG	ESTAT	full	G	National statistics	up to June	S	No monetary compensation			Y (12.6%)

³ The authors implemented several changes to the model to account for specificities of the analysis.

⁴ See <https://euromod-web.jrc.ec.europa.eu/using-euromod/country-reports>.

CY	ESTAT	full	G	ESTAT	Q1-Q3	S	ESTAT	only Q2	none	N
CZ	ESTAT	full	G	NT	up to Oct	none	National statistics	up to June	none*	N
DE	National statistics	full	G, ESE	National statistics	up to August	S	No monetary compensation			No info
DK	ESTAT	full	G	ESTAT	Q1-Q3	S	ESTAT	only Q2	none	N
EE	ESTAT	full	G	National statistics	up to June	S	No monetary compensation			Y (14.0%)
EL	ESTAT	full	G	National statistics	full	S	National statistics	up to August	SIF	N
ES	ESTAT	full	G,ESE	National statistics	up to Sept.	S	National statistics	up to Sept.	none	N
FI	ESTAT	full	G,ESE	No monetary compensation			National statistics	up to August	none	N
FR	ESTAT	full	G,ESE	National statistics	up to July	S	National statistics	up to Sept.	none	N
HR	ESTAT	full	G	National statistics	up to May	S	National statistics	up to May	S	N
HU	ESTAT	full	G,ESE	National statistics	May	-	No monetary compensation			Y (12.9%)
IE*	NT	full	S	National statistics	Full (E)	S	No monetary compensation			Y (41.3%)
IT	ESTAT	full	G,ESE	ESTAT	Q1-Q3	S	ESTAT	only Q2	S	N
LT**	ESTAT	full	G	National statistics	up to August	S	National statistics	up to August	none	N
LU	ESTAT	full	G	National statistics		S	No monetary compensation			Y (23.1%)
LV	NT	Q1-Q3	G	National statistics	up to July	S,G	National statistics	up to July	S	N
MT	ESTAT	full	G	National statistics	full	S	No monetary compensation			Y (45.0%)
NL	ESTAT	full	G,ESE	National statistics	up to June	-	No monetary compensation			Y (25.5%)
PL	ESTAT	full	G,ESE	National statistics	up to August	S	National statistics	up to August	S	N
PT	ESTAT	full	G,ESE	ESTAT	Q1-Q3	S	ESTAT	only Q2	none	N
RO	ESTAT	full	G,ESE	National statistics	up to June	S	National statistics	up to June	none	N
SE	ESTAT	full	G	National statistics	up to June	S	No monetary compensation			Y (5.3%)
SI	ESTAT	full	G	ESTAT	Q1-Q3	S	ESTAT	only Q2	none	N
SK	ESTAT	full	G	National statistics	up to June	S	National statistics	up to June	S	N

Note: Q...Quarters, S... Sectors; G... Gender; ESE... Employees and Self-Employed, SIF... Social Insurance Funds

* Transition to new COVID-19 unemployment benefit modelled; ** also transition to sickness benefit simulated; *** We use information from ESTAT for Q2 2020 on the share of self-employed losing income (in brackets). We assume that this share of self-employed lose the income for 3 months.

With respect to transitions from employment into monetary compensation (MC) schemes, we employ statistics provided by Eurostat and data from national sources provided by EUROMOD National Teams during the 2020 model update.⁵ Eurostat statistics are based on administrative and LFS data covering 2020 Q1-Q3. The statistics are available at the sectorial level and are further disaggregated by duration of the monetary compensation spell and the reduction in the hours worked during the spell. The granularity of the national administrative data is often similar to that found in the Eurostat data. The quarters covered by these statistics vary across countries. Sometimes, additional layers of disaggregation (e.g., gender) are also included.⁶

⁵ A brief description of the MC schemes applicable in each country can be found in the Appendix (Table A4).

⁶ More information on the EUROMOD Country Reports can be found here: <https://euromod-web.jrc.ec.europa.eu/using-euromod/country-reports>.

Statistics for the self-employed that benefitted from monetary compensations are less detailed; the ones coming from Eurostat are based on LFS data and only cover Q2 of 2020. In the case of the absence of monetary compensation schemes for the self-employed, we model an exogenous income shock to account for their loss in income. We use information on the share of the self-employed that experienced a loss in income in LFS (Q2). We assume that this share of the self-employed lost their full income for a period of 3 months.

Table A1 in the Appendix provides an overview of the share of employed/self-employed that were moved to unemployment and/or monetary compensation schemes for the EU Member States. These transitions are made operational through EUROMOD's Labour Market Adjustment (LMA) add-on, which allows for the simulation of policies triggered by changes in the labour market status of individuals. A description of this tool is also provided in the Appendix.

Methods

The analysis compares two alternative scenarios for the year 2020; one in which labour market transitions to unemployment and/or temporary layoffs did not occur and one in which they occurred, and, hence, monetary compensation schemes are simulated. Holding policies constant, this comparison allows us to focus on the extent to which 2020 policies protected the incomes of the households that underwent these labour market changes.

The following indicators are provided. First, we analyse to what extent market incomes and disposable incomes varied between the “baseline” scenario (2020 system without labour market changes) and the “reform” scenario (2020 system with labour market changes).

Second, we compute the Income Stabilisation Coefficient (ISC), in the spirit of Dolls et al. (2012).

$$ISC = 1 - \frac{\sum \Delta Y^D}{\sum \Delta Y^M} \quad (1)$$

Where $\sum \Delta Y^D$ indicates the aggregate (country level) difference in disposable income and $\sum \Delta Y^M$ indicates the aggregate difference in market incomes. The coefficient is reported in percentage terms ($ISC \cdot 100$). Intuitively, it indicates the share of a shock that is absorbed by the tax-benefit system. An $ISC=100$ indicates no change in disposable income despite a change in market income. An $ISC=0$ indicates that disposable income changed exactly as much as market income, hence the shock is fully transmitted to disposable income. In addition, we decompose the ISC to study the stabilising properties of various tax-benefit instruments, namely taxes and social insurance contributions, monetary compensation schemes, unemployment benefits, other benefits and pensions.

Third, we provide a decomposition of disposable income in the “reform” system. This allows us to analyse the role that each tax-benefit component plays in the formation of household disposable income in the aftermath of the labour market transitions that occurred due to the pandemic.

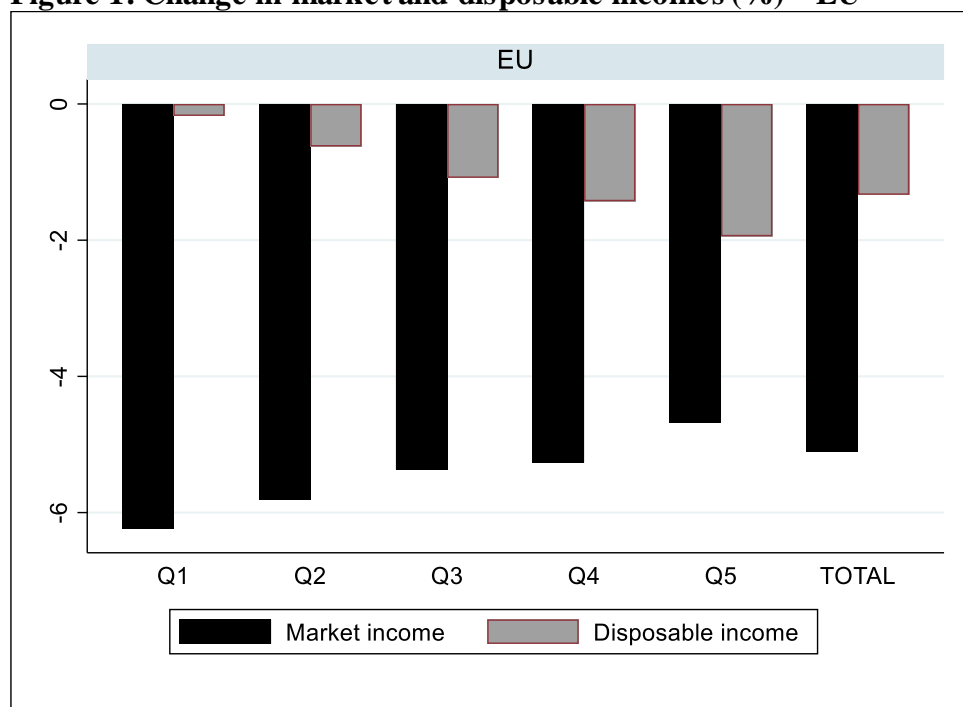
All these indicators are provided for the entire population and by income quintile by fixing the quintile to which each household belongs to the “baseline” value (2020 without labour market transitions). Finally, we provide At-risk-of-poverty (AROP) rate⁷ estimates (by fixing poverty lines to their “baseline” values and by using floating poverty lines) and Gini coefficients.

4. Results

Figure 1 reports the percentage changes in market and disposable incomes in the EU by quintile groups and for the entire population.⁸ It shows that market income dropped by more than 5.1% at the EU level.

The reduction is regressive (the earnings loss share decreases with rising income), with the poorest quintile experiencing a reduction of more than 6.2% against a 4.7% decrease for the richest quintile. The drop in disposable income is significantly smaller than market income (1.3%). The reduction indicates a progressive pattern, with the poorest quintile losing around 0.2% of disposable income against the 1.9% loss for the richest quintile.

Figure 1: Change in market and disposable incomes (%) – EU



Note: Quintile groups defined in the baseline scenario. Source: Authors’ calculation using EUROMOD13.0+

Table 2 reports the percentage changes in market and disposable incomes for each EU Member State and the EU as a whole (see also Figure A1 in the Appendix). Market income drops in all the Member States. Ireland experienced the highest reduction in market income (-20%), and

⁷ According to EUROSTAT, the at-risk-of-poverty rate is the share of people with an [equivalised disposable income](#) (after social transfer) below the at-risk-of-poverty threshold, which is set at 60 % of the national [median](#) equivalised disposable income after [social transfers](#).

⁸ The EU-level indicators are built by aggregating at the EU level the raw changes in market (disposable) income and dividing for the aggregated market (disposable) income in the baseline system. The EU indicators by quintile are built using the same the logic, but aggregating market (disposable) incomes by quintile.

the Netherlands experienced the smallest (-1%). The high value for Ireland is related to the high share of the workforce experiencing unemployment spells (18%) to which transitions to short-term work schemes for employees (12.8%) and (unpaid) reduction in self-employment activity (29.8%) is added. The low value for the Netherlands is caused, on the hand, by the fact that a subsidy is paid to employers to compensate for the loss in turnover and for continuing to pay wages; on the other hand, to the small number of transitions from work into unemployment (0.77%). In this sense, there is no loss in market income associated with the transition from employment to short-term work schemes. The reduction in market income usually shows a regressive pattern, with earnings losses in the lower part of the income distribution being larger than those in the upper part. The pattern is less clear-cut in Bulgaria, Croatia, Denmark, Greece, the Netherlands, Portugal and Romania.

Table 2: Change in market and disposable incomes (%) – EU Member States

	<i>Market income change (%)</i>						<i>Disposable income change (%)</i>					
	Q1	Q2	Q3	Q4	Q5	TOTAL	Q1	Q2	Q3	Q4	Q5	TOTAL
<i>AT</i>	-12.3	-11.3	-9.6	-9.7	-7.4	-8.9	-1.1	-2.3	-2.1	-2.6	-2.6	-2.3
<i>BE</i>	-8.9	-8.7	-6.7	-7.0	-6.8	-7.1	-0.1	-0.5	-0.8	-1.4	-2.4	-1.3
<i>BG</i>	-2.0	-3.4	-3.9	-3.1	-3.3	-3.3	-0.4	-0.8	-1.0	-0.9	-1.4	-1.1
<i>CY</i>	-11.0	-9.0	-8.8	-7.9	-5.9	-7.5	-1.3	-1.9	-2.8	-2.6	-2.2	-2.3
<i>CZ</i>	-7.0	-6.0	-4.0	-4.0	-4.4	-4.6	-0.2	-0.8	-0.9	-1.4	-2.4	-1.4
<i>DE</i>	-4.3	-4.8	-4.5	-4.2	-3.6	-4.0	-0.6	-0.7	-0.9	-1.0	-1.3	-1.0
<i>DK</i>	-4.4	-2.6	-2.2	-2.4	-1.6	-2.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.2
<i>EE</i>	-7.2	-7.7	-6.1	-5.5	-5.9	-6.0	-0.2	-1.2	-1.7	-1.9	-3.0	-2.0
<i>EL</i>	-14.6	-14.2	-14.0	-13.4	-14.4	-14.1	-0.1	-2.2	-2.8	-4.1	-7.5	-4.7
<i>ES</i>	-13.3	-11.2	-10.1	-8.9	-6.9	-8.6	-0.5	-1.5	-2.3	-2.6	-3.3	-2.5
<i>FI</i>	-3.1	-1.5	-1.8	-1.4	-1.3	-1.5	0.0	0.0	-0.4	-0.4	-0.6	-0.4
<i>FR</i>	-5.9	-4.7	-4.4	-4.5	-3.8	-4.2	1.2	0.5	-0.5	-1.0	-1.3	-0.6
<i>HR</i>	-6.3	-7.9	-8.3	-7.9	-7.6	-7.8	0.7	0.2	-0.6	-1.0	-2.3	-1.1
<i>HU</i>	-3.5	-2.6	-1.9	-2.4	-1.8	-2.1	0.4	-0.6	-0.6	-1.0	-0.6	-0.6
<i>IE</i>	-21.0	-26.9	-23.5	-20.3	-18.2	-20.0	-1.2	-2.4	-4.7	-6.2	-9.6	-6.4
<i>IT</i>	-8.5	-7.9	-7.1	-7.1	-7.1	-7.2	-1.1	-1.5	-1.7	-2.1	-3.0	-2.2
<i>LT</i>	-6.6	-7.2	-6.5	-5.4	-5.4	-5.7	0.6	0.1	-0.4	-0.4	-2.1	-0.9
<i>LU</i>	-15.0	-13.5	-10.1	-8.7	-8.3	-9.7	-0.1	-1.2	-0.9	-1.3	-2.5	-1.5
<i>LV</i>	-3.0	-3.3	-2.9	-2.4	-2.5	-2.6	-0.1	-0.3	-0.2	-0.4	-1.0	-0.6
<i>MT</i>	-18.2	-20.3	-16.9	-14.0	-12.9	-14.7	1.1	-2.4	-4.0	-4.8	-7.4	-4.7
<i>NL</i>	-0.7	-0.8	-0.6	-1.1	-1.2	-1.0	-0.2	-0.3	-0.4	-0.6	-1.0	-0.6
<i>PL</i>	-3.4	-2.8	-2.8	-2.7	-1.9	-2.4	-0.2	-0.2	-0.3	-0.7	-0.7	-0.5
<i>PT</i>	-6.4	-5.5	-5.4	-5.1	-6.1	-5.7	-0.9	-1.0	-1.2	-1.5	-2.4	-1.7
<i>RO</i>	-1.4	-1.8	-2.5	-2.2	-1.6	-1.9	1.6	0.0	-0.4	-0.5	-0.5	-0.3
<i>SE</i>	-4.0	-3.5	-3.8	-4.0	-2.8	-3.4	-0.4	-0.5	-0.7	-0.9	-0.8	-0.7
<i>SI</i>	-6.7	-5.7	-5.8	-6.3	-4.8	-5.6	0.0	-0.4	-0.9	-1.4	-1.3	-1.0
<i>SK</i>	-6.0	-3.9	-4.1	-4.1	-3.6	-4.0	-0.6	-0.1	-0.6	-0.7	-0.9	-0.6
EU	-6.2	-5.8	-5.4	-5.3	-4.7	-5.1	-0.2	-0.6	-1.1	-1.4	-1.9	-1.3

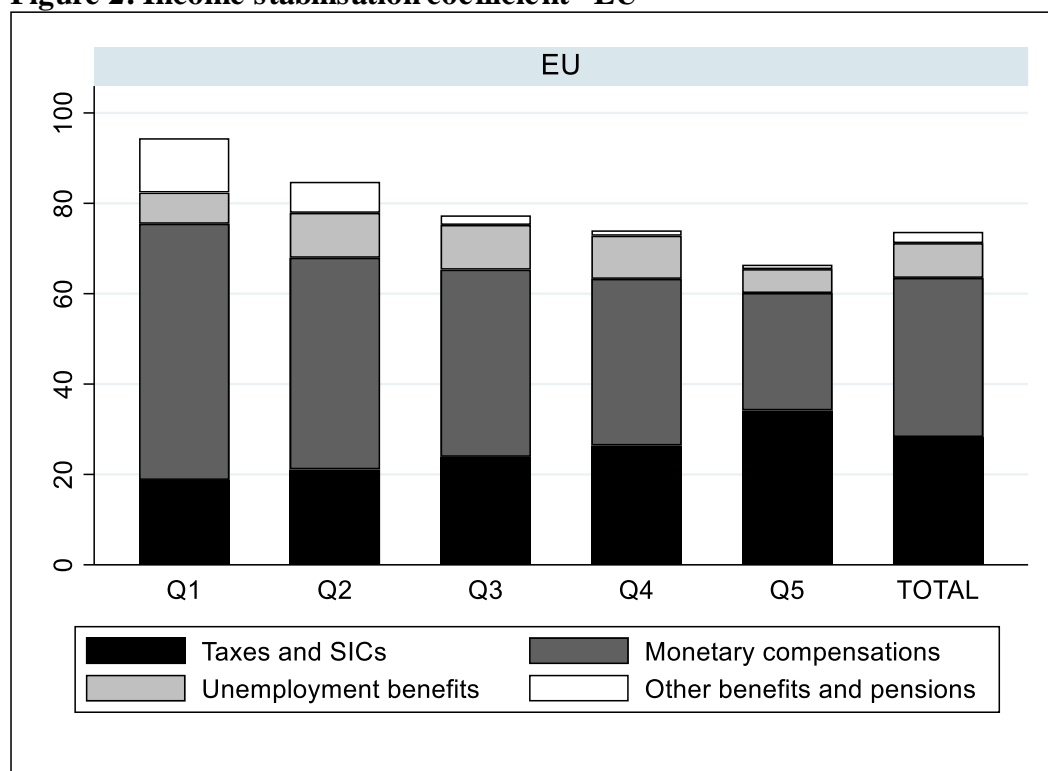
Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMOD I3.0+

Consistent with the EU-wide results, disposable income drops less than market income in all countries. All Member States show a reduction in disposable income, with Ireland experiencing the largest drop (-6.4%) and Denmark the smallest (-0.2%). The pattern of disposable income change is markedly progressive, with households in the richest quintile always experiencing a greater loss than those at the bottom of the income distribution. Moreover, several countries experienced an increase in the disposable income of households located in the lower half of the income distribution. In particular, Malta, Hungary and Romania show evidence of an increase in the disposable income of households in the lowest quintile. France, Croatia and Lithuania experienced a slight increase in the disposable income of the two lowest quintile groups, while in Finland it remained stable in these groups.

This finding suggests that the tax-benefit systems of EU Member States absorbed a significant share of the shock in market incomes. The ISC for the EU (reported in Figure 2) permits the quantification of the stabilisation properties of the tax-benefit systems of EU countries and the identification of the contribution of each of the fiscal policy instruments of interest.

Figure 2 shows that European tax-benefit systems absorbed as much as 73.7% of the market income shock at the EU level. Monetary compensation schemes seem to have absorbed the largest share of the shock (35.2%), followed by taxes and social insurance contributions (SICs) (28.3%). The stabilisation provided by unemployment benefits is significant but smaller than that provided by the monetary compensation schemes. This finding is in line with the smaller number of transitions from work to unemployment compared to transitions from work into monetary compensation schemes (Table A1). Other benefits and pensions play a relatively minor role in total.

Figure 2: Income stabilisation coefficient - EU



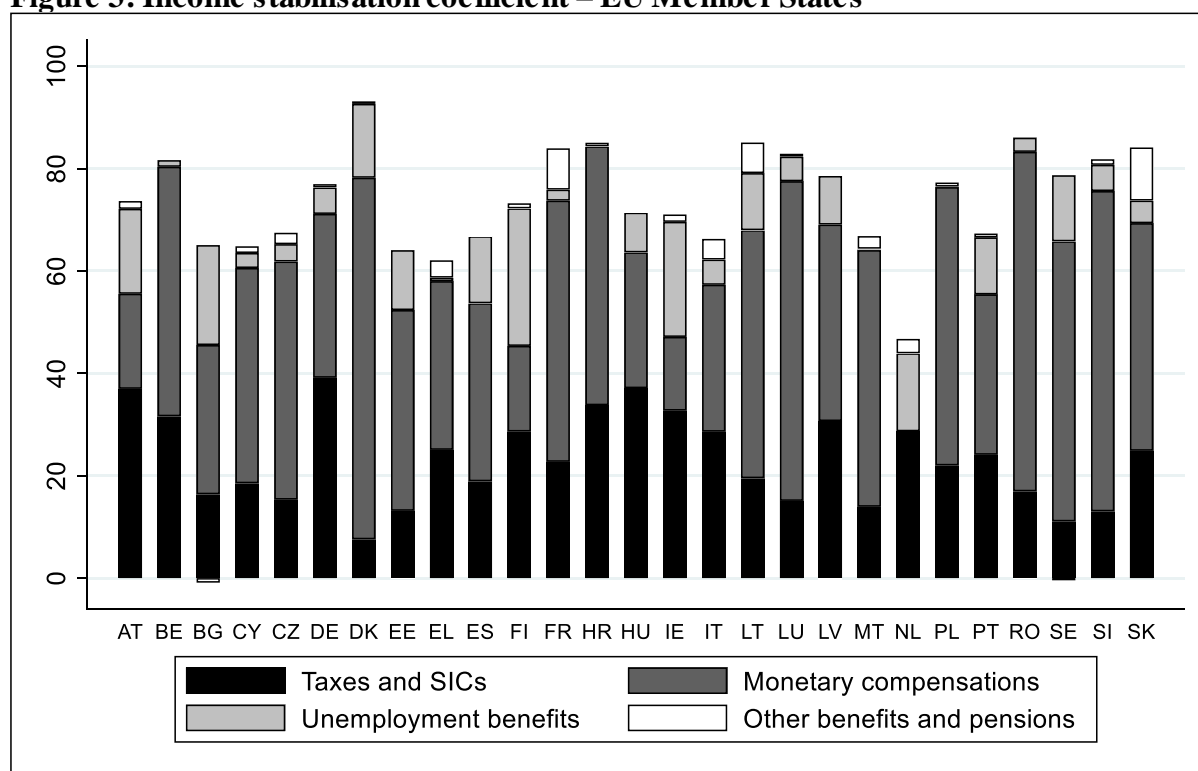
Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMODI3.0+

Looking at the distribution of ISC, it emerges that the degree of stabilisation offered by the tax-benefit systems is higher for lower-income households. It should be noted that the importance of monetary compensation schemes decreases with income, while the stabilisation properties of taxes and SIC follow the opposite pattern. The result is in line with the existence of upper thresholds or lump-sum components in the amount of the monetary compensation received and with the progressivity of the tax system. Also, as expected, the importance of other benefits is larger at the bottom of the income distribution because of means-tested benefits.

Figure 3 reports similar information for each of the EU Member States. In order to improve its readability, the chart does not include information by quintile groups and only focuses on country totals. The full set of ISCs, including decomposition by quintile groups, are reported

in Table A2 of the Appendix. The figure shows that the ISCs ranged from 46% in the Netherlands to 93% in Denmark. Monetary compensation played a major role in most countries, ranging from 70.6% in Denmark to 14.3% in Ireland. It should be noted that monetary compensation schemes only measure direct transfers of the government to workers, while they do not account for subsidies to firms. This explains why the ISC on monetary compensation schemes is missing in the Netherlands, where a new social assistance benefit for self-employed is captured in means-tested benefits. The contribution of (reduced) taxes and SICs to income stabilisation is significant too, ranging from 39% in Germany to 11% in Sweden. It should be noted that the coefficient on other benefits and pensions is slightly negative in a limited number of countries (Bulgaria, Estonia, Latvia, Romania and Sweden) because of the interaction of the monetary compensation schemes with taxes, SICs and means-tested benefits and pensions.

Figure 3: Income stabilisation coefficient – EU Member States



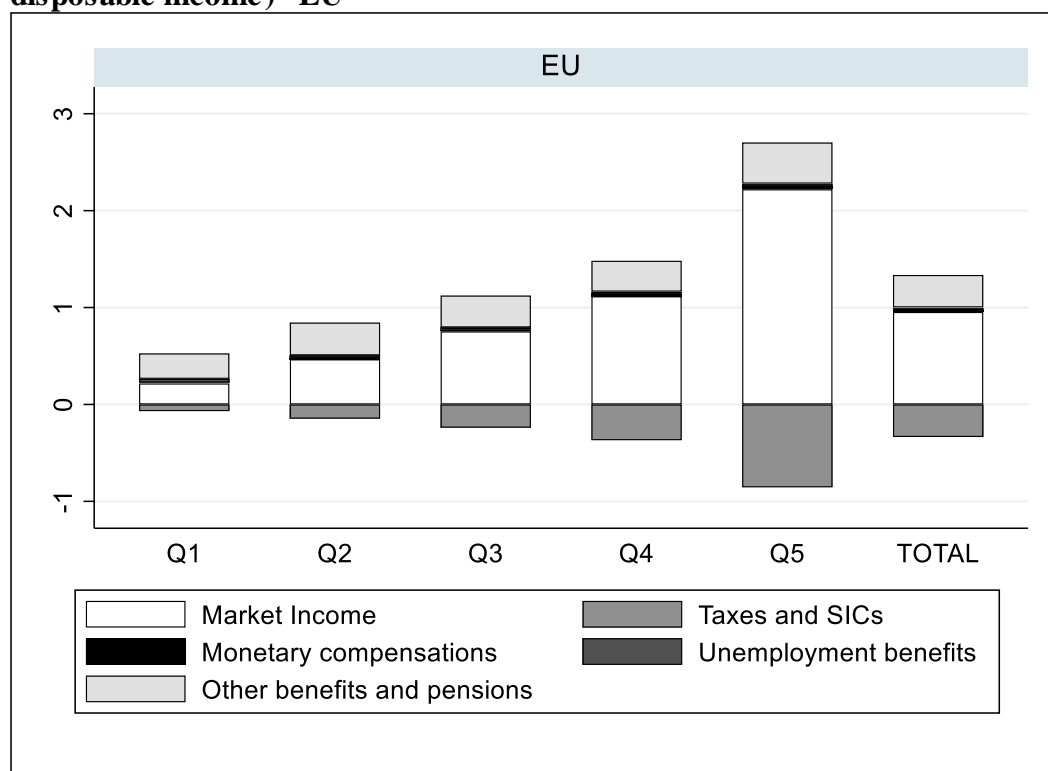
Source: Authors' calculation using EUROMOD13.0+

The decomposition of ISC by quintile (Table A2 in Appendix) confirms that tax-benefit instruments have stabilised the incomes of poorer households more than richer ones. In several countries, the ISC for households at the bottom of the income distribution is actually above 100%, indicating a certain degree of overcompensation for the income loss. The results are often driven by the presence of generous monetary compensation schemes (often with lump-sum components) that are in some cases exempted from SICs and/or personal income taxes or are not taken into account in the means-testing of benefits.⁹

⁹ Romania represents the most extreme case with respect to the decomposition of ISC by income quintile groups. In this country, the large ISC value for the first quintile (316%) can be explained by a relatively generous lump-sum monetary compensation scheme for the self-employed, which can be larger than the market income lost. As

Figure 4 depicts the decomposition of average household disposable income in 2020 – accounting for labour market transitions at the EU level. The figure incorporates the effect of labour transitions and is normalised using the average household disposable income in the EU. In aggregate terms, in 2020, market incomes continue to be the most important source of household income (95% of the average household income), followed by taxes and social insurance contributions (-34%) and benefits and pensions other than unemployment benefits and monetary compensation schemes (33%). The latter two components account together for less than 6% of the average household disposable income.

Figure 4: Decomposition of average disposable income (as share of the EU average disposable income) - EU



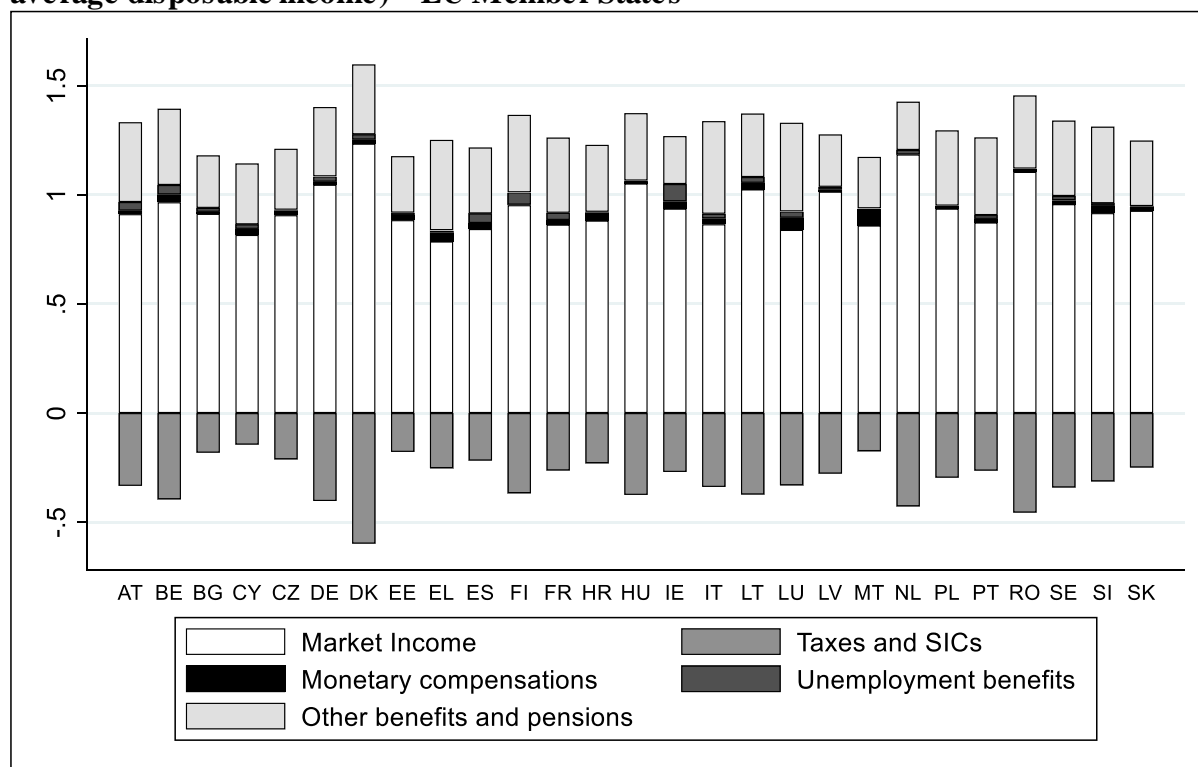
Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMOD I3.0+

Figure 5 reports the decomposition of average disposable income across countries. The results are consistent with the EU-wide indicator depicted in Figure 4: market income represents the most important component, accounting for 79% of the average household disposable income in Greece to 124% of the average household disposable income in Denmark.

Denmark also shows the highest incidence of taxes and SICs (around -60% of the average household disposable income), while Cyprus shows the lowest (-14%). Monetary compensations and unemployment benefits account for a relatively minor share of disposable income, with the highest value being observed in Belgium (8%). The incidence of other benefits and pensions ranges from 44% in Italy to 22% in the Netherlands and Ireland. Table A3 and Figure A2 in the Appendix report the details of the decomposition by quintile groups.

this monetary compensation is subject to taxes and SICs, individuals in the lowest quintile might pay more taxes after the transition takes places. This explains the negative ISC on taxes for people in the first quintile.

Figure 5: Decomposition of average disposable income (as a share of each country's average disposable income) – EU Member States



Source: Authors' calculation using EUROMOD I3.0+

Table 3 reports AROP rates for the EU Member States and the EU as a whole, differentiating between market income AROP rates and disposable income AROP rates, and between fixed poverty lines (at the baseline) and floating poverty lines. Focusing on fixed poverty lines, EU-level AROP rates based on market income increased from 36% to 38% (36% to 37.7% using floating poverty lines). AROP rates on disposable income show a small increase, from 16.3% to 16.6%, if computed employing a fixed poverty line. AROP rates slightly declined from 16.3% to 15.9% if computed using a floating poverty line.

All EU Member States experienced an increase in AROP rates based on market incomes. Ireland experienced the highest increase (+10.2 p.p. if based on the fixed poverty line, +8.6 p.p. if based on the floating poverty line); Netherlands experienced the smallest increase (+0.5 p.p. and +0.3 p.p., respectively). Changes in AROP rates based on disposable income are more contained, ranging from +2.1 p.p. in Ireland to -0.7 p.p. in France if computed with a fixed poverty line. AROP rates remained stable or decreased slightly in the majority of countries when calculated employing a floating poverty line. Nevertheless, because of the drop in median income caused by the adverse labour market transitions, Ireland experienced a significant decrease in AROP rate in the range of -3.5% when calculating using a floating poverty line.

Table 3: AROP rates – EU Member States

		2020 (baseline)	2020 with labour market transitions	
			Fixed poverty line	Floating poverty line
AT	Market Income	34.5	38.7	38.2
	Disposable Income	14.8	16.1	14.8
BE	Market Income	35.9	38.0	37.9
	Disposable Income	10.3	10.5	10.1
BG	Market Income	36.5	38.0	37.8
	Disposable Income	23.2	23.7	23.2
CY	Market Income	33.0	37.6	36.8
	Disposable Income	15.5	16.4	15.0
CZ	Market Income	30.5	32.1	31.8
	Disposable Income	8.4	8.7	8.2
DE	Market Income	33.4	34.7	34.4
	Disposable Income	13.9	14.2	13.7
DK	Market Income	27.7	28.3	28.2
	Disposable Income	11.2	11.3	11.3
EE	Market Income	34.5	37.4	36.4
	Disposable Income	20.4	21.0	19.8
EL	Market Income	41.2	46.7	45.8
	Disposable Income	17.8	18.9	17.3
ES	Market Income	40.3	44.3	43.5
	Disposable Income	21.1	21.8	20.2
FI	Market Income	36.8	37.6	37.5
	Disposable Income	10.2	10.3	10.2
FR	Market Income	37.3	38.4	38.2
	Disposable Income	12.9	12.2	11.8
HR	Market Income	34.9	37.4	37.2
	Disposable Income	19.8	19.8	19.6
HU	Market Income	34.2	35.0	34.8
	Disposable Income	22.6	23.0	22.5
IE	Market Income	35.6	45.8	44.2
	Disposable Income	18.5	20.6	15.0
IT	Market Income	40.9	44.0	43.6
	Disposable Income	19.8	20.8	19.8
LT	Market Income	33.4	35.6	35.3
	Disposable Income	16.5	16.9	16.5
LU	Market Income	38.1	43.8	43.2
	Disposable Income	11.5	11.5	9.6
LV	Market Income	32.4	33.4	33.4
	Disposable Income	22.7	22.9	22.9
MT	Market Income	32.0	39.4	37.8
	Disposable Income	15.9	16.7	14.3
NL	Market Income	25.3	25.6	25.6
	Disposable Income	11.5	11.6	11.5
PL	Market Income	34.3	35.3	35.3
	Disposable Income	15.8	16.0	15.9
PT	Market Income	37.4	39.5	39.1
	Disposable Income	16.7	17.4	16.4
RO	Market Income	36.8	37.3	37.3
	Disposable Income	25.0	24.9	24.9
SE	Market Income	34.3	35.5	35.4
	Disposable Income	14.7	15.1	14.7
SI	Market Income	32.5	34.5	34.2
	Disposable Income	12.5	12.6	11.9
SK	Market Income	27.4	29.2	29.0
	Disposable Income	11.0	11.2	11.1
EU	Market Income	36.0	38.0	37.7
	Disposable Income	16.3	16.6	15.9

Note: “Fixed poverty line” as defined in the baseline. Source: Authors’ calculation using EUROMOD I3.0+

Table 4 shows the evolution of the Gini coefficients in the countries analysed and for the EU as a whole. At the EU level, the Gini coefficient of the distribution of market income increases by 0.06, while the Gini of the distribution of disposable income decreases by 0.02 points. The highest increase in the Gini based on market income is observed in Ireland (+0.036), the smallest in the Netherlands, where no variation is observed. In terms of disposable income, most countries show a stable or slightly declining Gini coefficient between the scenarios analysed.

Table 4: Income inequality (Gini coefficient) – EU Member States

	<i>Market income</i>		<i>Disposable income</i>	
	2020 (baseline)	2020 with labour market transitions	2020 (baseline)	2020 with labour market transitions
<i>AT</i>	0.490	0.510	0.247	0.247
<i>BE</i>	0.491	0.498	0.212	0.208
<i>BG</i>	0.542	0.546	0.400	0.400
<i>CY</i>	0.457	0.470	0.293	0.293
<i>CZ</i>	0.440	0.445	0.225	0.223
<i>DE</i>	0.506	0.510	0.275	0.274
<i>DK</i>	0.453	0.458	0.253	0.253
<i>EE</i>	0.449	0.458	0.289	0.286
<i>EL</i>	0.554	0.564	0.316	0.305
<i>ES</i>	0.514	0.528	0.315	0.313
<i>FI</i>	0.507	0.510	0.240	0.240
<i>FR</i>	0.495	0.497	0.273	0.269
<i>HR</i>	0.485	0.488	0.291	0.286
<i>HU</i>	0.481	0.485	0.321	0.322
<i>IE</i>	0.534	0.570	0.308	0.296
<i>IT</i>	0.530	0.539	0.324	0.323
<i>LT</i>	0.510	0.517	0.317	0.314
<i>LU</i>	0.506	0.519	0.253	0.249
<i>LV</i>	0.491	0.493	0.344	0.343
<i>MT</i>	0.453	0.480	0.279	0.268
<i>NL</i>	0.424	0.424	0.258	0.257
<i>PL</i>	0.463	0.466	0.278	0.277
<i>PT</i>	0.530	0.533	0.315	0.313
<i>RO</i>	0.537	0.539	0.344	0.343
<i>SE</i>	0.468	0.473	0.257	0.257
<i>SI</i>	0.451	0.458	0.229	0.228
<i>SK</i>	0.382	0.387	0.204	0.204
<i>EU</i>	0.499	0.505	0.289	0.287

Source: Authors' calculation using EUROMOD I3.0+

5. Conclusions

This paper analyses the effect of the COVID-19 pandemic on household disposable incomes in the EU. The analysis uses EUROMOD, the EU tax-benefit microsimulation model, with underlying data from the 2018 EU SILC. We make use of labour statistics, available at various levels of aggregation, to model micro-level transitions to unemployment and monetary compensation schemes with the goal to replicate the effect of the pandemic on EU labour markets.

The analysis compares the effect of the 2020 tax-benefit system with labour market transitions with a counterfactual 2020 in which no labour market transitions took place. By comparing these two scenarios, we evaluate the effectiveness of the 2020 tax-benefit policies in cushioning the impact of the labour transitions in that year.

We find that most EU countries experienced a large drop in market incomes during 2020, with poorer households hit hardest. We also find that the tax-benefit systems absorbed a significant share of the COVID-19 shock and were able to offset – in most countries – the regressive nature of the shock on market incomes. Monetary compensation schemes played a major role in cushioning the effect of adverse labour market transitions, although we show that in aggregate terms they represent a minor component of household disposable income. Finally, we provide evidence of increases in AROP rates in 2020 if measured using a fixed poverty line, and stable or slightly declining poverty rates if measured using a floating poverty line. We find evidence of a stable or slightly declining inequality across the EU member states.

The contribution of this work to the existing literature is twofold. First, to the best of our knowledge, this paper contains the first EU-wide assessment of the cushioning effects of taxes and social transfers during the COVID-19 pandemic, including unemployment benefits and monetary compensation schemes (short-term work schemes and compensations for self-employed). Second, from a methodological point of view, the paper employs a novel, simplified nowcasting approach to study the consequences of changes in labour market conditions using the microsimulation model EUROMOD. A number of caveats should be kept in mind when interpreting these results. First, in most of the countries, the statistics used to simulate transitions into monetary compensation schemes refer to the first three quarters of 2020 (first two quarters for self-employed workers), but heterogeneity exists. On the other hand, statistics on transitions to unemployment are more uniform and cover the entirety of 2020 for all countries except Latvia. Second, the level of disaggregation of these statistics differs across countries, implying that the granularity of the simulation of labour transitions related to the pandemic might vary across countries. Third, we randomly identify workers within sociodemographic groups to undergo labour market transitions. This adds uncertainty to the distributional findings of the model, especially in the case of transitions to unemployment, because the relevant statistics are only available with a broad level of disaggregation. Ideally, this issue would be alleviated by basing the identification of observations transiting into unemployment (or monetary compensation schemes) on characteristics highly correlated with household income. We hope that the use of more homogenised and up-to-date data, possibly at the individual level and covering 2020 in entirety, will allow us to tackle these issues in the coming months. Finally, a problem of over-simulation of monetary compensation amounts might arise because of the interaction between EU-SILC data, EUROMOD modelling conventions, and specific-country rules. For instance, in cases where a minimum MC amount is determined by law and is based on the minimum wage, we might end up over-simulating the compensation for individuals that in EU-SILC are observed to earn less than the minimum wage. Keeping these caveats in mind, this research offers the first comprehensive insight into the effectiveness of tax-benefit policies in mitigating the impact of the COVID-19 pandemic on household incomes across European countries.

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A. Appendix

A.1. Additional graphs and tables

Table A1: Transition statistics

	<i>Employment (and SE) to unemployment</i>	<i>Employment to MC</i>	<i>Self-Employment to MC or exogenous earning reduction</i>
AT	5.18%	26.90%	18.08%
BE	0.36%	23.13%	32.26%
BG	3.59%	7.47%	8.64%
CY	1.44%	45.80%	30.46%
CZ	1.20%	17.30%	49.82%
DE	0.51%	32.07%	0.00%
DK	1.38%	8.83%	15.73%
EE	2.73%	18.88%	6.62%
EL	1.32%	30.86%	39.51%
ES	5.20%	16.50%	39.73%
FI	2.43%	0.00%	20.54%
FR	0.72%	28.90%	29.47%
HR	0.00%	35.36%	13.15%
HU	1.65%	2.70%	12.09%
IE	18.07%	12.76%	29.87%
IT	2.08%	22.94%	37.08%
LT	2.39%	10.84%	29.16%
LU	1.14%	41.05%	18.62%
LV	1.94%	8.70%	2.10%
MT	0.00%	33.00%	36.96%
NL	0.77%	0.00%	15.84%
PL	0.04%	4.86%	5.93%
PT	3.48%	18.70%	20.55%
RO	1.02%	6.49%	3.33%
SE	2.35%	8.86%	4.58%
SI	1.13%	21.98%	4.00%
SK	1.87%	8.93%	14.87%

Table A2: Income stabilisation coefficient – EU Member States

		<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Q5</i>	<i>TOTAL</i>
<i>AT</i>	ISC	81.0	72.8	74.3	74.0	72.2	73.7
	Taxes and SICs	22.1	29.4	35.3	37.6	42.8	37.0
	Monetary compensations	21.9	19.0	21.9	18.0	16.7	18.6
	Unemployment benefits	17.9	23.2	16.5	18.3	12.7	16.6
	Other benefits and pensions	19.2	1.2	0.6	0.0	0.0	1.5
<i>BE</i>	ISC	93.9	89.5	87.1	83.4	76.3	81.9
	Taxes and SICs	12.4	21.5	25.9	29.9	38.9	31.6
	Monetary compensations	81.3	64.3	58.5	52.2	36.5	48.7
	Unemployment benefits	1.4	2.3	1.8	1.1	0.9	1.3
	Other benefits and pensions	-1.2	1.5	0.9	0.1	0.0	0.3
<i>BG</i>	ISC	48.7	62.3	70.4	69.2	61.1	64.2
	Taxes and SICs	10.7	16.1	14.7	16.7	17.0	16.4
	Monetary compensations	37.8	33.5	30.5	33.1	26.3	29.1
	Unemployment benefits	9.0	14.6	24.7	20.2	18.7	19.5
	Other benefits and pensions	-8.8	-2.0	0.5	-0.8	-1.0	-0.9
<i>CY</i>	ISC	75.9	70.4	64.6	65.4	60.0	64.8
	Taxes and SICs	13.4	12.9	14.3	17.1	25.4	18.5
	Monetary compensations	52.3	56.1	45.3	42.5	32.1	42.0
	Unemployment benefits	2.0	0.6	4.5	4.7	1.8	2.9
	Other benefits and pensions	8.2	0.7	0.5	1.0	0.7	1.3
<i>CZ</i>	ISC	95.1	78.1	74.6	66.5	56.0	67.5
	Taxes and SICs	7.0	12.3	14.2	16.3	18.1	15.3
	Monetary compensations	74.6	55.4	55.9	45.5	34.7	46.5
	Unemployment benefits	3.4	4.2	2.8	3.6	3.3	3.4
	Other benefits and pensions	10.0	6.2	1.7	1.1	0.0	2.2
<i>DE</i>	ISC	75.7	80.6	79.2	78.5	74.3	77.0
	Taxes and SICs	29.9	35.1	37.3	39.1	42.3	39.2
	Monetary compensations	35.7	35.5	32.9	33.3	29.4	32.0
	Unemployment benefits	7.0	7.1	8.5	6.0	2.5	5.2
	Other benefits and pensions	3.0	2.9	0.5	0.0	0.2	0.7
<i>DK</i>	ISC	94.9	95.5	97.0	93.2	90.0	93.1
	Taxes and SICs	3.8	4.9	4.6	6.4	11.7	7.6
	Monetary compensations	88.9	73.1	69.8	69.5	66.8	70.6
	Unemployment benefits	2.0	18.8	22.6	16.2	10.6	14.4
	Other benefits and pensions	0.1	-1.4	0.0	1.1	0.9	0.5
<i>EE</i>	ISC	91.7	75.1	69.4	67.4	54.4	63.9
	Taxes and SICs	4.3	8.2	11.0	13.1	16.1	13.2
	Monetary compensations	80.2	53.9	49.2	46.1	23.9	39.2
	Unemployment benefits	7.2	12.9	9.9	8.3	14.5	11.7
	Other benefits and pensions	0.0	0.0	-0.7	-0.1	-0.1	-0.2
<i>EL</i>	ISC	99.3	75.0	71.7	64.4	52.5	62.1
	Taxes and SICs	13.5	15.7	18.1	20.5	31.7	25.1
	Monetary compensations	64.5	52.2	46.0	39.8	19.9	32.9
	Unemployment benefits	1.1	0.6	1.2	1.1	0.3	0.7
	Other benefits and pensions	20.2	6.5	6.3	3.0	0.5	3.4
<i>ES</i>	ISC	93.3	78.8	70.7	67.5	56.2	67.0
	Taxes and SICs	12.6	11.5	15.4	15.8	26.1	18.9
	Monetary compensations	66.4	51.8	42.5	35.3	19.4	34.8
	Unemployment benefits	12.5	14.3	12.9	16.4	10.8	13.1
	Other benefits and pensions	1.8	1.2	0.0	0.0	0.0	0.3
<i>FI</i>	ISC	95.9	94.5	71.3	72.8	65.6	73.2
	Taxes and SICs	19.2	23.1	25.9	25.1	34.8	28.6
	Monetary compensations	40.9	43.6	17.2	11.5	9.3	16.7
	Unemployment benefits	26.9	22.0	27.4	37.8	21.4	26.9
	Other benefits and pensions	8.9	5.9	0.8	-1.6	0.1	1.0
<i>FR</i>	ISC	141.0	116.6	84.7	76.4	68.7	84.0
	Taxes and SICs	24.9	19.3	18.4	20.4	26.5	22.7
	Monetary compensations	81.5	66.4	58.7	50.7	38.4	51.0

<i>HR</i>	Unemployment benefits	1.5	3.1	0.5	1.8	2.9	2.2
	Other benefits and pensions	33.2	27.7	7.1	3.5	1.0	8.1
	ISC	124.8	103.9	91.3	87.1	74.1	85.1
	Taxes and SICs	23.1	23.3	25.6	33.8	40.3	33.8
	Monetary compensations	102.2	80.2	64.6	53.3	32.7	50.6
<i>HU</i>	Unemployment benefits	0.0	0.0	0.0	0.0	0.0	0.0
	Other benefits and pensions	-0.4	0.4	1.1	0.1	1.1	0.7
	ISC	112.5	73.7	67.0	61.3	69.8	71.5
	Taxes and SICs	81.0	40.9	33.3	34.3	28.3	37.1
	Monetary compensations	15.4	23.1	25.1	20.1	35.8	26.5
<i>IE</i>	Unemployment benefits	14.3	9.4	8.6	7.0	5.7	7.8
	Other benefits and pensions	1.8	0.2	0.0	-0.1	0.0	0.1
	ISC	72.8	81.7	79.7	73.8	64.9	71.0
	Taxes and SICs	4.6	9.6	20.1	28.8	43.7	32.7
	Monetary compensations	30.0	21.6	24.3	15.0	8.9	14.4
<i>IT</i>	Unemployment benefits	32.7	44.9	31.8	28.8	12.3	22.5
	Other benefits and pensions	5.4	5.6	3.5	1.2	0.1	1.4
	ISC	77.7	71.9	69.9	68.7	61.3	66.3
	Taxes and SICs	13.1	18.0	23.9	26.0	35.5	28.6
	Monetary compensations	47.7	44.4	35.4	33.3	18.6	28.7
<i>LT</i>	Unemployment benefits	2.0	4.5	8.2	6.8	3.3	4.9
	Other benefits and pensions	14.9	5.0	2.4	2.6	3.8	4.0
	ISC	123.9	102.3	93.2	93.3	71.0	85.1
	Taxes and SICs	18.2	17.9	16.3	17.9	22.0	19.5
	Monetary compensations	86.1	59.9	62.0	56.8	33.7	48.5
<i>LU</i>	Unemployment benefits	16.8	16.4	12.5	13.5	7.8	11.1
	Other benefits and pensions	2.9	8.0	2.4	5.1	7.5	6.0
	ISC	98.3	89.0	88.6	84.0	74.0	82.9
	Taxes and SICs	3.3	7.0	9.1	15.9	23.0	15.1
	Monetary compensations	87.6	79.1	75.7	57.3	47.4	62.4
<i>LV</i>	Unemployment benefits	1.6	2.6	4.2	10.6	3.7	4.8
	Other benefits and pensions	5.7	0.4	-0.4	0.1	0.0	0.6
	ISC	90.8	88.2	93.6	85.7	65.8	78.3
	Taxes and SICs	19.6	26.3	31.8	32.8	30.9	30.7
	Monetary compensations	66.6	52.5	57.6	41.5	24.5	38.4
<i>MT</i>	Unemployment benefits	3.9	10.3	4.4	11.7	10.6	9.5
	Other benefits and pensions	0.7	-0.9	-0.2	-0.2	-0.2	-0.2
	ISC	114.7	82.1	72.7	67.8	52.6	66.8
	Taxes and SICs	4.3	7.3	10.3	12.7	19.7	13.9
	Monetary compensations	82.6	66.7	61.1	55.0	32.9	50.1
<i>NL</i>	Unemployment benefits	4.6	0.5	0.0	0.0	0.0	0.3
	Other benefits and pensions	23.2	7.5	1.3	0.1	0.1	2.5
	ISC	42.7	49.6	45.0	52.3	44.2	46.7
	Taxes and SICs	12.8	10.0	20.5	26.0	35.6	28.7
	Monetary compensations	0.0	0.0	0.0	0.0	0.0	0.0
<i>PL</i>	Unemployment benefits	-4.5	36.6	17.6	24.1	8.3	15.2
	Other benefits and pensions	34.4	3.1	6.9	2.2	0.3	2.8
	ISC	88.2	89.9	86.3	76.5	67.6	77.3
	Taxes and SICs	16.3	18.9	18.9	21.4	26.0	22.0
	Monetary compensations	68.0	67.1	66.9	54.8	41.5	54.4
<i>PT</i>	Unemployment benefits	0.0	0.4	0.0	0.2	0.0	0.1
	Other benefits and pensions	3.9	3.5	0.5	0.1	0.1	0.8
	ISC	72.3	72.1	74.2	71.1	62.3	67.3
	Taxes and SICs	8.3	10.1	13.7	19.9	33.1	24.1
	Monetary compensations	44.9	45.8	42.6	36.6	21.7	31.3
<i>RO</i>	Unemployment benefits	13.1	14.9	17.1	13.9	7.3	11.1
	Other benefits and pensions	6.1	1.3	0.8	0.7	0.1	0.8
	ISC	315.8	102.2	84.2	81.3	74.7	86.0
	Taxes and SICs	-12.8	15.0	17.4	15.7	19.7	17.0
	Monetary compensations	327.8	84.7	62.7	62.8	53.1	66.3

<i>SE</i>	Unemployment benefits	0.0	2.8	4.5	2.8	1.9	2.8
	Other benefits and pensions	0.8	-0.3	-0.4	0.0	0.0	-0.1
	ISC	74.1	76.6	80.6	79.5	77.0	78.3
	Taxes and SICs	3.9	4.9	5.0	9.5	18.2	11.1
	Monetary compensations	56.2	57.2	58.3	55.2	51.6	54.7
<i>SI</i>	Unemployment benefits	12.9	17.1	17.6	15.2	7.4	12.9
	Other benefits and pensions	1.2	-2.7	-0.4	-0.4	-0.2	-0.4
	ISC	100.9	89.7	82.7	79.1	76.9	81.8
	Taxes and SICs	11.1	6.0	10.2	12.6	17.6	13.0
	Monetary compensations	80.7	78.3	67.0	58.8	54.2	62.6
<i>SK</i>	Unemployment benefits	3.0	4.1	4.5	7.0	4.8	5.1
	Other benefits and pensions	6.1	1.3	0.9	0.7	0.4	1.1
	ISC	86.4	94.9	84.9	85.0	78.5	84.1
	Taxes and SICs	32.3	24.3	22.2	22.5	25.9	24.9
	Monetary compensations	39.0	53.9	47.1	46.3	40.1	44.4
<i>EU</i>	Unemployment benefits	1.5	2.2	5.6	3.8	6.0	4.4
	Other benefits and pensions	13.6	14.6	10.0	12.3	6.5	10.4
	ISC	94.4	84.8	77.3	74.0	66.4	73.7
	Taxes and SICs	18.8	21.1	23.9	26.4	34.2	28.3
	Monetary compensations	56.7	46.8	41.4	36.9	26.0	35.2
	Unemployment benefits	6.9	9.9	9.9	9.5	5.3	7.7
	Other benefits and pensions	12.0	6.9	2.1	1.2	1.0	2.5

Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMOD I3.0+

Table A3: Decomposition of average disposable income (as a share of each country's average disposable income)

		<i>Q1</i>	<i>Q2</i>	<i>Q3</i>	<i>Q4</i>	<i>Q5</i>	<i>TOTAL</i>
<i>AT</i>	Disposable income	0.51	0.72	0.90	1.11	1.75	1.00
	Market income	0.21	0.49	0.72	1.07	2.08	0.91
	Taxes and SICs	-0.04	-0.14	-0.24	-0.37	-0.89	-0.33
	Monetary compensations	0.01	0.01	0.02	0.02	0.03	0.02
	Unemployment benefits	0.06	0.04	0.03	0.03	0.03	0.04
	Other benefits and pensions	0.28	0.31	0.37	0.35	0.51	0.37
<i>BE</i>	Disposable income	0.58	0.82	0.96	1.10	1.54	1.00
	Market income	0.13	0.45	0.84	1.22	2.20	0.97
	Taxes and SICs	-0.04	-0.17	-0.32	-0.48	-0.96	-0.40
	Monetary compensations	0.01	0.03	0.04	0.05	0.06	0.04
	Unemployment benefits	0.05	0.08	0.04	0.03	0.02	0.04
	Other benefits and pensions	0.43	0.44	0.36	0.29	0.23	0.35
<i>BG</i>	Disposable income	0.33	0.55	0.76	1.06	2.30	1.00
	Market income	0.13	0.33	0.63	1.01	2.46	0.91
	Taxes and SICs	-0.03	-0.07	-0.14	-0.22	-0.45	-0.18
	Monetary compensations	0.00	0.00	0.01	0.01	0.02	0.01
	Unemployment benefits	0.00	0.01	0.02	0.02	0.04	0.02
	Other benefits and pensions	0.23	0.28	0.24	0.24	0.22	0.24
<i>CY</i>	Disposable income	0.47	0.65	0.83	1.08	1.97	1.00
	Market income	0.20	0.43	0.71	0.96	1.78	0.82
	Taxes and SICs	-0.03	-0.06	-0.09	-0.14	-0.40	-0.14
	Monetary compensations	0.01	0.02	0.03	0.04	0.04	0.03
	Unemployment benefits	0.01	0.01	0.02	0.02	0.04	0.02
	Other benefits and pensions	0.27	0.24	0.16	0.21	0.52	0.28
<i>CZ</i>	Disposable income	0.60	0.78	0.90	1.08	1.64	1.00
	Market income	0.27	0.44	0.74	1.11	1.98	0.91
	Taxes and SICs	-0.05	-0.09	-0.16	-0.25	-0.52	-0.21
	Monetary compensations	0.02	0.02	0.02	0.02	0.03	0.02
	Unemployment benefits	0.01	0.00	0.00	0.00	0.01	0.00
	Other benefits and pensions	0.36	0.40	0.29	0.20	0.14	0.28
<i>DE</i>	Disposable income	0.49	0.71	0.88	1.11	1.83	1.00
	Market income	0.25	0.52	0.81	1.22	2.44	1.05
	Taxes and SICs	-0.08	-0.18	-0.30	-0.46	-1.00	-0.40
	Monetary compensations	0.00	0.01	0.01	0.02	0.03	0.01
	Unemployment benefits	0.06	0.01	0.01	0.01	0.03	0.02
	Other benefits and pensions	0.25	0.35	0.34	0.32	0.33	0.32
<i>DK</i>	Disposable income	0.55	0.74	0.88	1.08	1.76	1.00
	Market income	0.25	0.55	1.04	1.47	2.87	1.24
	Taxes and SICs	-0.21	-0.33	-0.47	-0.64	-1.34	-0.60
	Monetary compensations	0.01	0.01	0.02	0.03	0.03	0.02
	Unemployment benefits	0.03	0.03	0.03	0.02	0.02	0.02
	Other benefits and pensions	0.47	0.48	0.27	0.21	0.18	0.32
<i>EE</i>	Disposable income	0.50	0.66	0.89	1.18	1.77	1.00
	Market income	0.12	0.39	0.79	1.19	1.94	0.88
	Taxes and SICs	-0.01	-0.06	-0.13	-0.24	-0.44	-0.18
	Monetary compensations	0.01	0.02	0.03	0.03	0.03	0.02
	Unemployment benefits	0.01	0.01	0.01	0.01	0.02	0.01
	Other benefits and pensions	0.37	0.31	0.20	0.19	0.23	0.26
<i>EL</i>	Disposable income	0.40	0.66	0.88	1.14	1.93	1.00
	Market income	0.19	0.37	0.55	0.87	1.95	0.79
	Taxes and SICs	-0.07	-0.12	-0.17	-0.26	-0.65	-0.25
	Monetary compensations	0.02	0.03	0.04	0.05	0.07	0.04
	Unemployment benefits	0.01	0.01	0.01	0.01	0.01	0.01
	Other benefits and pensions	0.26	0.37	0.44	0.46	0.55	0.41
<i>ES</i>	Disposable income	0.37	0.65	0.88	1.17	1.93	1.00
	Market income	0.19	0.37	0.64	1.00	2.03	0.84
	Taxes and SICs	-0.03	-0.06	-0.13	-0.24	-0.63	-0.22

<i>FI</i>	Monetary compensations	0.02	0.02	0.03	0.03	0.03	0.03
	Unemployment benefits	0.05	0.04	0.04	0.04	0.06	0.04
	Other benefits and pensions	0.14	0.28	0.30	0.35	0.44	0.30
	Disposable income	0.60	0.72	0.88	1.09	1.70	1.00
	Market income	0.16	0.43	0.77	1.15	2.26	0.95
	Taxes and SICs	-0.08	-0.17	-0.27	-0.41	-0.91	-0.37
	Monetary compensations	0.00	0.00	0.00	0.00	0.00	0.00
<i>FR</i>	Unemployment benefits	0.10	0.05	0.05	0.05	0.03	0.06
	Other benefits and pensions	0.42	0.41	0.33	0.30	0.32	0.36
	Disposable income	0.47	0.72	0.89	1.07	1.85	1.00
	Market income	0.21	0.47	0.69	0.96	1.99	0.86
	Taxes and SICs	-0.06	-0.12	-0.18	-0.26	-0.69	-0.26
	Monetary compensations	0.01	0.02	0.02	0.02	0.03	0.02
	Unemployment benefits	0.03	0.04	0.03	0.04	0.04	0.03
<i>HR</i>	Other benefits and pensions	0.27	0.32	0.33	0.32	0.48	0.34
	Disposable income	0.42	0.71	0.90	1.16	1.81	1.00
	Market income	0.16	0.45	0.73	1.09	1.97	0.88
	Taxes and SICs	-0.03	-0.09	-0.16	-0.27	-0.60	-0.23
	Monetary compensations	0.01	0.03	0.04	0.05	0.05	0.04
	Unemployment benefits	0.00	0.00	0.00	0.00	0.00	0.00
	Other benefits and pensions	0.27	0.31	0.28	0.29	0.39	0.31
<i>HU</i>	Disposable income	0.31	0.68	0.93	1.15	1.93	1.00
	Market income	0.28	0.62	0.91	1.17	2.28	1.05
	Taxes and SICs	-0.15	-0.24	-0.31	-0.40	-0.78	-0.38
	Monetary compensations	0.00	0.00	0.00	0.01	0.01	0.01
	Unemployment benefits	0.02	0.01	0.00	0.00	0.00	0.01
	Other benefits and pensions	0.17	0.28	0.33	0.36	0.41	0.31
	Disposable income	0.49	0.66	0.83	1.12	1.90	1.00
<i>IE</i>	Market income	0.08	0.24	0.66	1.10	2.57	0.93
	Taxes and SICs	-0.01	-0.03	-0.12	-0.26	-0.91	-0.27
	Monetary compensations	0.01	0.02	0.05	0.04	0.05	0.03
	Unemployment benefits	0.07	0.07	0.08	0.09	0.08	0.08
	Other benefits and pensions	0.34	0.36	0.16	0.14	0.11	0.22
	Disposable income	0.35	0.62	0.88	1.15	1.99	1.00
	Market income	0.19	0.40	0.66	1.03	2.04	0.87
<i>IT</i>	Taxes and SICs	-0.04	-0.12	-0.23	-0.37	-0.94	-0.34
	Monetary compensations	0.02	0.02	0.03	0.03	0.04	0.03
	Unemployment benefits	0.02	0.02	0.02	0.02	0.02	0.02
	Other benefits and pensions	0.17	0.29	0.40	0.43	0.83	0.42
	Disposable income	0.47	0.63	0.83	1.12	1.96	1.00
	Market income	0.16	0.43	0.77	1.24	2.54	1.03
	Taxes and SICs	-0.05	-0.15	-0.27	-0.46	-0.94	-0.37
<i>LU</i>	Monetary compensations	0.01	0.02	0.03	0.04	0.05	0.03
	Unemployment benefits	0.03	0.02	0.02	0.03	0.03	0.03
	Other benefits and pensions	0.32	0.31	0.28	0.28	0.28	0.29
	Disposable income	0.51	0.66	0.88	1.15	1.80	1.00
	Market income	0.24	0.46	0.60	0.96	1.95	0.84
	Taxes and SICs	-0.05	-0.11	-0.20	-0.39	-0.91	-0.33
	Monetary compensations	0.04	0.06	0.05	0.05	0.08	0.06
<i>LV</i>	Unemployment benefits	0.02	0.02	0.04	0.04	0.02	0.03
	Other benefits and pensions	0.26	0.23	0.39	0.49	0.66	0.41
	Disposable income	0.38	0.62	0.84	1.13	2.03	1.00
	Market income	0.12	0.43	0.81	1.24	2.48	1.02
	Taxes and SICs	-0.03	-0.10	-0.20	-0.34	-0.73	-0.28
	Monetary compensations	0.00	0.01	0.01	0.01	0.02	0.01
	Unemployment benefits	0.00	0.01	0.01	0.01	0.02	0.01
<i>MT</i>	Other benefits and pensions	0.28	0.27	0.20	0.21	0.24	0.24
	Disposable income	0.52	0.71	0.88	1.10	1.79	1.00
	Market income	0.17	0.38	0.66	1.06	2.02	0.86
	Taxes and SICs	-0.02	-0.06	-0.12	-0.21	-0.47	-0.17

<i>NL</i>	Monetary compensations	0.03	0.06	0.08	0.10	0.10	0.07
	Unemployment benefits	0.01	0.00	0.00	0.00	0.00	0.00
	Other benefits and pensions	0.34	0.32	0.25	0.15	0.13	0.24
	Disposable income	0.51	0.75	0.89	1.09	1.76	1.00
	Market income	0.29	0.60	1.00	1.39	2.65	1.19
	Taxes and SICs	-0.14	-0.21	-0.31	-0.46	-1.01	-0.43
	Monetary compensations	0.00	0.00	0.00	0.00	0.00	0.00
<i>PL</i>	Unemployment benefits	0.01	0.02	0.02	0.03	0.03	0.02
	Other benefits and pensions	0.34	0.34	0.19	0.14	0.10	0.22
	Disposable income	0.46	0.71	0.88	1.12	1.83	1.00
	Market income	0.22	0.45	0.73	1.12	2.16	0.94
	Taxes and SICs	-0.11	-0.17	-0.23	-0.33	-0.64	-0.30
	Monetary compensations	0.01	0.01	0.01	0.02	0.02	0.01
	Unemployment benefits	0.00	0.00	0.00	0.00	0.00	0.00
<i>PT</i>	Other benefits and pensions	0.34	0.41	0.37	0.31	0.29	0.35
	Disposable income	0.42	0.65	0.83	1.10	2.01	1.00
	Market income	0.19	0.42	0.68	1.04	2.04	0.87
	Taxes and SICs	-0.03	-0.07	-0.13	-0.26	-0.83	-0.26
	Monetary compensations	0.01	0.01	0.02	0.02	0.03	0.02
	Unemployment benefits	0.01	0.02	0.02	0.02	0.02	0.02
	Other benefits and pensions	0.24	0.27	0.25	0.28	0.75	0.36
<i>RO</i>	Disposable income	0.29	0.61	0.90	1.23	1.98	1.00
	Market income	0.15	0.50	0.89	1.40	2.59	1.11
	Taxes and SICs	-0.04	-0.19	-0.36	-0.59	-1.09	-0.46
	Monetary compensations	0.01	0.01	0.01	0.02	0.02	0.01
	Unemployment benefits	0.00	0.00	0.00	0.00	0.00	0.00
	Other benefits and pensions	0.18	0.29	0.36	0.40	0.46	0.34
	Disposable income	0.49	0.74	0.89	1.13	1.74	1.00
<i>SE</i>	Market income	0.20	0.45	0.82	1.21	2.12	0.96
	Taxes and SICs	-0.09	-0.19	-0.28	-0.39	-0.76	-0.34
	Monetary compensations	0.00	0.01	0.02	0.03	0.03	0.02
	Unemployment benefits	0.03	0.02	0.02	0.02	0.01	0.02
	Other benefits and pensions	0.35	0.46	0.32	0.26	0.35	0.35
	Disposable income	0.58	0.77	0.91	1.11	1.64	1.00
	Market income	0.27	0.53	0.81	1.09	1.88	0.92
<i>SI</i>	Taxes and SICs	-0.09	-0.16	-0.25	-0.36	-0.70	-0.31
	Monetary compensations	0.02	0.03	0.03	0.04	0.05	0.03
	Unemployment benefits	0.02	0.01	0.01	0.01	0.01	0.01
	Other benefits and pensions	0.37	0.36	0.30	0.32	0.40	0.35
	Disposable income	0.53	0.81	0.95	1.15	1.55	1.00
	Market income	0.34	0.58	0.82	1.17	1.73	0.93
	Taxes and SICs	-0.11	-0.15	-0.21	-0.31	-0.46	-0.25
<i>EU</i>	Monetary compensations	0.01	0.01	0.02	0.02	0.03	0.02
	Unemployment benefits	0.00	0.00	0.00	0.00	0.01	0.00
	Other benefits and pensions	0.29	0.38	0.32	0.26	0.25	0.30
	Disposable income	0.46	0.70	0.88	1.11	1.85	1.00
	Market income	0.22	0.47	0.75	1.12	2.22	0.95
	Taxes and SICs	-0.07	-0.15	-0.24	-0.37	-0.86	-0.34
	Monetary compensations	0.01	0.01	0.02	0.02	0.03	0.02
Unemployment benefits	0.04	0.03	0.02	0.02	0.03	0.03	
Other benefits and pensions	0.26	0.34	0.33	0.32	0.42	0.33	

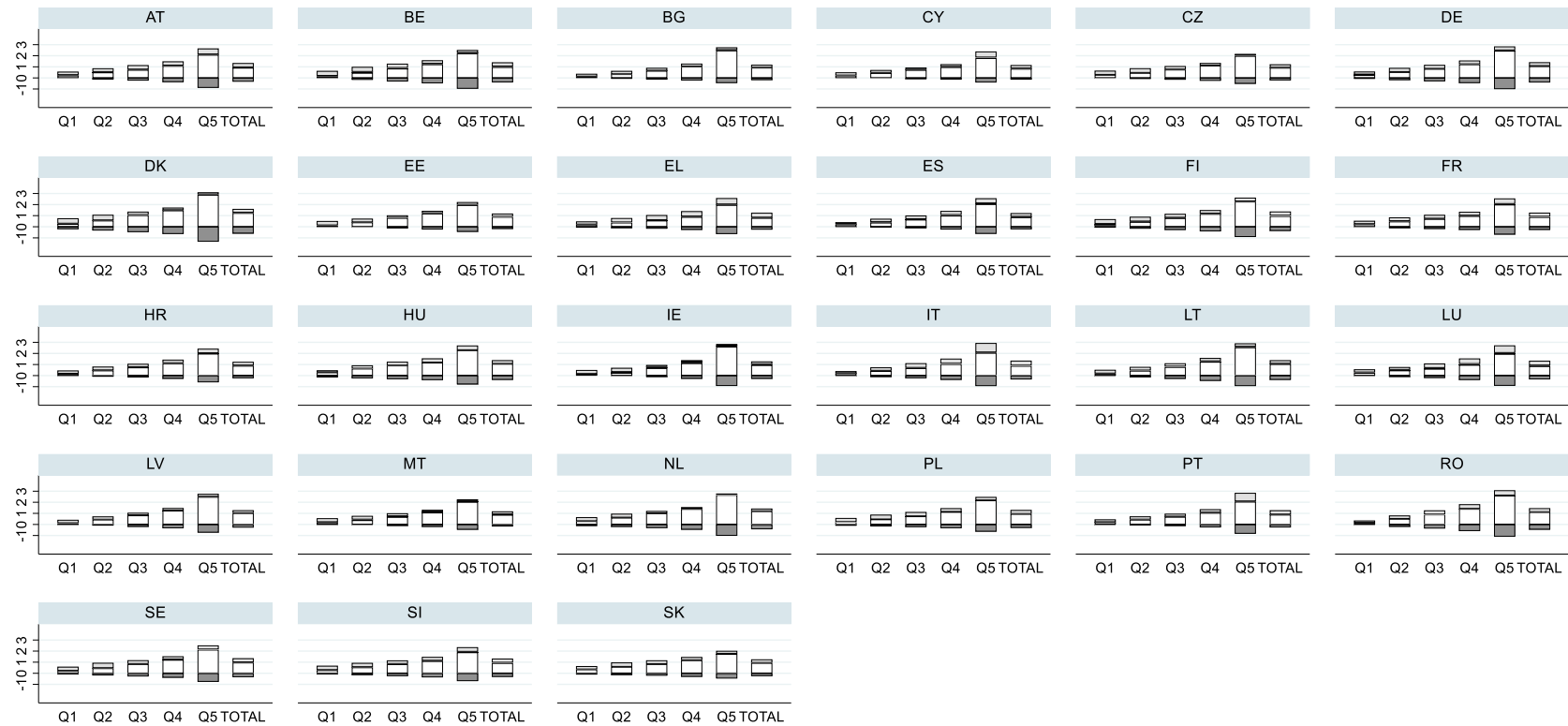
Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMOD I3.0+

Figure A1: Change in market and disposable incomes (%) – EU Member States



Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMOD I3.0+

Figure A2: De composition of average disposable income (as a share of each country's average disposable income)



Note: Quintile groups defined in the baseline scenario. Source: Authors' calculation using EUROMOD I3.0+

Table A4: Description of monetary compensation schemes in the EU Member States

Country	Measure name	Beneficiaries/ target population	Type (lump sum, one off, percentage of earnings)	other characteristics, lower limit, upper limit,	Comments
AT - Austria	Kurzarbeit	employees	percentage of earnings	upper limit	
	Härtefall-Fonds	self-employed	lump sum	n/a	simulated as one-off payment with average amount of compensation phase 1 and 2
BE - Belgium	Tijdelijke werkloosheid/Chômage temporaire (temporary unemployment scheme)	employees	percentage of earnings	lower and upper limit	share of hours not taken into account in simulation of MC
	Overbruggingsrecht voor zelfstandigen/Droit passerelle pour indépendants	self-employed	lump sum	amount for self- employed with or without dependent family	
BG - Bulgaria	60/40	employees	percentage of earnings	n/a	
	-	-	-	-	
CY – Cyprus	Ειδικό Σχέδιο Πλήρους ή Μερικής Αναστολής των Εργασιών της Επιχείρησης	employees	percentage of earnings	n/a	
	Ειδικό Σχέδιο Στήριξης Αυτοτελώς Εργαζομένων	self-employed	percentage of earnings	lower and upper limit	
CZ - Czechia	Programme Antivirus	employees	percentage of earnings	upper limit	existence of two different regimes

	Kompenzační bonus	self-employed	lump sum	upper limit	
DE - Germany	Kurzarbeitergeld	employees	percentage of earnings	n/a	
	-	-	-	-	
DK - Denmark	lønkompensation	employees	percentage of earnings	upper limit	
	tilskud	self-employed	percentage of the loss of revenues	upper limit	
EE - Estonia	töötasu hüvitis	employees	percentage of earnings	lower and upper limit	plus employer should pay at least 150 euro
	-	-	-	-	
EL - Greece	αποζημίωση ειδικού σκοπού	employees	lump sum	n/a	beneficiaries (whose labour contracts are suspended) are determined on the basis of NACE codes of the firms in which they are employed
	αποζημίωση ειδικού σκοπού	self-employed	lump sum	n/a	beneficiaries are determined on the basis of the NACE code of their business
ES - Spain	Expediente de Regulación Temporal de Empleo – ERTE	employees	percentage of earnings	lower and upper limit	
	Prestación extraordinaria por cese de actividad para autónomos	self-employed	percentage of previous contribution base	lower and upper limit	
FI - Finland	yritystajien työmarkkinatuki	self-employed	lump sum	n/a	
	Yksinyrittäjien korona-avustus	self-employed	one off	n/a	
FR - France	Chômage partiel	employees	percentage of earnings	lower and upper limit	
	Fonds de solidarité	self-employed	percentage of the loss of turnover	upper limit	100% of turnover is compensated for self-employed (modelled as an average value, since turnover is not available)

HR - Croatia	potpora za očuvanje radnih mjesta	employees	lump sum	n/a	different lump-sum amounts provided for March and April/May
	potpora za očuvanje radnih mjesta	self-employed	lump sum	n/a	different lump-sum amounts provided for March and April/May
HU - Hungary	Munkahelyvédelmi bértámogatás	employees	percentage of earnings	n/a	
	-	-	-	-	
IE - Ireland	Temporary Wage Subsidy Scheme	employees	percentage of previous earnings or flat rate according to the amount of the previous earnings	upper limit	
	-	-	-	-	
IT - Italy	Cassa integrazione guadagni	employees	percentage of previous earnings	upper limit	
	Bonus 600€/ Ristoro 1000€	self-employed	lump sum benefit	n/a	
LT - Lithuania	subsidijos iš likti darbo rinkoje	employees	percentage of earnings	upper limit	
	laikina išmoka savarankiškai dirbantiems	self-employed	lump sum benefit	n/a	
	ligos išmoka	sickness (COVID-19 quarantine)	percentage of earnings	n/a	
	laikina darbo paieškos išmoka	unemployment (new scheme)	lump sum benefit	n/a	
LU – Luxembourg	Chômage partiel	employees	percentage of previous earnings	lower and upper limit	
		-	-	-	

LV - Latvia	Dikstāves pabalsts and Dikstāves palīdzības pabalsts	employees	percentage of previous earnings	lower and upper limit	“downtime benefit and downtime as sistance benefit” cannot be simulated separately in EUROMOD, the downtime as sistance is = to the lower limit of the downtime benefit. Recipients of the downtime benefit also receive an extra payment of EUR 50 per month for each dependent child
	Dikstāves pabalsts and Dikstāves palīdzības pabalsts	self-employed	percentage of previous self-employment income	lower and upper limit	“downtime benefit and downtime as sistance benefit” cannot be simulated separately in EUROMOD, the downtime as sistance is = to the lower limit of the downtime benefit. Recipients of the downtime benefit also receive an extra payment of EUR 50 per month for each dependent child
MT - Malta	Skema ta' Suppliment ghas-Salarju Covid-19	employees	several flat rates	n/a	
	Skema ta' Suppliment ghas-Salarju Covid-19	self-employed	several flat rates	n/a	
NL - Netherlands	Noodmaatregel Overbrugging Werkgelegenheid (NOW)	employers	percentage of the wage cost of employers	n/a	employees receive 100% of their wage, this is a benefit for employers
	-	-	-	-	
PL - Poland	Dofinansowanie wynagrodzeń	employees	either percentage of earnings or flat rate	lower and upper limits	two possibility, if employee eligible for both, max one is selected
	Swiadczenie postojowe	self-employed	flat rate	n/a	also for temporary workers
PT - Portugal	Layoff Simplificado (Medida Extraordinária de Apoio à Manutenção dos Contratos de Trabalho)	employees	percentage of previous earnings	lower and upper limits	
	Apoio Extraordinário à Redução da Atividade Económica de Trabalhador Independente	self-employed	depending on the average remuneration recorded as contribution base: average,	upper limit	

			or a percentage or a lump-sum		
RO - Romania	Indemnizația de șomaj tehnic	employees	percentage of previous earnings	upper limit	
	Indemnizația de sprijin COVID-19	self-employed	lump sum	n/a	
SE - Sweden	korttidspermittering	employees	percentage of previous earnings	upper limit	different levels of compensation depending on share of hours worked, can't be 0 hours worked.
	-	-	-	-	
SI - Slovenia	nadomestilo plače za čas čakanja na delo	employees	percentage of previous earnings	n/a	
	Izredna pomoč v obliki mesečnega temeljnega dohodka	self-employed	lump-sum	n/a	
	začasno denarno nadomestilo za čas brezposelnosti	unemployment (new scheme)	lump-sum	n/a	
SK - Slovakia	Projekt na podporu udržania pracovných miest	employees	percentage of previous earnings	lower and upper limits	
	Príspevok pre SZČO	self-employed	lump-sum	n/a	different sum depending on randomly assigned revenue (approximated by profit) loss
	Pandemické ošetrovné	employees and self-employed	percentage of previous income	upper limit	nursing benefit, Only one parent can receive the benefit per eligible child during school closures.

A.2. Simulating labour market transitions in EUROMOD: EUROMOD LMA Add-on and COVID-related policies

EUROMOD I3.0+ includes new features allowing users to design and implement labour market transitions from work to either unemployment or monetary compensations schemes. The transitions are made operational through the Labour Market Adjustment (LMA) add-on.

- *General info about the LMA add-on*

This add-on is designed to cover the following labour market transitions:

- i) from employment/self-employment to unemployment (short-term or long-term),
- ii) from unemployment to employment,
- iii) from employment/self-employment to monetary compensation.

Intuitively, the tool modifies the values of specific socio-demographic variables of observations eligible for transitions (such as earnings, months in work, labour market characteristics, etc.) to reflect their new labour market status. A detailed description of the add-on can be found in De Poli et al. (2021).

- *Simulating transitions*

EUROMOD allows for the modelling of transitions based on aggregate statistics using (informed) random allocation¹⁰. These statistics (and their sources) are described in Section 3 (Table 1).

To simulate transitions to unemployment, we need to define the share of employees/self-employed (disaggregated by sex or other subgroups) who move to unemployment and the duration of this transition (i.e. the number of months in employment during the year before transiting to unemployment). For individuals who undergo this transition, the LMA add-on will adjust their labour market status, job characteristics and income variables. For employees, employment income, fringe benefits and health benefits are adjusted proportionally to the number of months left in employment, as the length of their unemployment spell can vary. The income of self-employed individuals transiting to unemployment is set equal to zero; the length of their unemployment spell is fixed, set to the same value as their in-work spell.

Additionally, based on the characteristics observed in the original SILC-based data, the LMA add-on will generate new variables needed to assess individuals' eligibility to unemployment benefits. The main variables used for these simulations are the contribution base for unemployment benefits (which usually depends on previous wage) and the contributory history (i.e. the number of months worked in the qualifying period).

¹⁰ When more information is available, it is also possible to model transitions based on probabilities of changing labour market status.

To simulate transitions to monetary compensation (MC) schemes, we need to define the share of employees/self-employed (disaggregated by NACE code or other subgroups) who move to MC, the duration of this transition (number of months) and the share of hours worked while being in MC. For individuals undergoing this transition, the LMA add-on will adjust their income variables (employment and self-employment income) and the number of months in receipt of those incomes proportionally, considering the number of months spent in MC. In some countries, this transition also triggers the simulation of relevant childcare schemes or new unemployment benefits. A detailed description of policies that are triggered by the LMA add-on in each country can be found in Christl et al. (2020).

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