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The rising tide lifts all boats? Income support measures for employees and self-employed during the COVID-19 pandemic

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Abstract

This paper examines the extent to which fiscal policy protected household incomes in the second year of the COVID-19 pandemic in EU countries. Using microsimulation techniques and detailed Eurostat data, we analyse this impact separately for employees and the self-employed. We show that while on average income protection was similar for employees and the self-employed at the EU level, the heterogeneity both between and within countries was much higher for self-employed households in 2021. For employees, both monetary compensation schemes and unemployment benefits played a similar role in absorbing the income shock, whereas for the self-employed it was mainly monetary compensation schemes and much less so unemployment benefits that stabilised their income. Overall, we find that monetary compensation schemes, together with automatic stabilisers, absorbed a substantial part (67%) of the market income shock in 2021, albeit with a reduced cushioning effect compared to the previous year (74%). Monetary compensation schemes alone account for almost a third of this cushioning effect in 2021. Our paper underlines the importance of targeted policies to ensure comprehensive support for vulnerable households amid ongoing economic uncertainties.

JEL classification: D31, E24, H24

Keywords: COVID-19, Self-employed, Income stabilisation, Microsimulation, EURO-MOD

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1. Introduction

The COVID-19 health crisis and its socio-economic consequences had a profound impact on the economies of many countries around the world, particularly in the EU, where containment measures (including school and workplace closures and travel bans) were significantly intensified (Hale et al., 2021). New and immediate government interventions ranged from health-related measures to direct economic support for businesses and households. One of the most important economic support measures was the introduction of monetary compensation schemes (MCS), such as short-time working schemes for employees or other income support measures for the self-employed, to mitigate the negative impact on households and businesses.

The impact of the COVID-19 pandemic on the labour market was lower in 2021 than in 2020, as higher vaccination rates, more relaxed containment measures and greater ability and flexibility to telework allowed many workers to remain in employment. The number of employees able to work from home increased in 2020 compared to previous years and continued to increase in 2021 (Vargas Llave et al., 2022). At the same time, as shown by Scarpetta et al. (2022), the use of monetary compensation schemes decreased significantly in 2021 compared to 2020. Different strategies have been used to modify monetary compensation schemes during the crisis. Some countries have phased them out, others have opted for more targeted support and most have kept their temporary measures unchanged.¹

The COVID-19 shock and support measures for employees have been widely discussed in the literature. However, the impact of fiscal policy measures on one of the most vulnerable employment groups - the self-employed - has only been analysed in a few countries. To the best of our knowledge, we are the first to comprehensively analyse the cushioning effects of fiscal policy measures during the COVID-19 pandemic for both employees and self-employed across EU Member States.

In addition, we extend the analysis of Christl et al. (2023a) to 2021 - the second year of the pandemic, which is much less covered in the literature - to compare the impact of COVID-19-related measures to protect household income with the first year of the pandemic.

In detail, we first look at the impact of these monetary compensation schemes in 2021 and decompose the effect for two different groups, namely employees and the self-employed. The compensation schemes for these two groups differ considerably and, with the exception of some EU Member States², this difference in treatment has not been analysed. Given that the self-employed are typically more concentrated in the lower (as well as the upper) part of the income distribution (Schneck, 2020) and more likely to be income poor (Sevä and Larsson, 2015), this is an important aspect when analysing the impact of COVID-19 support measures on income protection.

Second, we analyse the income stabilising effect of monetary compensation schemes

¹Some countries have even made them permanent, but linked eligibility to certain economic criteria, as was already the case in Germany.

²such as Graeber et al. (2021) for Germany.

for the second year of the COVID-19 pandemic at the EU level and for almost all EU Member States in a comprehensive and comparable way. This is of particular interest as we can compare the impact of these measures, which have been adjusted by policy makers in several countries in 2021, mainly due to the high cost of these measures for national budgets, among other reasons.

Finally, following the approach of [Christl et al. \(2023a\)](#), we use microsimulation techniques to simulate a hypothetical counterfactual scenario in which the COVID-19 support measures for employees and the self-employed are not implemented. By comparing this scenario with the baseline scenario in which the monetary compensation schemes are in place, we are able to assess the impact of the monetary compensation schemes on stabilising household incomes.

The rest of the paper is structured as follows. [section 2](#) presents the literature on the impact of COVID-19 on household income in Europe. [section 3](#) describes the data and methodology. [section 4](#) presents the results and [section 5](#) gives the conclusions.

2. Literature

Numerous national studies across the EU have examined the impact of COVID-19 on household income, with a particular focus on monetary compensation schemes. [Agrawal and Bütikofer \(2022\)](#) highlighted the transformative effect of the pandemic on public economics, while [Furceri et al. \(2022\)](#) raised concerns about its potential long-term impact on inequality. Unlike previous recessions, where cost reduction was the focus, COVID-19 policies primarily aimed to protect household incomes ([O'Donoghue et al., 2023](#)).

Several comparative studies concentrated on 2020. [Clark et al. \(2021\)](#) reported initial spikes in inequality across France, Germany, Italy, and Spain, later offset by targeted compensation schemes indicating a strong mitigating effect. Only two studies offered comprehensive EU-wide analyses: [Almeida et al. \(2021\)](#) and [Christl et al. \(2023a\)](#), both of which confirmed the significant mitigating effects of monetary compensation on income loss and inequality, though with varying effectiveness across countries.

At the national level, Germany experienced a 3% market income loss in 2020, particularly affecting low-income households, with policy interventions cushioning the blow ([Christl et al., 2023b](#)). Italy saw substantial income declines, especially for the self-employed, but emergency benefits reduced the impact ([Gallo and Raitano, 2023](#); [Figari and Fiorio, 2020](#)). Spain and France also benefited from public transfers and monetary compensation schemes, which stabilized incomes ([Aspachs et al., 2022](#); [Buresi and Cornuet, 2021](#)). In the UK, COVID-19 measures such as the Job Retention Scheme effectively protected household incomes ([Brewer and Tasseva, 2021](#)), while government support in Sweden helped mitigate earnings inequality ([Angelov and Waldenström, 2023](#)). Similar results were found in Austria ([Christl et al., 2022c](#)) and Estonia ([Laurimäe et al., 2022](#)). Similarly, [Baker et al. \(2020\)](#) highlight the short-term effectiveness of stimulus payments in the U.S. in alleviating financial stress during crises and highlights the varying impacts across different economic groups.

Studies focusing on the self-employed highlight their vulnerability as they typically have less access to unemployment insurance and social safety nets. Graeber et al. (2021), Fairlie (2020), Kalenkoski and Pabilonia (2022) and Blundell et al. (2020a) discuss how the pandemic disproportionately impacted this group. The lack of tailored government support for the self-employed in many countries exacerbated the challenges they faced.

The self-employed were disproportionately affected by the pandemic. Blundell et al. (2020b) highlighted that self-employed individuals in the UK faced substantial income losses, with many unable to access government support schemes, particularly in the early stages of the pandemic. Bennedsen et al. (2020) reported that, in Denmark, despite compensation schemes designed for self-employed workers, many experienced severe liquidity issues and were more vulnerable to long-term financial instability. Schneck (2023) show that in Germany, solo self-employed individuals had lower income resilience, with many struggling to meet a barely adequate household income level. The paper also highlights the varying ability of self-employed individuals to withstand income cuts depending on household structure and additional incomes.

While several studies provide a robust analysis of income stabilization in 2020 on national and EU levels, comprehensive EU-wide analysis for 2021 remains missing. Additionally, only few studies differentiate between the effects on employees and the self-employed, a gap this study aims to address.

3. Methodology and Data

3.1. Methodology

The impact of the COVID-19 pandemic on household disposable income can be assessed using EU-SILC data, which are already available for the pandemic years. However, for a more in-depth analysis of the cushioning effect of fiscal policy in absorbing the income shock and for the construction of counterfactual scenarios, it is advantageous to use a microsimulation model for several reasons.

First, we cannot observe the real impact of the pandemic on market incomes in the survey data. In several countries, monetary compensation schemes for employees are reported as general income. Without the precise information on the amount of monetary compensation paid, we cannot assess the size of the shock of the COVID-19 pandemic on market income, nor the share absorbed by monetary compensation schemes and, consequently, the share absorbed by the rest of the tax-benefit system.

Second, we cannot disentangle the impact of monetary compensation schemes from other benefits in the survey data. Even in countries where monetary compensation schemes are reported separately from market income, these measures are often reported together with other benefits. This prevents us from analysing in detail the role of each component of the tax-benefit system in absorbing the income shock.

Third, the use of microsimulation techniques not only allows us to overcome the limitations of the data issues mentioned in the first two points, but also to create relevant counterfactual scenarios that allow us to answer hypothetical questions, such as what

would have happened to our key policy indicators if the government had not intervened by introducing monetary compensation schemes.

We therefore use EUROMOD, the EU tax-benefit microsimulation model. EUROMOD is a static microsimulation model that allows the simulation of tax liabilities and cash benefits in a comparable way across countries.³

In this paper, we focus on the policies in place in 2021. We use data from the pre-COVID period to compare scenarios with and without a shock to the labour market. More specifically, we use data from the 2019 EU-SILC survey, which is based on 2018 earnings. To simulate the income distribution in 2021, we use a nowcasting approach. This methodology, first developed by [Gasior and Rastrigina \(2017\)](#), has been extended in the context of the pandemic by [Christl et al. \(2022b\)](#) to take into account monthly changes in labour market status and transitions to monetary compensation schemes.⁴ In this way, we can create two main scenarios: a 2021 without COVID-19 and the "real" income distribution of 2021, taking into account the shock to the labour market due to the pandemic.

3.2. Data

Similarly to [Christl et al. \(2023a\)](#), in our underlying EU-SILC data provided by Eurostat, we use detailed statistics on people moved to unemployment and monetary compensation schemes to mimic 2021 labour market conditions.⁵ The statistics on changes in employment are based on information from the quarterly Labour Force Survey (LFS), while the statistics on transitions to monetary compensation schemes combine information from the quarterly LFS with monthly administrative data - provided by Member States to Eurostat - on the number of people who entered these schemes. In the context of the COVID-19 pandemic, it is also important to consider the duration of these transitions. For this purpose, Eurostat has also provided information on the number of months spent in unemployment and monetary compensation schemes, as well as the reduction in the share of hours worked.

In order to reproduce the labour market conditions of 2021 in our basic dataset, we also take into account the characteristics of the individuals undergoing transitions. On the one hand, we model transitions from employment to unemployment by gender and educational attainment separately for employees and the self-employed. On the other hand, we model transitions from employment to monetary compensation schemes by sector of activity and gender, also separately for employees and the self-employed. Within each subgroup, individuals are randomly selected into the new labour market status until the target number of individuals is reached. Statistics on the duration of transitions and the characteristics of the workers are estimated by Eurostat on the basis of the quarterly LFS.⁶

³For more information on EUROMOD, see [Sutherland and Figari \(2013\)](#) and <https://euromod-web.jrc.ec.europa.eu/>.

⁴For a description of the tool, see the appendix of [Christl et al. \(2023a\)](#).

⁵These data were provided by Eurostat's Flash Estimate Team. For a full overview of the methodology, see [Leulescu et al. \(2022\)](#).

⁶For more details see [Leulescu et al. \(2022\)](#).

To give a brief overview of the impact of COVID-19 on the labour markets in EU Member States in 2021, Table 1 shows the annual aggregate transition rate from employment to monetary compensation schemes and the average reduction in hours worked, as well as the duration of people in monetary compensation schemes.

The transitions observed vary considerably between EU Member States. In Cyprus and Greece, more than 20% of employees switched to MC schemes, while in countries such as Denmark, Spain or Ireland this figure was close to 5%. In other countries, such as Finland, Hungary, Sweden, Romania and Poland, the share of employees who switched to monetary compensation schemes was less than 3%. This low share can be explained by the fact that in some countries, such as Poland, monetary compensation schemes were gradually phased out in the course of 2021. For the self-employed, the differences between Member States are even greater. In Belgium and Cyprus more than 20% and in France almost half of the self-employed moved to monetary compensation schemes. In many other countries, such as Hungary, Ireland, Sweden, Romania, Estonia, Germany or Austria, less than 1% of the self-employed did so in 2021.

The reduction of hours in MC schemes also varied between EU Member States. While average hours were reduced by around 15% in Denmark, Finland and Slovenia, the reduction was higher (28% or more) in Italy, Greece, Romania and Slovakia.⁷ The average length of stay of workers in monetary compensation schemes in 2021 ranges from 2.5 months or less in Hungary, Croatia and Slovenia to almost 7 months in countries such as Belgium and Slovakia.

At EU level, the share of people moving into unemployment (2.25% in 2021 and 2.38% in 2020), the duration in MCS (4.3 months in 2021 and 3.7 months in 2020) as well as the average reduction in hours while in MCS (25.48% in 2021 vs. 23.06% in 2020) are very similar between 2020 and 2021 (Table 2). However, the biggest difference is in the share of people moving to monetary compensation schemes. In 2020, around 23% of employees and 26% of self-employed moved to MCS, while in 2021 only around 9% of employees and 7% of self-employed did so.

⁷The Netherlands is an exception with an average reduction of almost 49%.

Table 1: Labour market transitions by EU Member State in 2021

Country	Hour reduction	Month in MCS	EE moved to MCS	SE moved to MCS	EE to unemployment
at	26.02%	3.8	11.16%	0.83%	1.64%
be	20.92%	6.7	7.83%	21.89%	2.31%
bg	19.30%	4.9	4.40%	1.22%	3.74%
cy	19.68%	3.7	20.42%	25.66%	1.03%
cz	24.47%	2.9	4.34%	14.40%	3.19%
de	20.04%	4.6	8.32%	0.72%	1.85%
dk	11.31%	2.9	4.55%	4.75%	0.73%
ee	18.64%	3.9	9.68%	0.70%	3.34%
el	29.70%	3.9	28.81%	1.34%	2.15%
es	21.57%	4.8	5.37%	4.74%	2.31%
fi	14.37%	3.5	1.12%	3.38%	1.53%
fr	24.31%	3.9	13.57%	48.13%	2.24%
hr	15.94%	2.5	17.04%	4.19%	0.68%
hu	10.56%	1.5	2.60%	0.02%	2.86%
ie	22.18%	4.0	5.22%	0.05%	7.43%
it	31.72%	3.9	11.50%	1.15%	2.62%
lt	15.29%	4.0	7.66%	0.99%	1.03%
lu	26.22%	3.9	7.65%	0.08%	0.36%
lv	21.02%	3.7	6.61%	17.75%	6.74%
nl	49.27%	4.6	17.23%	2.26%	2.75%
pl	20.46%	1.8	0.29%	0.73%	0.34%
pt	22.01%	3.9	11.85%	7.85%	6.64%
ro	27.70%	4.8	2.26%	0.40%	0.60%
se	18.33%	4.0	2.53%	0.39%	2.65%
si	14.52%	2.5	8.97%	13.00%	4.62%
sk	28.22%	6.9	17.42%	6.90%	4.01%

Note: EE stands for employees, SE - self-employed, MCS - monetary compensation schemes.
Source: Eurostat, based on LFS and administrative statistics.

Table 2: Labour market transitions at the EU level in 2020 and 2021

Year	Hour re-duction	Months in MCS	EE moved to MCS	SE moved to MCS	EE moved to un-employment
2021	25.48%	4.3	8.63%	6.94%	2.25%
2020	23.06%	3.7	23.03%	25.54%	2.38%

Note: EE stands for employees, SE - self-employed, MCS - monetary compensation schemes.
Source: Eurostat, based on LFS and administrative statistics.

3.3. Scenarios

In our analysis we compare three different scenarios. First, a hypothetical scenario in which the COVID-19 pandemic and the associated labour market transitions did not occur. Second, a scenario in which we model the labour market transitions that occurred during the COVID-19 pandemic in our micro data, using the external information described in the previous section. Third, a hypothetical scenario in which we model the labour market transitions associated with the COVID-19 pandemic, but assume that MC schemes were not in place. As argued by [Christl et al. \(2023a\)](#), this comparison allows us to analyse the cushioning effect of MC schemes on household income.

Let t be the tax-benefit function, which depends on the tax-benefit system (P) as well as on the labour market condition, LM , including COVID-19-related labour market transitions (LM^{Trans}) or not ($LM^{NoTrans}$). We can then define our three scenarios as follows

- **Baseline (no COVID-19 scenario):** $t(P_{2021}, LM_{2021}^{NoTrans})$.
- **COVID-19 scenario:** $t(P_{2021}, LM_{2021}^{Trans})$.
- **No government intervention scenario:** $t(P_{2021}^{NoMC}, LM_{2021}^{Trans})$.

3.4. Income stabilisation coefficient (ISC)

In this paper we want to analyse the extent to which market incomes and disposable incomes vary between the baseline scenario without COVID-19 and the scenario with COVID-19. To do this, we calculate the income stabilisation coefficient (ISC) in terms of [Dolls et al. \(2012\)](#) and [Christl et al. \(2023a\)](#):

$$ISC = 1 - \frac{\sum_i \Delta Y_i^D}{\sum_i \Delta Y_i^M} = \frac{\sum_i \Delta Y_i^M}{-} \sum_i \Delta Y_i^D \sum_i \Delta Y_i^M, \quad (1)$$

where ΔY_i^D is the change in disposable income and ΔY_i^M is the change in market income for individual i . The coefficient is expressed as a percentage (ISC*100). Intuitively, it indicates the proportion of a shock that is absorbed by the tax-benefit system. ISC=100 indicates no change in disposable income despite a change in market income, and ISC=0 indicates that disposable income changes by exactly the same amount as market income, i.e. the shock is fully transmitted to disposable income.

The standard approach in the literature is to calculate the ISC for the whole population, as usually only a theoretical or real negative shock to market income is observed. However, in 2021 some households experienced a positive change in market income due to transitions from unemployment to employment. For this reason, we exclude households with individuals who moved into employment and calculate ISCs only for households with a negative shock to market income.

In addition, we provide a decomposition of disposable income into separate tax and benefit components. This allows us to analyse the role of each component in stabilising household disposable income due to pandemic-related labour market transitions. We decompose the ISC into parts attributable to taxes and social contributions (SICs), MC schemes, unemployment benefits and other benefits and pensions:

$$ISC = \frac{\sum_i \Delta Y_i^M - \sum_i \Delta Y_i^D}{\sum_i \Delta Y_i^M} = \frac{\sum_i \Delta T_i - \sum_i \Delta UB_i - \sum_i \Delta MC_i - \sum_i \Delta OB_i}{\sum_i \Delta Y_i^M}, \quad (2)$$

where T_i are taxes and SICs paid by individual i , MC_i are monetary compensation (for employees and the self-employed) received by individual i , UB_i are unemployment benefits and OB_i are other benefits including pensions.

The ISC and its decomposition are provided for the whole population - affected by a negative shock to market income - and for income quintile groups as defined in the baseline on the basis of equivalised disposable income. ISCs are also calculated for employee and self-employed households. Self-employed households are defined as those whose self-employment income is higher than their employee income.

4. Results

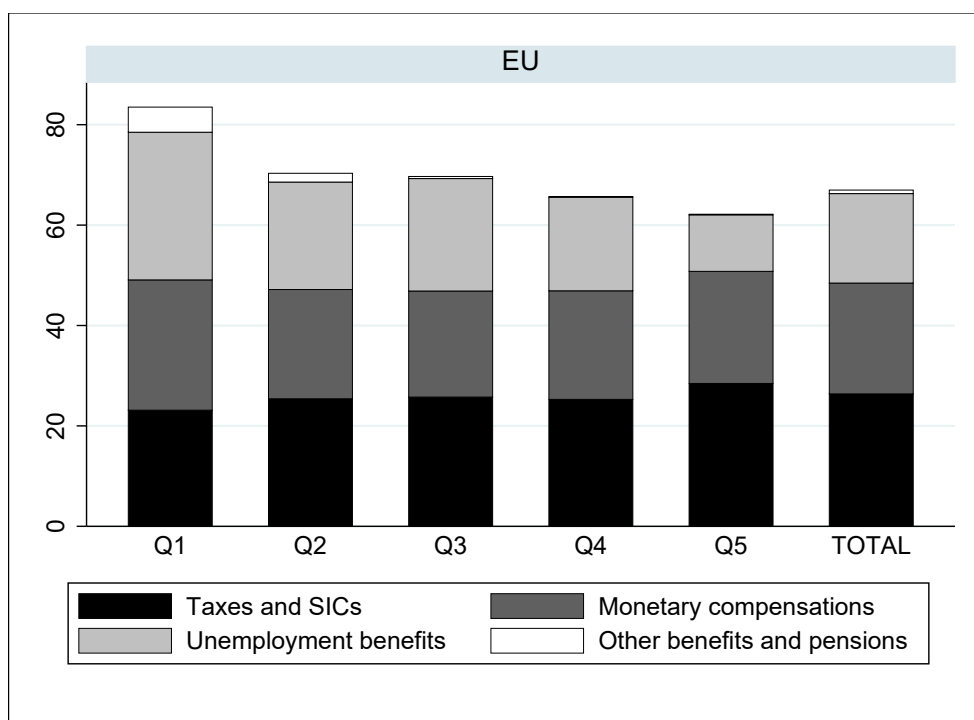
4.1. Income Stabilizing coefficients in 2021

Figure 1 shows the income stabilisation coefficient at EU level by income quintile and in total. Overall, fiscal policy in 2021 absorbed 67% of the shock to market income, or in other words, 67% of the fall in market income was cushioned by European tax and benefit systems, resulting in a smaller fall in disposable income compared to market income (one third instead of a full transmission). The stabilising effect was greater at the bottom of the income distribution, especially in the first quintile (83%). As one moves up the income distribution, the dampening effect becomes weaker - around 62% for the top income quintile.

At EU level, taxes and social contributions were the main instruments responsible for this cushioning effect (26.4 pp). With lower taxable income (and with progressive tax systems), people paid less in taxes and social contributions. The other two important instruments were monetary compensation schemes (22.1 pp) and unemployment benefits (18 pp). Compared to the previous year of the pandemic, the relative income stabilising effect of monetary compensation schemes has almost halved, while that of unemployment benefits has doubled. This relative impact is not due to the share of people moving to

unemployment (which remained stable in both years), but to the significantly lower share of workers moving to MS schemes in 2021 compared to 2020 (see Table 2). Other benefits and pensions played a minor role overall, but as they mainly include targeted social assistance, they were more important for people in the first income quintile.

Figure 1: Income Stabilizing Coefficient by quintiles in 2021, EU

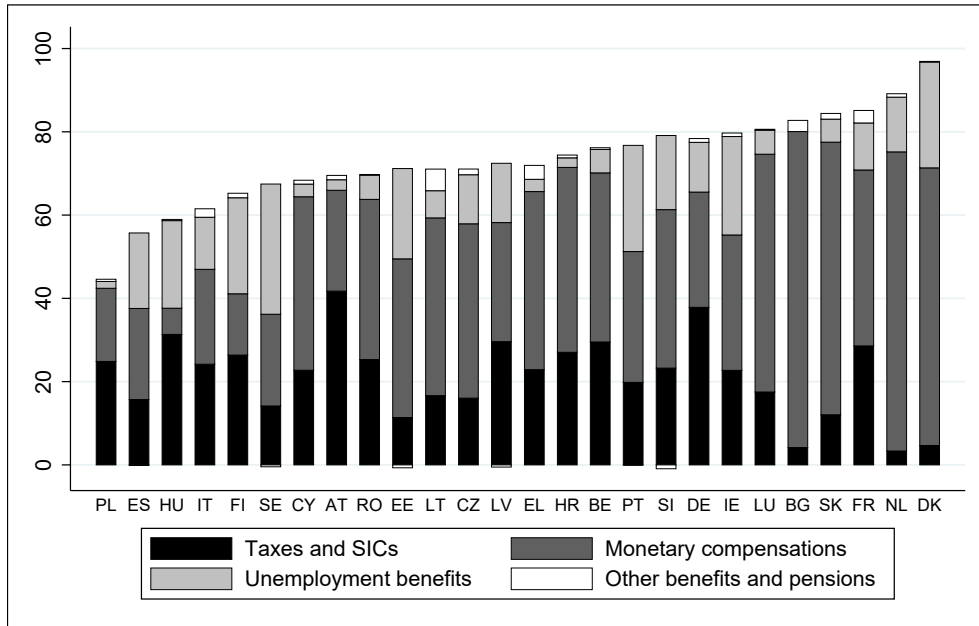


Note: Income quintiles are based on the baseline (no-COVID-19 scenario) distribution of equivalised disposable income. The equivalent income is calculated based on the modified OECD scale. Source: Calculations from EUROMOD, based on EU-SILC data.

Looking at the ISC by country, we find strong heterogeneities in the overall cushioning effect of fiscal policy across EU Member States. As shown in Figure 2, the ISC varies from 97% in Denmark and almost 90% in the Netherlands to less than 60% in Spain, Hungary and only 45% in Poland. In particular, the monetary compensation schemes played an important role in cushioning the COVID-19 shock in 2021 in Bulgaria, Denmark, the Netherlands and Slovakia. In Finland, Hungary and Spain, on the other hand, MCS were less important in protecting household income.

To better identify the role of government intervention, we compare the tax-benefit system in 2021 with a hypothetical 2021 without monetary compensation schemes, following the approach of Christl et al. (2023a). At the EU level, the income cushioning effect of the tax-benefit system with monetary compensation schemes was 67.1%. Without government intervention, the ISC would have been only about 49%, i.e. about 18 percentage points lower. Although earlier decomposition of the ISC by the different instruments (Figure 1) showed that the MC schemes were responsible for absorbing 22.1 percentage points of

Figure 2: Income Stabilizing Coefficient by EU Member State in 2021



Source: Calculations from EUROMOD, based on EU-SILC data.

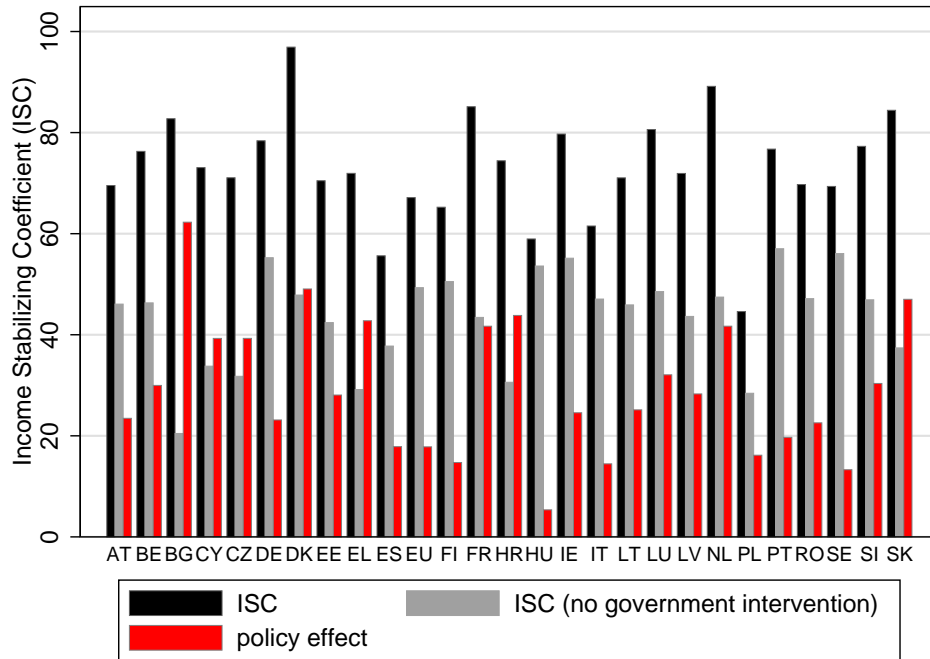
the shock to market incomes, the simulation of the alternative scenario without monetary compensation leads to a slightly lower share (18 pp). In the absence of MC schemes, this difference is additionally absorbed by the existing automatic stabilisers, i.e. tax and benefit systems. This result suggests that monetary compensation schemes continued to play a crucial role in protecting household incomes in the EU in 2021.

However, there are important differences between EU Member States in this respect, as shown in Figure 3. In Bulgaria, Denmark, Greece, France, Croatia, the Netherlands and Slovakia, government interventions were very important in absorbing the shock to household income caused by the COVID-19 pandemic. In these countries, the ISCs are more than 40 percentage points higher than in the no government intervention scenario. In contrast, the difference with and without COVID-19-related government intervention is very small in countries such as Hungary, where monetary compensation schemes were very rarely used in 2021 (see Table 1).

4.2. Income Stabilizing Coefficients for employees and self-employed in 2021

Fiscal policies for the self-employed are typically different from those for employees. For example, as highlighted by Jara Tamayo and Tumino (2021), unemployment insurance coverage rates are significantly lower for the self-employed than for employees. In addition, during the pandemic, many governments introduced financial compensation schemes for the self-employed that differed significantly from those for employees. Christl et al. (2023a) and Müller et al. (2022) give an overview of the differences in these schemes across all EU Member States. In total, around 20 EU Member States have introduced monetary

Figure 3: Income Stabilizing Coefficient without government intervention by EU Member State in 2021



Source: Calculations from EUROMOD, based on EU-SILC data.

Note: The policy effect is defined as the difference between the baseline scenario (black bars) and the no government intervention scenario (grey bars).

compensation schemes for the self-employed, ranging from very similar measures to those for employees, such as compensation of a certain percentage of earnings, to standard one-off payments for the self-employed.⁸

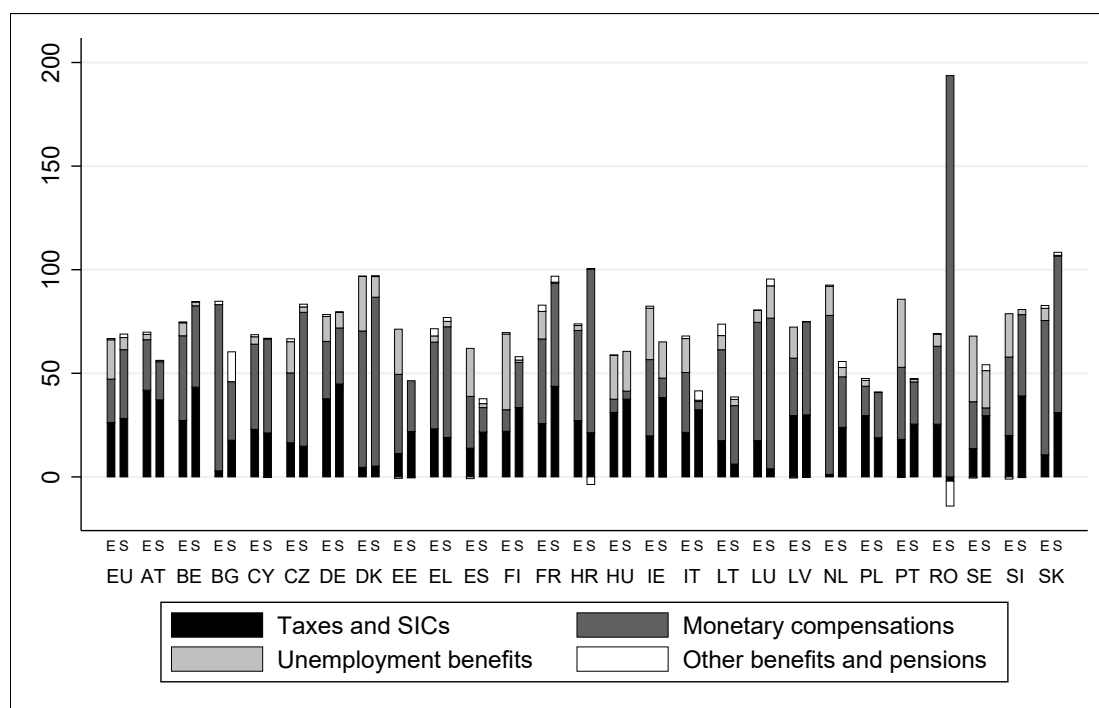
Figure 4 shows the ISC for employees and self-employed by income components for all EU Member States in 2021. The average across EU countries is very similar for both groups (see first two columns on the left). Households with employee income as the main source of income had an ISC of 67%, while for the self-employed the average ISC was around 69%. The stabilising effect of taxes and SICs was also very similar for both groups (26-28 pp), but we find significant differences with regard to the other income components. While both MC schemes and unemployment benefits played an important role in absorbing the shock to employee income (21 pp and 19 pp respectively), self-employment income was mainly stabilised by MC schemes (33 pp). Unemployment benefits absorbed only 6 pp of the shock to self-employment income, reflecting the low coverage of unemployment insurance for this type of worker.⁹

⁸Christl et al. (2022a) show that the ISCs for employees were higher than for the self-employed in the euro area in 2020.

⁹Only in a few countries self-employed are eligible to unemployment benefits. Hence, in several countries,

At Member State level, in the Netherlands, Portugal and Lithuania the average ISC for employees is more than 30 percentage points higher than the ISC for self-employed. The opposite is true for Croatia and Slovakia. In most other EU Member States, the difference between the ISC for employees and the ISC for self-employed is within a range of around 20 percentage points, indicating that the two groups have been treated differently by the tax-benefit systems, but within a certain threshold.

Figure 4: Income Stabilizing Coefficients for employees (E) and self-employed (S) at the EU level and by EU Member State in 2021



Note: E stands for employees, S stands for self-employed. The results for Romania have to be interpreted with caution, since the number of self-employed moving to monetary compensation is very small. Source: Calculations from EUROMOD, based on EU-SILC data.

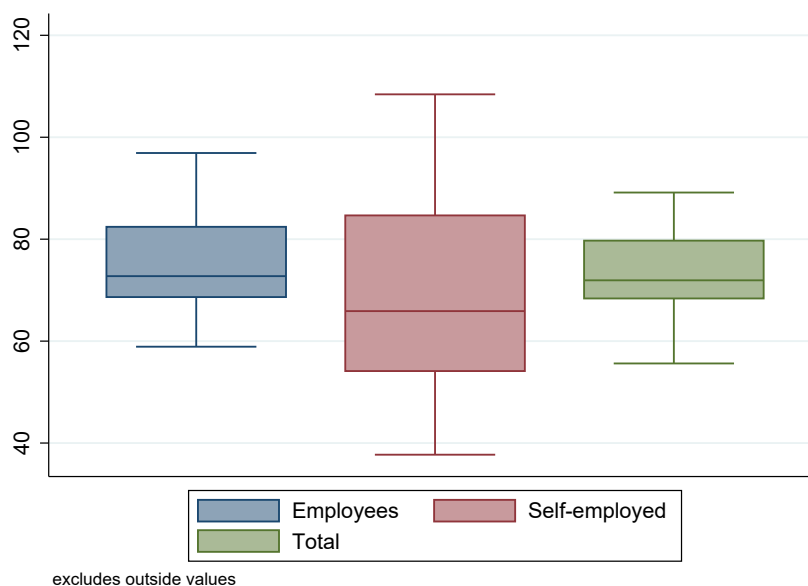
Although the average ISC for employees and self-employed are very similar at EU level, we found a high heterogeneity across countries and some outliers. Therefore, we also provide measures of variability, such as the median and interquartile range (IQR) of ISCs across countries.

In 2021, the median ISC was around 72%, which is higher than the average ISC, indicating a left-skewed distribution. This means that in the median country, 72% of the loss of market income was cushioned by the tax-benefit system in 2021 (Figure 5). In other words, for a loss of 100 euro in market income, the median household lost only 28 euro in disposable income thanks to government support. For households with employment as

the ISC of unemployment benefit for self-employed was is equal to 0.

their main source of income, the median ISC was 73%, while for households with most of their income from self-employment, this cushioning effect was much smaller, at around 66% (which is lower than the average ISC for this group). Furthermore, the interquartile range (coloured boxes) across countries is much higher for the self-employed than for employees. This means that the differences between countries in terms of protection are much more varied for the self-employed than for employees.

Figure 5: Distribution of ISC for employees and self-employed across EU in 2021



Note: The graph shows the medium value (middle line of each box), the interquartile range (75th percentile and 25th percentile, colored box) as well as the upper and lower adjacent value.
Source: Calculations from EUROMOD, based on EU-SILC data for 2021.

Looking at country-specific results, [Figure 6](#) shows the distribution of individual ISCs across the EU Member States. With the exception of countries such as Austria, Finland, Luxembourg and Sweden, the inter-individual variation measured by the IQR is much higher for the self-employed, indicating that income protection varies much more between households with self-employment income as their main source of income compared to those with employment income as their main source.

This finding is related to the specific differences in compensation schemes for the self-employed compared to employees. While standard compensation schemes for employees are often related to the income earned before the economic shock, schemes for the self-employed were often paid in the form of lump sums. As a result, low-income self-employed often benefited greatly compared to their pre-shock income, while higher-income self-employed often suffered a significant reduction in their disposable income.

Figure 6: Distribution of Income Stabilizing Coefficients for individuals by EU Member State in 2021



Note: The interquartile range (IQR) measures the spread of the middle half of the data (i.e. from the 25th to the 75th percentiles). The red dashed line is the median value of the ISC across EU Member States for employees, the blue dashed line is the median value of the ISC across EU Member States for self-employed. For Romania the number of self-employed moving to monetary compensation is too small to get valuable information about the distribution of ISCs.
 Source: Calculations from EUROMOD, based on EU-SILC data.

4.3. Income stabilisation coefficients - 2020 vs. 2021

In this section we compare the changes in the ISC between 2020 and 2021. It is important to stress that the differences in the ISC between these two years may be due to differences in the characteristics of certain policy measures, such as monetary compensation schemes, but also to differences in the COVID-19 shock or other parameters. For example, without changing the policy measures in place, the ISC could be different because of differences in (i) the type of transition (i.e. the replacement rate is different for transitions to unemployment or monetary compensation), (ii) the size of the shock (i.e. the number of months and hours lost when moving to monetary compensation) and (iii) the characteristics of the individuals and households changing their labour market status.

First, we look at the income stabilisation coefficients at the EU level by quintile. Table 2 shows that the overall ISC at EU level was 7.4 percentage points higher in 2020 (74.4%) than in 2021 (67.0%). In both years, the stabilisation coefficients were highest for the first quintiles (89.2% in 2020 and 83.5% in 2021) and gradually decreased with income (around 20 percentage points lower for the fifth quintile). In the first quintile, the ISC

decreased the least, by 5.7 percentage points, while in the second and higher quintiles the decrease was at least 6.7 percentage points. This result shows that the average protection of household income was lower in the second year of the COVID-19 pandemic, but the disposable income of poorer households was largely maintained in 2021. This is a first indication that policy measures may have been slightly more targeted in the second year of the COVID-19 pandemic, also because in many countries measures were limited to the sectors most affected by restrictions, which were often lower-income sectors.

Table 3: Income Stabilizing coefficients by quintiles in 2020 and 2021, EU

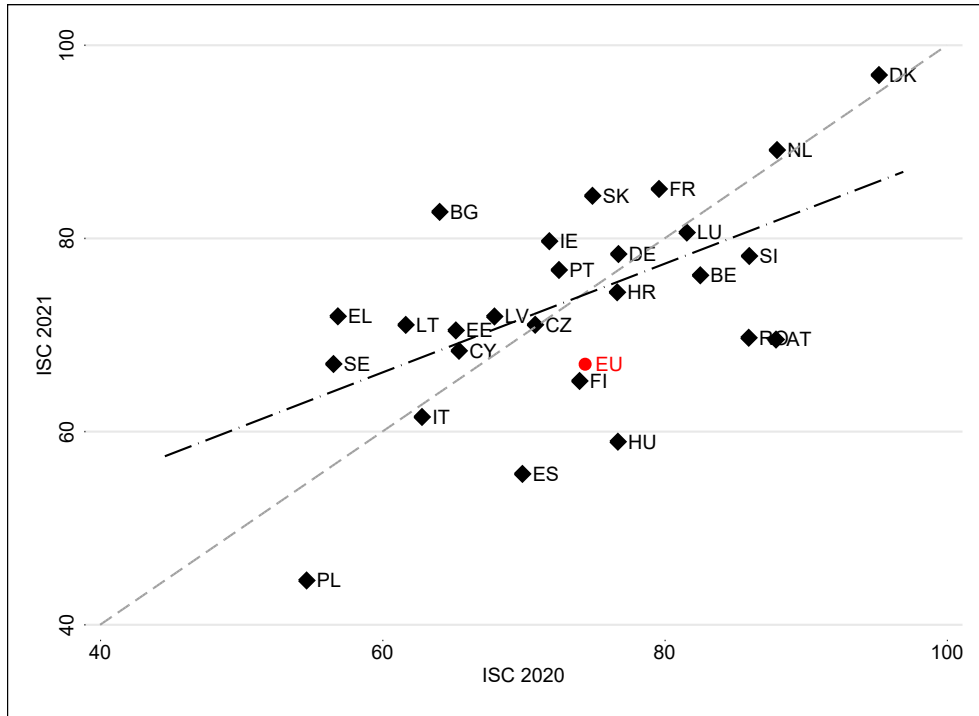
Year	Quintiles					TOT
	1	2	3	4	5	
2020	89.2	81.7	78	74.7	68.9	74.4
2021	83.5	70.3	69.7	65.7	62.2	67.0
Difference	5.7	11.3	8.3	9.1	6.7	7.4

Source: Calculations from EUROMOD, based on EU-SILC data for 2021, [Christl et al. \(2023a\)](#) calculations for 2020. Note: Income quintiles are based on the baseline (no-COVID-19 scenario) distribution of equivalised disposable income. The equivalent income is calculated based on the modified OECD scale.

However, the picture is more varied across EU countries ([Figure 7](#)). Countries to the left of the grey dotted line, such as Bulgaria, Sweden or Greece, show an increase in ISCs in 2021 compared to 2020. In contrast, countries to the right of the grey dotted line, such as Spain, Austria and Hungary, had significantly lower ISCs in 2021 compared to 2020. This is also due to the fact that monetary compensation schemes were less used in 2021 compared to 2020. Nevertheless, most countries are close to the 45 degree line, meaning that there was little change from 2020 to 2021.

In addition, we compare the cushioning effect of each instrument of the tax-benefit system (i.e. income taxes and social contributions, monetary compensation schemes, unemployment benefits and other benefits) between 2020 [Christl et al. \(2023a\)](#) and 2021 ([Figure 1](#)). We find that the stabilising effect of taxes (including social security contributions) remains similar (around 28%), while that of monetary compensation schemes decreases (from 37 to 22%). The decrease in the ISC of monetary compensation is most likely related to the reduced number of people moving to monetary compensation schemes and the implied relative importance of transitions to unemployment.

Figure 7: Income stabilisation coefficient by EU Member State in 2020 and 2021



Source: EUROMOD calculations based on EU-SILC data for 2021, [Christl et al. \(2023a\)](#) calculations for 2020.

5. Conclusion

Fiscal policy measures, and in particular monetary compensation schemes for employees and the self-employed, differed significantly across EU countries during the COVID-19 pandemic. To the best of our knowledge, we are the first to analyse the cushioning effect of these policy measures and how they differed for these two groups in 2021. We also analyse the decline in household income and the cushioning effect of policy measures, in particular monetary compensation schemes, in 2021 by combining microsimulation techniques with detailed COVID-19 labour market data from Eurostat.

We show that, despite differences in monetary compensation schemes for employees and the self-employed, the average income stabilisation effect for both groups was quite similar. However, in countries such as the Netherlands, Lithuania and Portugal, it was at least 30 percentage points higher for employees, while the opposite was true in Croatia, Slovakia and Romania. Across countries, the variation in income stabilisation coefficients was typically much greater for the self-employed than for employees.

Although the average income stabilisation coefficient was similar for employees and the self-employed, the impact of the different measures differed, not least because the self-employed are less covered by unemployment insurance. For employees, both monetary compensation schemes and unemployment benefits played a similar role in absorbing the

income shock (21 pp and 19 pp respectively), while for the self-employed it was mainly the MC schemes (33 pp) and to a lesser extent unemployment benefits (6 pp) that stabilised their income.

From a policy perspective, these results highlight the importance of extending unemployment insurance coverage to the self-employed in order to provide more robust protection against future income shocks and to reduce reliance on ad hoc measures that may be difficult to implement effectively.

In addition, we show that not only the variation between countries, but also the variation within countries in income stabilisation for the self-employed is much higher than for employees. This difference can be attributed to the specific design of compensation schemes for the self-employed, which were often independent of initial income (e.g. lump sums). This type of design implies that low-income self-employed benefited more from MC schemes relative to their pre-shock income, while higher-income self-employed experienced larger reductions in disposable income.

Overall, our analysis shows that for the EU in the second year of the pandemic, monetary compensation schemes and automatic stabilisers (such as taxes, social contributions and benefits) absorb 67% of the shock to market income. Most of the absorption in 2021 comes from personal income taxes and social contributions (26 pp), followed by temporary monetary compensation schemes (22 pp) and unemployment benefits (18 pp).

Compared to 2020, in 2021 there is a decrease in the overall cushioning effect (from 74% to 67%) and in particular in monetary compensation schemes, and an increase in the role of unemployment benefits. The decrease in the cushioning effect was smaller for the lowest income groups, suggesting that the schemes may have been slightly more targeted in the second year of the pandemic. This is in line with the adjustment of MC schemes in many countries, where in 2021 these measures were often limited to the sectors most affected by the restrictions, which were often low-income sectors. Thus, the overall stabilising effect at EU level was progressive, cushioning the shock for lower income households more than for richer households.

Our results underline the importance of monetary compensation schemes also in the second year of the COVID-19 pandemic. A hypothetical scenario without monetary compensation measures shows that tax-benefit systems would have cushioned only about half of the income shock in the EU in 2021, compared to 67% with monetary compensation schemes.

References

- D. R. Agrawal and A. Bütikofer. Public finance in the era of the covid-19 crisis. *International Tax and Public Finance*, 29(6):1349–1372, 2022.
- V. Almeida, S. Barrios, M. Christl, S. De Poli, A. Tumino, and W. van der Wielen. The impact of COVID-19 on households’ income in the EU. *The Journal of Economic Inequality*, 19:413–431, 2021.

- N. Angelov and D. Waldenström. Covid-19 and income inequality: evidence from monthly population registers. *The Journal of Economic Inequality*, pages 1–29, 2023.
- O. Aspachs, R. Durante, A. Graziano, J. Mestres, J. G. Montalvo, and M. Reynal-Querol. Real-time inequality and the welfare state in motion: evidence from covid-19 in spain. *Economic Policy*, 37(109):165–199, 2022.
- S. R. Baker, R. A. Farrokhnia, S. Meyer, M. Pagel, and C. Yannelis. How does household spending respond to an epidemic? consumption during the 2020 covid-19 pandemic. *The Review of Asset Pricing Studies*, 10(4):834–862, 2020.
- M. Bennedsen, B. Larsen, I. Schmutte, and D. Scur. Preserving job matches during the covid-19 pandemic: Firm-level evidence on the role of government aid. *Covid Economics*, pages 1–30, 2020.
- J. Blundell, S. Machin, and M. Ventura. *Covid-19 and the self-employed: Six months into the crisis*. Centre for Economic Performance, London School of Economics and Political . . . , 2020a.
- R. Blundell, M. Costa Dias, R. Joyce, and X. Xu. Covid-19 and inequalities. *Fiscal studies*, 41(2):291–319, 2020b.
- M. Brewer and I. V. Tasseva. Did the UK policy response to Covid-19 protect household incomes? *The Journal of Economic Inequality*, 19(3):433–458, September 2021.
- G. Buresi and F. Cornuet. Estimation avancée du taux de pauvreté monétaire et des indicateurs d’inéga-lités. *Insee Analyses*, page 3, 2021.
- M. Christl, S. De Poli, F. Figari, T. Hufkens, C. Leventi, A. Papini, and A. Tumino. Assessing the cushioning role of tax-benefit systems on households’ income in the euro area during the covid-19 pandemic: a microsimulation analysis. *Quarterly Report on the Euro Area*, 2022a.
- M. Christl, S. De Poli, T. Hufkens, C. Leventi, A. Papini, and A. Tumino. Simulating labour market transitions in EUROMOD: EUROMOD LMA Add-on and COVID-related policies. *European Commission, Seville, 2022, JRC128274*, 2022b.
- M. Christl, S. De Poli, D. Kucsera, and H. Lorenz. COVID-19 and (gender) inequality in income: the impact of discretionary policy measures in Austria. *Swiss Journal of Economics and Statistics*, 158(1):1–17, 2022c.
- M. Christl, S. De Poli, F. Figari, T. Hufkens, C. Leventi, A. Papini, and A. Tumino. Monetary compensation schemes during the covid-19 pandemic: Implications for household incomes, liquidity constraints and consumption across the eu. *The Journal of Economic Inequality*, pages 1–21, 2023a.

- M. Christl, S. De Poli, T. Hufkens, A. Peichl, and M. Ricci. The role of short-time work and discretionary policy measures in mitigating the effects of the covid-19 crisis in germany. *International Tax and Public Finance*, 30(4):1107–1136, 2023b.
- A. E. Clark, C. d’Ambrosio, and A. Lepinteur. The fall in income inequality during covid-19 in four european countries. *The Journal of Economic Inequality*, 19:489–507, 2021.
- M. Dolls, C. Fuest, and A. Peichl. Automatic stabilizers and economic crisis: US vs. Europe. *Journal of Public Economics*, 96(3-4):279–294, 2012.
- R. Fairlie. The impact of covid-19 on small business owners: Evidence from the first three months after widespread social-distancing restrictions. *Journal of economics & management strategy*, 29(4):727–740, 2020.
- F. Figari and C. Fiorio. Welfare resilience in the immediate aftermath of the covid-19 outbreak in italy. In *Covid Economics, Vetted and Real-Time Papers*, volume 8, pages 92–119. GBR, 2020.
- D. Furceri, P. Loungani, J. D. Ostry, and P. Pizzuto. Will covid-19 have long-lasting effects on inequality? evidence from past pandemics. *The Journal of Economic Inequality*, 20(4):811–839, 2022.
- G. Gallo and M. Raitano. Sos incomes: Simulated effects of covid-19 and emergency benefits on individual and household income distribution in italy. *Journal of European Social Policy*, 33(1):101–116, 2023.
- K. Gasior and O. Rastrigina. Nowcasting: timely indicators for monitoring risk of poverty in 2014-2016. Technical report, EUROMOD working paper, 2017.
- D. Graeber, A. S. Kritikos, and J. Seebauer. Covid-19: a crisis of the female self-employed. *Journal of Population Economics*, 34:1141–1187, 2021.
- T. Hale, N. Angrist, R. Goldszmidt, B. Kira, A. Petherick, T. Phillips, S. Webster, E. Cameron-Blake, L. Hallas, S. Majumdar, et al. A global panel database of pandemic policies (oxford covid-19 government response tracker). *Nature human behaviour*, 5(4):529–538, 2021.
- H. X. Jara Tamayo and A. Tumino. Atypical work and unemployment protection in europe. *JCMS: Journal of Common Market Studies*, 59(3):535–555, 2021.
- C. M. Kalenkoski and S. W. Pabilonia. Impacts of covid-19 on the self-employed. *Small Business Economics*, 58(2):741–768, 2022.
- M. Laurimäe, T. Paas, and A. Paulus. The effect of covid-19 and the wage compensation measure on income-related gender disparities. *Baltic Journal of Economics*, 22(2):146–166, 2022.

- A. Leulescu, A. Di Guglielmo, M. Agafitei, and A. Gallelli. Flash estimates of income inequalities and poverty indicators for 2021 (fe 2021): Methodological note. *Eurostat, Social indicators, methodology and development*, 2022.
- T. Müller, T. Schulten, and J. Drahokoupil. Job retention schemes in europe during the covid-19 pandemic—different shapes and sizes and the role of collective bargaining. *Transfer: European Review of Labour and Research*, 28(2):247–265, 2022.
- C. O’Donoghue, D. M. Sologon, and I. Kyzyma. Novel welfare state responses in times of crises: the covid-19 crisis versus the great recession. *Socio-Economic Review*, 21(1): 501–531, 2023.
- S. Scarpetta, S. Carcillo, and A. Hijzen. *Riding the Waves: Adjusting Job Retention Schemes Through the COVID-19 Crisis*. Paris: OECD Publishing, 2022.
- S. Schneck. Self-employment as a source of income inequality. *Eurasian Business Review*, 10(1):45–64, 2020.
- S. Schneck. Income loss among the self-employed: implications for individual wellbeing and pandemic policy measures. *Review of Economics of the Household*, 21(1):37–57, 2023.
- I. J. Sevä and D. Larsson. Are the self-employed really that poor? income poverty and living standard among self-employed in sweden. *Society, Health & Vulnerability*, 6(1): 26148, 2015.
- H. Sutherland and F. Figari. Euromod: the European Union tax-benefit microsimulation model. *International Journal of Microsimulation*, 6(1):4–26, 2013.
- O. Vargas Llave, J. Hurley, E. Peruffo, R. Rodriguez Contreras, D. Adăscăliței, L. Botey Gaude, E. Staffa, C. Vacas-Soriano, et al. The rise in telework: Impact on working conditions and regulations. *Eurofound Report*, 2022.

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Data availability statement

The data supporting the findings of this study are available from Eurostat, but there are restrictions on the availability of these data. However, data are available from the authors upon reasonable request and with the permission of Eurostat.