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Differences in COVID-19 Policies and Income Distribution: A Cross-Country Comparison

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Abstract: This paper looks at the distribution of disposable income by deciles to indicate how specific mitigating measures have influenced income groups and considers the effectiveness of different combinations of containment measures in the European Union. Simulations using the EUROMOD tax-benefit microsimulation model imply that the mitigating effects of the simulated measures are regressive, with a bigger influence on the bottom part of the income distribution. It is also observed that old democracies benefit from these measures more than new democracies. Surprisingly, our results further reveal that for the two highest decile income groups, the COVID-19 containment measures are stronger in new democracies. Finally, a qualitative comparative analysis of 19 EU countries suggests that each country should apply mixes of containment measures that fit its own context. Although there is no one-size-fits-all policy, old democracies seem more successful at handling the consequences of the COVID-19 crisis than new democracies. This study complements the literature as it shows how COVID-19 measures have influenced household income groups, and second, it adds to earlier studies by clarifying that only specific context-dependent combinations of containment measures are successful at preventing the loss of people's living standards, thereby giving policymakers the necessary leeway to formulate effective policies.

Keywords: COVID-19; disposable income; microsimulation; qualitative comparative analysis; policy responses



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1. Background

The COVID-19 pandemic is responsible for economic uncertainty and has threatened the lives and well-being of people all over the globe. Experience shows that economic stabilisers and discretionary policy measures play important roles during times of crisis and recession [1]. During the 2007–2008 global financial crisis, policies in almost all European Union (EU) countries aimed to lower poverty and inequality. The current exceptional situation and sudden plummeting of economic activity have once again forced countries to introduce a range of containment measures in response to the COVID-19 pandemic. Despite being welfare states, EU countries are all different and have responded in various ways to the crisis by adjusting their existing welfare policies and creating new ones [2–4]. In addition, the SARS-CoV-2 virus has not spread evenly across the EU, seeing countries react to the COVID-19 shock at different speeds and times [5–7].

The pandemic has led to high levels of social, health and economic inequality. Indeed, some studies (for example, [8–11]) suggest that the pandemic is likely to burden countries more than the last global financial crisis. This has led to growing interest among researchers in examining the effects of the COVID-19 pandemic from different perspectives. One of these is the socio-economic perspective in which two groups of studies dominate. The first group (for example, [6,12–23]) focuses on inequality, arguing that poor households are more exposed to and more negatively affected by the pandemic than high-income households. Low-income people have a greater risk of dying from COVID-19 due to their worse pre-existing health conditions. These individuals often face job losses and layoffs since their

jobs are likely to be unable to be performed remotely and are in sectors most affected by COVID-19. On the other hand, highly educated, highly paid, old, male employees were found to benefit the most from the opportunity to work from home [24].

The second group of studies (for example, [3,25–29]) demonstrates that the COVID-19-related policy measures have effectively prevented a significant increase in income inequality. Namely, COVID-19 affects households disproportionately, affecting vulnerable groups and poor households much more, while containment measures moderate the regressive effect. In their study, Almeida et al. [25] found that COVID-19-related policy interventions had driven disposable income distribution on the EU level to change relatively similarly. This means that the containment measures' bigger impact on the lowest income deciles might be explained by the provision of various types of discretionary social, family and unemployment benefits, including increased child allowance, and social assistance, or newly developed measures like lump-sum allowance for vulnerable groups, and unemployment benefits for those made newly unemployed by the COVID-19 crisis. While all EU countries have responded to the pandemic by strengthening their existing policy measures or introducing new ones, they have done so in various ways. In some countries like Latvia, Spain and Germany, family benefits are incorporated into wage compensation schemes, and thus, wage compensation is higher for households with children. Alongside the COVID-19-related increases in social assistance or guaranteed minimum income, certain countries have introduced other types of social benefits, such as an extension of the fuel allowance for those unable to pay their heating costs in winter in Ireland and a lump-sum allowance for other vulnerable groups during the pandemic in Slovenia.

The significant and lasting global socio-economic and health effects of COVID-19 mean that it is important to recognise and understand how effectively each country has implemented its containment measures in their particular socio-economic setting to help it improve the performance of both its economy and health system. To address this need, the presented research aims to: (1) Look at the distribution of disposable income by deciles to determine how the mitigating measures have influenced income groups; and (2) Reveal how qualitative comparative analysis (QCA) can help bridge the knowledge gap in the current conceptual and methodological efforts to identify the effectiveness of different combinations of containment measures. Such understanding assists policymakers in establishing the most successful combinations of measures and provides a good foundation for adapting and designing future policy responses to make a country more resilient to the shock of a pandemic.

However, it is a daunting challenge to determine the relative effect of the various policy responses since no standard method is widely recognised for estimating the relative effectiveness of different mitigating measures and policies implemented by countries [6]. In addition, bearing in mind that the pandemic is ongoing, the lack of complete data and up-to-date information has been a further significant constraint on creating an accurate picture of all of COVID-19's effects. To compound the issue, complete data usually become available only a few years after such a shock [3,15]. To overcome some of these limitations while inspecting the efficacy of public spending policies across the EU, the computations in the first part of the analysis are based on simulations using the EUROMOD tax-benefit microsimulation model. Namely, microsimulation models are frequently used to estimate the effects of sudden changes in the population and labour market participation on living standards generally [26]. Moreover, the pandemic's first wave was in focus due to the lack of available and up-to-date information on the number of recipients and aggregate amounts regarding the COVID-19-related measures for all countries. By considering the first wave of the pandemic (spring 2020), each country's earliest national responses to the shock before any policy measures on the EU level were put in place were captured.

Moreover, to gain insight into the effectiveness of different mixes policy measures used to mitigate the effects of the COVID-19 crisis among EU countries, the first part of the analysis is supplemented by QCA. This form of analysis is a method for identifying the configurations of conditions that bring specific outcomes. Given its potential for providing

evidence of causality in complex systems, QCA is increasingly used in evaluative research to examine the uptake or impacts of policy measures. This method holds several advantages. First, unlike traditional quantitative approaches, QCA identifies all sufficient conditions that might not be regarded as statistically significant in, for instance, regression analysis, but may still be very important and highly informative. Second, QCA emphasises equifinality, and thus, we expect to find several paths leading to the above- (or below)-median increase in disposable income. We similarly expect that conjunctions of conditions, rather than single variables, are causally relevant to the outcome. Finally, QCA stresses asymmetric causality, namely, above- and below-median increases in disposable income require separate analyses and explanations.

The above-mentioned grounds make the current study important for several reasons. Unlike prior studies, this one applies two methodological approaches to a larger sample of EU countries: microsimulation and QCA. First, microsimulations that run in EUROMOD give a basis for comparing selected EU countries in terms of the measures they have taken, the state's role in those measures, the share of the population the measures cover, the institutional framework of the countries, and the income distribution of households. Second, QCA enables multiple conditions in complex situations to be examined. In this study, such analysis might help explain why some countries have been more successful than others in mitigating the effects of the COVID-19 crisis. In so doing, this study provides a better understanding of the differences in COVID-19 first-response policies and income distribution in various EU countries. Finally, this study complements the existing literature by confirming that containment measures are effective at preventing a significant increase in income inequality, and, second, it adds to earlier studies by clarifying that only specific combinations of containment measures successfully prevent the loss of people's living standards. QCA does not dissect cases into variables but analyses them as a whole, and hence, does not ignore contextual differences. In other words, heterogeneity within cases is not overlooked, thereby giving policymakers the leeway they need to formulate effective policies.

2. Data and Methodology

In this study, EUROMOD version I3.0+, a European tax-benefit microsimulation model to simulate disposable income with/without COVID-19-related measures, was used. Namely, EUROMOD calculates the effects of benefits and taxes on household incomes in each EU member state and the UK [30]. Originally maintained, developed and managed by the Institute for Social and Economic Research (ISER, University of Essex), the model has been maintained, developed and managed by the Joint Research Centre (JRC) of the European Commission since 2021 in collaboration with Eurostat and national teams from individual countries. For most countries, the EUROMOD input data are based on the European Union Statistics on the Income and Living Conditions (EU-SILC) data released by Eurostat. While the EU-SILC data on demographic characteristics refer to the time of the survey (first half of the year), the data on incomes and taxes refer to the previous calendar year for most countries. Incomes are updated with appropriate uprating factors up to the policy year considered for the analysis.

The EU-SILC 2018 database is used in this study. It enables the simulation of tax and benefit systems until 2020 with the default policy rules in EUROMOD set to June 30 for a given year. Due to the exceptional economic measures driven by the COVID-19 crisis, in the model, all EU countries implemented measures to mitigate and eliminate the impacts of the current pandemic. Therefore, in addition to the EU-SILC 2018 database, for each country, the external statistics provided by Eurostat and/or national institutions are used in the simulation of the COVID-19 policy measures. The data on the effects of COVID-19 are mostly based on information from the first half of 2020, or even before, and on assumptions made based on the information available at that time. EUROMOD (more information on EUROMOD can be found in Sutherland and Figari's [30] paper) is, thus, useful for assessing

the impact of the containment measures and the elimination of the COVID-19 crisis' effects on household disposable income.

The discretionary COVID-19 containment measures considered in this study may be grouped into two policy categories seeking to ease the labour market and social/economic effects: (1) Monetary compensation schemes particularly aimed at retaining jobs and reducing employment income losses; and (2) Benefits aimed at protecting household income and ensuring greater equality in income distribution. The type of monetary compensation scheme most commonly applied in almost all EU countries is wage compensation in the form of monetary compensation for workers absent from work due to the COVID-19 pandemic. The benefits were split into three groups according to their eligibility conditions: unemployment, family, and social benefits. During the pandemic, extra unemployment benefits were introduced for existing benefit recipients or/and the newly unemployed, not eligible for regular unemployment benefits. While additional family benefits were given to households with children, social benefits were available for lower-income households or/and vulnerable groups.

Alongside containment measures to mitigate the effects of the COVID-19 crisis, a country indicator of democracy is included in this study. Although the characteristic of democracy are important in preventing a pandemic, not all democracies are the same [31]. The institutional and cultural contexts differ across countries and shape the policy responses to the pandemic crisis [32]. Just like the spread of COVID-19 and pandemic policy responses have varied across countries [2,6,27], one can see how the nature of the political system plays a vital role in how each country faces and addresses the impacts of the COVID-19 crisis. Indeed, Chen et al. [33] and Nemec, Maly and Chubarova [34] established an association between the political system and policy responses to the COVID-19 crisis in their cross-country analysis. The former found that fiscal policy responses to the pandemic were significantly greater in highly democratic countries compared to less democratic countries, while the latter found that countries with a democratic system were more successful in the first wave than countries with an authoritarian regime. Based on these findings, the countries were divided into two groups according to the degree of democracy: old and new democracies. By defining the development of democracy, the main interest was in analysing the similarities and differences between two groups of countries, namely Eastern European countries and Western European countries. The former group of countries, former socialist and transition economies, are often described as young democracies. These are the last countries to undergo a transformation and transition from an authoritarian to a democratic system, mostly after the collapse of the Soviet Union (after 1990). In contrast to the old democracies, higher levels of political disaffection were observed in the new democracies, reflected in low trust in politics and institutions, a lack of interest in politics, and cynicism of everything associated with politics [35,36]. Since political and institutional legitimacy is essential for effective crisis management, countries where there is less political disaffection may benefit from citizen behaviour and their compliance with containment measures [37]. Thus, the division of the countries is based primarily on their historical and cultural heritage, with the differences between former socialist and consolidated Western European democracies being the main focus.

The above discussion led us to included six conditions in our analysis: state of democracy, wage compensation, state contribution, unemployment benefits, family benefits, and social benefits. Disposable income is the outcome variable. A more detailed description of all variables included is provided in Table 1.

Table 1. Description of the outcome variable and conditions.

Outcome/Conditions	Definition/Description
Disposable income *	Disposable income ratio indicating a change in disposable income due to the COVID-19 crisis (including vs. excluding COVID-19 measures).
Wage compensation	COVID-19-related policy: A dummy variable indicating the design of the monetary compensation scheme—whether wage compensation is paid by both the state and the firm (coded as 1) or solely by the state (coded as 0).
State contribution	COVID-19-related policy: A dummy variable indicating the extent of the state’s engagement in the monetary compensation scheme—whether the state pays 70% and above (coded as 1) or below 70% (coded as 0) of the wage compensation.
Unemployment benefits	COVID-19-related policies for the unemployed (for example, temporary unemployment benefit for newly unemployed not eligible for regular unemployment benefits or regular unemployment benefits increased due to the COVID-19 crisis).
Family benefits	COVID-19-related policies for households with children (for example, extra payment for children, childcare/parental benefit for parents looking after children during compulsory school closure due to the COVID-19 crisis).
Social benefits	COVID-19-related policies for poor households/vulnerable groups (for example, exceptional solidarity allowance, emergency income, increased social assistance due to the COVID-19 crisis).
Democracy	Countries are grouped into two categories based on the duration of their democratic tradition: new (Central and Eastern EU countries and the Baltics, former socialist and transition economies, coded as 1) and old (mostly Western EU countries, coded as 0).

Note: * The sum of market incomes and benefits minus taxes and social insurance contributions.

Prior to the qualitative comparative analysis, simulations were run in EUROMOD for 19 EU countries (see Appendix A for a list of all countries included). Each studied country has implemented a wage compensation scheme to ease the loss of employment income within the EUROMOD model. Three countries (Germany, Finland and Netherlands) were excluded from the analysis. Germany was excluded due to the lack of information on workers in the wage compensation scheme and the newly unemployed, while Finland and the Netherlands were excluded due to specifics in their wage compensation schemes compared to the other countries (Finland introduced new and reformed existing unemployment benefits in response to the COVID-19 outbreak, while the Dutch employees continue to receive 100% of their wage even if in the monetary compensation scheme) [38]. In addition, five countries (Malta, Ireland, Lithuania, Greece and the Czech Republic), whose wage compensation schemes stood out in terms of duration, were also excluded from the analysis to provide unbiased data on the extent of the containment measures. In so doing, a greater comparability of the results is achieved. This gives us a final sample size of 19 out of 27 EU countries used in the current study.

In the first part of our analysis, two scenarios were created: the COVID-19 scenario and the counterfactual no-policy response COVID-19 scenario, where both assume the existence of the COVID-19 shock. In the no-policy response COVID-19 scenario, it is proposed that alongside basic country-specific policy measures (more detailed descriptions of the policies for each country are contained in the EUROMOD Country Reports, available on the EUROMOD website), no extra policy measures (wage compensation and the COVID-19-related benefits) were taken to mitigate COVID-19’s consequences, whereas the COVID-19 scenario also considers the COVID-19 measures introduced by each country. The same labour market transitions are assumed in each scenario. Accordingly, the simulated number of the newly unemployed (transitions to unemployment) remains the same in both scenarios, and thus, the number of individuals eligible for regular unemployment benefits is defined in the existing pre-COVID-19 country rules. Regarding individuals receiving wage compensation in the COVID-19 scenario, it is not simulated whether they would retain or lose their job in the no-policy response COVID-19 scenario when no wage compensation schemes are introduced. In the no-policy response COVID-19 scenario, it is

assumed that individuals with reduced working hours or on furlough (and thus, receiving wage compensation in the COVID-19 scenario) receive no income for the time they do not work, so they are ineligible for the regular unemployment benefit, although they might be eligible for other existing family and social benefits. Many jobs could be lost without such measures. Indeed, the number of jobs at risk of termination has been significantly reduced by the job retention schemes [39]. However, any assumption about the transition to unemployment in a hypothetical situation without any COVID-19 measures is too heavy. Based on these two scenarios created by running simulations in EUROMOD, the difference in disposable income was calculated (ratio of disposable income in the COVID-19 scenario to disposable income in the no-policy response COVID-19 scenario). A larger difference and, therefore, a larger ratio means that containment measures increased disposable income more than the no-policy response COVID-19 scenario.

In the second part of this study, QCA was conducted using fuzzy logic, a fuzzy-set QCA (fsQCA) method for identifying necessary and sufficient conditions based on a continuum of grades of set membership. The core idea of the small-to-medium-size N method is set relations, where every condition defines an independent set, and a membership score is assigned to every case studied in every set. The method entails four steps: (1) Selection of the cases and attribution of membership scores (Table 2); (2) Construction of a truth table (Table 3); (3) Necessity and sufficiency analyses; and (4) Interpretation of the results. The cross-over point of the outcome variable is assigned using the median, which is a legitimate standard of calibration [40].

Table 2. Calibration, codification and dichotomisation.

Outcome/Condition	Codification	Full Membership (1)	Cross-Over Point (0.5)	Full Non-Membership (0)
Disposable income	DISPY	1.03	1.021	1.009
Wage compensation *	MC	State + firm	/	Only state
State contribution *	MC_STATE	70% or above	/	Below 70%
Unemployment benefits *	BEN_UN	Yes	/	No
Family benefits *	BEN_F	Yes	/	No
Social benefits *	BEN_SOC	Yes	/	No
Democracy *	D	New	/	Old

Note: * Dummy variable.

Table 3. Truth table derived from the data.

Row	Conditions						#Cases	Case Outcomes			
	MC	MC_STATE	BEN_UN	BEN_F	BEN_SOC	D		DISPY (1)	%	Dispy (0)	%
1	1	0	0	0	0	1	3	PL	33.3	BG, EE	66.6
2	1	1	0	0	0	0	2	/	0	SE, DK	100
3	0	1	0	0	0	1	2	/	0	RO, HU	100
4	0	1	0	1	0	1	2	/	0	LV, SK	100
5	1	0	0	0	0	0	1	/	0	PT	100
6	0	1	0	0	1	0	1	/	0	IT	100
7	0	1	1	0	0	0	1	BE	100	/	0
8	0	0	0	0	0	0	1	CY	100	/	0
9	1	1	1	1	1	1	1	SI	100	/	0
10	1	1	1	1	0	0	1	AT	100	/	0
11	1	0	0	1	1	0	1	FR	100	/	0
12	0	0	0	0	0	1	1	HR	100	/	0
13	0	1	0	0	0	0	1	LU	100	/	0
14	0	1	0	1	0	0	1	ES	100	/	0

Note: The rows are labelled as follows: 1 = membership in the set, 0 = non-membership in the set. Since they do not add empirical evidence, rows 2⁶–14 are not shown in the table. DISPY—an above-median increase in disposable income; dispy—a below-median increase in disposable income.

The main tool for analysing which combinations of conditions lead to an outcome of interest is a truth table (Table 3). The rows in the truth table list logically possible combinations of conditions. A truth table serves to identify causal patterns of sufficiency. The total number of rows is 2^k , where 2 represents the presence or absence of the conditions and the letter k is the number of conditions used. This study involves 6 conditions (listed in Table 2), producing 2^6 possible combinations and the outcome disposable income (DISPY).

3. Results and Discussion

3.1. Income Inequality (EUROMOD Simulations)

The overall picture of the disposable income distribution in the selected EU countries is split into two groups based on the state of their democracy. In general, our results are congruent with prior studies suggesting that income inequality is being quite well handled by the COVID-19 containment measures [3,25,27]. Indeed, the mitigating effects of the simulated measures are regressive, showing a greater influence on the bottom part of the income distribution (see Figure 1a). The containment measures increased the disposable income of households in the first decile groups (low-income households) much more than that of higher decile groups (high-income households). In addition, one can observe that the degree of inequality and the effects of the COVID-19 containment measures vary by the state of democracy. Generally speaking, old democracies benefit from these measures to a greater extent than new democracies. While within both new and old states of democracy a regressive trend of the COVID-19 containment measures effects is seen from the bottom to the top of income groups, the trend among old democracies is steeper. An interesting switch happens in the upper-income groups. Namely, in the two highest decile income groups, the effects of the COVID-19 containment measures become greater in new democracies, albeit they remain very low. A more detailed distribution of the change in disposable income due to the COVID-19 containment measures by country is shown in Figure 1b,c.

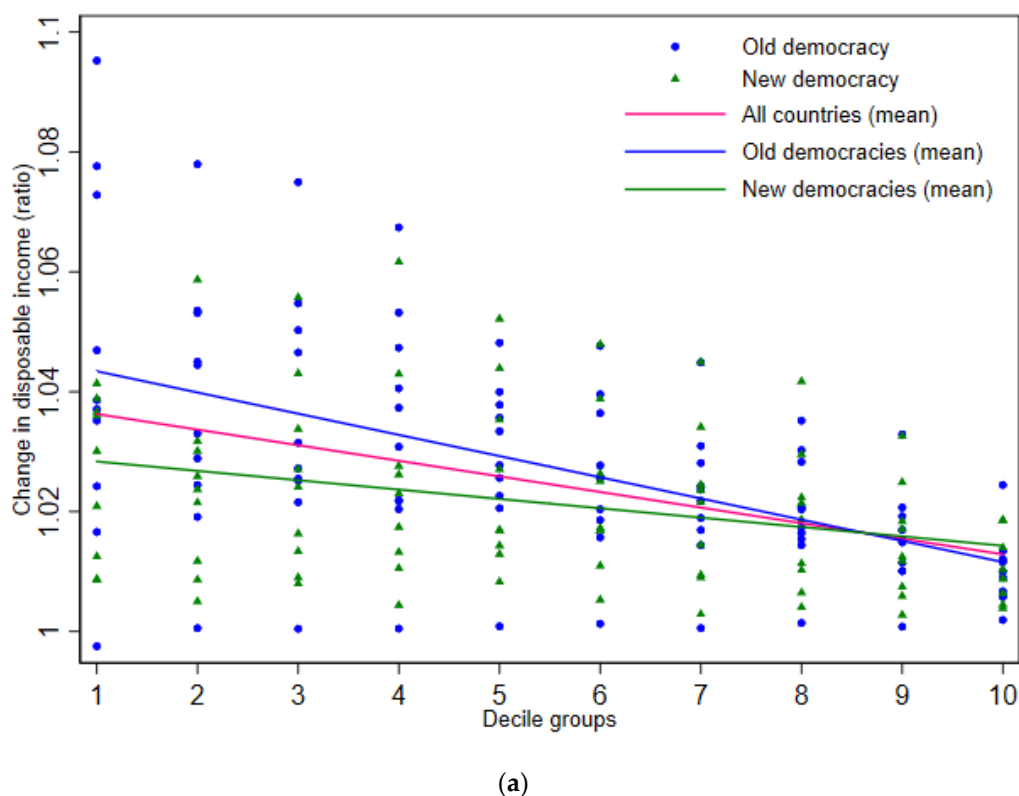
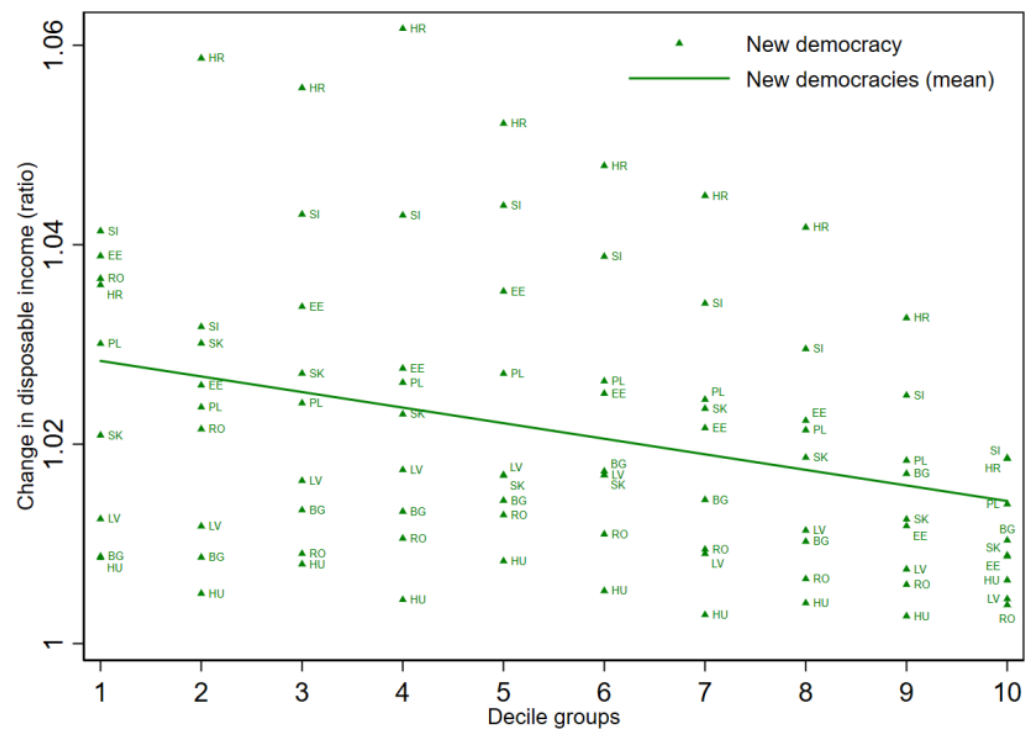
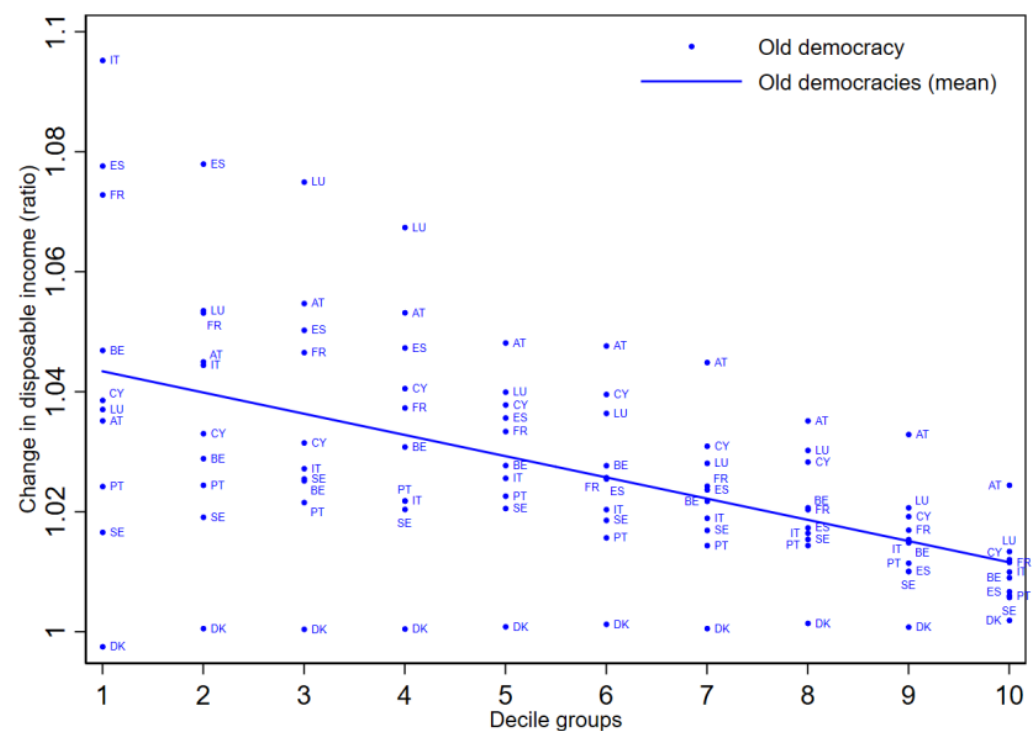


Figure 1. Cont.



(b)



(c)

Figure 1. (a) Effect of the COVID-19 containment measures on disposable income by household income decile groups and democracy. (b) Effect of the COVID-19 containment measures on disposable income by household income decile groups and new democracies; (c) Effect of the COVID-19 containment measures on disposable income by household income decile groups and old democracies.

The simulations in EUROMOD also provide results for income inequality, as measured by the Gini coefficient. Table 4 presents the ratios of the Gini coefficient by country (the ratio of the Gini coefficient in the COVID-19 scenario to the Gini coefficient in the no-policy response COVID-19 scenario). As expected, the Gini coefficient is, in general, a little lower in the COVID-19 scenario than in the no-policy response COVID-19 scenario. Although the change in the Gini coefficient might appear small, one should bear in mind that the increase in disposable income occurs throughout the income distribution and not only for the lowest decile groups. The latter once again shows that COVID-19-related measures have been effective in providing greater protection for citizens' welfare in terms of household income distribution.

Table 4. Degree of inequality in income distribution by country—Gini coefficient (ratio).

Country	Gini (Ratio)	Country	Gini (Ratio)	Country	Gini (Ratio)
Austria (AT)	0.988	France (FR)	0.975	Poland (PL)	0.995
Belgium (BE)	0.987	Croatia (HR)	0.985	Portugal (PT)	0.992
Bulgaria (BG)	1.001	Hungary (HU)	1.000	Romania (RO)	0.995
Cyprus (CY)	0.987	Italy (IT)	0.985	Sweden (SE)	0.994
Denmark (DK)	1.002	Luxembourg (LU)	0.975	Slovenia (SI)	0.987
Estonia (EE)	0.988	Latvia (LV)	0.995	Slovakia (SK)	0.992
Spain (ES)	0.974				

Note: By not indicating the actual values, any misinterpretation and misuse of the results due to ongoing data collection and development was minimised. Source: Own calculations with EUROMOD 13.0+.

3.2. fsQCA

To identify the conditions linked to countries with an above- and below-median increase in disposable income, fsQCA 3.0 software [41] was used. Three separate analyses were performed: analysis of necessity and two sufficiency analyses, one for the presence and the other for the absence of the outcome variable. A necessary condition (or combinations of conditions) is present in all cases where the outcome is present, whereas a condition (or usually its combinations) is sufficient if an outcome will always occur if the condition is present.

The results of the analysis of necessity show that there are no necessary conditions for an above-median increase in disposable income (DISPY). However, two conditions, namely the absence of unemployment benefits and the absence of social benefits, are largely consistent with the statement of being necessary for a below-median increase in disposable income (dispy) but, due to the low coverage score (below 0.5), the conditions are not treated as necessary (a threshold of 0.9 was applied [40]).

Table 5 presents the results for the analyses of sufficiency, i.e., the complex solutions, and measures of fit, for the presence of DISPY. Only configurations with a consistency threshold (reported in Tables 5 and 6) that exceeds the minimum consistency of 0.75 proposed by Ragin [42] were considered. The analysis found five consistent paths typical for countries with an above-median increase in disposable income. Configuration A1, typical for Cyprus and Croatia, combines state wage compensation, which is below 70%, and the absence of unemployment, family and social benefits. Most Central, Eastern and Southern EU countries were less affected by the pandemic's first wave since the SARS-CoV-2 virus started to spread later in these countries than in most Western EU countries [6]. Thus, Cyprus and Croatia found it easier to control the pandemic's impact at the beginning. Configuration A2, as presented in the old democracies of Spain and Luxembourg, shows that above 70% state wage compensation together with the absence of unemployment and social benefits (irrespective of family benefits) are combined in countries with an above-median increase in disposable income. Next, the results show that the outcome of interest is also present in France, where the situation is characterised by wage compensation from both the state and firms, with the state's contribution being below 70%, the absence of unemployment benefits, and the presence of family and social benefits (configuration A3).

Although there is no one-size-fits-all policy, old democracies seem to be more successful at handling the consequences of the COVID-19 crisis than new democracies. In configuration A4, typical for Austria, all conditions are present, except for social benefits. A similar example is Slovenia (configuration A5), where both the state and the firm contribute to alleviating the impacts of the COVID-19 crisis, with the state's contribution being above 70%, and where all forms of benefits under study are available.

Table 5. Configurations for an above-median increase in disposable income—DISPY (consistency cut-off: 0.78).

Condition	Configuration				
	A1	A2	A3	A4	A5
Wage compensation	⊗	⊗	●	●	●
State contribution	⊗	●	⊗	●	●
Unemployment benefits	⊗	⊗	⊗	●	●
Family benefits	⊗		●	●	●
Social benefits	⊗	⊗	●	⊗	●
Democracy		⊗	⊗	⊗	●
<i>Raw Consistency</i>	0.94	0.89	0.87	1	0.98
<i>Raw coverage</i>	0.20	0.19	0.09	0.11	0.10
<i>Unique coverage</i>	0.20	0.19	0.09	0.11	0.10
<i>Solution consistency</i>	0.93				
<i>Solution coverage</i>	0.68				

Note: ● Causal condition present; ⊗ causal condition absent; blank spaces indicate “do not care”.

Table 6. Configurations for a below-median increase in disposable income—dispy (consistency cut-off: 0.8).

Condition	Configuration	
	B1	B2
Wage compensation	●	⊗
State contribution		●
Unemployment benefits	⊗	⊗
Family benefits	⊗	
Social benefits	⊗	⊗
Democracy	⊗	●
<i>Raw Consistency</i>	0.88	0.89
<i>Raw coverage</i>	0.28	0.37
<i>Unique coverage</i>	0.28	0.37
<i>Solution consistency</i>	0.88	
<i>Solution coverage</i>	0.65	

Note: ● Causal condition present; ⊗ causal condition absent; blank spaces indicate “do not care”.

In addition, only one set of policy measures related to a below-median increase (dispy) in disposable income (Table 6) was found to be consistent for each democracy, the old and new ones. Namely, in the old democracies, typical for Denmark, Sweden and Portugal, alongside the state, firms have also contributed to easing the effects of the crisis, while in the new ones the focus is on the state, indicating that 70% or more of the wage compensation is paid solely by the state. The latter is typical for some post-socialist EU countries like Hungary, Latvia, Romania and Slovakia. Moreover, regardless of the state of democracy, benefits are not provided, except for family benefits in certain new democracies (configuration B2) where the family benefits condition plays no role in the solution.

While households from countries with a high GDP are unlikely to be significantly threatened, the results for a below-median increase in disposable income (configurations B1 and B2) are worrying. To alleviate this issue, a set of policy measures introducing

more benefits (configuration A5) could be followed by new democracies, while one of two sets of policy measures (configurations A3 or A4) could be pursued by old democracies implementing a combination of two kinds of benefit, namely family and unemployment benefits or family and social benefits.

4. Implications and Conclusions

This is one of a few cross-national studies using a larger sample of EU countries to increase understanding of COVID-19 policy responses from a comparative perspective. First, it complements previous studies by confirming that containment measures are effective in preventing a significant increase in income inequality (EUROMOD simulations), and second, it enhances the earlier studies by clarifying which set of COVID-19-related measures is generally successful at preventing the loss of people's living standards in the EU (fsQCA analysis). The results suggest that the poorest households have been gaining the most from the COVID-19 policy measures. On the contrary, the disposable income of households in the upper decile groups is much less affected by the containment measures. The wage compensation schemes and benefits introduced in response to the COVID-19 crisis are thus established to have a significant role in protecting inequality among households. Nevertheless, the results also indicate that no single policy (or combination of policies) is able to tackle the problem. However, the good news is that recognising different paths enables greater flexibility in choosing appropriate policies. Future research should, therefore, continue looking into the data and methods to closely monitor income inequalities and propose effective policies.

The findings of this study provide important lessons and opportunities for policy-makers. The containment measures were found to be crucial for easing the impact of the crisis on income inequality. The latter is instrumental to avoid vulnerable groups and poor households not being pushed into an even worse situation than they might already be facing. In terms of the institutional and cultural context, it was established that the state of democracy is an important factor for curbing income inequality. Indeed, old democracies seem more successful at handling the consequences of the COVID-19 crisis than new democracies. An implication is that citizens benefit more if containment measures are precisely targeted and less generally applied to everyone. Containment measures should be aimed primarily at the citizens at the bottom of the income distribution, while the measures' impact should decrease as one moves towards the top of the income distribution. Finally, it is likely that a combination of a monetary compensation scheme, family benefits, and higher levels of political and institutional legitimacy puts countries in a better position to cope with the crisis. At the same time, from the opportunity perspective, a non-universal policy response gives policymakers the necessary leeway to formulate effective policies that fit their country's unique context and conditions. For EU countries whose economies are strongly interconnected [21], effective crisis mitigation within individual countries is essential for a sustainable and inclusive society across the whole EU.

In addition, policymakers should consider focusing on transformational policy areas that may be appropriate for reducing socio-economic inequalities by making tax systems more progressive and enhancing the quality of services, particularly education and health-care, which are vital for forming human capital sustainably [43]. The ability of governments to maintain or raise spending on transfer payments may become more limited as the crisis goes on, and thus, the impact of the decline in income inequality may become smaller over time. Accordingly, this type of intervention needs to be supplemented with more sustainable policies in the long run.

5. Limitations and Future Research

However, this research is subject to some limitations. The biggest limitation is that the results are based on data collected and policy implemented during the first wave of the pandemic and restricted to European countries and by the conditions considered in the study. Namely, the findings of this study are based on preliminary results and not

final results because data and evidence are still emerging. This means that it would be worthwhile to conduct a study using more recent data to clarify how countries have coped with the pandemic-induced crisis throughout the various waves. Indeed, adding more recent data would allow the validation of the EUROMOD model results with official microdata and aggregate statistics on COVID-19 politics and benefits. Future research could also address the impact of different COVID-19 policies on the pace and extent of the post-pandemic economic recovery and well-being across the EU, which could provide further evidence or better explanations of the results obtained. Specifically, possible changes in income distribution and poverty rate trends for particular population groups (children, elderly, self-employed, unemployed, etc.) could lead to interesting conclusions. Moreover, this study does not address other types of COVID-19 policy measures like job protection schemes for the self-employed, exemptions, deferral or reduction in social insurance contributions and/or taxes. This unexpected situation is certainly bringing fresh challenges to social protection and employment systems. In any case, one should bear in mind that the pandemic has been affecting EU countries differently due to various country-specific factors like population density and share of the older population, the sectors most exposed to the crisis, or temporary employment contracts, to name just a few. As a response, future studies could also analyse countries outside Europe or conduct a comparative analysis between developed or less developed countries. Hence, rather than limiting our understanding of the COVID-19 pandemic's effects, the current study's limitations may be seen as opportunities for future research.

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Appendix A

Table A1. Detailed Description of the Outcome Variable and Conditions by Country.

Country	Disposable Income (Ratio)	Wage Compensation	State Contribution	Unemployment Benefits	Family Benefits	Social Benefits	Democracy
Austria (AT)	1.03919	State + firm	70% or above	Yes	Yes	No	Old
Belgium (BE)	1.02207	Only state	70% or above	Yes	No	No	Old
Bulgaria (BG)	1.01278	State + firm	Below 70%	No	No	No	New
Cyprus (CY)	1.02675	Only state	Below 70%	No	No	No	Old

Table A1. Cont.

Country	Disposable Income (Ratio)	Wage Compensation	State Contribution	Unemployment Benefits	Family Benefits	Social Benefits	Democracy
Denmark (DK)	1.00093	State + firm	70% or above	No	No	No	Old
Estonia (EE)	1.02084	State + firm	Below 70%	No	No	No	New
Spain (ES)	1.02488	Only state	70% or above	No	Yes	No	Old
France (FR)	1.02663	State + firm	Below 70%	No	Yes	Yes	Old
Croatia (HR)	1.04014	Only state	Below 70%	No	No	No	New
Hungary (HU)	1.00515	Only state	70% or above	No	No	No	New
Italy (IT)	1.02025	Only state	70% or above	No	No	Yes	Old
Luxembourg (LU)	1.03357	Only state	70% or above	No	No	No	Old
Latvia (LV)	1.0104	Only state	70% or above	No	Yes	No	New
Poland (PL)	1.02155	State + firm	Below 70%	No	No	No	New
Portugal (PT)	1.01437	State + firm	Below 70%	No	No	No	Old
Romania (RO)	1.00862	Only state	70% or above	No	No	No	New
Sweden (SE)	1.01486	State + firm	70% or above	No	No	No	Old
Slovenia (SI)	1.03204	State + firm	70% or above	Yes	Yes	Yes	New
Slovakia (SK)	1.01814	Only state	70% or above	No	Yes	No	New

Note: By not indicating the actual values, the misinterpretation and misuse of results due to ongoing data collection and development was minimised. Only simulated COVID-19-related policy measures are described; therefore, the label no for the benefits' description does not necessarily reflect the actual situation. Source: Own calculations with EUROMOD 13.0+.

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