STUDY

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Phase out of the crisis support measures:

How successful are Member States in moving from broad support measures towards more targeted support?

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Abstract

A new database on exceptional fiscal spending adopted during the COVID-19 crisis is presented for 14 EU countries. The composition and evolution of fiscal measures differ across countries. We analyse (a) whether national economic characteristics determined the type of fiscal response adopted and (b) how the different fiscal measures affected the macroeconomic outcomes and consumer confidence. We assess whether measures have been sufficiently targeted and make recommendations as to which adjustments should be made as the crisis subsides.

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LIST OF ABBREVIATIONS

AEs	Advanced Economies
EC	European Commission
EFB	European Fiscal Board
EMs	Emerging Market Economies
ESRB	European Systemic Risk Board
EU	European Union
IMF	International Monetary Fund
OECD	Organisation for Economic Co-operation and Development
pp	percentage point
SMEs	Small and Medium size Enterprises

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EXECUTIVE SUMMARY

The COVID-19 crisis required a strong and coordinated fiscal response, at both the national and EU levels. In reply to the record-breaking COVID-19 recession, many governments have adopted unprecedented fiscal stimuli and, as a result, the most acute impacts of the crisis were averted, but Member States' deficit and debt levels deteriorated strongly. Policy institutions, such as the International Monetary Fund (IMF) and the European Commission (EC), hence recommend better targeted and more focused assistance going forward.

The first part of this paper describes a novel database on exceptional fiscal spending during the COVID-19 crisis for 14 EU countries, using mainly three different sources: (a) the database of COVID-19 fiscal responses of the IMF, (b) the EC report on COVID-19 measures and (c) the report of Bruegel. We also used national sources for some countries to obtain richer data. The database on fiscal spending includes countries for which we could find relevant information. We distinguish six main spending categories: (i) Assistance to small and medium enterprises (SMEs) and specific sectors; (ii) Measures targeted to transform the economy; (iii) Pandemic spending; (iv) Transfers to households; (v) Unemployment benefits and measures to sustain employment; and (vi) Universal help. The composition and evolution of fiscal measures differ across countries. In the second part of the paper, we analyse whether the evolution of the pandemic in each country and its economic characteristics affected the choice of the different fiscal policy instruments. Finally, we estimate how the different fiscal measures affected the output and sentiment recovery, using fixed effects panel regressions.

Most fiscal measures were dictated by the evolution of the pandemic, as well as specific labour and product market and social characteristics. For example, countries with high values (rates or indexes) of bankruptcy, industrial production or trade openness, or a significant tourism sector, were more likely to adopt assistance to SMEs measures. COVID related unemployment benefits amounted to a higher share of GDP in countries with stronger industrial production, higher degree of trade openness, larger share of temporary contracts and with higher income inequality. At the same time, fiscal measures (such as transfers to households) and universal help do not seem to be related significantly to any of the economic indicators we studied.

Fiscal measures were successful to pace the path of recovery (see also Chudik et al. (2021) and Deb et al. (2021)). Most countries in our sample increased COVID-related spending for the assistance to SMEs and specific sectors, that we show has contributed significantly but moderately to the recovery of both the economy and consumer confidence (see also, Gourinchas et al. (2021)).

Our estimates suggest that pandemic spending, unemployment benefits and household transfers induced sizeable output and confidence multipliers during the COVID crisis. As the pandemic will hopefully become weaker and exceptional measures will be cut back, fiscal policies targeted to transform the economy should continue to be operative, as they generate significant and economically important macroeconomic effects, which help to achieve a successful fiscal retrenchment. Assistance to SMEs has not been sufficiently targeted and efforts should be made to improve the targeting of such fiscal measures.

1. GENERAL INFORMATION

KEY FINDINGS

A new database on exceptional fiscal spending adopted during the COVID-19 crisis is presented for 14 EU countries. The composition and evolution of fiscal measures differ across countries. We analyse (a) whether national economic characteristics determined the type of fiscal response adopted and (b) how the different fiscal measures affected the macroeconomic outcomes and consumer confidence by computing output multipliers and evaluating the responses of consumers´ confidence to the different fiscal measures.

All fiscal measures, except "universal help", had significant and positive output effects and stimulated consumer confidence. "Pandemic spending" (mainly on healthcare), unemployment benefits and transfers to households generated the highest output and confidence multipliers. Most countries shifted fiscal measures towards assistance to small and medium enterprises, which contributed significantly but moderately to the recovery. We recommend higher spending for measures to transform the economy since we find that they enhance output growth. In accordance to the existing literature, we find that assistance to SMEs has not been sufficiently targeted and efforts should be made to improve the targeting of such fiscal measures.

2. INTRODUCTION

The COVID-19 crisis required a strong and coordinated fiscal response. Action was taken at both the national and EU levels. As a result, the most acute impacts of the crisis were averted, but Member States' deficit and debt levels deteriorated strongly (see Figure 1).[1] By the second quarter of 2021, average EU gross public debt had grown by 6.3% compared to two years earlier. Germany's debt topped almost 70% of its GDP, while France's reached 115%, Italy's nearly 156%, and Greece's more than 200%. The Spring 2021 European Commission forecast on public finances states in this respect: *"Starting from historically low levels in 2019 (about ½% of GDP), the aggregate general government deficits of the EU and the euro area jumped up in 2020 to around 7% of GDP."*

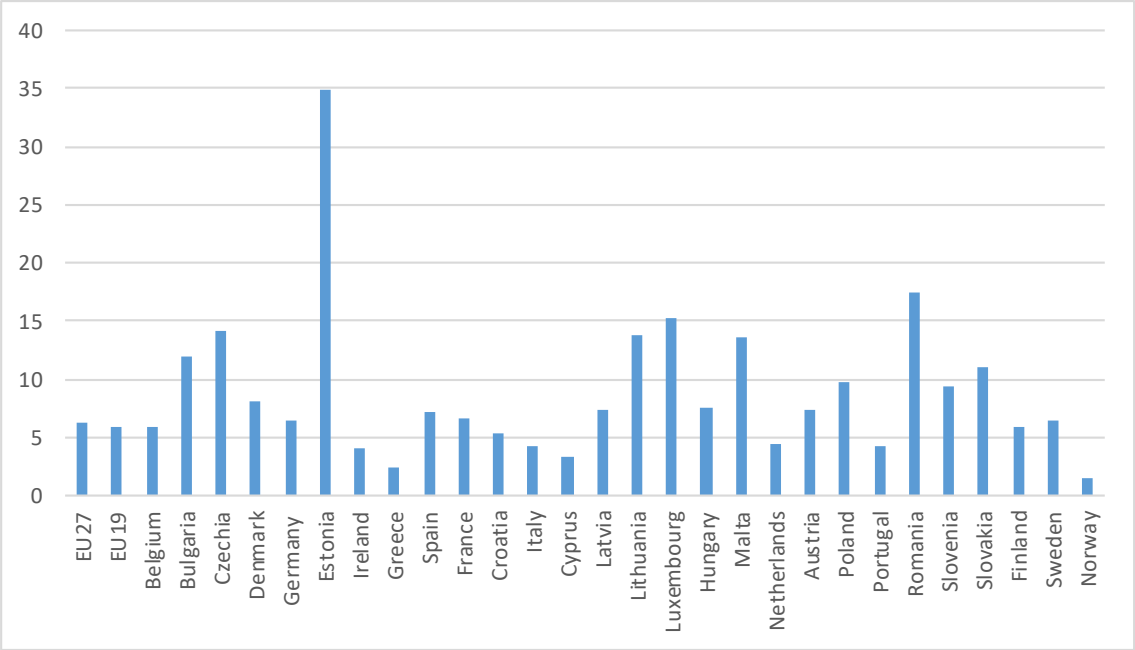
The general government deficit and debt increased further in 2021, mainly due to the extension or adoption of new emergency support measures. Many countries have found themselves in a situation where fiscal support is still invaluable to protect lives and livelihoods, also given the heterogeneous outcomes in terms of achieved vaccination rates. At the same time, governments have been facing questions on their elevated debt and gross financing needs.

The International Monetary Fund (IMF) and the European Commission (EC) hence recommend better targeted and more focused assistance going forward. For instance, the Commission overview report on 2021 Stability and Convergence Programmes recommends that *"[...] fiscal measures should increasingly pivot away from universal income support and support transitions from crisis-induced unemployment or short-time work schemes towards other employment opportunities, especially for those unemployed and inactive. Financing for viable firms should also become more diversified towards equity and prioritise incentivising the provision of capital by the private sector. Governments should prioritise policies that boost productivity and, thereby, increase potential growth."*[2] The IMF emphasized (in April 2021, Tailoring Government Support) that governments should prioritize more targeted support to vulnerable households and viable firms. The European Fiscal Board's (EFB) assessment of the 2022 fiscal stance goes into a similar direction by stating the following: *"[..] it is particularly important to recalibrate fiscal support to provide relief only to those firms that are viable (...) This ambition must be balanced with the need to take measures that reduce unemployment and other socioeconomic consequences during the transition. Useful instruments could be active labour market policies and investment in systems to match vacancies with jobseekers (...)"*

[1] Figure 1 presents the growth rate of government debt, rather than of the debt-to-GDP ratio, since the sharp drop in GDP might misreport the evolution of the latter.

[2] https://ec.europa.eu/info/publications/2021-stability-convergence-programmes-overview-assessment-euro-area-fiscal-stance_en

Figure 1: Growth rate (%) of gross public debt (2019Q2-2021 Q2) in the 27 EU countries during the COVID-19 pandemic



Source: Eurostat.

Against this background and given that the evolution of crisis support measures merits a dedicated assessment, this policy paper:

1. presents a new database on fiscal spending measures adopted during the COVID-19 crisis, using mainly three sources: (a) the database of COVID-19 fiscal responses of the IMF, (b) the EC report on European COVID-19 measures and (c) the report of Bruegel, a European think tank that specialises in economics, about COVID-19 policy measures. We also use national sources for some countries, to obtain richer data for our empirical, qualitative, and quantitative analysis, which aims to give a complete account of the fiscal measures adopted in different EU countries and their evolution;
2. assesses to what extent country characteristics such as inequality, labour market features, or the degree of economic openness and the evolution of the pandemic and lockdown measures have affected the type of spending adopted in each country;
3. examines whether those measures have been effective in facilitating the economic recovery; we investigate, using econometric techniques, which measures were more effective for the recovery of output growth and economic sentiment; with the obtained estimates, we assess how well targeted the fiscal measures were.

We distinguish six main spending categories: (i) Assistance to small and medium enterprises (SMEs) and specific sectors; (ii) Measures targeted to transform the economy; (iii) Pandemic spending related to health expenditure (hospitals, medical equipment, tests, administration etc.); (iv) Transfers to households; (v) Unemployment benefits and measures to sustain employment during the COVID crisis; (vi) Universal help.[3] The composition and evolution of fiscal measures differ across countries.

[3] Universal help refers to help directed to all agents in the economy. It typically involves deferred payments of tax and social security contributions for affected firms, self-employed, and households or the provision of financial instruments to support individuals and companies affected by the pandemic. For more details, we refer the interested reader to Annex A.

We analyze whether economic characteristics may have contributed to the COVID-19 fiscal responses in our sample countries, by using fixed-effects panel regressions. Fiscal responses were dictated by both the evolution of the pandemic, as well as specific labour and product markets and social characteristics. Countries with a high bankruptcy rate, a high index of industrial production, a high degree of openness and/or a significant tourism sector were more likely to adopt measures to assist SMEs and sector-specific support. Obviously, the public health-care impact of the disease, measured by the number of occupied intensive unit care beds for COVID-19 patients per 100 000 inhabitants, had a positive relation with the spending related to the pandemic. The latter was significantly higher also in countries where industrial production was stronger and in economies that were more open to trade and tourism and, most significantly, in countries with relatively high income inequality, measured by the Gini index. COVID related unemployment benefits as a percentage of GDP were higher in countries with stronger industrial production, higher degree of trade openness, higher income inequality and a higher proportion of temporary employment contracts in total contracts. Finally, fiscal measures related to transfers to households and universal help do not seem to be related significantly to any of the economic indicators we studied.

On that basis, we study how the different fiscal measures affected the economies, by using a linear dynamic panel data model. All COVID-related fiscal measures had significant and positive effects on output growth and consumers' confidence, but "universal help". The effectiveness of fiscal policy is usually measured by the fiscal multiplier. The fiscal multiplier measures how much one euro of a spending increase translates into a GDP increase. A fiscal policy expansion is considered to be successful if it generates a multiplier higher than one, since in this case, output increases more than the expansion in the government spending component of output. Fiscal policy has different effects depending on the tool used for the government expansion and multipliers vary depending on the policy instrument. The computation of the fiscal multiplier for the six different fiscal policy instruments shows that estimated fiscal multipliers are significant and bigger than one for measures associated to health spending caused by the pandemic, increased unemployment benefits due to the COVID crisis and household transfers. Multipliers higher than one are also estimated for measures targeted to transform the economy. Most countries in our sample shifted fiscal measures towards assistance to SMEs and specific sectors. Such measures generated significant but moderate stimulative output and confidence effects (i.e., the estimated multiplier for this type of spending is estimated to be smaller than one). This evidence is in line with the analysis of Gourinchas et al. (2021) which concludes that fiscal policy prevented a large increase in firm failures by halving the failure rate, but it was inefficiently targeted.

Some other recent studies have emerged that quantify the macroeconomic effects of fiscal actions in response to the COVID-19 pandemic (see, e.g., Chudik et al. (2021) and Deb et al. (2021)). Using fiscal announcements or aggregate fiscal data, they indicate that fiscal measures helped the economies recover from the pandemic shock. Relative to these studies, we focus on EU countries and provide evidence on the effectiveness of different fiscal measures not only on output growth, but also on consumers' confidence, an important factor that determines the demand recovery. A recent paper by Guerrieri et al. (2021), using a theoretical framework, suggests that fiscal policy can display a smaller multiplier in the case of the COVID-19 shock, but support such as household transfers and insurance benefits for unemployed workers can achieve the best allocation in such an environment. Our estimates on the multiplier associated with household transfers and unemployment benefits during the COVID crisis square well with the theoretical predictions of Guerrieri et al. (2021). Finally, using detailed regional variation in economic conditions in U.S. data, Auerbach et al. (2021) document that the effects of government spending were stronger during the peak of the pandemic recession, but only in cities that were not subject to strong stay-at-home orders. Our analysis also points to the negative

macroeconomic effects of stringency measures, computes multipliers considering such effects and focuses on the European continent.

Taking stock of the existing literature and the evidence we bring to light, we conclude that as the pandemic subsides and extraordinary fiscal measures for spending on health (hospitals, vaccines, tests and equipment) and unemployment benefits and transfers to households will no longer be essential; more fiscal resources should be targeted to transform the economy so as to enhance output growth and achieve a smooth transition to post-COVID fiscal policies. We make this recommendation since such fiscal spending, according to our estimates, generates a sizeable output multiplier, enhancing significantly output growth, an important determinant of debt sustainability in the long run (see Blanchard (2019)).

The rest of this policy paper is organised as follows. Chapter 3 summarises the most important evidence from the recent literature. Chapter 4 presents the database we have constructed and offers a set of descriptive statistics about the fiscal measures adopted in the different countries in our sample and their evolution during the crisis. Chapter 5 relates the choice of the different fiscal instruments to the economic, health and stringency conditions in the different economies. Chapter 6 assesses the success of the fiscal measures to fight the recession via our econometric analysis. Finally, Chapter 7 offers policy recommendations and discusses the way forward. An Annex at the end of this paper includes additional information on our data methodology, as well as additional figures and tables.

3. EVIDENCE FROM THE RECENT LITERATURE

This chapter summarises the most important evidence from the recent literature on the effectiveness of fiscal measures.

Chudik et al. (2021) quantify the macroeconomic effects of fiscal actions in response to COVID-19 using the IMF database for 33 countries. The results are threefold: (1) fiscal policy is playing a key role in mitigating the effects of the pandemic; (2) all else equal, countries that implemented larger fiscal support are expected to experience smaller output contractions; (3) emerging markets are also benefiting from the synchronised fiscal actions globally, through the spill over channel and reduced financial market volatility.

Deb et al. (2021) empirically examine the effects of fiscal policy measures during the COVID-19 pandemic. They use a novel database of daily fiscal policy announcements, classified by type of fiscal measure, and high-frequency economic indicators for 52 countries from 1 January to 31 December 2020. Their results suggest that, on average, fiscal policy announcements was an effective countercyclical tool that has boosted confidence and reduced unemployment. Yet, they also show that the effects of fiscal announcements vary by type of announcement and country characteristics. The authors report that by providing cash-flow support to firms and households, emergency lifeline measures were more effective in the presence of stringent containment policies, while demand-support measures were more effective when containment policies were relaxed.

Using detailed regional variation in economic conditions, lockdown policies, and U.S. government spending, Auerbach et al. (2021) document that the effects of government spending were stronger during the peak of the pandemic recession, but only in cities that were not subject to strong stay-at-home orders. Guerrieri et al. (2021) suggest that fiscal policy can display a smaller multiplier in the case of the COVID-19 shock, but also that the benefit of fiscal transfers in terms of providing insurance to households and firms is crucial. These results are derived in a theoretical framework in which the COVID-19 disturbance is modelled as a Keynesian supply shock (i.e., a supply shock that triggers changes in aggregate demand larger than the shock itself).

The recent paper by Gourinchas et al. (2021) provides a thorough and complete assessment of the effects of the various fiscal measures adopted by countries to limit the negative economic impact of COVID-19 and the accompanying lockdowns. Gourinchas et al. (2021) use a rich partial equilibrium model of firms in many sectors and with input-output linkages, including business failures, COVID effects on labour productivity and on the supply of labour, rigid wages, and labour supply constraints in some sectors. In their model, firms fail when cash balances and operating profits are insufficient to cover financial expenses. They map the model to firm-level financial statements for 19 Advanced Economies (AEs), namely Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Latvia, Portugal, Slovenia, Slovakia, Spain and the United Kingdom, out of which 16 are EU Member States, and also 9 Emerging Market Economies (EMEs).

The authors examine three types of fiscal support policies targeted towards firms: (i) tax waivers, where firms do not need to pay a portion of their 2020 tax bill due for 2020, (ii) cash grants, corresponding to a fraction of firms' pre-pandemic labour costs, and (iii) government guaranteed loans ("pandemic loans"). The data comes from OECD (2021), ESRB (2021) and IMF (2021), and is presented in Table A4 in the Annex. The goal is to investigate whether fiscal support was directed towards the appropriate firms. The COVID-19 crisis is considered as a combination of supply and demand shocks (see below). The setup allows identification of "at-risk" firms that would not have survived the pandemic crisis without policy support. Among the saved firms, the authors distinguish between firms labelled as "zombies" and "non-zombies". The term "zombie" refers to the missing ability of the firm to cover its debt

payments before the pandemic. They also identify the fraction of firms that fail despite the policy support.

Their calibrated, quantitative model implies that SMEs failure rates would have been much higher absent government support; they estimate that in both AEs and EMEs the government's policies halved the failure rate relative to what it would have been with no government help. The findings for the AEs indicate that, without the presence of fiscal support, the firms´ failure rate would have increased by 5.6 percentage points, instead fiscal support has managed to fully offset this increase. There is substantial cross-country heterogeneity, due to differences in sectoral composition (e.g., countries relying more heavily on more affected sectors), differences in the financial health of SMEs, as well as differences in the input-output structure and in the length and intensity of lockdown policies and voluntary social distancing (captured by a mobility index). For instance, the failure rates would have increased in the absence of fiscal effort by 1.14 pp in Finland and 1.25 pp in Denmark, by 7.11 pp in France, 8.29 pp in Spain and 9.58 pp in Italy. Table A5 in the Annex presents these results in detail.

However, they find that the support was inefficiently targeted and hence very expensive. In other words, the estimated fiscal multiplier from fiscal expansions targeted to SMEs is estimated to be low. The authors offer an estimate of the fiscal cost of saving all SMEs at risk in a hypothetical scenario where identifying them is possible. The number is calculated as a minimum cash guarantee necessary to meet existing financial obligations despite the decline in their cash-flow. According to the results, and despite the large size of the COVID-19 shock, the cost is found to be only 0.13% of GDP for AEs. A comparison with the cost of 6.08% for the actual funds reveals that AEs spent a very large amount. This result is a first indication that fiscal support may have been inefficiently targeted. Yet, the study of Gourinchas et al. (2021) does not provide these estimates at country level within the EU, as we do in the analysis that follows.

In the second part of the paper, Gourinchas et al. (2021) compute the output effects of transfers using a calibrated structural two-period model of interacting small open economies. Each country has multiple sectors, and intermediate goods play an important role in production. A novel feature of their model, also present in Guerreri et al. (2021), is that supply constraints on labour in one sector can lead to insufficient Keynesian demand in another sector. The most important feature for the analysis of transfers is the assumption that some consumers spend all their current income each period, i.e., they are "hand-to-mouth".

The authors consider two types of fiscal transfers to households, namely income support to workers who lost their job due to COVID-19 (that were provided by more generous unemployment benefits, or via short-time work schemes), and unconditional transfers to households. Information on COVID-related transfers is obtained from the IMF's COVID Fiscal Monitor Database (IMF (2021)). These numbers are calculated as the sum of the "non-health" and "accelerated spending" categories in "above the line" spending that comprises transfers and expenditures (see next section for more details on the definition of the measures). For AEs, the average size of the COVID-related fiscal transfers amounted to 15.7% of GDP. The analysis suggests that fiscal policy offset only 10.8% of the decline in real output for AEs due to COVID. At first glance, the small response of aggregate real output suggests a very low multiplier from fiscal policy under COVID-19. The authors estimate a multiplier on transfers of only 0.06 on average. They also find that fiscal policy increased prices significantly, between 2 and 3%. This is not surprising, since fiscal transfers do not appear to have increased real output significantly.

The estimated multipliers for fiscal transfers to both households and support in terms of unemployment benefits or via short-time work schemes that we report below for 14 EU members contradict the findings of Gourinchas et al. (2021). Contrary to the estimates based on the authors

model, the data analysed suggest sizeable and economically important multipliers from transfers, in accordance to the theoretical model of Guerreri et al. (2021).

To sum up, so far, few studies have analysed the link between the fiscal responses during the COVID-19 pandemic and the post-pandemic economic recovery. The work of Gourinchas et al. (2021) uses a variety of quantitative models to provide estimates of the effects of the fiscal policies adopted by governments in response to COVID-19 to help the supply and the demand sides of the economy. In what follows, we provide evidence by using the database that we have constructed on European economies to analyse the effectiveness of the different measures in stimulating the economy, but also the economic sentiment, without relying to specific models. We also provide detailed descriptive analysis on the evolution of the different fiscal measures adopted.

4. ANALYSIS OF FISCAL MEASURES IN RESPONSE TO THE PANDEMIC

4.1. The Database

We built a new database with quarterly data for 2020Q2, 2020Q3, 2020Q4, 2021Q1 and 2021Q2 using mainly three different sources: (a) the database of COVID-19 fiscal responses of the International Monetary Fund, (b) the European Commission report on European COVID-19 measures and (c) the report of Bruegel, a European think tank that specialises in economics.[4] We also use national sources for some countries (see details on the data methodology in Annex A).

Let us briefly discuss the IMF Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, since we follow its classification of expenditure types. The database summarises key fiscal measures announced or taken by governments in response to the COVID-19 pandemic (as of September 27th, 2021). The database categorises different types of fiscal support since January 2020, focusing on government discretionary measures.

The IMF data is organised on the basis of the following categories:

1. Above the line:
    - Additional spending or foregone revenues (tax cuts) in health and non-health sectors
    - Accelerated spending / deferred revenue (mostly tax deferrals)
2. Below the line support:
    - Equity injections, loans, asset purchases or debt assumptions
    - Contingent liabilities: Guarantees[5] and Quasi-fiscal operations (financial schemes used during the pandemic)

We followed this classification using the same expenditure categories (i.e., "Additional spending", "Deferred revenue", "Below the line measures", "Guarantees", "Quasi-fiscal operations"), which we then further grouped as follows:

(i) **assistance to small and medium enterprises (SMEs) and specific sectors:** fiscal measures targeted to the firms or self-employed that suffered losses due to the pandemic;

(ii) **fiscal measures targeted to transform the economy:** fiscal measures to promote investment activities, particularly in the areas of environmental sustainability and digitization;

(iii) **spending caused by the pandemic:** fiscal measures to face the direct effects of the pandemic (e.g., on healthcare);

(iv) **transfers to households:** fiscal measures designed to help households;

(v) **unemployment benefits and measures to sustain employment levels:** cost of short-time work schemes and measures to maintain jobs;

[4] For some countries, the IMF database provides the exact cost of each fiscal measure, while for others there is only mention of the measure but not the associated expenditure amount. In the latter cases, we used additional sources to find the missing data (see also the data methodology description in the Annex).

[5] Contingent liabilities are below the line as long as they are not called. We also include here the amount of private investment that the IMF estimates these guarantees are going to mobilize. We understand that this private investment is led by the government. See https://www.bruegel.org/publications/datasets/covid-national-dataset/.

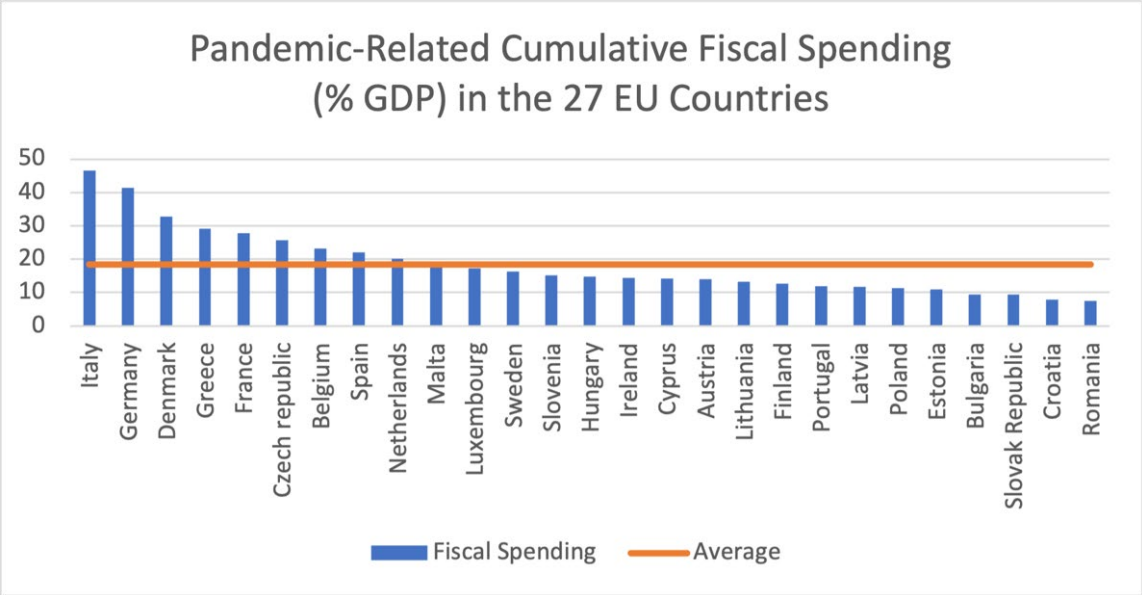
(vi) **universal help:** fiscal measures, mostly in the form of tax cuts or provision of financial instruments, to support indistinctly businesses, employees and households;

(vii) **other:** all other COVID-related fiscal measures that do not belong to any of the six previous categories.

4.2. Descriptive Statistics

This subsection presents a set of descriptive statistics, based on the data that we have collected. Figure 2 shows the amount of total fiscal spending in the pandemic as a percentage of GDP in the 27 EU Member States, using cumulative data retrieved in July 2021. As we can see, the numbers vary considerably by country. Countries that spent or committed the largest percentages fractions of their GDP on COVID-19 related fiscal measures include Italy (47%), Germany (41%), Denmark (33%), Greece (29%), France (28%), the Czech Republic (26%), Belgium (23%), Spain (22%) and the Netherlands (20%). Countries with percentages of their GDP spent on COVID-19 support measures below average include Malta (18%), Luxembourg (17%), Sweden (16%), and Slovenia (15%). The rest of the 27 EU countries follow with smaller figures.

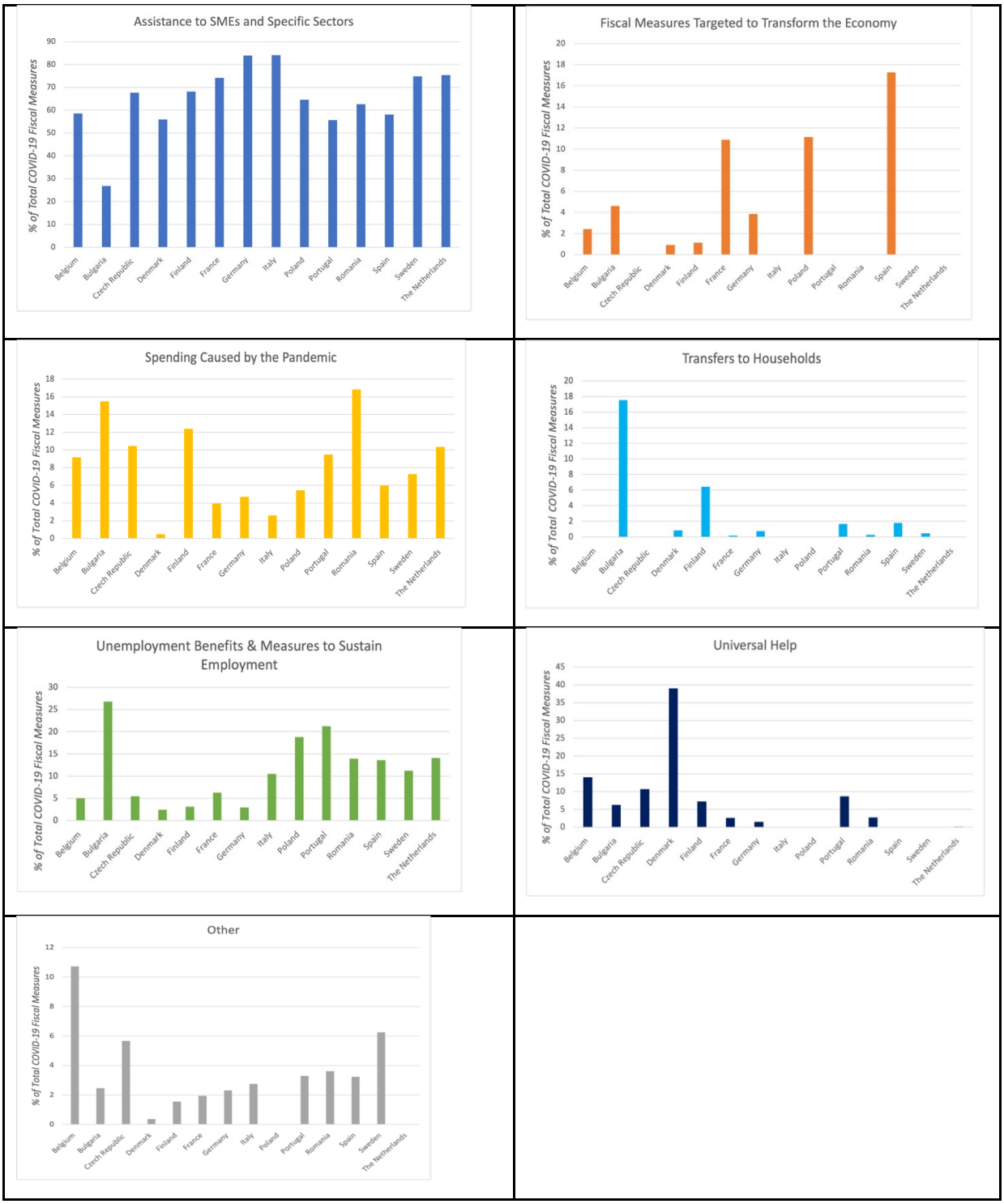
Figure 2: Pandemic-related cumulative fiscal spending (% GDP) in the 27 EU countries



Source: IMF Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic (see the data methodology outlined in the Annex). The figure reports estimates of COVID-related fiscal spending as a share of GDP for the period between October 2020 and July 2021 (cumulative data). The orange line reports the EU average. Similarly, to the IMF methodology, the GDP share of each measure in every quarter is calculated using data for 2020Q3 GDP to avoid changes caused by GDP variations.

Next, we move to the analysis of the various expenditure types used during the COVID-19 crisis, namely (i) Assistance to SMEs and specific sectors; (ii) Measures targeted to transform the economy; (iii) Pandemic spending; (iv) Transfers to households; (v) Unemployment benefits/measures to sustain employment; (vi) Universal help. Figure 3 shows the percentages of each type of expenditure in total public expenditure related to COVID-19 for a subset of EU countries for which such data is available. The 14 countries included in our sample are: Belgium, Bulgaria, Czech Republic, Denmark, Finland, France, Germany, Italy, Netherlands, Poland, Portugal, Romania, Spain, Sweden.

Figure 3: Cross-Country Comparison: Expenditure types (% total public expenditure) related to COVID-19, using cumulative data in July 2021



Note: The figure depicts the percentages of each type of expenditure in total public expenditure related to COVID-19 for a subset of EU countries for which such data is available.

The main message that emerges from the graphs is that each country adopted different types of fiscal measures.

Starting with "assistance to SMEs and specific sectors", we can clearly see that countries like Italy and Germany devoted more than 80% of the COVID-19 fiscal measures to this type of expenditure and all countries but Bulgaria spent more than half of the extra fiscal measures on the assistance to SMEs.

Next, examining "fiscal measures targeted to transform the economy", the case of Spain clearly stands out (17%), followed by France and Poland (both around 11%). For the other economies in our sample, the figures tend to be close to or below of 4% or null.

Regarding "spending caused by the pandemic", the cases of Romania and Bulgaria stand out (close to 17% and 15%, respectively). Most other countries are close to or below of 10%, with the exception of Finland (12%).

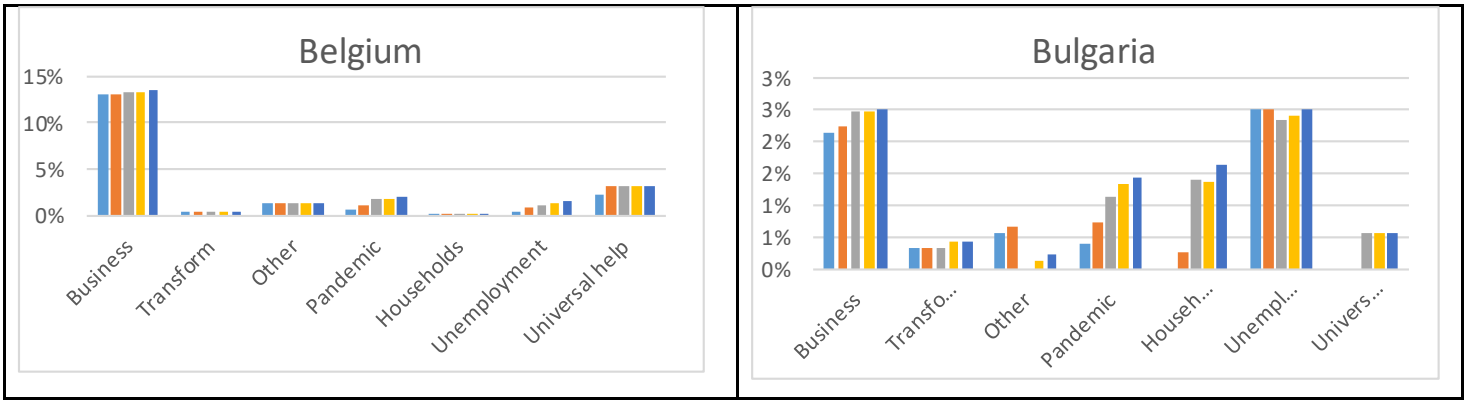
Against the general perceptions, the numbers we report in Figure 3 suggest that transfers to households were not widely used during the pandemic in the countries of our sample. For "transfers towards households", the highest share is observed in Bulgaria (close to 18%). The other eight countries that have used transfers as a fiscal measure only allocated below 2% of total expenses in this spending category, with the exception of Finland (6%).

All countries in the sample have engaged part of the extra spending to finance "unemployment benefits and measures to sustain employment rates". Bulgaria shows the highest figure (26%), followed by Portugal (21%) and Poland (19%) in this category.

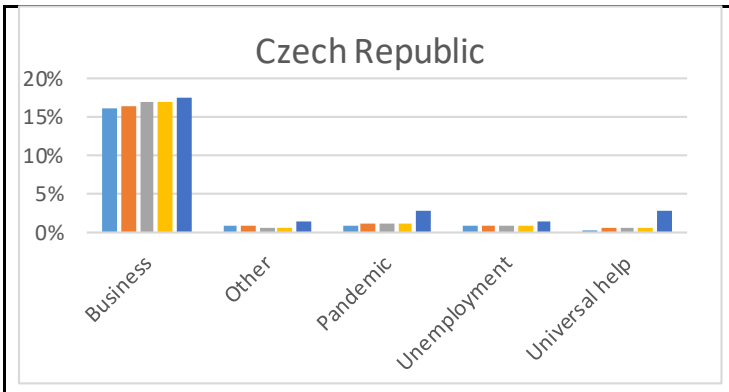
Finally, in the last category of "universal help", we have a very high figure in Denmark (close to 40%), whereas the figures for other economies are well below 15% and for some economies like Italy, Poland, Spain, Sweden and the Netherlands the universal help measures are null.

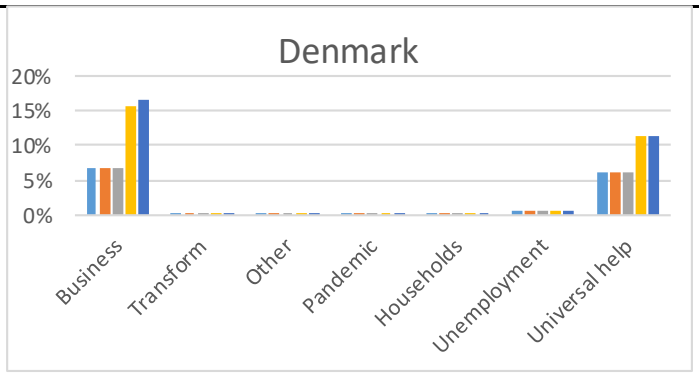
In the Annex, we present for each of the 14 EU countries considered pie charts showing the shares of the various public expenditure types related to the COVID-19 pandemic. We now turn to the presentation of country graphs depicting the quantitative evolution of the same public expenditure types over time (2020Q2-2021Q2).[6] Overall, fiscal responses varied, depending on country-specific circumstances, including the impact of the pandemic and other shocks, as we discuss below.

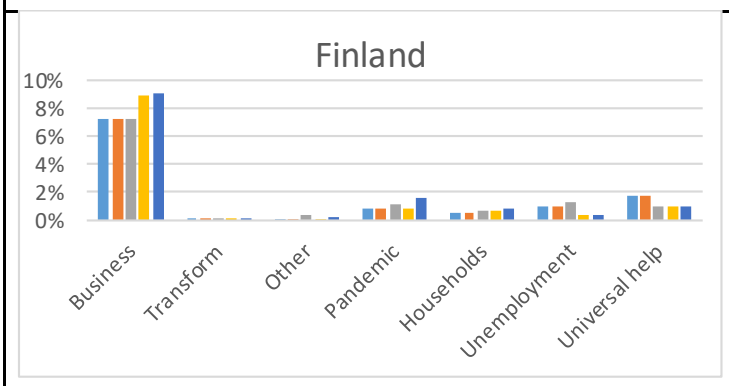
Figure 4: Evolution of COVID-related public expenditure types (% GDP)

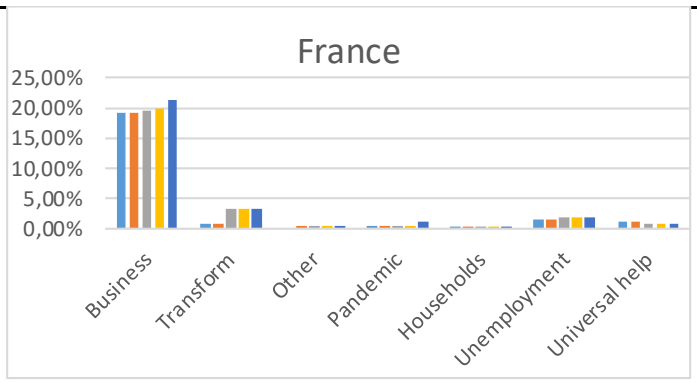


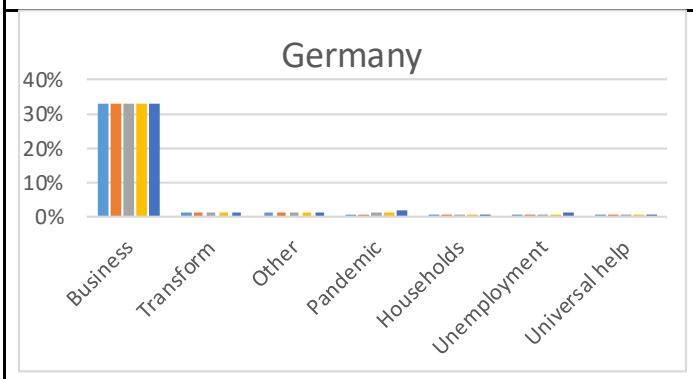
[6] For Portugal, we only have data for June 2021, while for Poland we could only use the last quarter as the data of the previous quarters that we found lack temporal coherence (see details on the data methodology in Annex A). Therefore, we omit these two countries here.

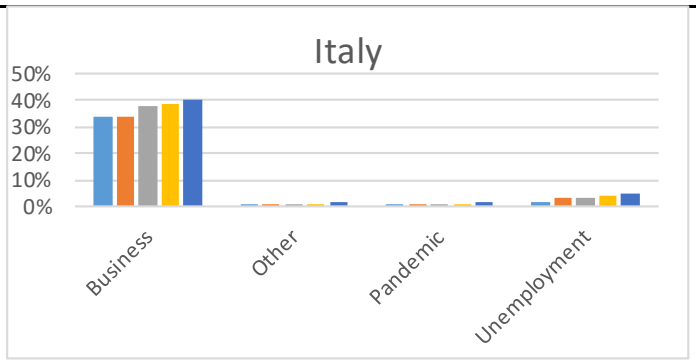

Czech Republic
20%
15%
10%
5%
0%
Business
Other
Pandemic
Unemployment
Universal help

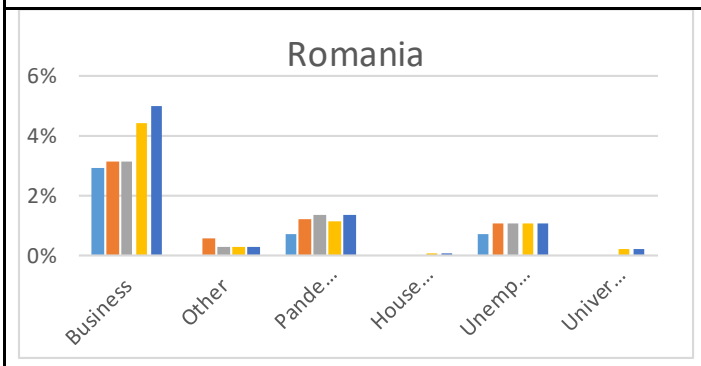

Denmark
20%
15%
10%
5%
0%
Business
Transform
Other
Pandemic
Households
Unemployment
Universal help

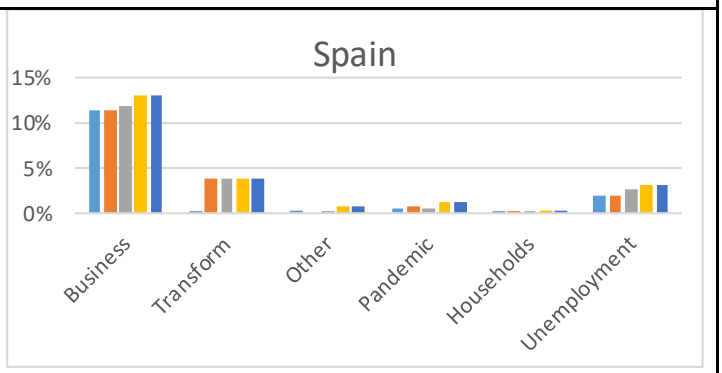

Finland
10%
8%
6%
4%
2%
0%
Business
Transform
Other
Pandemic
Households
Unemployment
Universal help

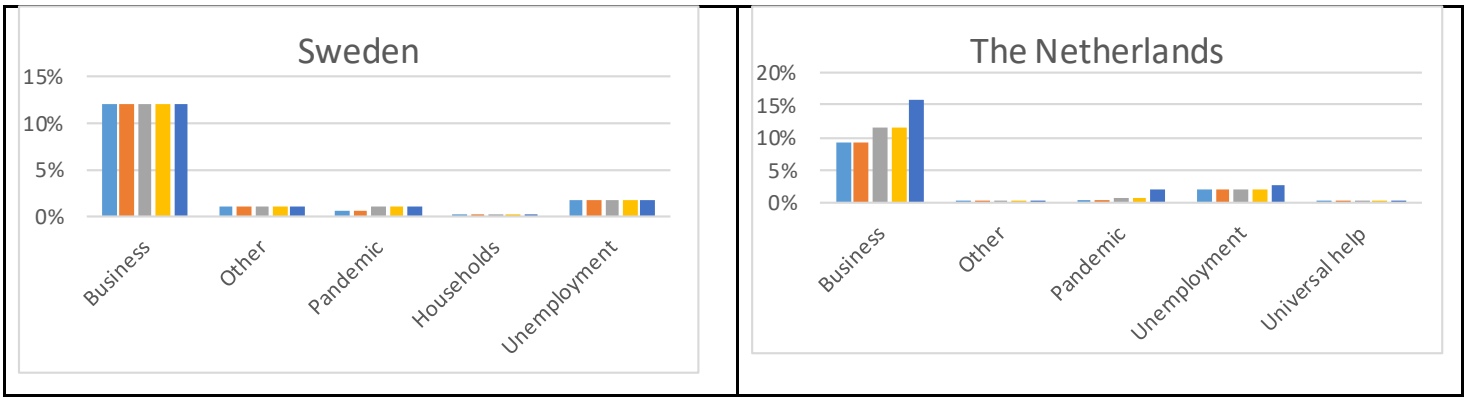

France
25,00%
20,00%
15,00%
10,00%
5,00%
0,00%
Business
Transform
Other
Pandemic
Households
Unemployment
Universal help


Germany
40%
30%
20%
10%
0%
Business
Transform
Other
Pandemic
Households
Unemployment
Universal help


Italy
50%
40%
30%
20%
10%
0%
Business
Other
Pandemic
Unemployment


Romania
6%
4%
2%
0%
Business
Other
Pande...
House...
Unemp...
Univer...


Spain
15%
10%
5%
0%
Business
Transform
Other
Pandemic
Households
Unemployment



Note: The graphs plot the cumulated fiscal measures in Assistance to SMEs and specific sectors ("Business"), measures to transform the economy ("Transform"), direct expenditures related to the pandemic ("Pandemic"), Transfers to households ("Households"), unemployment benefits ("Unemployment"), Universal help, and other expenditures ("Other"). The first column (blue) corresponds to 2020Q2, the second (orange) to 2020Q3, the third (grey) to 2020Q4, the fourth (yellow) to 2021Q1 and the fifth (cyan) to 2021Q2.

Summarising the information in Figure 4:

- Belgium and Italy increased assistance to SMEs and unemployment benefits over time.
- Bulgaria adjusted upwards pandemic spending and transfers to households over time.
- The Czech Republic increased all six expenditure categories in 2021Q2.
- Denmark adjusted upwards assistance to SMEs and universal help in 2021Q1 and 2021Q2.
- Finland adjusted downwards unemployment benefits and universal help, while it adjusted upwards assistance to SMEs.
- France adjusted upwards assistance to SMEs and fiscal measures targeted to transform the economy.
- Germany and Sweden show a rather stable picture.
- The Netherlands and Spain adjusted upwards assistance to SMEs, unemployment benefits and pandemic spending.
- Romania increased over time mainly the assistance to SMEs.

Overall, most countries in our sample shifted fiscal measures towards assistance to SMEs and specific sectors. In the next section, we evaluate the effectiveness of the various measures for stimulating the economy and economic sentiment and suggest which measures were more successful so far and give recommendation for the way ahead.

5. DETERMINANTS OF THE FISCAL ASSISTANCE

This chapter examines whether specific countries' characteristics affected the choice of the fiscal instruments used to counteract the adverse effects of the pandemic. To this end, we estimate a set of regressions to identify the factors determining the share of GDP for each category of fiscal measure. We consider the following formulation for country *i* at period *t*:

$$SPENDING_{i,t} = \eta_i + \theta_1 Determinant_{i,t} + \delta_t + \upsilon_{it}, \qquad (1)$$

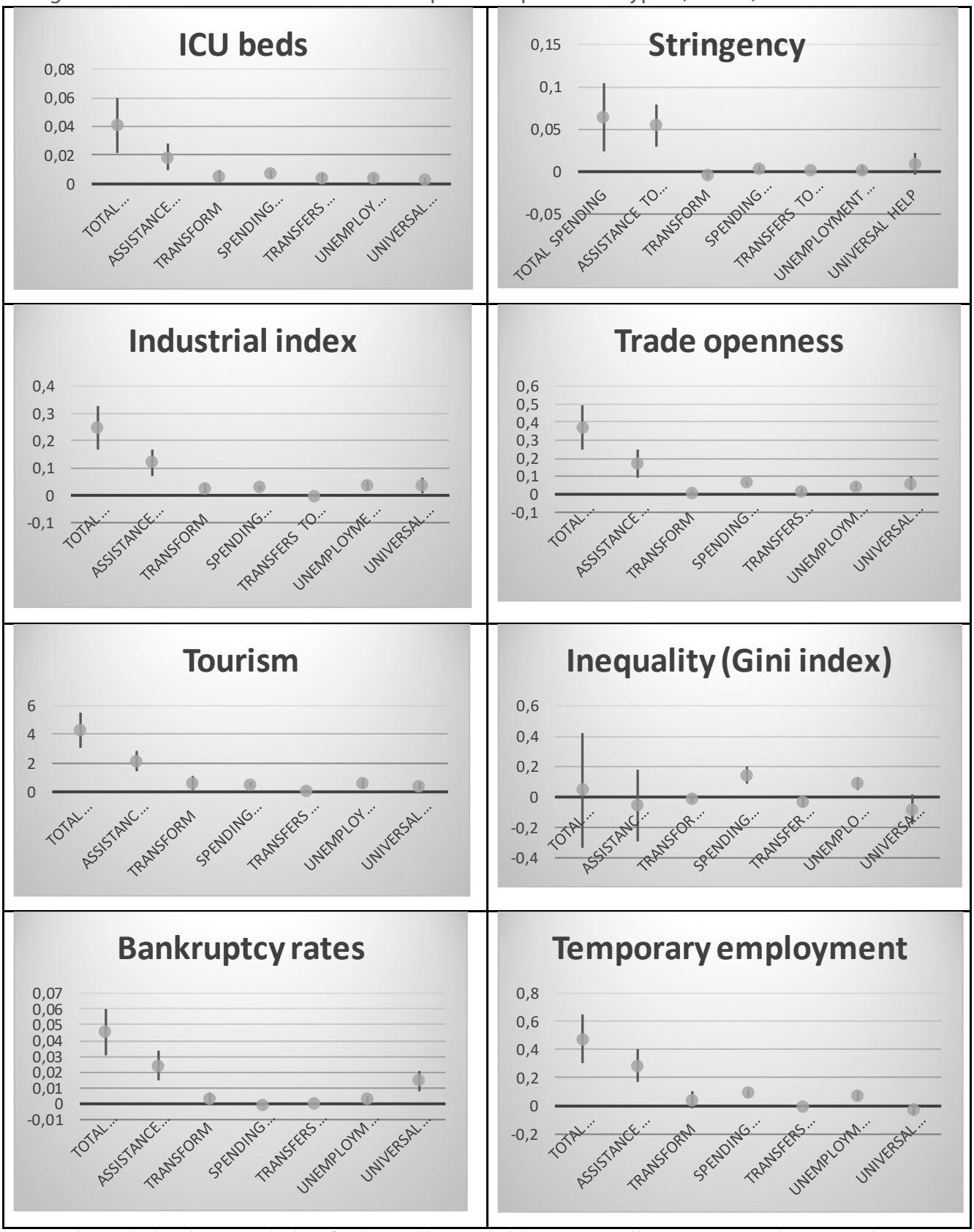
where the total spending and the six spending categories discussed earlier are considered separately for the dependent variable, $SPENDING_{i,t}$; η_i denotes country and δ_t quarter fixed effects; $Determinant_{i,t}$ denotes the possible factors that affect the choice of the instrument; The coefficient of interest in this case is θ_1, which measures the average effect of a marginal increase in the associated determinant on the corresponding spending category.

The sample we use consists of a panel of 12 countries (Poland and Portugal are dropped due to the lack of data) observed during the 5 quarters between 2020Q2 to 2021Q2.[7] We consider the seriousness of the disease as well as the lockdown measures as possible factors that have affected the specific fiscal measures adopted. The data for the evolution of the disease and stay at home measures, referred as stringency index, come from "Coronavirus Pandemic (COVID-19)" database (See Ritchie et al. (OurWorldInData.org)). We also consider the following determinants ($Determinant_{i,t}$ in equation (2)) related with the country economic characteristics: a) The industrial production index is a business cycle indicator which measures monthly changes in the price-adjusted output of industry, b) Degree of trade openness which is captured by the sum of exports and imports as a share of GDP, c) Tourism, measured as the logarithm of tourist arrivals in each quarter, which captures the exposure of the economy to the restrictions in travelling, d) The Gini coefficient as a measure of income inequality, e) Bankruptcy rates, and f) The share of temporary in total employment contracts. All the data series come from Eurostat. In the Annex, we include the detailed results. Here, for economy of space, we present graphs that depict how much each of the eight factors affected spending in the different categories. Figure 5 presents estimates of θ_1, together with their estimated standard deviation for the different determinants considered and the different types of spending we analyse. Notice that the size of the coefficients here does not matter as the right-hand variables are measured in different units. What is important is whether the standard deviations are uniformly above or below zero.

All the factors considered, except the inequality indicator Gini, have affected the total COVID-19 fiscal spending. For the specific type of fiscal stimulus adopted, the number of ICU beds correlates significantly with increases in assistance to SMEs, and the health expenditures caused by the pandemic. At the same time, the stringency measures seem unrelated with most spending categories, except for the assistance to SMEs. Naturally, stricter lockdown measures increased the need of financing SMEs.

[7] As Konig and Winkler (2021) show, including time fixed effects decreases the significance of the stringency and evolution of disease indicators; for this reason, we report results for the case in which the controls for the evolution of the disease are used instead of time fixed effects.

Figure 5: Determinants of COVID-related public expenditure types (% GDP)



Note: The graphs show the estimated values of θ_1 (dots) and their standard deviations (vertical lines) in equation (1) that measures the average effect of increasing marginally ICU, stringency, industrial production, trade openness, tourism, the Gini index, bankruptcy rates and the share of temporary employment to total employment in the different spending categories. The observation period begins in 2020Q2 and ends in 2021Q2. Due to limited data availability, we run regression (1) for each spending category separately and we also analyse the importance of the stringency index and the seriousness of the disease in separate regressions.

Moving to the economic characteristics, assistance to SMEs, spending to transform the economy, unemployment benefits and universal help were higher in countries with stronger industrial production. Trade openness also relates positively with all types of expenditure, but spending to transform the economy and household transfers. Changes in the tourism sector seem positively correlated to the amount of resources spent for assistance to SMEs, pandemic spending, and household transfers. Not surprisingly, assistance to SMEs is correlated with bankruptcy rates, while income inequalities are correlated with the pandemic spending and the unemployment benefits. Different levels of income inequality affect significantly the amount spent in unemployment benefits and spending for the pandemic, while they do not affect significantly any other fiscal measure. Finally, in countries with a high share of temporary employment contracts fiscal measures to assist SMEs and unemployment benefits and measures to keep employment ties were higher.

To sum up, it appears that most fiscal measures were dictated by both the evolution of the pandemic as well as specific labour and product market and social characteristics. Transfers to households is the only measure that seems to be unrelated to country economic conditions and to the evolution of the pandemic.

6. CRISIS SUPPORT MEASURES: WHAT HAVE WE LEARNED SO FAR?

6.1. Statistical Analysis

This chapter presents an analysis aimed at testing whether the choice of specific fiscal measures made a difference for the economic and consumers' confidence impact. To this end, we interact the countries' policy packages with the strictness of lockdown measures and the evolution of the different COVID-19 waves. First, we evaluate how the different fiscal policy measures related to the evolution of GDP growth, controlling for the evolution of the pandemic in the different countries. Then, we seek to verify whether economic sentiment was higher in countries with more fiscal support, by analysing how the different fiscal measures affected consumers' confidence.

Considering the dynamics driving the evolution of the variables of interest, we estimate a linear dynamic panel data model in which we include *p* lags of the dependent variable as covariates. The model has the following form:

$$y_{i,t} = \sum_{j=1}^{p} \gamma_j \, y_{i,t-j} + \beta_1 SPENDING_{i,t} + \beta_2 X_{i,t} + \delta_t + \alpha_i + \varepsilon_{it}, \qquad (2)$$

where *i* denotes countries and *t* denotes time periods; $y_{i,t}$ is the variable of interest than can be affected by the fiscal measures, namely GDP growth and the confidence index; $y_{i,t-j}$ are lags of the dependent variable; $SPENDING_{i,t}$ represents either the total spending or one of the six fiscal spending category as a share of GDP; $X_{i,t}$ is the set of controls that includes the stringency index, and the current account to GDP ratio; δ_t denotes quarter fixed effects; α_i are panel-level fixed effects (which may be correlated with the covariates); and ε_{it} are independent and identically distributed over the whole sample. α_i and ε_{it} are assumed to be independent for each *i* over all *t*.

By construction, in equation (2) the unobserved panel level effects are correlated with the lags of the dependent variable, creating a problem of endogeneity and inconsistency of the traditional panel data estimation methods. To solve this problem, we use the Arellano and Bond (1991) method, which is a Generalized Method of Moments (GMM) estimator useful to determine how many lags of the dependent variable are valid instruments and how to combine these lagged levels with first differences of the exogeneous variables into a large instrument matrix. We focus on the coefficient β_1 that measures the average marginal effect of an increase in the corresponding spending category (as a share of GDP) on the variable of interest. Given the scarce degrees of freedom we have with the available data, we estimate equation (2) for each variable of interest and category of spending separately.[8]

[8] We estimate all possible combinations between the vector of dependent variables and the vector of spending categories. Additionally, we consider variations of equation (2) including different combinations of the control variables and deletion of time fixed effects. Dynamic linear panels excluding the time fixed effects and controlling for stringency and current account to GDP turn out to be the best specifications. This is because most of the spending during COVID-19 is financed with debt and variations in the spending categories are correlated with variations in the debt to GDP ratio. Also, as was the case earlier, including time fixed effects cancels the effect of the evolution of the COVID-19 variables, making impossible to disentangle the specific effect of the spending categories, a result highlighted also in Konig and Winkler (2021).

6.2. Results from Econometric Regressions

GDP growth effects

Our econometric regressions show (see Annex D) that the fall in GDP in the second quarter of 2020 had affected negatively the output recovery. Moreover, strict stay home measures, represented by the stringency index, also lowered substantially GDP growth. Specifically, a rise of the stringency index by one point lowers GDP growth by 0.21 percentage points. The findings concerning the evolution of the stringency of lockdown measures are in line with the evidence in Konig and Winkler (2021) and Auberback et al. (2021) and provide broad support for the view that the suppression / mitigation strategy had negative economic effects.

Turning to the fiscal measures, total COVID-19 support spending had significant and economically important effects in restoring GDP growth. Raising the share of total COVID related government spending in GDP by 1%, implies that GDP growth increases by 0.6%. Notice that the coefficient β_1 can be interpreted broadly as the *fiscal multiplier*. Hence, the evidence suggests that, on average in the EU countries considered, the fiscal multiplier of total spending was below one. Yet, when we look at the specific categories in the next six columns, we see that the multiplier associated to the health spending caused by the pandemic is 6.57 and the one of unemployment benefits is 6.53 and are significant at the 1 per cent confidence level, and the one of transfers equals 11.79 and is significant at the 5 per cent confidence level. These numbers are much higher than one. From the rest of the fiscal spending categories, it is the fiscal measures targeted to transform the economy that is estimated to have a significant multiplier close to 6.11, while the universal help measures had no significant GDP growth effects and assistance to SMEs had, albeit significant, only moderate effects on output growth. Our estimates confirm the findings in Gourinchas et al. (2021) regarding the effects of assistance to SMEs. We also estimate a multiplier much lower than one implying that measures to support SMEs have not been spent appropriately. On the other hand, contrary to Gourinchas et al. (2021) and in accordance with the theoretical predictions of Guerrieri et al. (2021), we estimate significant and sizeable multipliers associated with household transfers and measures to support employment links and unemployment benefits.

Annex D also presents results when we use employment growth as the dependent variable in equation (1). The results regarding the effectiveness of the different fiscal measures to stimulate employment are similar for employment as for output. Naturally, measures that were targeted to maintain employment and unemployment benefits had a significant positive effect on employment growth, and again measures to transform the economy produce the most significant and highest multiplier for employment growth.

Confidence Effects

In other econometric regressions (see Annex D) we replace output growth with consumer confidence, as measured by the European Commission - Directorate-General for Economic and Financial Affairs (DG ECFIN), in equation (2). We find confidence is very much affected by its own dynamics and that the stringency of lockdown measures affected systematically negatively consumers' confidence.

On the contrary, all fiscal measures, but the funds allocated to universal help, had significant effects on consumer confidence. An increase of 1% in total spending as a share of GDP is associated with a significant increase of 0.52 units in the consumer confidence index. In terms of magnitude, the measures that have affected most significantly consumers' confidence were the health expenditures

related to the pandemic, the transfers to households and transfers to support employment and unemployment benefits to have been an important determinant of consumers' confidence.

7. THE WAY FORWARD: POLICY RECOMMENDATIONS

Our analysis suggests that fiscal measures implemented during the COVID-19 pandemic were successful not only in recovering output growth (as other studies have also found) but also in restoring consumers' confidence. This policy paper has also highlighted that measures targeted to maintain employment, unemployment benefits, transfers to households and spending caused directly by the pandemic (e.g. on healthcare) helped significantly the recovery of both the economy and consumers' confidence. Moreover, it shows that almost all EU countries considered have used assistance to SMEs as their major measure to support their economies and increased this support during the crisis period. According to our estimates and findings from other studies (see Gourinchas et al. (2021)), these kind of measures, although effective in avoiding firms' failures, were not sufficiently targeted and generated multipliers below one.

Conversely, transfers to households and measures to maintain employment were very important for recouping sentiment and growth. According to the theoretical model of Guerrieri et al. (2021), the need of transfers should subside in the coming months of economic recovery. Once the severity of the pandemic subsides, fiscal measures should target the transformation of the economy. According to the estimates in this policy paper, such measures generate sizeable and significant output growth multipliers, which matters for debt sustainability in the long run. Eichengreen et al. (2021) advocate that successful debt reductions must rely on a combination of i) fiscal adjustment, ii) real growth and iii) low real interest rates. Hence, fiscal adjustments should not include investments to transform the economy. At the same time, assistance to SMEs has not been sufficiently targeted and efforts should be made to improve the targeting of such fiscal measures. This is in line with the policy recommendations by the International Monetary Fund (IMF) and the European Commission (EC) which suggested better targeted and more focused assistance going forward.

Moreover, Furceri et al. (2021) show that the extent of fiscal consolidation in the years following the onset of major epidemics of the last two decades (SARS, H1N1, MERS, Ebola and Zika) has played a crucial role in determining the extent of the rise in inequality. Episodes of extreme austerity have been associated with an increase in income inequality measured by the Gini coefficient. Evidence on the distributional effects of the COVID-19 pandemic so far suggests that inequality is likely to rise without strong fiscal policy responses. According to IMF (2020), fiscal support should not be withdrawn prematurely despite understandable concerns about high public debt-to-GDP ratios. Based on our findings, we take a similar stance. Transfers to households might still be needed during the transition path. As they generate very high output multipliers and stimulate consumers' confidence, they should not be withdrawn prematurely. This has been an unusual shock and we should leave the fiscal authorities the space to intervene to address both output growth but also the socio-economic challenges the virus brought to the European economies.

A final remark is that there is, currently, considerable uncertainty with respect to the Omicron coronavirus variant and the possible emergence of other variants in the future, leaving the global economy in a state of suspense and uncertainty, since its impact on growth and inflation is unlikely to be known for several weeks. With the COVID-19 pandemic continuing to threaten jobs, businesses and the health and well-being of millions amid exceptional uncertainty, building confidence will be crucial to ensure that economies recover and adapt. Therefore, an early curbing of fiscal support could jeopardise significantly the recovery.

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ANNEX

ANNEX A: DATA METHODOLOGY AND CHALLENGES

Construction of the COVID-19 Fiscal Database

We built a new COVID-19 Fiscal Database with data for 2020Q2, 2020Q3, 2020Q4, 2021Q1 and 2021Q2. We mainly use three sources: (a) the database of COVID-19 fiscal responses of the IMF which categorises different types of fiscal support since January 2020, focusing on government discretionary measures, (b) the European Commission report on European COVID-19 measures and (c) the COVID-19 report the Bruegel think tank (https://www.bruegel.org/publications/datasets/covid-national-dataset/). We also use national sources for some countries to overcome data availability problems when, for example, the IMF database mentions only the measure but not the associated expenditure amount.

Let us briefly discuss the IMF Fiscal Monitor Database of Country Fiscal Measures in Response to the COVID-19 Pandemic, since we follow its classification of expenditure types. The database summarises key fiscal measures announced or taken by governments in response to the COVID-19 pandemic (as of September 27th, 2021) on the basis of the following categories:

3. Over the line:
    - Additional spending or foregone revenues (tax cuts) in health and non-health sectors
    - Accelerated spending / deferred revenue (mostly tax deferrals)
4. Liquidity support:
    - Below the line measures: equity injections, loans, asset purchases or debt assumptions
    - Contingent liabilities: Guarantees and Quasi-fiscal operations (financial schemes used during the pandemic)

We grouped these expenditure categories (i.e., "Additional spending", "Deferred revenue", "Below the line measures", "Guarantees", "Quasi-fiscal operations") as follows:

(i) **assistance to small and medium enterprises (SMEs) and specific sectors:** fiscal measures targeted to the firms or self-employed that suffered losses due to the pandemic;

(ii) **fiscal measures targeted to transform the economy:** fiscal measures to promote investment activities, particularly in the areas of environmental sustainability and digitization;

(iii) **spending caused by the pandemic:** fiscal measures to face the direct effects of the pandemic (e.g., on healthcare);

(iv) **transfers to households:** fiscal measures designed to help households;

(v) **unemployment benefits and measures to sustain employment levels:** cost of short-time work schemes and measures to maintain jobs;

(vi) **universal help:** fiscal measures, mostly in the form of tax cuts, to support businesses, employees and households;

(vii) **other:** all other COVID-related fiscal measures that do not belong to any of the six previous categories.

We organised the above spending categories (i)-(vii) by classifying the individual measures taken in each country according to their function. The full details of this process are provided in the accompanying database pdf file. As an example, we detail below the different spending categories we

constructed for Belgium in 2020Q2. For the rest of the countries and quarters as well as for the data sources, a database file is available upon request.

Table A1: Included expenditures in each spending category for Belgium, 2020Q2

Spending Category	**Included Expenditures**
Spending caused by the pandemic	Additional spending (€3.3 billion): on medical equipment, tests, administration etc.
Spending caused by the pandemic	Advance payments to hospitals.
Transfers to households	€19 million: Households can receive a one-off payment of €100 to pay electricity bills and €75 to pay gas bills. People in temporarily unemployment get an additional one-off payment of €40.
Fiscal measures targeted to transform the economy	Flemish fiscal stimulus amounting to €1.66 billion: estimated one-off investments in various priority areas, e.g. 5G, hydrogen, water management, infrastructure etc.
Fiscal measures targeted to transform the economy	Flemish fiscal stimulus amounting to €525 million annually for healthcare and €250 million annually for education until 2024.
Assistance to SMEs and specific sectors	Federal loan to Brussels Airlines (still subject to EC approval) and various (subordinated) loans provided by regional governments for companies and self-employed affected by Covid-19 (facing liquidity problems, etc.); some of which channelled through regional investment vehicles.
Assistance to SMEs and specific sectors	Capital increase in Flemish and Brussels regional investment companies that will use the funds to provide capital support to firms in need.
Assistance to SMEs and specific sectors	The federal government launched a guarantee mechanism for new credit lines, initially with a maximum maturity of 12 months granted by banks to viable non-financial corporations and self employed (up to 50 billion). Modified to extend the maturity to 36 months, allocate 10billion of the 50 billion to SMEs, replace the loss tranching by uniform loss sharing between government and banks, and ease the viability criterion. It also signed a memorandum of understanding with reinsurers committing to provide reinsurance for short-term (<2 years) trade credit insurance.
Assistance to SMEs and specific sectors	Regional governments also provide guarantees for affected companies and self-employed in need of bridge loans.
Assistance to SMEs and specific sectors	€1.5 billion: Active independent workers that were forced to shut down their business by government mandate are eligible for €1291,69 per month if they do not have a dependent family and €1614,10 per month if they do.

Assistance to SMEs and specific sectors	€520 million: Creation of a COVID-19 fund to provide Micro, Small and Medium Enterprises (MSMEs) with a one-time compensation of €5000 if they have had to fully shutdown due to government policy and €2500 to businesses that have to partially shut down. The region estimates there are 48900 potential beneficiaries for the €5000 allowance (source). If more than one-third of the potential beneficiaries will claim this benefit, then the cost will be more than €7 million. Additionally, a 'ricochet loan' is put in place which allows independent workers to borrow up to €45,000 at a favorable rate with a repayment deadline of maximum 5 years.
Assistance to SMEs and specific sectors	€207 million : Support to businesses shut down during crisis through a one-time compensation of €4000 to businesses that have to fully shutdown due to government policy. SMSEs which have a severe drop in their turnover can receive a one-time compensation of €2000. Animal refugees can also receive up to €3000.
Assistance to SMEs and specific sectors	€925 million : Companies that have fully shut down are given a one-time compensation of €4000. If closures last past the 5th of April 2020, companies will receive an additional €160 per day of shutdown.
Assistance to SMEs and specific sectors	€990 million: Companies that do not have to fully shut down but that have a turnover between 14 March and 30 April which is less than 60% of what it was at the same period in 2019 receive a one-off compensation of €3000.
Assistance to SMEs and specific sectors	€6 million: €5 million dedicated to subsidies to tourism industry and €1 million dedicated to subsidies for youth hostels specifically.
Assistance to SMEs and specific sectors	€24 million: Support to service sector.
Assistance to SMEs and specific sectors	€42 million: Daycare centers and other structures for childcare which have a significant drop in attendance receive €27 per day and per absent child. Bonus for professional trainings that have been cancelled.
Unemployment benefits/measures to sustain employment	Temporary unemployment becomes automatic, is broadened and reinforced. This is the mechanism through which companies can ask for the State to pay for a part of their employees' salaries when they have to temporarily lay them off due to dramatic economic circumstances – as in the current crisis. There is no more distinction between partial unemployment for economic reasons and partial unemployment due to an unforeseen highly disruptive shock. Companies can automatically access partial unemployment without having to prove their need. The rate of reference, which is the percentage of an employee's previous salary that is covered by the State, is increased from 65% to 70% (source 1 and 2). While the government initially announced it had allocated €1.5 billion for this measure, new estimates from the High Council of Finance estimate the impact on the 2020 budget to be closer to €0.6 billion (we take into account the first number as it is more reliable).
Unemployment benefits/measures	€20 million: Regional government pays for salary of workers in social service companies. Payments amount to €14,60 per hour per employee.

to sustain employment	
Unemployment benefits/measures to sustain employment	€160 million: Measures to support partial unemployment are extended.
Unemployment benefits/measures to sustain employment	€160 million: Government will pay for 100 000 employee's utility fees (water, gas and electricity) for 1 month if they are facing technical unemployment
Universal help	Deferred payment of tax and social security contributions for affected firms, self-employed, and households, without application of interest charges and penalties, estimated at about €10 billion, and exemption of advanced VAT payment in December.
Other	€200 million: Creation of an emergency fund to support subsidized sectors (culture, youth, media, sports, school trips, etc…) and specific sectors (horticulture, parts of the tourism industry, mobility and public works). Additionally, bonuses for workers in these sectors is increased by 4% between 1st April and 30 June 2020. In companies that continue running, workers get a protection bonus of €50 to €100 between the 1st and 30 June.
Other	Federal fiscal stimulus amounting to €1 billion: temporary support measures announced in the programme of the new federal government, which include an extension of existing measures, a 'transformation fund for investments' and a VAT reduction for the renovation of houses.
Other	Foregone revenue. We use the figure reported for the next quarter due to unavailability of data for this quarter.

Data Challenges

Let us now briefly present certain challenges with the COVID-19 Fiscal Data of the IMF that we had to address:

1. *Measurement error.* For Romania and the Czech Republic, when we sum up the quantities of each component for "non-health additional spending", results are different from the total quantity reported for this measure in the IMF database. For example, if we take the sum of all the subcomponents for non-health additional spending" in Romania in 2020Q3 (see Table A2), the resulting total amount (in local currency) is 13.96 billion, whereas the IMF database in its October 2020 report (https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19) gives a total quantity (in local currency) of 11 billion.

Table A2: Example of Measurement Error in the IMF Data for Romania (October 2020)

11	**Additional spending:** Paying 75 percent of the gross wage to employees of companies facing difficulties (RON4 billion); paying 75 percent of gross wage to affected self-employed and individual enterprises (RON2 billion); covering partially the wages of parents staying home when schools are closed (RON1.5 billion); Reserve Fund (3 billion RON); continue to pay technical unemployment benefits to those returning to work of up to 41% of base wage (for 3 months) (3.3 billion RON; The state finances 75% of the gross salary for professional athletes (160 million RON); employers hiring job-seekers over 50 or below 30 or Romanian citizens returning to the country after losing their jobs abroad, can receive a monthly allowance of 50% of the gross salary conditioned to maintaining the employment relationship for one additional year after the end of the hiring support measure and quarantine days are treated as paid sick leave. **Forgone revenue:** 5 to 10 percent discount for corporate income tax payments.

Table A3 reports all the cases of measurement error that we encountered.

Table A3: Measurement Error in the "Non-Health Additional Spending" Category

Country, quarter	Aggregate amount in IMF data	Sum of subcomponents according to our calculations
Romania, 2020Q3	11	13.96
Romania, 2020Q4	11	13.96
Czech Republic, 2020Q4	238	181.3
Czech Republic, 2021Q1	238	192.4

Note: Reported numbers are in billions of local currency.

2. *Temporal incoherence.* The IMF data is cumulative. Yet, the reported figures for some countries decrease from one quarter to another. We explain in detail below how we tackled each country case to overcome this problem. For Poland, we could not overcome the problems.

Belgium. We combined IMF data with Bruegel data and national sources, namely the National Employment Office (ONEM, https://www.onem.be/fr) and the National Institute for the Social Security of the Self-employed (INASTI, https://www.nisse.be/en). Specifically, for the cost of short-time work schemes, we use data available online from ONEM. For financial aid to independent contractors ("droit

passarelle"), the Bruegel database provides data for this measure (published in October 2020), which we use for 2020Q3 and 2020Q2 (probably the real figures for 2020Q2 are lower than ours, but it's the best that we could do with the available data). From 2020Q4 onwards, we use the cumulative data from ONEM and INASTI. For the following quarters, we found data for this type of expenditure in March, April, May and June of 2021. We used this data to calculate the increments of the financial aid to independent contractors and we exclude January and February of 2021, for which we did not find data.

Bulgaria. For unemployment benefits in 2020Q2 (which was missing in the IMF database), we used the estimates for 2020Q3. From 2020Q4, the IMF uses the sum of the actual spending in 2020 and the projected spending for 2021. To maintain coherence with the IMF data, we follow the same approach. We assume that the increases in total amounts spent in 2021Q1 and 2021Q2 are because of the increase in both actual spending and the IMF projections.

Czech Republic. In the IMF data, the "Non-health additional spending" decreases from 2020Q2 to 2020Q3. Since the IMF data is cumulative, this is problematic. Therefore, we used the 2020Q3 estimates of the IMF for 2020Q2. Specifically, the IMF website provides explanations as to how estimations for 2020Q3 were made but not for 2020Q2. The IMF's estimates do not include the Covid plus program in the total quantity of guarantees, but they include it in the measures taken as of 2020Q2, so we keep that measure. There is a problem in 2020Q4 and 2021Q1 when we aggregate subcomponents of expenditure categories and compare them with the data provided for these categories. We have thus decided to use the subcomponents. There is also a very small decrease from January to April 2021 in the IMF data but it is infinite small (likely an approximation of decimals issue), so in our database the economic measures from January to April stay constant. In relation to the Covid III program, a guarantee program through which the state will support companies with up to 500 employees by securing their debts in the total amount of CZK 150 billion in guarantees, the IMF uses the estimates of total amounts that will be mobilized, so we follow the same approach.

Denmark. There is a difference of methodology in the IMF data between 2020Q3 (an estimation of the future cost of measures is provided), and 2020Q4 (actual spending is reported). As a result, the figures reported in 2020Q4 are much lower than in 2020Q3, leading to obvious problems with the temporal coherence of cumulative spending. For that reason, we make the assumption that the expenditures do not change from 2020Q3 to 2020Q4 since we don't think there's a great variation between one quarter to the other but probably the real figure is lower than ours but we do not have enough data right now to estimate the real figure of 2020Q3. The same happens with 2020Q2. For the 2021 quarters, we use actual spending. The IMF database sometimes uses either of the two.

Finland. There is also a problem when we aggregate subcomponents of expenditure categories and compare them with the data provided for these categories. We use again the amounts of the subcomponents. The IMF database recalculates the total cost of deferred revenue, lowering it in 2021Q1. The total investing decreases from 2020Q2 to 2020Q3 so we assumed that the quantities estimated for 2020Q3 are the same than the quantities of 2020Q2 to maintain the temporal coherence.

France. We used data from the IMF, the EC and the official documentation of the "France Relance" Program (https://travail-emploi.gouv.fr/le-ministere-en-action/relance-activite/) to create the database of this country. We obtain the amount spent for the measure "different assistance to SMEs and strategic companies" as the difference between all the measures not targeted to businesses inside the category "non-health additional spending" and the total amount of that category in the IMF database. The item of "aeronautical and automotive sector" is the sum of the planned expenditure to support the automotive sector and the planned expenditure to support the aeronautical sector as obtained from the Bruegel database. of the Bruegel database. For 2020Q4, we use EC data and data

from the "France Relance" Program. For 2021Q2, we assume that "additional investment in the health sector" remains constant as it is included in the "France Relance" Program where it does not change. To calculate the cost of the solidarity fund, we use EC data for 2020Q4 and 2021Q1 (we also use this source for Q12021 because the category where it is included does not change substantially between Q4 2020 and Q12021 so we assume that the quantity of this measure does not change between these quarters) and the data from the "France Relance" document for 2021Q2. Since for some expenditures we use Bruegel data that it is published in 2020Q4, we use the estimations that we did for the measures of "non health additional spending" in 2020Q3 2020Q2 except for the foregone revenue which we have data from the IMF. The real figures are probably lower than ours for this quarter.

Germany. We use both EC data and IMF data since the IMF data does not always provide data for expenditure subcomponents. Moreover, according to the IMF database, total COVID-related spending in Germany does not change from January to April 2021. The discrepancy between the data we use and the IMF data is almost fully due to an increase in tax cuts for which we were not able to find official estimations. We include the guarantees of KfW (https://www.kfw.de/About-KfW/Reporting-Portal/KfW-coronavirus-aid/) as spending targeted to businesses. We calculate the size of the total cost of short-time work schemes in Germany for 2021Q2 using a declaration of the federal minister of labour in July 2021(https://www.faz.net/aktuell/wirtschaft/bundesarbeitsminister-heil-beziffert-ausgaben-fuer-kurzarbeitergeld-in-pandemie-17452546.html). The total investing decreases from 2020Q2 to 2020Q3 so we assumed that the quantities estimated for 2020Q3 are the same than the quantities of 2020Q2 to maintain the temporal coherence.

Italy. We used IMF data for this country.

Netherlands. The biggest problem here was that there is no data available in the IMF database for most of "additional spending" measures. We analyse the different programs of the third support package (https://bit.ly/3ntFV7g) and we conclude that all of them are targeted to enterprises, except the measures related to the "NOW program" as well as a public investment amount of €1.5 billion. We use the EC data to estimate the cost of the "NOW program", so the difference between the category "additional spending" and the cost of "NOW program" (including the public investment) is the quantity targeted to businesses. This cost remains the same during 2020Q3, 2020Q4 and 2021Q1 because the EC figures do not change for the "NOW program" from 2020Q3 to 2020Q4 and for "additional spending" from 2020Q4 to 2021Q1. In 2021Q2, we use the EC total estimate of this measure for 2021 (best approximation). The total investing decreases from 2020Q2 to 2020Q3 so we assumed that the quantities estimated for 2020Q3 are the same than the quantities of 2020Q2 to maintain the temporal coherence.

Romania. In the IMF database, there is a discrepancy when we aggregate subcomponents of expenditure categories and compare them with the data provided for these categories, but the difference is tiny and we attribute it to measurement error. In the IMF database, there is also a correction of the quantities of health spending, leading to a lower value in 2021Q1, which we use.

Spain. In the spending category under the title "other", we have included measures with different targets that quantified on an aggregate basis only (i.e., no data is available for the components). The amount is obtained as the difference between the total cost of the category "non-health additional spending" and the other measures quantified.

Sweden. We used data from IMF and EC. Since EC data is only available, to the best of our knowledge, for 2020Q3 and 2020Q4, we used this source for these two quarters.

ANNEX B: EVIDENCE FROM RECENT LITERATURE

Table B1: Announced Policy Costs (% GDP) by Type and Country (source: Gourinchas et al. (2021))

Country	Source	Tax Waiver	Pandemic Loans	Cash Grant	Total
Austria	ESRB	2.51	3.76	3.01	9.28
Belgium	ESRB	1.74*	10.57	0.52	12.82
Bulgaria	ESRB	0.58	0.72	1.23	2.53
Brazil	IMF	2.71	5.23	0.00	7.93
Czech Republic	ESRB	1.24	14.87	1.70	17.81
Germany	ESRB	1.21	11.97	2.28	15.46
Denmark	ESRB	7.13	2.03	2.43	11.59
Estonia	ESRB	0.29	5.88	1.37	7.54
Spain	ESRB	0.92	11.78	1.51	14.21
Finland	ESRB	1.87	1.75	1.71	5.33
France	ESRB	2.14	12.37	1.64	16.15
Greece	ESRB	0.66	1.71	3.01	5.38
Hungary	ESRB	0.90	5.76	0.89	7.56
Ireland	ESRB	1.29	0.99	2.92	5.20
Italy	ESRB	1.29	21.59	2.19	25.08
Latvia	ESRB	0.77	4.48	0.56	5.82
Netherlands	ESRB	0.41	0.59	1.52	2.52
Poland	ESRB	0.03	16.08	1.54*	17.64
Portugal	ESRB	0.30	6.35	0.97	7.63
Romania	ESRB	0.06	0.10	0.00	0.16

Slovenia	ESRB	2.19	4.58	1.77*	8.55
Slovakia	ESRB	0.49	4.34	1.77*	6.61

Note: * indicates if the policy was imputed from the average of the group.

Table B2: Country Heterogeneity (source: Gourinchas et al. (2021))

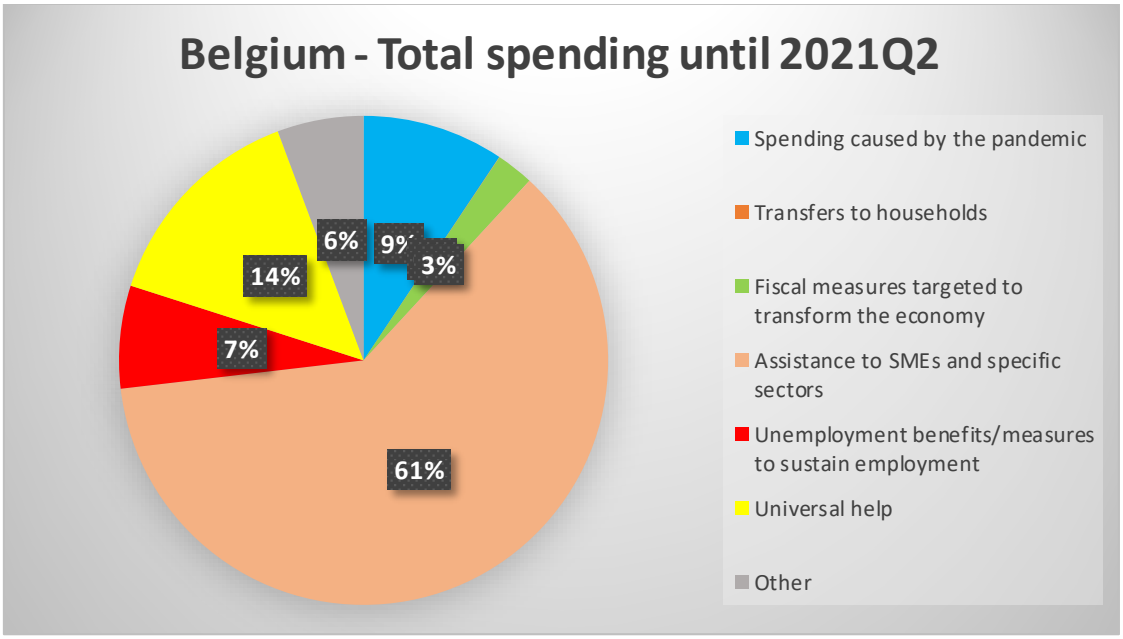
Country	(1) Non-COVID	(2) COVID	(3) Δ
Advanced Economies			
Austria	9.89	13.97	4.08
Belgium	6.89	11.98	5.09
Czech Republic	7.40	10.35	2.95
Germany	9.33	13.60	4.27
Denmark	12.64	13.89	1.25
Estonia	9.77	11.23	1.46
Spain	7.34	15.63	8.29
Finland	7.38	8.52	1.14
France	6.84	13.95	7.11
UK	10.92	19.90	8.97
Greece	8.37	11.48	3.11
Ireland	8.52	13.46	4.94
Italy	7.61	17.19	9.58
Japan	4.03	7.07	3.03
Korea	11.71	17.05	5.34
Latvia	19.19	20.79	1.59
Portugal	9.75	15.51	5.77
Slovenia	6.51	13.66	7.15
Slovakia	9.01	12.17	3.16

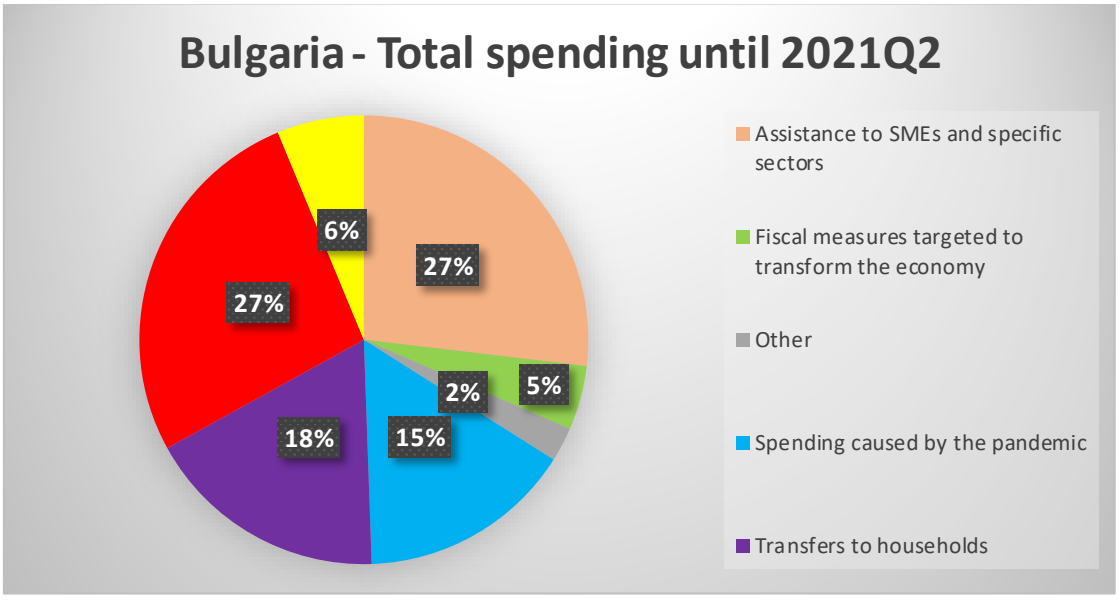
Emerging Markets			
Bulgaria	7.29	9.99	2.71
Brazil	14.62	19.03	4.41
China	11.30	24.10	12.81
Hungary	7.49	11.62	4.13
India	11.88	37.74	25.86
Poland	8.60	14.64	6.04
Romania	10.90	13.61	2.71
Russia	12.46	16.06	3.60
Turkey	17.25	24.46	7.21

Note: Country-level failure rates under non-COVID evaluate the fraction of firms facing a liquidity shortfall in 2018, and under COVID are evaluated under our baseline scenario. Country-level results represent the weighted average of 1-digit NACE failure rates, where weights are given by 2018 sector gross value added.

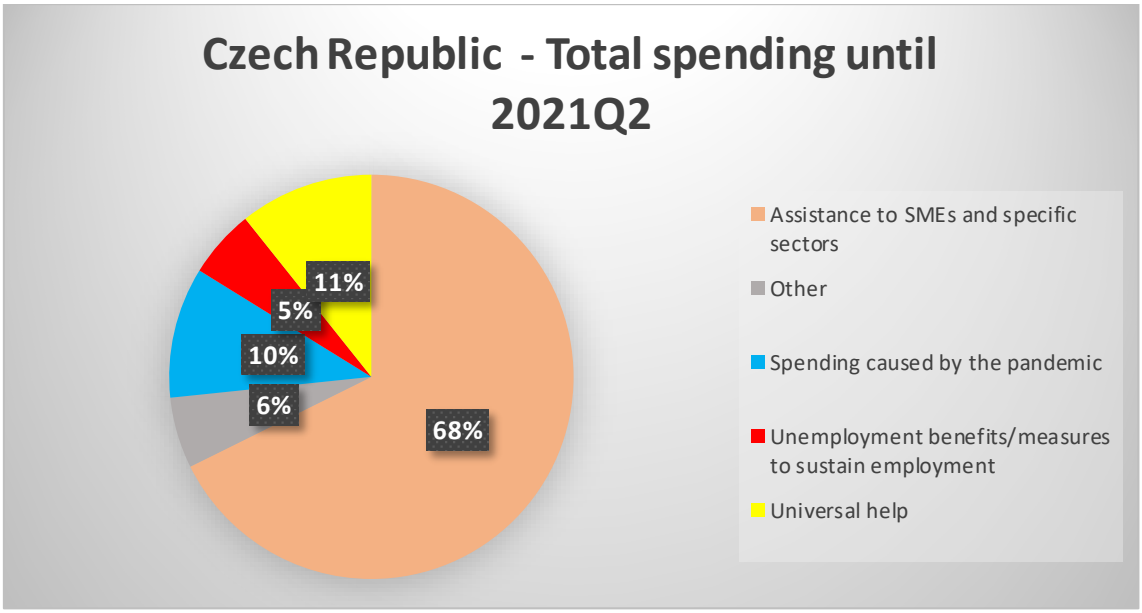
ANNEX C: COUNTRY GRAPHS

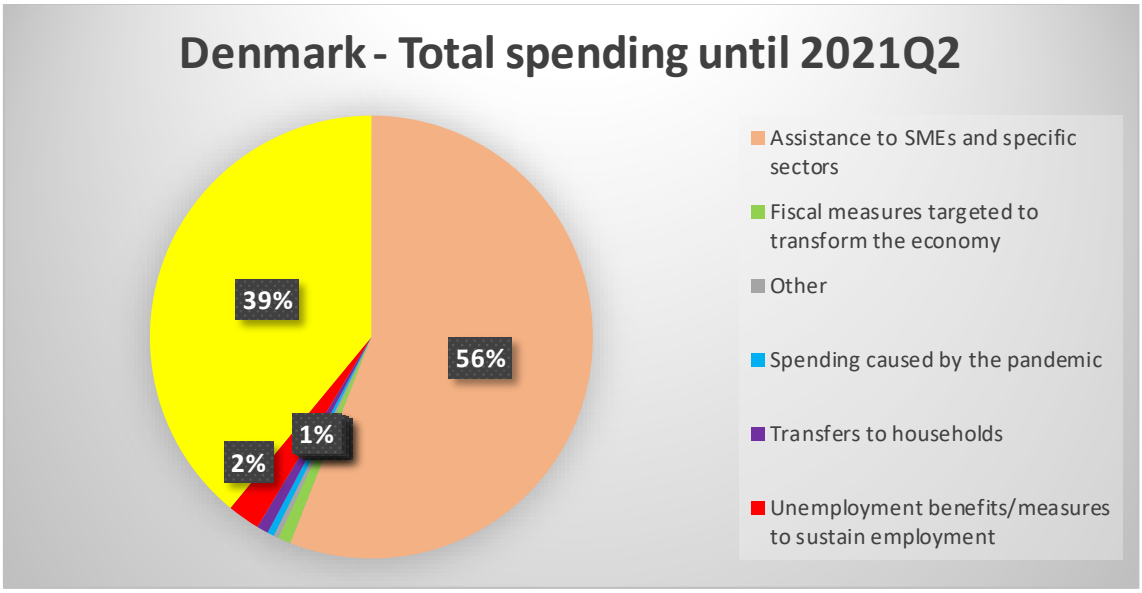
Figure C1: Shares of COVID-related Public expenditure types (2021Q2, cumulative data)[9]

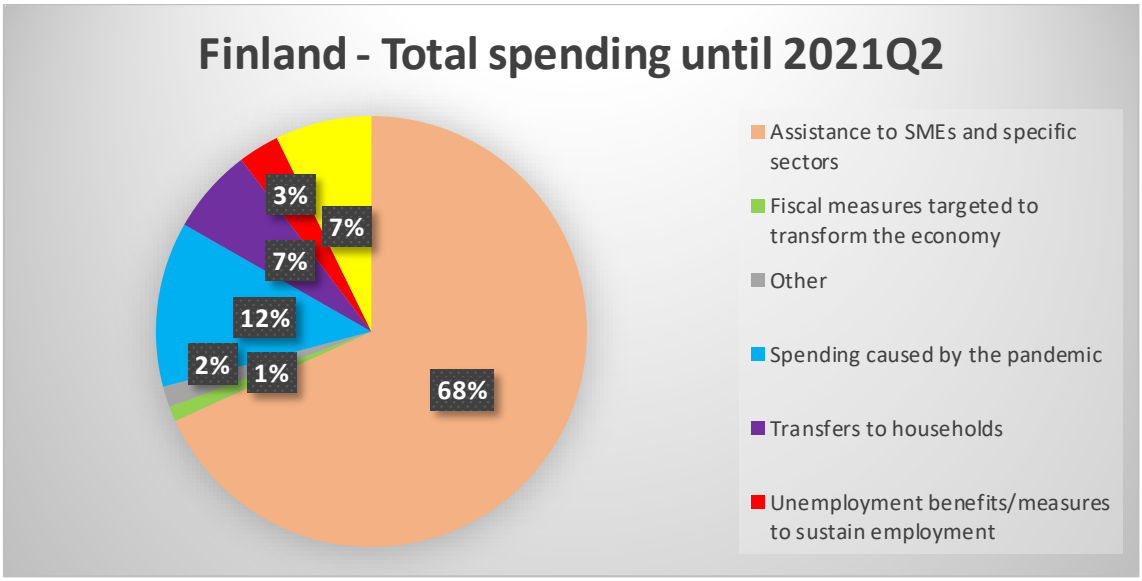


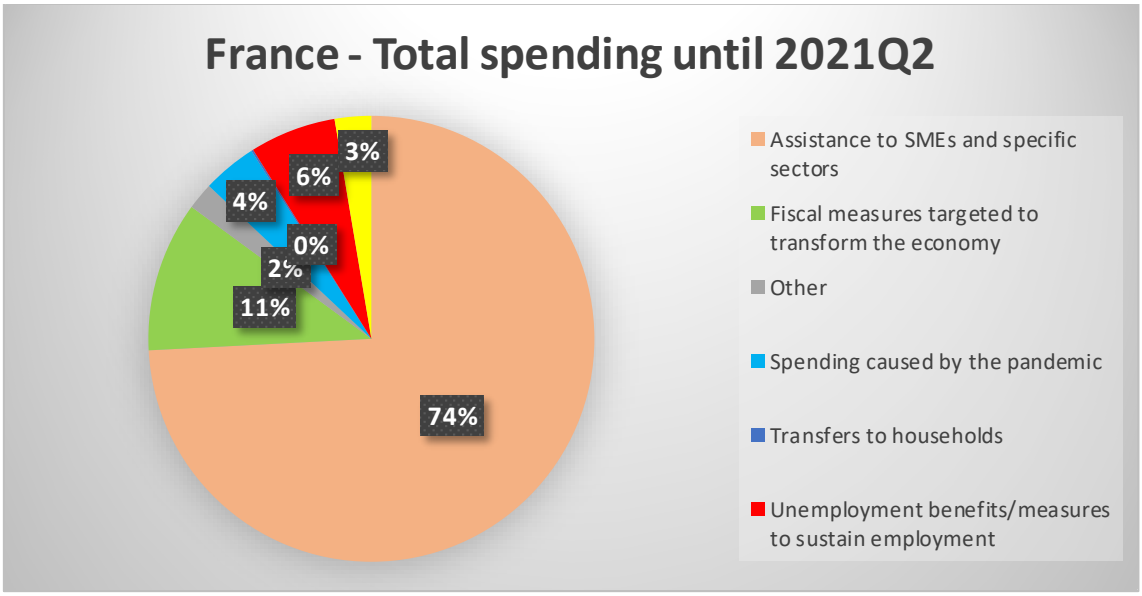


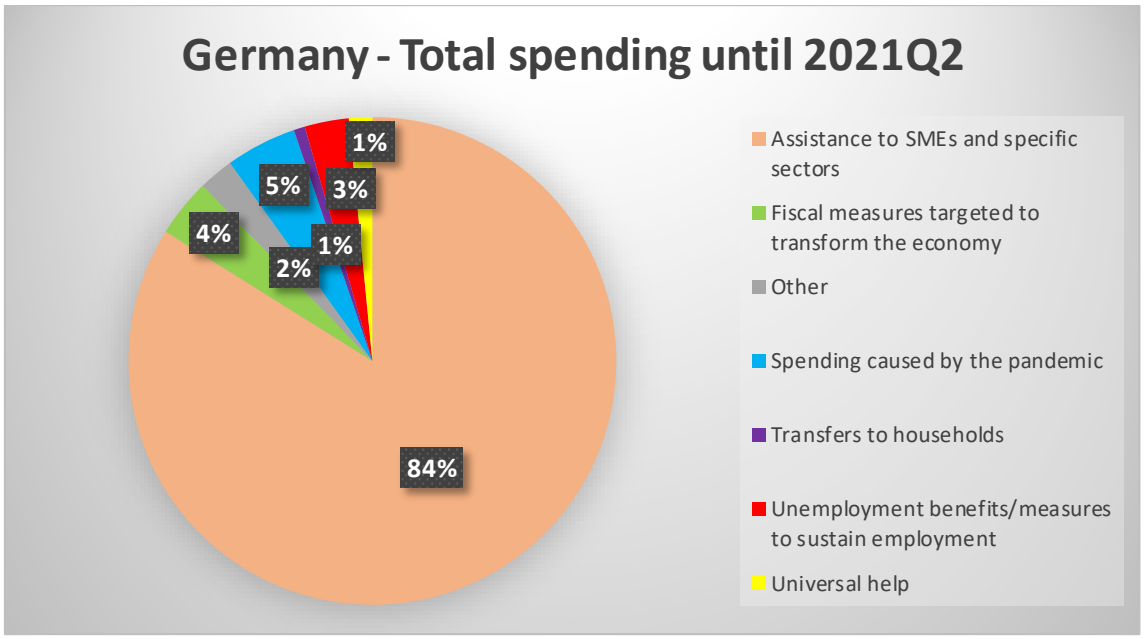
[9] When a spending category does not appear in a pie chart, it is because that country did not spend on that category.

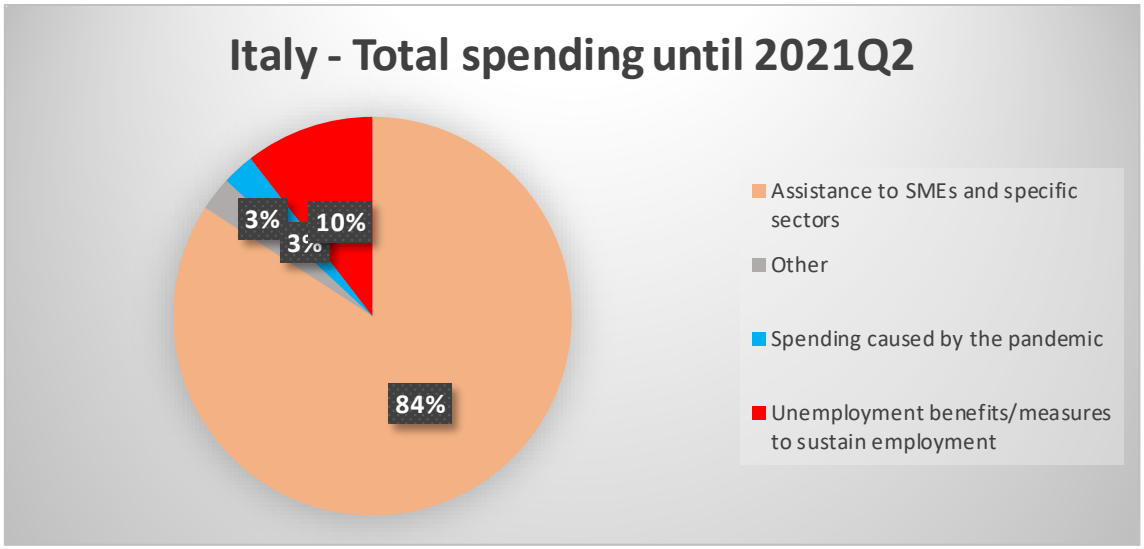

Czech Republic - Total spending until 2021Q2
11%
5%
10%
6%
68%
Assistance to SMEs and specific sectors
Other
Spending caused by the pandemic
Unemployment benefits/measures to sustain employment
Universal help

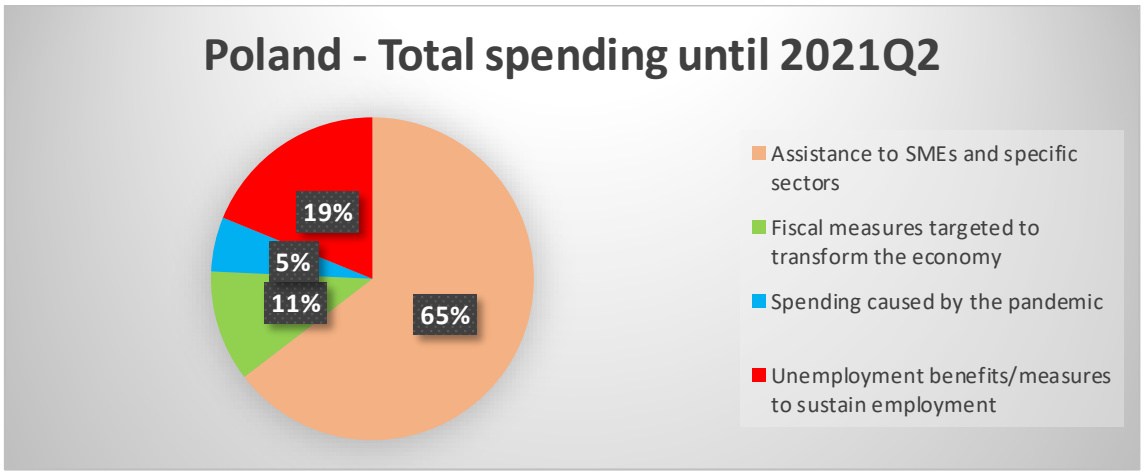

Denmark - Total spending until 2021Q2
39%
56%
1%
2%
Assistance to SMEs and specific sectors
Fiscal measures targeted to transform the economy
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment

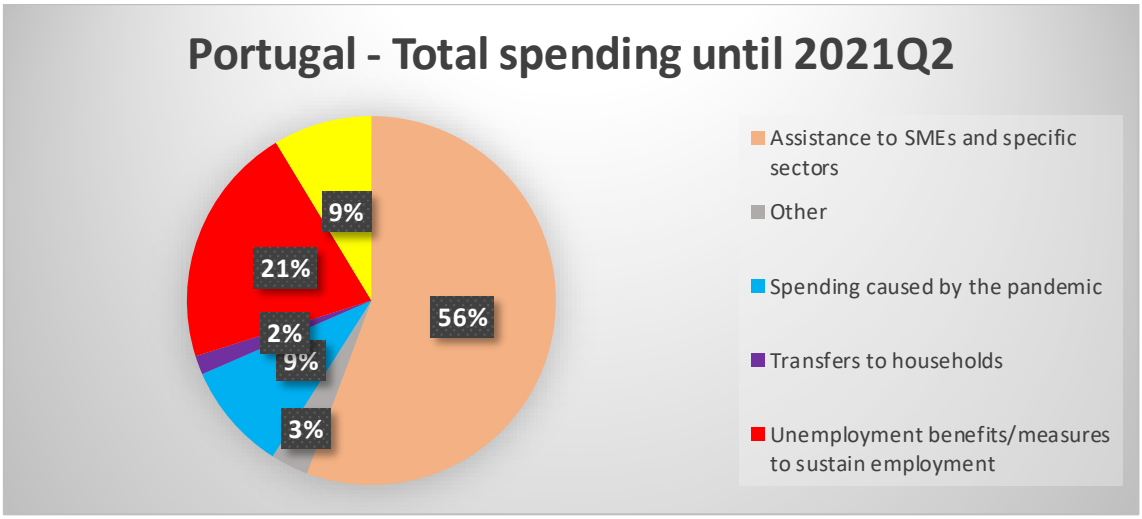

Finland - Total spending until 2021Q2
3%
7%
7%
12%
2%
1%
68%
Assistance to SMEs and specific sectors
Fiscal measures targeted to transform the economy
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment

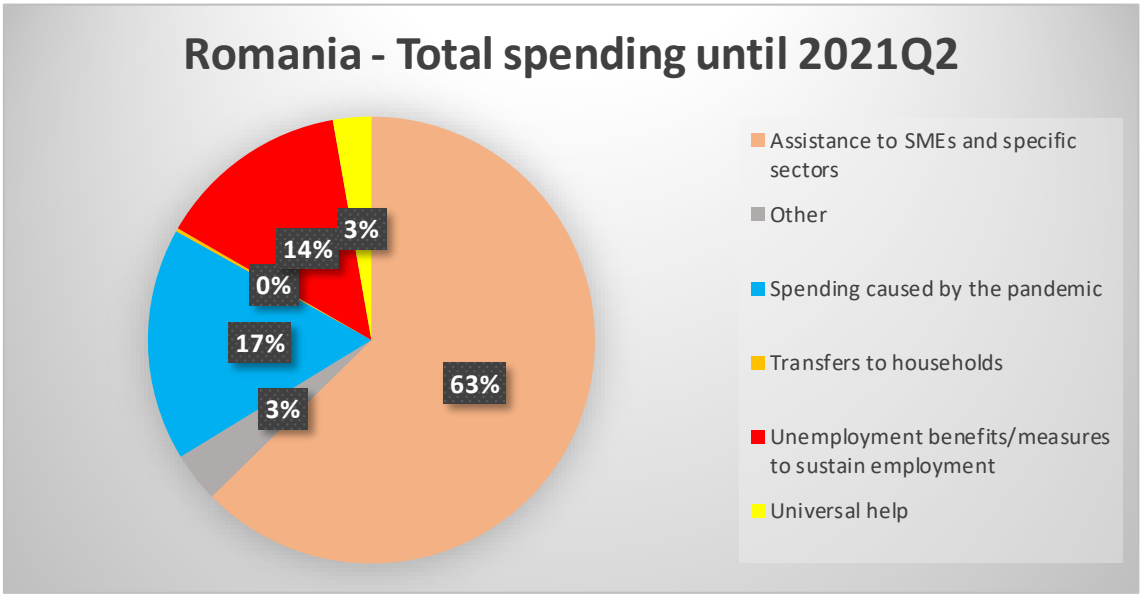

France - Total spending until 2021Q2
3%
6%
4%
0%
2%
11%
74%
Assistance to SMEs and specific sectors
Fiscal measures targeted to transform the economy
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment

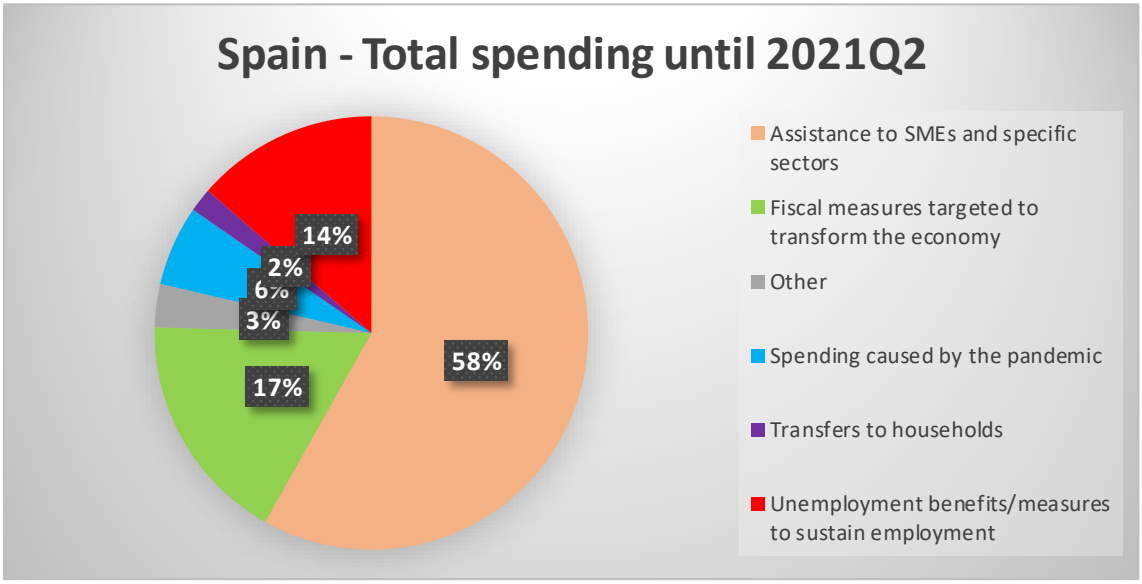

Germany - Total spending until 2021Q2
1%
3%
5%
4%
1%
2%
84%
Assistance to SMEs and specific sectors
Fiscal measures targeted to transform the economy
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment
Universal help

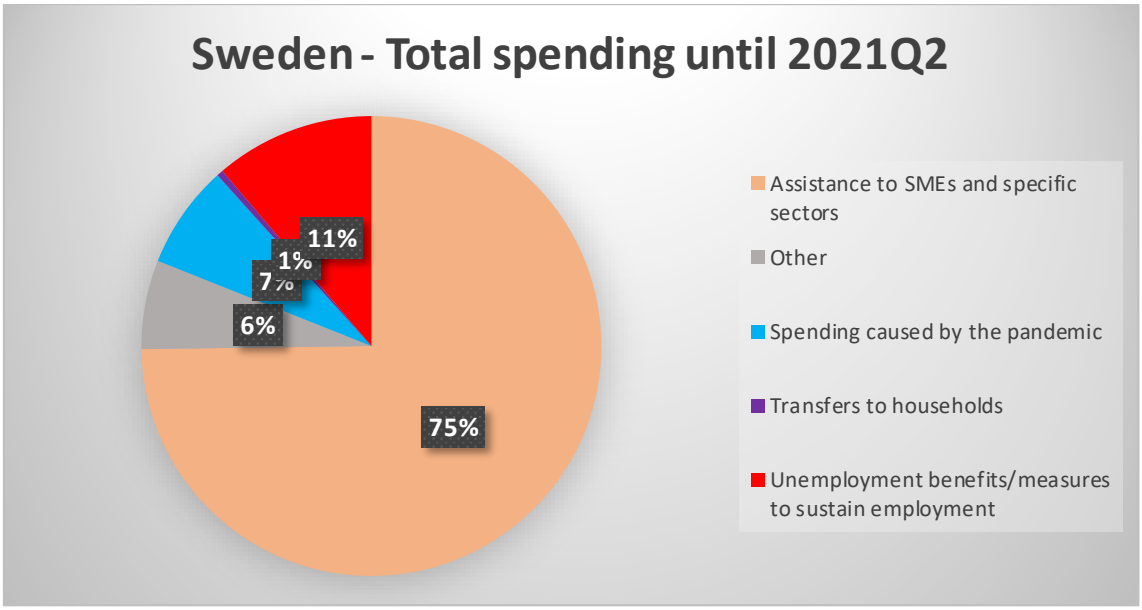

Italy - Total spending until 2021Q2
3%
10%
3%
84%
Assistance to SMEs and specific sectors
Other
Spending caused by the pandemic
Unemployment benefits/measures to sustain employment


Poland - Total spending until 2021Q2
19%
5%
11%
65%
Assistance to SMEs and specific sectors
Fiscal measures targeted to transform the economy
Spending caused by the pandemic
Unemployment benefits/measures to sustain employment


Portugal - Total spending until 2021Q2
9%
21%
2%
9%
3%
56%
Assistance to SMEs and specific sectors
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment


Romania - Total spending until 2021Q2
3%
14%
0%
17%
3%
63%
Assistance to SMEs and specific sectors
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment
Universal help


Spain - Total spending until 2021Q2
14%
2%
6%
3%
17%
58%
Assistance to SMEs and specific sectors
Fiscal measures targeted to transform the economy
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment


Sweden - Total spending until 2021Q2
11%
1%
7%
6%
75%
Assistance to SMEs and specific sectors
Other
Spending caused by the pandemic
Transfers to households
Unemployment benefits/measures to sustain employment

ANNEX D: EMPLOYMENT GROWTH EFFECT OF FISCAL MEASURES

Table D1: GDP growth, COVID-19 evolution and crisis support measures (Arellano-Bond estimates)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Total spending	Assistance to SME	Transform	Spending pandemic	Transfers to households	Unemployment transfers	Universal help
L1.gdp_growth	-0.379***	-0.367***	-0.508***	-0.448***	-0.439***	-0.419***	-0.388***
	(0.0424)	(0.122)	(0.0818)	(0.0528)	(0.122)	(0.0680)	(0.0285)
L2.gdp_growth	-0.234***	-0.234*	-0.291***	-0.283***	-0.288**	-0.257***	-0.269***
	(0.0506)	(0.123)	(0.0655)	(0.0701)	(0.122)	(0.0585)	(0.0492)
Fiscal measure	0.600***	0.451**	6.107***	6.582***	11.79**	6.535***	1.060
	(0.230)	(0.212)	(1.775)	(1.535)	(5.087)	(1.174)	(1.143)
Stringency	-0.209***	-0.133**	-0.0898***	-0.126***	-0.0725*	-0.178***	-0.0552**
	(0.0569)	(0.0575)	(0.0242)	(0.0203)	(0.0379)	(0.0271)	(0.0263)
Current / GDP	0.352	0.548	0.600**	0.759**	0.856**	0.494*	0.682*
	(0.303)	(0.400)	(0.277)	(0.298)	(0.381)	(0.257)	(0.376)
Constant	-0.756	-0.456	-0.653	-0.985	-0.599	-1.183	-0.231
	(1.186)	(1.764)	(1.181)	(0.864)	(1.752)	(1.098)	(1.074)
Observations	60	60	60	60	60	60	60
Number of countries	12	12	12	12	12	12	12

Note: Robust standard errors.

*, **, *** denote significance at 10, 5, and 1 percent levels, respectively. Stringency is the Oxford University Stringency Index mean value in the respective quarter. L1.gdp_growth and L2.gdp_growth denote the first and second lags of GDP growth, respectively. Observation period begins in 2020 Q2 and end in 2021Q2.

Table D2: Employment growth, COVID-19 evolution and crisis support measures (Arellano-Bond estimates)

VARIABLES	(1) Total spending	(2) Assistance to SME	(3) Transform	(4) Spending pandemic	(5) Transfers to households	(6) Unemployment transfers	(7) Universal help
L1.Employment	-0.266	-0.253	-0.331**	-0.326**	-0.332**	-0.291*	-0.276
	(0.163)	(0.170)	(0.166)	(0.156)	(0.163)	(0.161)	(0.168)
L2. Employment	-0.267	-0.236	-0.250	-0.350**	-0.280	-0.264	-0.246
	(0.170)	(0.181)	(0.186)	(0.165)	(0.177)	(0.192)	(0.188)
Fiscal measure	0.111**	0.0813**	1.517***	1.499***	1.876**	0.607***	0.249**
	(0.0436)	(0.0383)	(0.409)	(0.527)	(0.825)	(0.208)	(0.118)
Stringency	-0.0678***	-0.0575***	-0.0468***	-0.0515***	-0.0441***	-0.0512***	-0.0450***
	(0.0159)	(0.0121)	(0.00791)	(0.0106)	(0.00870)	(0.00940)	(0.00899)
Current / GDP	0.0988	0.121*	0.114**	0.142***	0.149***	0.110**	0.122**
	(0.0694)	(0.0683)	(0.0556)	(0.0497)	(0.0572)	(0.0560)	(0.0566)
Constant	1.057***	1.354***	0.968***	0.780*	1.287***	1.251***	1.461***
	(0.302)	(0.412)	(0.144)	(0.425)	(0.421)	(0.450)	(0.440)
Observations	60	60	60	60	60	60	60
Number of countries	12	12	12	12	12	12	12

Note: Robust standard errors.

*, **,*** denote significance at 10, 5, and 1 percent levels, respectively. Stringency is the Oxford University Stringency Index mean value in the respective quarter. L1.Employment and L2.Employment denote the first and second lags of Employment growth, respectively. Consumer Confidence data are from the European Commission - Directorate-General for Economic and Financial Affairs (DG ECFIN). Observation period begins in 2020 Q2 and end in 2021Q2.

Table D3: Consumer Confidence, COVID-19 evolution and crisis support measures (Arellano-Bond estimates)

VARIABLES	(1) Total spending	(2) Assistance to SME	(3) Transform	(4) Spending pandemic	(5) Transfers to households	(6) Unemployment transfers	(7) Universal help
L1.Confidence	0.652***	0.515***	0.621**	0.318***	0.400**	0.571***	0.388**
	(0.182)	(0.178)	(0.285)	(0.120)	(0.161)	(0.169)	(0.172)
L2.Confidence	-0.285***	-0.393***	-0.290***	-0.0478	-0.332***	-0.288***	-0.443***
	(0.0632)	(0.0512)	(0.0817)	(0.126)	(0.0545)	(0.106)	(0.0749)
Fiscal measure	0.518***	0.360**	2.910*	8.005***	7.915*	3.675***	0.643
	(0.168)	(0.176)	(1.561)	(0.707)	(4.405)	(0.665)	(0.423)
Stringency	-0.231***	-0.171***	-0.115***	0.184***	-0.123***	-0.172***	-0.108***
	(0.0437)	(0.0420)	(0.0283)	(0.0279)	(0.0299)	(0.0316)	(0.0307)
Current / GDP	0.176	0.301	0.350	0.403	0.532*	0.279	0.367
	(0.246)	(0.236)	(0.239)	(0.261)	(0.272)	(0.265)	(0.256)
Constant	-4.232**	-5.768**	-3.572	5.517***	-6.127**	-4.239*	-7.068**
	(1.979)	(2.433)	(3.607)	(2.076)	(2.705)	(2.195)	(2.756)
Observations	56	56	56	56	56	56	56
Number of countries	12	12	12	12	12	12	12

Note: Robust standard errors.

*, **,*** denote significance at 10, 5, and 1 percent levels, respectively. Stringency is the Oxford University Stringency Index mean value in the respective quarter. L1. Confidence and L2confidence denote the first and second lags of Consumer confidence, respectively. Consumer Confidence data are from the European Commission - Directorate-General for Economic and Financial Affairs (DG ECFIN). Observation period begins in 2020 Q2 and end in 2021Q2.

A new database on exceptional fiscal spending adopted during the COVID-19 crisis is presented for 14 EU countries. The composition and evolution of fiscal measures differ across countries. We analyse (a) whether national economic characteristics determined the type of fiscal response adopted and (b) how the different fiscal measures affected the macroeconomic outcomes and consumer confidence. We assess whether measures have been sufficiently targeted and make recommendations as to which adjustments should be made as the crisis subsides.

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