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This time is different: Fiscal response to the COVID-19 pandemic among EU countries

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\textbf{A B S T R A C T}

This paper empirically analyzes fiscal policy behavior in the European Union (EU) Member States and assesses how it has changed during the recent pandemic crisis compared to previous crisis periods. Based on panel estimations, we find that the fiscal reaction has been different this time, both concerning the policy direction as well as its magnitude. We argue that fiscal policy has turned from formally pro-cyclical design prior to COVID-19 period to counter-cyclical in the pandemic years, on average. While this is naturally driven by the wide roll-out of fiscal support measures during the pandemic, including health care expenditures and spending on job security, the change in the fiscal reaction function is still visible if these effects are taken away from the budget, even though the move is less pronounced and signifies a change from a pro-cyclical to an a-cyclical fiscal regime.

\section{Introduction}

The 2008 world financial crisis and the following debt crisis in Europe hit the affected economies across a spectrum of indicators, with declining growth rates, high unemployment and huge fiscal gaps, resulting in increasing public debt ratios. Economists, politicians and public opinion viewed that period as incisive with regard to fiscal policy and public finances, being often dubbed as “this time is different” (Reinhart and Rogoff, 2009).

However, the recent COVID-19 pandemic and the associated economic downswing due to the health crisis is even more pronounced than before, making governments to take extraordinary actions to counter-steer and cushion its economic impacts. Stringent containment measures, imposed to slow down the spread of the coronavirus (COVID-19 or C19), were quickly reflected in short-term declines in economic activity and surges in public interventions across major economies (Gurría, 2020). The early data suggest that the pace and magnitude of the shock were unprecedented, as exemplified by business and consumer confidence indicators plummeting across the globe, with some subcomponents reaching all-time lows. Furthermore, March 2020 represented the month with the highest number of downgrades by rating agencies in the last twenty years. For example, as of the end of Q1 2020 Fitch Ratings put at negative outlook 83\% of industry and structured finance assets, and all sovereign sector assets (Fitch Ratings, 2020).

Firms across regions have faced significant challenges from the worsening operating environment and economic shutdowns. While the quick rise in unemployment and jobless claims in major developed and emerging markets have been uneven across regions and sectors, fiscal balances have been put under pressure across the board. According to AMECO database, the share of public debt...

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jumped from 78.8% of GDP in 2019 to 92.1% in 2021 in the European Union (EU). Furthermore, the government debt in the euro area reached the size of its economy for the first time in history. Without doubt, the fiscal response points to a clear counter-cyclical direction taken up by the policy makers across the EU. It remains unclear however, if the public debt levels increased solely to match the magnitude of economic contraction or if the fiscal reaction function has changed too.

The EU is a union of 27 independent Member States of which 19 share the same currency, i.e., the euro. With the Maastricht Treaty (Treaty on the Functioning of the European Union) they formally agreed upon a common framework regarding policy and actions in 1993. Amongst many other facets of democratic and societal aspects this also incorporates regulations with regard to fiscal policy and the budget situation of the independent Member States. In particular, Article 126 and Protocol 12 refer to a 3% ceiling for the ratio of the government deficit relative to GDP and a benchmark of 60% for the government debt relative to GDP (EUR-Lex, 2008a). If a member state does not meet these requirements the institutions, in particular with competence of the Council and monitoring/advisory surveillance of the European Commission, may impose an Excessive Deficit Procedure (EDP), see Art. 126 (EUR-Lex, 2008b). An EDP refers to the process of regulations obliged by the EU bodies, in particular the European Commission, against a member state that misses the budget targets and violates the fiscal rules mentioned above. In our exercise we distinguish previous periods in which countries underwent EDP from the recent pandemic crisis situation, in which these rules were temporarily abolished.

In this context, the purpose of this study is fourfold. Firstly, we put the recent fiscal reaction in historical perspective. In particular, we assess the degree of fiscal counter-cyclicity in the EU after the year 2000. We do that to better account for drawing on fiscal resources during the pandemic crisis and therefore, as we will argue later, support rationale why the European Commission suspended the EDP vis-à-vis the Member States in 2020. Secondly, we study the magnitude of the counter-cyclical behavior throughout 2020 and 2021 in response to the economic contraction. In particular, we compare the previous instances in which the EDP was suspended and analyze if the pandemic years 2020 and 2021 were characterized by a significantly stronger counter-cyclical element. Thirdly, we analyze if fiscal reaction differs with respect to the EU status, i.e., between New Member States (NMS) versus Old Member States (OMS). Finally, we address the sources of cyclicity and their effect in the fiscal reaction function by controlling for the types of public expenditure and their role within the pandemic years.

We contribute to a substantial body of empirical literature, which studies the interaction of fiscal policy and the business cycle. Our particular focus is on discretionary policy, which we define as ad hoc policy deviations from predetermined rules and procedures present in the EU regulations. Many European Monetary Union (EMU) states appear to have followed pro-cyclical fiscal policies before 1992 and a-cyclical afterwards (Buti et al., 1997; Gali and Perotti, 2003; Wyplosz, 2006). Von Hagen (2005) and Candelon et al. (2010) argue that for several EMU states clear pro-cyclical patterns could have been observed even after 1992. The relation between fiscal rules and the business cycle seems to vary, however, for the countries which joined the EU in the 21st century. For instance, based on the EU enlargement in 2004, Fincke and Wolski (2016) find evidence that the adoption of EU fiscal rules might change public finance policy towards more counter-cyclical policy. We take these observations as a starting point for this study, and assess how the recent pandemic situation might have challenged the conventional view that fiscal policy functions differ between OMS and NMS, and how it has changed during the pandemic years with particular focus on public spending patterns.

First, our results indicate that there is a significant change in fiscal policy behavior from pro-cyclicity prior to the crisis to counter-cyclical behavior in the COVID-19-periods. Moreover, the estimations suggest that counter-cyclical fiscal policy could have been observed across the EU, independently on the membership status. Secondly, we demonstrate that, the same as the magnitude of the economic contraction, the degree of counter-cyclical behavior throughout 2020 and 2021 was unprecedented. In particular, as we compare the previous periods in which the EDP was suspended, we show that the years 2020 and 2021 were characterized by a significantly stronger counter-cyclical element. Thirdly, we confirm that the observed counter-cyclicity was indeed driven by higher spending in the health sector, and direct support to disposable income, including unemployment and social protection benefits. Nonetheless, even when controlling for different types of expenditures, we still observe a shift in the policy regime during the pandemic years but of a different kind. The evidence supports the view that fiscal policy moved from strongly pro-cyclical in the previous EDP periods to a-cyclical policy in 2020 and 2021.

Bottom line, our results confirm the tragedy which the pandemic has brought onto the EU’s economy. Unprecedented shocks require unprecedented measures, which is clearly visible not only in the change of the fiscal reaction function but also in its commonality across the EU. One can argue that it took the pandemic crisis to shift the EU’s fiscal policy to counter-cyclicity. However, the swing in fiscal policy direction seems to be driven by more than COVID-19-related expenditures only. We are tempted to conclude that indeed “this time is different” but not only because of the pandemic-related support. While only time can tell if this residual element in the fiscal reaction function is more permanent or temporary, we view it as a positive signal which could be possibly recognized in the discussion on the design of the EU fiscal rules.

In March 2020, the European Commission proposed for the first time the activation of the general escape clause that would pause the adjustments Member States have to do to meet their fiscal targets and allow them to spend freely. We confirm that this allowed the countries to act strongly against the cycle, adjusting their budget planning and cushioning the negative effects of the pandemic. If this counter-cyclical behavior is any justification for temporarily relaxing the fiscal rules, the lesson from the pandemic crisis should be embedded in the regulatory framework. We believe that anchoring severe adverse scenarios explicitly in the EDP

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3 NMS refer to all EU countries which joined after 2004, including Croatia. Details are described in the data section below.

4 The year 1992 marks the signature of the Maastricht Treaty, later followed by the Stability and Growth Pact (SGP) proposed in 1997, setting up a framework for sound and sustainable public finances in the EU. For more information about history of EU fiscal rules see Wyplosz (2006) or Fincke and Wolski (2016).
rules can make the regulation better fit-for-purpose, by bringing more certainty to the decision-making process and allowing for swift deployment of the necessary resources in a timely manner. Furthermore, given the observed residual a-cyclical effects in the fiscal reaction function, EU regulators could consider less aggressive post-crisis fiscal consolidation, as on balance it seems that Member States could not be using their discretionary instruments pro-cyclically anymore. However, the exact design of these rules, and whether they should include the after-crisis consolidation clauses, requires a more thorough assessment in the years after the pandemic.

The rest of the paper is organized as follows. Section 2 presents our empirical approach and describes our data sources. Section 3 displays the results, including several robustness checks. Section 4 summarizes the main findings and concludes the paper.

2. Empirical strategy

In view of the severity of the pandemic situation we estimate the relationship between discretionary fiscal policy and the business cycle. We compare it to the previous crisis periods in Europe to see if there is empirical evidence to support a change in the fiscal reaction coefficient. The estimation procedure starts with a simple fixed effects panel model. Eq. (1) outlines the main specification.

\[
CAPB_{i,t} = \beta_0 + \beta_1 CAPB_{i,t-1} + \beta_2 C19_i \times OGap_{i,t} + \beta_3 C19_i + \beta_4 OGap_{i,t} + \beta_5 X_{i,t-1} + \mu_i + \epsilon_{i,t}
\]

with \(CAPB\) denoting the Cyclically Adjusted Primary Balance, \(OGap\) representing the Output Gap and \(X_{i,t-1}\) being a vector of control variables, that is the debt to GDP ratio \(Debt_{t-1}\) and inflation \(Inflation_{t-1}\). Subscripts \(i\) and \(t\) correspond to the country and time dimensions, respectively.

While the dynamic panel model outlined in Eq. (1) seems to be commonly chosen framework to assess the discretionary fiscal policy (see for instance Gali and Perotti, 2003, Candelon et al., 2010 or Poplawski-Ribeiro, 2009), one technical caveat needs to be pointed out.

The dynamic specification controls for the likely autocorrelation of budget decisions, coming from gradual adjustment to a target budget, or just from the serial correlation in the exogenous shocks, by adding the lagged dependent variable as a regressor. Fixed effects estimators, however, are known to create a \(\beta_1\) regressor which cannot be distributed independently of the error term. In fact, Nickell (1981) demonstrates that a standard fixed-effect estimator introduces a negative bias in \(\beta_1\), so that the persistence of the dependent variable will be underestimated.

We try to overcome this problem by using two alternative model specifications as robustness checks. Firstly, instead of controlling for the lagged dependent variable explicitly, we estimate the model from Eq. (1) on the first differences of \(CAPB\) and \(OGap\), thus removing the biased autoregressive coefficient from the RHS. Secondly, we estimate the model in Eq. (1) using the Arellano and Bond (1991) estimator. Arellano–Bond method brings additional internal (i.e. based on lagged values of the instrumented variable) and external instruments to the model, aiming to correct for the Nickell’s bias. Furthermore, it uses a Generalized Method of Moments (GMM) technique, thereby constructing more efficient estimates of the dynamic panel data model.

On top of the above, we bring a few more model specifications which aim to test the robustness of the main relation between the \(CAPB\) and \(OGap\). Overall, we estimate 5 models, including (1) the naked model from Eq. (1) without the control vector, (2) our benchmark specification including all the controls, (3) model with interactions of all controls with the COVID-19 pandemic dummy (those coefficients turned out to be insignificant and are not reported for transparency), (4) benchmark specification estimated on the first differences of the main variables and (5) the dynamic panel estimator of Arellano and Bond (1991).

2.1. Data

Our primary data source is the AMECO (2020) database, which comprises annual data for 27 EU countries and the UK over the years from 2000 until 2022.\(^5\)

We look at the Cyclically Adjusted Primary Balance (\(CAPB\)) and Output Gap (\(OGap\)), calculated in net terms as \(\frac{Y-\bar{Y}^*}{\bar{Y}^*}\), i.e. the difference between the actual GDP \(Y\) and the potential GDP \(\bar{Y}^*\) as percentage of potential GDP. These two variables serve as the main identification mechanism on the relationship between the central fiscal policy and the business cycle (Fincke and Wolski, 2016). With such definitions, a positive coefficient signals counter-cyclical behavior (as fiscal policy would consolidate as the output increases), whereas a negative one reveals pro-cyclical reactions (as fiscal policy would accelerate as output increases). Our control variables include also public debt and inflation, also taken from AMECO database. Public debt gives information on fiscal sustainability and inflation, as a monetary variable, captures the reaction of the financial markets and controls for monetary policy reaction. We create a time dummy \(C19\) for the years after 2020, to study the effect of the pandemic.

The panel data set provides budget information for the EU economies covering the debt crisis period with huge primary deficits such as 27.2% of GDP in Ireland 2010 but also increased values for instance in Greece 2016 with about 9%. On average, the debt ratio was about 60% which meets the reference values of the Treaty, however the range is broad, with some values as high as 208.8% in Greece in 2021 and 3.8% in Estonia in 2007. High inflation was a problem, for instance, in Romania in the early 2000s with a maximum of 36% in 2000. The output gap ranged from −16 % to 11% and was slightly negative on average. During the

\(^5\) The most recent observations should be understood as projections.
Table 1
Summary statistics of the main data set.
Source: AMECO (2020).

|                  | Full sample | Pandemic period* |
|------------------|-------------|------------------|
|                  | Mean | Min  | Max  | StdDev | Mean | Min  | Max  | StdDev |
| CAPB             | −0.46 | −27.7| 9.1  | 3.01   | −2.9 | −8.2 | 1.8  | 2.08   |
| Output gap       | −0.41 | −15.8| 11   | 3.38   | −2.9 | −10.8| 0.8  | 2.38   |
| Public debt      | 60.6  | 3.8  | 208.8| 35.64  | 77.37| 18.2 | 208.8| 41.87  |
| Inflation        | 2.5   | −10.15| 36.1 | 3.08   | 1.75 | −1.51| 5.54 | 1.23   |

Notes: values for CAPB and public debt represent % of GDP except, output gap is expressed as % of potential GDP, and inflation corresponds to % annual change in price level.

*Pandemic period is defined from 2020 until 2022.

Table 2
Stationarity test results.

|                  | No trend component | Lags | With trend component | Lags |
|------------------|--------------------|------|----------------------|------|
| CAPB             | 0.00               | 0.86 | 0.00                 | 1.39 |
| Output Gap       | 0.00               | 0.64 | 0.00                 | 1.00 |
| Debt             | 0.07               | 0.71 | 0.00                 | 2.04 |
| Inflation        | 0.00               | 1.04 | 0.00                 | 1.86 |

Notes: reported p-values of the Levin et al. (2002) stationarity test against the null hypothesis that the data is panel non-stationary. Optimal number of lags for each panel is selected with AIC, and the average number of lags is reported in the table.

pandemic period the situation deteriorated across almost all variables: the primary deficit and debt rose, the average output gap is almost −3 %, only the inflation slowed down a little, on average. Detailed information and descriptive statistics of the data can be found in Table 1.

Currently, the general escape clause is activated allowing countries to temporarily diverge from the possible fiscal consolidation requirements, as defined by the EDP procedure. We collect a detailed list of previous periods when EDP was imposed across the EU economies (for transparency, this list is provided in the Appendix in Fig. A.6). We use it as a reference to tag the country-year periods, defining previous crises periods for comparison with the pandemic years.

2.2. Panel unit root tests

We verify to what extent the data suffers from possible non-stationarity problems. To this end, we carry out the Levin et al. (2002) stationarity panel test, which is best fit for moderate-sized panels. Under the null hypothesis, the test assumes that all panels have the same non-stationary autoregressive parameter \( \rho \). The alternative hypothesis suggests stationarity, i.e. \( \rho < 1 \).

The test requires that the panels be strongly balanced, which in our case is satisfied when excluding the first year of observations. We run the test on the demeaned variables, absorbing the possible fixed effects, to be consistent with the model specification proposed earlier in this section. We also verify the stationarity results controlling for possible trend components. The number of lags for each of the panels is selected using the Akaike Information Criterion (AIC).

Table 2 displays the stationarity results. Only the debt variable appears to be panel non-stationary at 0.05 significance level. This, however, disappears when controlling for a trend component. Overall, the evidence suggests to reject the null hypothesis of a unit root for each of the variables, pointing to a direction that our data is panel-stationary.

3. Results

All specifications from Table 3 show that over the last years the EU Member States on average pursued pro-cyclical fiscal policies, as the coefficient \( OGap \) indicates a negative relation between the output gap and \( CAPB \). Interestingly, this behavior entirely changes during the pandemic years. The interaction term \( C19 \times OGap \) is significantly positive and exceeds the magnitude of the standalone coefficient, signaling a substantial shift to counter-cyclical behavior. The time dummy \( C19 \) does not turn out to be significant.

Furthermore, there seems to be inertial behavior as the coefficient of the lagged primary balance \( CAPB(lag) \) shows a significant positive value. This pattern is consistent across the model specifications and it is also in line with previous studies (Fincke and Wolski, 2016). Additionally, high public debt appears to be reflected in subsequent fiscal consolidation, as indicated by the positive debt coefficient. The fiscal reaction seems to be unaffected by possible spillovers from inflationary pressures, for the majority of years the price levels were rather stable. Regarding the diagnostics, with 615 observations and based on an adjusted R-squared value ranging between 0.595 and 0.629 the model specifications present a reasonable fit. For the first differences specification the value is considerably lower. We also perceive the Sargan test results of over-identifying restrictions to fall within an acceptable spectrum, given the data limitations and the sample size.

In the next step, we refine the model with respect to the EU status, that we provide the estimated on subsamples of OMS and NMS. This split of the sample allows to study whether the fiscal response in the one or the other group was different, as argued in
Table 3
Fiscal rules in pandemic years.

|       | (1) CAPB | (2) OGap | (3) CAPB | (4) CAPB (lag) | (5) CAPB |
|-------|----------|----------|----------|----------------|----------|
| OGap  | 0.594*** | 0.519*** | 0.503*** | 0.601***       |          |
|       | (0.095)  | (0.091)  | (0.092)  |                | (0.091)  |
| C19   | –0.123***| –0.068*  | –0.066*  | –0.158***      | –0.107***|
|       | (0.044)  | (0.034)  | (0.033)  |                | (0.031)  |
| C19 (lag) | 0.502*** | 0.554*** | 0.552*** | 0.660***       |          |
|       | (0.035)  | (0.035)  | (0.036)  |                | (0.033)  |
| Debt (lag) | 0.037*** | 0.038*** | 0.027*** | 0.007*         |          |
|       | (0.005)  | (0.006)  | (0.008)  |                | (0.003)  |
| Inflation (lag) | 0.028 | 0.031 | –0.035 | –0.020 |            |
|       | (0.044)  | (0.045)  | (0.032)  |                | (0.031)  |
| Constant | –0.099*** | –2.287*** | –2.370*** | –1.499***      | –0.428***|
|       | (0.023)  | (0.355)  | (0.374)  | (0.516)        | (0.325)  |

Observations: 615
R-squared: 0.595
Adj. R-squared: 0.574
Sargan p-val: 0.033

Notes: C19 is a time dummy for years 2020 and 2021. Column (1): benchmark model without controls. Column (2): benchmark model with controls. Column (3): benchmark model with all controls interacted with the C19 dummy (not reported as insignificant). Model (4): benchmark model estimated on the first differences of CAPB and OGap. Column (5): benchmark model with controls estimated using Arellano-Bond estimator. Coefficients are reported as well as country-clustered standard errors between brackets. The adequacy of instrument space in Column 4 is tested with the Sargan test.

*Imply significance at the 10% significance level.
**Imply significance at the 5% significance level.
***Imply significance at the 1% significance level.

Table 4
Fiscal rules in pandemic years between OMS and NMS.

|       | (1) Old Member States | (2) New Member States |
|-------|-----------------------|-----------------------|
| C19   | 0.519***              | 0.484***              |
|       | (0.163)               | (0.138)               |
| OGap  | –0.084                | –0.037                |
|       | (0.101)               | (0.070)               |
| C19   | 0.031                 | –0.664                |
|       | (0.464)               | (0.461)               |
| CAPB (lag) | 0.629***             | 0.595***              |
|       | (0.051)               | (0.060)               |
| Debt (lag) | 0.040***             | 0.055***              |
|       | (0.011)               | (0.007)               |
| Inflation (lag) | 0.311                | 0.014                 |
|       | (0.286)               | (0.011)               |
| Constant | 0.089                | –3.185**              |
|       | (0.093)               | (1.236)               |

Observations: 330
R-squared: 0.600
Adjusted R-squared: 0.576

Notes: C19 is a time dummy for years 2020 and 2021. Columns 2 and 3: benchmark model without and with controls for Old Member States (OMS). Column 3 and 4: benchmark model without and with controls for New Member States (NMS). Coefficients are reported as well as country-clustered standard errors between brackets.

*Imply significance at the 10% significance level.
**Imply significance at the 5% significance level.
***Imply significance at the 1% significance level.
the literature. Table 4 summarizes the results with the results for OMS given in Columns (1) and (2), and for the NMS in Columns (3) and (4).

While the results confirm the main findings from Table 3, they shed light on the differences between the Member States’ fiscal reactions. Firstly, Columns (1) and (2), reveal that for the OMS the negative sign of the output gap coefficient points to a-cyclical behavior, understood as not statistically significant value. However, once the focus is on the COVID-19 period (first row), the coefficients turn positive and significant indicating a switch towards counter-cyclical behavior.

Secondly, the results of the NMS in Columns (3) and (4) suggest this group conducted a statistically significant pro-cyclical fiscal policy, on average throughout the period. The interaction with the pandemic years shows a significant change to counter-cyclical fiscal policy, however. This changeover is even somewhat stronger in the NMS compared to the OMS. To sum up, we confirm that fiscal reaction function changed in the pandemic years to counter-cyclical status for both OMS and NMS. It seems that it is the pandemic situation that makes the difference but we run two further exercises to verify if similar patterns could have been observed in the past.

3.1. What does the history tell us?

We track the evolution of the fiscal policy by estimating the benchmark model on 3-year rolling window intervals. For transparency, the results are presented for the fiscal reaction coefficient for OMS and NMS separately in Figs. 1 and 2, respectively. The results indicate an alternating behavior over time, with patterns shifting for both groups over time. However, one characteristic clearly stands out. For the current period of the pandemic there is sustained change in fiscal behavior. The reaction of the budget variable is significantly positive for the years starting with 2018–2020 period for both country groups, indicating a change towards a counter-cyclical fiscal policy in face of the COVID-19 crisis.

As a final step, we compare the current situation to the previous EDP periods. In particular, we estimate the benchmark model conditional on whether a country was under the EDP procedure as reported in Fig. A.6. The results are presented in Figs. 3 and 4 for the two groups of countries.

The results indicate that the previous EDP periods were actually marked by rather pro-cyclical/a-cyclical fiscal policies across the Member States. There is, however, a distinctive change towards counter-cyclicality with a positive value in both groups during the pandemic years. We view that as a confirmation that the recent crisis was followed by an unprecedented shift in fiscal policy across the EU. Without doubt, this shift was required by the magnitude and scope of the drop in the aggregate demand during the crisis. The cushion which was provided by fiscal policy reached beyond automatic stabilizers, which were activated through lower economic activity, and expanded to extra discretionary spending. We take this reasoning one step further in the next subsection, whereby we investigate which types of public expenditures were the main drivers of the change in the fiscal reaction setup.
3.2. Sources of counter-cyclicality

We look into what types of expenditures were responsible for the observed counter-cyclical discretionary fiscal policies observed during the pandemic. To this end, we saturate the model from Eq. (1) by extra control variables, correcting for various types of general government spending. In particular, we distinguish among seven types of expenditures: public health, economic affairs, social protection, defence and public order, environment, housing, and culture and education (including other general public services).

The data for each of the extra variables come from the Eurostat (2022a) and it is expressed as a share of GDP. It should be noted that due to the substantial lag in disclosing this information, the time series are available only until 2020 and do not include the UK. As the majority of COVID-19 fiscal measures were still in place across the EU in 2021, we approximate their shares in that year by carrying forward the 2020 values. Nonetheless, since the year 2022 has been driven by the war- and energy-related fiscal impulses, to avoid the noise, we do not extrapolate the values further and we stop the estimation sample in 2021.

To study the effect of certain types of public spending that were particular relevant in the COVID-19 pandemic period we refer to the classification according to the government expenditures by function such as published by Eurostat. Especially, we focus on the group of public health spending (for instance including hospital and public health service or R&D related to health), economic affairs (government expenses on general economic, commercial and labor affairs for example) and social protection (incorporating for instance spending on sickness and disability or unemployment), see for example Eurostat (2022b). The data shows that these categories were important during the crisis, but not only health care expenditures rose (by about 1 percentage point). Particularly, the economic affairs category changed. There is a significant rise visible with the pandemic for instance in Austria, Portugal and Slovenia. In Lithuania, Malta, the Netherlands and Poland these spendings almost doubled from 2019 to 2020 while in Greece they rose by over 150%. We also include other types of spending such as environmental protection (for instance expenses on ecological issues like waste and water management or pollution), housing (such as spending on community development or street-lightening) and cumulated series on defense and public order expenses (for safety and security matters) and spending on education (such as schooling affairs), culture and recreation and general public services (for instance executive and legislative organs, financial and fiscal affairs). However, these types of expenditures were of minor size and turned out to be not as exposed to such drastic changes as the first three series of expenditures. A detailed description is listed in Eurostat (2022b).

Our strategy aims to check the robustness of the $C19 \times OGap$ coefficient in the presence of the extra controls. Should the significance disappear, we would argue that the counter-cyclical discretionary policy is due to the variation in the extra variable, reflecting a particular type of expenditure. We run a separate specification for each of the variables, and one horse-run specification where all the variables are included at once. The results are presented in Table 5.
We re-estimate the benchmark specification on the sample ending in 2021, to firstly check if the counter-cyclicality is a result of anticipated 2022 fiscal positions. While the coefficients halves in the magnitude, our main conclusion still holds pointing towards a positive relation between the output gap and cyclically adjusted primary balance. This relation changes, however, when controlling for possible sources of counter-cyclicality, the difference between the EDP years and 2020–21 years, as per Fig. 5, differences are also visible when comparing the 2020–21 period with the previous episodes when the EDP was suspended. Fig. 5 plots the size and the confidence interval of the discretionary fiscal coefficient in the two periods. One can readily observe that, even when controlling for all the types of public expenditures as per the horse-race specification in Table 5, discretionary fiscal policy happened to be strongly pro-cyclical in EDP years across the EU, on average. The distinct feature of the pandemic crisis was that fiscal policy moved towards counter-cyclicality, even if achieved only through the targeted support programs. However, even when controlling for possible sources of counter-cyclicality, the difference between the EDP years and 2020–21 years, as per Fig. 5, is statistically significant at 5% level.

Summing up the findings indicate that it took the pandemic crisis to shift the EU’s fiscal policy into a counter-cyclical direction. Moreover, our outcomes reveal that the counter-cyclicality of 2020 and 2021 stems from the expenditures to health and social/economic protection. If these effects are taken away from the Member States’ budget, the discretionary fiscal policy has been highly pro-cyclical during the previous EDP years and a-cyclical during the 2020 and 2021, on average.
4. Conclusions

This paper empirically investigates fiscal policy in EU Member States since the year 2000 and particularly analyzes if there is a change in fiscal behavior in the pandemic years compared to the previous crisis periods. Moreover, we study the heterogeneity of fiscal reaction function due to the EU membership status.

Our results clearly indicate that there is significant switch in fiscal policy during the pandemic period. While the regime was on average pro-cyclical/a-cyclical prior to the crisis, during 2020–22 Member States turned drastically to counter-cyclical fiscal policies. Furthermore, the estimations indicate that this is not necessarily dependent on the membership status but rather due to the extraordinary situation of the pandemic, even though the switch effect of counter-cyclical behavior is a little stronger in the NMS compared to the OMS.

Overall, we demonstrate that the degree of counter-cyclical behavior throughout 2020 and 2021 was unprecedented compared to previous situations in which the EDP was suspended. Our results show that the years 2020 and 2021 were characterized by a significantly stronger counter-cyclical element than any earlier period under investigation.

Moreover, our results indicate that the COVID-19-related public expenditures, in particular public health spending, economic affairs and social protection, are responsible for the policy shift. But the change in the fiscal reaction function is still visible if these effects are taken away from the budget, even though the move is less pronounced and signifies a changeover from a pro-cyclical to an a-cyclical fiscal regime.

As a policy conclusion, we suggest that anchoring the cyclical-patterns in the EDP decisions can bring an extra credibility benchmark for the regulation to be better fit-for-purpose. This becomes particularly important as the temporarily suspension of the deficit rules comes to an end and restoring them may call for reforms and adjustment. Given that the shift in the fiscal reaction function is still visible when controlling for pandemic-related expenditures, one can argue in favor of less aggressive post-crisis fiscal consolidation measures.

As the economy emerges from the pandemic, and more data points become available, it seems only natural to further investigate the effectiveness of the fiscal rules in the face of severe adverse shocks on a spectrum of socio-economic indicators. Our study is only the first step in this direction whereby we confirm that in 2020 and 2021 policy makers in the EU could not much rely on previous experience when deciding on fiscal policy.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix. Overview on EDP periods

To offer a credible benchmark for the pandemic situation, the following table lists all periods for the EU members over the past twenty years in which they underwent an Excessive Deficit Procedure (EDP). While during the heat of the financial and debt crisis in Europe, there were still some economies such as Luxembourg, Sweden or Estonia, that were not exposed to an EDP, in the recent pandemic situation all countries face severe fiscal difficulties and did not fulfill the criteria.\(^6\)

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\(^6\) The classification in categories is based on information on council decisions on the existence of an excessive deficit and abrogating that decision as published by European Commission (2020). See also Mathieu and Sterdyniak (2005) Section 3 for details.
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