2. Macroeconomic implications of the COVID-19 revisited

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Abstract

Purpose: The chapter identifies channels of COVID-19's impact on the economy. The empirical part presents and assesses the consecutive reactions of inflation, industrial production, the unemployment rate, Gross Domestic Product (GDP) growth rate and shifts in GDP expenditure structure on the COVID-driven disturbances and policies designed and implemented. A new research dimension covers the central banks' monetary policy, long-term bond yields and real effective exchange rates.

Design/methodology/approach: A complete standard Keynesian macroeconomic model is used as the conceptual framework of revisited studies on the adverse shocks triggered by the pandemic. In the empirical part, comparative analyses of reactions of the same group of six European countries, namely France, Germany, Italy, Spain, Hungary and Poland and two major large open economies of the USA and Japan are done.

Findings: The real shocks transmitted to the demand and supply sides were mostly neutralised; countries protected their levels of employment and consumption. However, the real economy's restored stability was achieved at a significant cost of inflation, higher public debt and hikes in the cost of debt servicing.

Practical implications: The analytical framework and empirical analyses have a potential value as a case study in economic policy design and appraisal.

Originality and value: The original empirical analyses extended to the monetary policy domain offer a comprehensive perspective on the real and nominal disturbances and policies implemented to stabilise the economies.

Keywords: complete macroeconomic model, COVID-19 vs demand and supply shocks, macroeconomics of the COVID-19 disturbances, anti-crisis economic policy.

Suggested citation
Kowalski, T. (2024). Macroeconomic implications of the COVID-19 revisited. In E. Mińska-Struzik & B. Jankowska (Eds.), *Is there any "new normal"? Economics of the turmoil* (pp. 39–63). Poznań University of Economics and Business Press. https://doi.org/10.18559/978-83-8211-217-7/2

Introduction

The chapter aims to revisit and enhance the study (Kowalski, 2021). It discusses and assesses the two years of COVID-19's economic impact. For the sake of continuity and comparison it uses the same analytical framework as implemented in Kowalski (2021, pp. 16–18).

Empirical analyses focus on macroeconomic developments in four pairs of countries. These are Italy and Spain, Germany and France, Poland and Hungary and Japan and the US. The first two are southern EU members that suffered severely in the first months of the pandemic. Germany and France are the key EU economies with relatively well organised and developed health services. The first four countries belong to the EMU. Hungary and Poland, also the EU members have a similar institutional heritage. They chose to stay outside the EMU. Japan and the US are the key large open economies with national currencies of a global importance.

The economic shock triggered by the pandemic was the fourth in the 21st century. The first was the dot.com bubble but it had a limited US range and mild implications for the global economy. The second was the 9/11 shock with long-lasting monetary policy and global finance implications. They planted seeds for the third crisis of 2007–2009, already global and acute. For a long time, it was felt the most by developed countries of the European Union. The 2007–2009 crisis was the first significant blow to globalisation. It was mirrored in a transitory drop in flows of capital and trade. Finally, the fourth shock began in March 2020 and was the most extensive global macroeconomic crisis since the Great Depression of 1929–1933. The COVID-19 shock faded at the beginning of 2022 and was phased out by the February 24th outbreak of the Russian Federation invasion of Ukraine.

The pandemic although universal, had asymmetric implications for individual economies. The universality meant that it hit all economies and struck both the demand side and—after a very short time lag—the supply side as well. The supply-side disturbances unveiled vulnerabilities of sectors and whole national economies to global delivery chains. Particular economies, despite their interconnectedness maintained notable structural differences and showed divergent resilience to the shock. In order to show the morphology of these compound reactions and compare the efficacy of economic policies, a standard complete macroeconomic Keynesian model is used. It is a framework allowing to distinguish real and nominal shifts caused by COVID-19 disturbances. It also shows the implications of fiscal and monetary measures to stabilise the economy.

The chapter is divided into five sections. The first section presents and discusses the COVID-19 pandemic death toll. The second outlines the macroeconomic framework used to study the morphology of COVID-19 shock. The thirds section

is devoted to economic policy counter-shock measures implemented on national levels. The fourth section analyses the response trajectories of eight national economies on COVID-19 shock and stabilisation policy measures. It focuses on seven macroeconomic indicators. These are inflation, 10-year bond yields, industrial production, unemployment rate, GDP growth rate, shifts in GDP expenditure structure and real effective exchange rates. The last section concludes the chapter.

2.1. The COVID-19 pandemic cumulative death toll

The COVID-19 pandemic began in Wuhan in the People's Republic of China (PRC) and then, in the first quarter of 2020, spread to other parts of the world (Kowalski, 2021, pp. 14–15). The death toll was the most dramatic outcome of the pandemic. This chapter focuses on the evolution of the pandemic shock up to the first quarter of 2022. Two reasons justify the focus on the first months of 2022. The first is that the pandemic, although still extant, was no longer seen as an existential threat. The second reason was the February 24th Russian invasion of Ukraine. It marked new military, political and economic shocks that pushed the SARS-CoV-2 danger to the background.

The death toll was the most dramatic outcome of the COVID-19 pandemic. Not only during the pandemic people die infected with SARS-CoV-2, but due to lack of tests or personnel some sick people could never be tested. Many suffering from other diseases were deprived of proper, timely diagnoses or treatments. Moreover, those tested and who died from COVID-19 often simultaneously suffered from other accompanying diseases. In addition, because of developmental and institutional differences and divergent national ways of information collecting and processing it is impossible to establish globally a precise number of deaths caused directly by SARS-CoV-2.

To solve the problem of a lack of precise data the concept of *excess death* is used as the proxy for the actual pandemic death toll (The pandemic's true, 2023).[1] According to *The Economist* the excess deaths figure "is the gap between how many people died in a given region during a given time, regardless of cause, and how many deaths would have been expected if a particular circumstance (such as a natural disaster or disease outbreak) had not occurred" (The pandemic's true, 2023).[2] These metrics unveil a considerable gap between the official number of

[1] For other estimates see: Mathieu et al. (2020). See also the most recent estimates in Dattani (2023).

[2] The tool used by *The Economist* is a machine-learning model fed with all available data for individual countries. It can estimate the number of excess deaths daily.

COVID-19 deaths globally—6.9 million—and *The Economist* model's estimate, which is 21.8 million.[3]

Table 2.1 shows a cumulative official and estimated excess death toll recorded at the end of the first quarter of 2022. Globally, according to national authorities' aggregated data, over 6 million people died due to COVID-19. Regionally the highest numbers were recorded in Europe and Latin America & the Caribbean—well over 1.7 and 1.6 million respectively. Following the official data the highest death toll per 100,000 inhabitants was noted in North America, Latin America & the Caribbean and Europe. Due to the aforementioned specific differences in the classification of cases, the concept of excess deaths is more reliable and informative. What is striking is the magnitude of the discrepancy; the total world number of estimated excess deaths was 2.8 times higher than the officially recorded cases. The highest regional discrepancies were estimated in Africa and Asia: 7.2 and 6.2 million, respectively. The highest estimated excess death toll per one hundred thousand people (410 cases) was recorded in Europe. Both Americas also noted very high incidents of 380 and 320 people respectively.

Table 2.1. Global cumulative official COVID-19 deaths and estimated excess deaths across regions as of March 28, 2022

The world and regions	Official COVID-19 deaths	Per 100,000	Estimated excess deaths	Per 100,000
World	6,152,000	77	17,360,000	220
Africa	253,000	18	1,830,000	130
Asia	1,404,000	30	8,770,000	190
Europe	1,783,000	239	3,060,000	410
Latin America & Caribbean	1,691,000	256	2,500,000	380
North America	1,011,000	268	1,190,000	320
Oceania	9,897	22	10,600	23

Source: (The pandemic's true, 2023).

At the beginning of 2022 the global dynamics of the death toll decreased but it still signalled that the threat was not over. Table 2.2 shows cumulatively both official COVID deaths and estimated excess deaths data for the sample of eight

[3] According to *The Economist* model at the time of writing (April 8, 2023), there is a 95% chance that the true figure is between 17.1 million and 29.6 million additional deaths.

countries in the first three months of 2022. Table 2.2 indicates that official COVID deaths increased in February with the highest rates in the US and Spain (7.2% and 6.9% respectively). In March in all countries except Germany, the dynamics of official COVID death cases decreased. The best situation in this respect was recorded in Spain. A closer inspection of cumulative excess deaths' estimations capturing a broader spectrum of COVID-19 pandemic implications in terms of mortality reveals that in February the situation improved only in Germany and Spain. Developments in March in comparison with February were diverse; the growth rate decreased in all countries except Germany, Italy and Spain. The data shown in Table 2.2 signals that the shifts towards improvement were unevenly distributed. The data also indicate that the pandemic became more controlled after two years but still was not fully overcome.

Table 2.2. Cumulative COVID-19 death and excess deaths cases* till the first quarter of 2022 (in thousands)

Country	2022_Q1					
	January 31		February 28		March 28	
	official COVID deaths	reported excess deaths	official COVID deaths	reported excess deaths	official COVID deaths	reported excess deaths
France	127,773	103,987	135,056	104,755	138,497	105,664
Germany	122,202	116,230	128,757	113,399	135,857	115,597
Hungary	41,105	42,191	43,949	42,920	45,342	43,559
Italy	146,147	200,555	154,560	203,558	158,782	208,092
Japan	331,349	1,114,005	351,660	1,200,200	367,686	1,200,000
Poland	105,198	179,231	111,318	182,819	114,828	183,534
Spain	97,207	112,933	101,947	112,558	103,583	112,904
The US	884,056	1,117,686	947,738	1,151,929	973,862	1,152,824

* Since the country's first 50 COVID deaths.
Source: (The pandemic's true, 2023).

Table 2.3 shows the cumulative COVID-19 deaths and excess death cases per 100,000 people at the end of the two-year pandemic. Two European countries: Hungary and Poland recorded the worst outcome. Hungary had the highest number of official COVID death cases—almost 455 people per 100,000 inhabitants. Poland led in terms of excess death cases with over 460 death cases. The lowest COVID

death toll, twenty times lower than in Hungary, was recorded in Japan. Its excess death toll was over twelve times lower than that in Poland (Table 2.3).

Table 2.3. Cumulative COVID-19 death and excess deaths cases per 100,000 people* at the end first quarter of 2022 (in thousands)

Country	March 28 2022	
	official COVID deaths	reported excess deaths
France	204,23	155,79
Germany	162,96	138,66
Hungary	454,91	436,81
Italy	268,95	352,47
Japan	22,45	36,33
Poland	288,10	460,48
Spain	217,80	237,40
The US	287,88	340,78

* Since the country's first 50 COVID deaths.
Source: (The pandemic's true, 2023).

In France, Germany and Hungary the reported cumulative excess deaths were lower than the official COVID deaths (Table 2.3). This paradox means that the number of COVID-related deaths was compensated by a much lover mortality stemming from the imposed prolonged lockdown. It meant social distancing and lower mobility were effective in reducing deaths caused by seasonal diseases such as 'flu'or traffic accidents.

At the time of writing (the first quarter of 2023) SARS-CoV-2 no longer presents an existential threat to the world population. The rushed development of vaccines, efforts to expand access to them (Moore et al., 2022) and standard precautionary measures implemented and often coordinated at the supranational level, first made the pandemic controllable and then led to its resolution. Despite that the COVID-19 pandemic is still debated. Its sources are being studied and there are several theories as to its origin and proliferation (Fang, 2022; Mancini, 2023a).

There are controversies regarding the institutional and political implications of the pandemic. They mostly follow the north-south divide. They range from such an important matter as the stalemate in the negotiations of the WHO-sponsored treaty on pandemics, through problems of vaccine sharing and inequality, calls

of developing countries for access to pandemic countermeasures, the removal of intellectual property restrictions on COVID-19 tests, vaccines and drugs, the efficacy of wearing masks and the vaccines and finally to the open question as to the origins of the virus. The latest is linked to the rules regarding unrestricted access of international medics and investigator teams to places of infectious disease outbreaks that are contested by some authoritarian countries (Mancini, 2023b, 2023c; Moore et al., 2022).

2.2. The morphology of COVID-19 macroeconomic shock

The outburst of the COVID-19 pandemic caused shockwaves in the social, economic and political life in all countries. The most immediate and directly felt were shocks of a medical and existential nature. They created uncertainty and deep concerns about the most essential aspects of life and survival. These disturbances triggered precautionary administrative actions limiting or banning mobility. Due to their nature, they adversely impacted both the demand and supply sides of economies. The supply-side disturbances were further magnified by local and global supply chain holdups, which became the main channel of contagion. In reaction, fiscal and monetary policy countermeasures were implemented to reduce the demand-side disturbances and were also targeted on the supply side.[4] The digital economy, mainly e-commerce, was in the front line of defence and displayed swift reaction to the new economic and social environment.

These were both real and nominal shocks from the mainstream perspective of the real business cycle domain (Long & Plosser, 1983; Plosser, 1989). In the reality it was a time of near simultaneous disturbances in the supply and demand for labour, access to components and raw materials and actual shifts in consumption and saving patterns. Therefore, they are mirrored in the production function (supply-side), whereas the latter influenced the demand-side. Nominal shocks stemmed from central banks' actions led to sizable changes in the money supply. They were passed through the interest rates channel to the demand and supply sides of the economy and finally were mirrored in the price level.

As already noted *we were all Keynesians especially at the time of the pandemic outburst*.[5] The scale of the negative economic shock stemming from COVID-19 and the accompanying uncertainty was such that a consensus emerged about the need

[4] For the comprehensive analyses of the COVID-19 global implications see: Aliber et al. (2023).

[5] This is a paraphrase of "we are all monetarist now" that reflected popularity of Milton Friedman's monetarist revolution that took minds of many macroeconomists in the 1970s. The phrase became broadly used thank to Laidler's article about monetarism (1981, pp. 1–28).

for a massive intervention in national economies with the use of fiscal, monetary and direct control instruments (Chomsky, 2020; Gopinath, 2020; Kowalski, 2020, p. 42).

In this chapter following Kowalski (2021) a macroeconomic comprehensive Keynesian SRAS/LRAS/AD model is applied to present and discuss real and nominal shocks that hit the economies. The model is also useful in showing the implications of the use of stabilisation fiscal policy measures.[6] The SRAS/LRAS/AD framework also enables the capture the real economy implications and the developments in the level-of-price domain. The model corresponds to the IS/LM/BP concept (Abel et al., 2016; Kowalski, 2013, pp. 20–22, 37–64). It also lets thinking about economic policy design along with the approach introduced by Tinbergen (1952). The advantages of the SRAS/LRAS/AD model are such that it combines short and long-term considerations that are easily expressed in a graph.

In Figures 2.1, 2.2, 2.3 and 2.4 P stands for the level of prices and Y represents output whereas Yn is the full-employment level of output and (P_0) is the pre-COVID price level. The LRAS is the long-term aggregate supply. The LRAS schedule represents the normal level of output being a function of labour, capital and natural resources and total factor productivity. If any of these factors increase it will shift the LRAS schedule to the right.

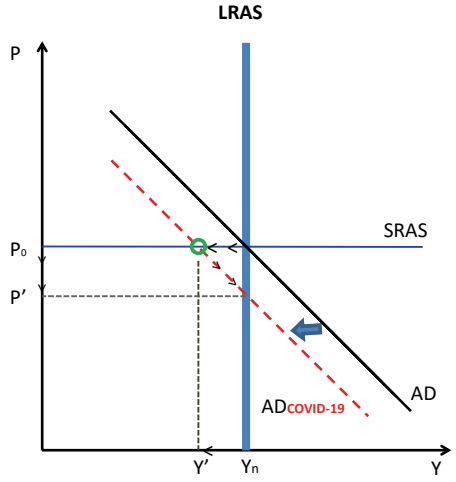

Figure 2.1. The first run reaction of the model economy to the COVID-19 shock

Source: based on standard macroeconomic literature.

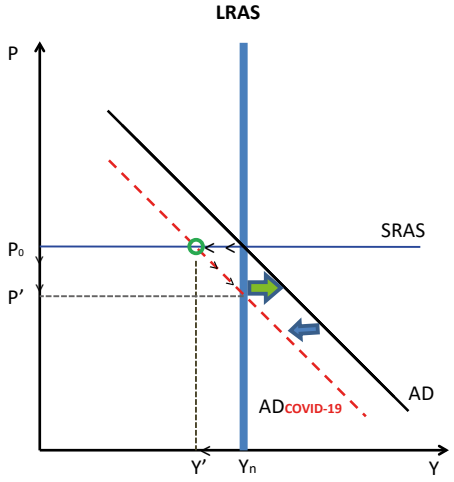

Figure 2.2. A perfectly fine-tuned stabilisation policy

Source: own work.

[6] There are other models that can be used to study economic policy options and challenges. A good example is Robert Mundell's concept of *effective market classification or the Salter-Swan model.* See: (Kowalski, 2013, pp. 53–55; Schmitt-Grohé & Uribe, 2021).

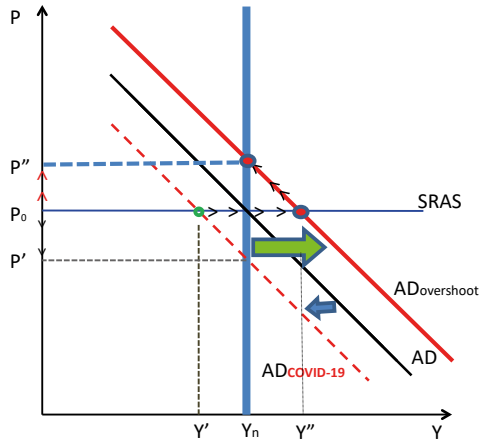

Figure 2.3. A case of the oversized stabilisation policy package
Source: own work.

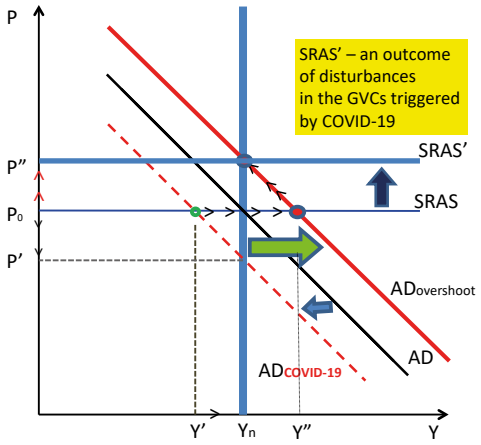

Figure 2.4. The completed cycle of the shocks and policy countermeasures
Source: own work.

SRAS stands for short-run aggregate supply. For the sake of simplification it reflects a standard assumption that in the short-run, ceteris paribus, prices are fixed and firms within their capacity are able to produce and offer as much as their customers demand. The aggregate demand (AD) shows relationships between output demanded by agents, ceteris paribus, and the price level. Any negative event or change for worse in customer expectations will shift the AD to the left.

Figure 2.1 shows the initial simultaneous equilibrium between long-term and short-term output and aggregate demand. The equilibrium price level (P_0) and the natural level of output (Yn) signal also that there is no new information that would change economic agents' expectations. Figure 2.1 also contains the reaction of the model economy to a negative shock stemming from COVID-19. The growing number of cases and the lockdown imposed to stop the disease reduced mobility of people and transitory shrank consumer demand. Soon a sizable part of the demand for staples and other goods migrated to the Internet and they were delivered to final consumers through e-commerce channels. In the beginning of COVID-19 the reduction of consumer demand was noticeable. The pandemic, due to the health considerations and preventive anti-COVID-19 measures, contributed to a slower pace of manufacturing as well. As Figure 2.1 shows the shift of AD to the left that moved the economy out of the pre-COVID conceptual position.

The reduced demand meant that the current output was lower (Y') than the natural level. If the economy is left without the anti-shock economic policy measures it would go through painful price and cost adjustments for an unknown time

lag to return to its original equilibrium. The prolonged functioning below the Yn level would also mean a higher than natural unemployment rate.

Figure 2.2 presents a perfect economic policy scenario. It implies that the timing, structure and the size of fiscal stabilisation policy measures and the accommodative (appropriate) monetary policy counter-balanced the COVID-19 negative shock. To realise how difficult it is to achieve such an economic policy design and implementation, if indeed this is possible, it is necessary to consider at least how fragile agents' expectations can be, the uncertainty accompanying any economic policy action, especially in pandemic, and the scale of international interdependence.

Figure 2.3 outlines a scenario in which the combined fiscal and monetary policy measures were oversized or unnecessary reached sectors that did not require such a scale of a state help (Wolf 2020). These measures could lead to an exceedingly expansionary policy overshooting the original effect and its induced negative shock. In such a scenario the stabilisation policy could destabilise not only output but also could lead to an increase in the price level. In the first months of stabilisation policy actions triggered by the COVID-19 the inflationary outcomes were barely seen.[7] Figure 2.4 combines all stages and presents the outcome of the cycle; negative shocks—policy actions—full pattern of the economy reactions. The cycle is complemented by the upward shift of the SRAS schedule mirroring cost-price adjustments triggered by the real and nominal shocks. It needs to be emphasised that the model presents a highly simplified pattern of the pandemic-triggered disturbances. It neglects differences between economies and their sectors' resilience to shocks. For the sake of simplicity it also assumes separate shifts of the AD and SRAS, whereas in the reality the shifts could happen simultaneously.

Due to the almost simultaneous pandemic impact on the demand and supply sides of the economy the analyses were focused on the short run. What must be remembered is that such a pandemic inevitably had and will have impact on the size and structure of private investments. The scale of current public expenditures aimed at emergency help led to an unprecedented increase in public debt thus reducing the scope of public investments in the future. Both these trends will have an impact on the growth rate of Yn.

2.3. Economic policy counter-shock measures

In the first stage of the pandemic countries focused on supporting the continuity of business operations and maintaining household income—the key element determining consumption expenditure (Table 2.4). They used fiscal policy measures

[7] The only exceptions were two countries: Hungary and Poland (see section 4).

to extend cash transfers, enhanced coverage and extended the duration of unemployment benefits (Porcher, 2023). Small businesses, particularly in the service sector hit severely by lockdowns, received temporary deferrals of taxes and social security payments. Such additional spending or foregone revenue varied between 11.8% of GDP (the US) to 3.8% (the case of Spain). It must be emphasised that only a small fraction of the spending was channelled to the health sectors (IMF, 2023b; Kowalski, 2021, p. 19). Fiscal measures also included liquidity support directed mainly to big business. These were equity injections, loans, asset purchases and debt assumptions (Table 2.4). Potentially the costliest were guarantees. The Italian government distinguished itself by extending guarantees of 32.8% of GDP! It was followed by Germany, France and Spain: 24.8%, 14.8% and 13.2%, respectively (Kowalski, 2021, p. 19).

Table 2.4. Synopsis of selected country fiscal measures in response to the COVID-19 envisaged at the beginning of pandemic

Countries	Above the line measures			Liquidity support		
	additional spending or foregone revenue		accelerated spending/ deferred	below the line measures: equity injections, loans, asset purchase or debt assumptions	contingent liabilities	
	health sector	non-health sector			guarantees	quasi-fiscal operations
France	✓	✓	✓	✓	✓	
Germany	✓	✓		✓	✓	
Hungary	✓	✓				
Italy	✓	✓	✓	✓	✓	
Japan	✓	✓	✓		✓	✓
Poland	✓	✓		✓	✓	
Spain	✓	✓		✓	✓	✓
The US	✓	✓	✓	✓	✓	

Source: based on (Fiscal Monitor, n.d.).

These emergency measures aimed at maintaining both the economies' demand and short-run supply. Their general scope and timing depended on the civil service quality in particular countries and the local perception of the existential and economic threat to the countries' performance. The ad hoc fiscal measures

implemented at the outset of the pandemic and then later more careful actions were mirrored in the general government overall balance (GGOB) as a percentage of GDP (Table 2.5). In 2019—the last year of pre-COVID-19 normality—only Germany had its GGOB in surplus. As Table 2.4 shows in the next three consecutive years all analysed countries recorded profound annual GGOB deficits. In 2020 the deepest deficits were reported in the US, Spain and Italy: –14.0%, –10.1% and –9.7%, respectively (Table 2.5). Already in 2021 they were able to improve the budgetary situation. Table 2.5 also shows that the US implemented the most activist fiscal policy. High deficits were also recorded in Spain, Italy and Japan.

Table 2.5. General government overall balance in 2019–2022 (% of GDP)

Country	2019	2020	2021	2022
France	–3.0	–9.0	–6.5	–4.9
Germany	1.5	–4.3	–3.7	–2.6
Hungary	–2.0	–7.5	–7.1	–6.1
Italy	–1.5	–9.7	–9.0	–8.0
Japan	–3.0	–9.1	–6.2	–7.8
Poland	–0.7	–6.9	–1.8	–3.1
Spain	–2.8	–10.1	–6.9	–4.5
The US	–6.3	–14.0	–11.6	–5.5

Source: (IMF, 2023a).

The most straightforward, overall headline measure of fiscal prudence is the general government gross debt as a percentage of GDP (GGGD) is shown in Table 2.6. Already in 2019 there were considerable differences between the countries' indebtedness. The highest GGGD level was recorded in Japan: 236.4% of GDP, Italy, the US, France and Spain also had high levels of debt. In contrast Poland, Germany and Hungary recorded a lower GGGD. Due to cyclical reasons and emergency discretionary fiscal reactions (see Table 2.4 & 2.5) the GGGD rocketed in 2020. The US, Japan and Spain implemented the most expansionary fiscal policy packages. They were transformed into significant rises of GGGD as a percentage of GDP by 24.8, 22.3 and 22.2 percentage points respectively (Table 2.6). Other

countries implemented milder fiscal stimuli.[8] In subsequent years all countries except Japan reduced the public debt burden (Table 2.6).

Table 2.6. General government gross debt (% of GDP) 2019–2022

Country	2019	2020	2021	2022
France	97.4	114.7	112.6	111.1
Germany	58.9	68.0	68.6	66.5
Hungary	65.3	79,3	76.8	76.4
Italy	134.1	154.9	149.8	144.7
Japan	236.4	258.7	255.4	261.3
Poland	45.7	57.2	53.8	49.6
Spain	98.2	120,4	118.4	112.0
The US	108.7	133.5	126.4	121.7

Source: (IMF, 2023a).

It is worth mentioning that the first IMF estimations of the future debt levels were published in October 2020. They underestimated the debt in 2020–2022 only for Hungary and the US. In all other cases and for all years the 2020 IMF projections based on national data were overestimated. It reflects the pessimism at national and IMF levels prevailing at the pandemic's beginning. In times of uncertainty this cognitive bias was almost universal and significantly contributed to the oversized scale of fiscal stimuli implemented.

Table 2.7 presents central banks' policy measures implemented and kept operational during COVID-19. The European Central Bank was the only bank that did not change its reserve stance. All analysed banks followed the quantitative easing policy providing liquidity to their banking systems and fiscal authorities. In all cases, the most important were lending operations and asset purchases. These policies (Table 2.7), together with the interest rate policy (Figure 2.5), were expansionary, adding stimuli to the activist fiscal policies.

The central bank policy rate is the rate set by the central bank to signal its policy stance. It is the rate at which the central bank lends funds (typically short-term) to commercial banks (Moessner & Nelson, 2008). Figure 2.5 shows that in 2020–2022Q1 Bank of Japan (BOJ) and the European Central Bank (ECB) kept their policy rates unchanged at –0.5% and 0.0%, respectively. It meant that both institutions ran expansionary monetary policy. In March 2020, the first month of

[8] In some EU Member States such as Poland and Hungary the scale of actual fiscal expenditure required attention because even before COVID-related spending sizable public expenditure was not recorded within the public finance framework.

Table 2.7. Synopsis of central banks' policy measures in 2020 (March)–2022 (March)

Central banks	Reserve policy	Lending operations	Asset purchases	Foreign exchange
Bank of Japan	✓	✓	✓	✓
Central Bank of Hungary	✓	✓	✓	✓
European Central Bank		✓	✓	✓
Federal Reserve	✓	✓	✓	✓
National Bank of Poland	✓	✓	✓	✓

Source: (BIS, 2023).

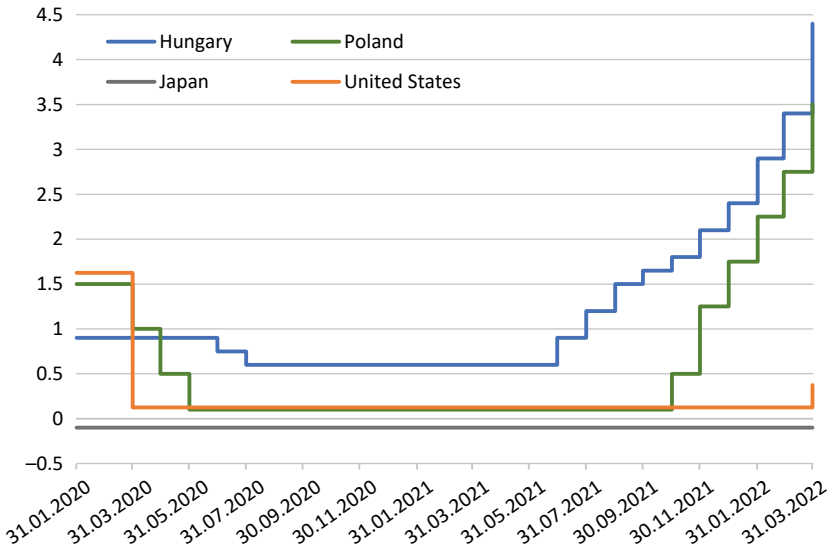

Figure 2.5. Central bank policy in 2020–2022Q1. Monthly, end period

Source: (BIS, 2023).

the pandemic affecting most countries, the US Federal Reserve (FED) reduced its policy rate to 0.125 and maintained that level until March 2022, when it was increased to 0.375% (Figure 2.5). The National Bank of Poland (NBP) began its series of rate reductions in March 2020 down to 1.0% and continued lowering the rate to 0.1%. In the face of inflationary pressures, NBP changed its policy stance

and began increases in October 2021. In March 2022, the NBP policy rate reached 3.5%. The Hungarian bank began mild reductions in June 2020 but, due to the rising inflation, was the first to begin tightening its monetary policy in June 2021. At the end of 2022Q1, its interest rate was 4.4% (Figure 2.5).

Fiscal and monetary policy measures designed and implemented to overcome the negative shock caused by the pandemic were unprecedented in modern peaceful times (Kowalski, 2022). Sharma (2021) estimated that in the USA, the actual scale of anti-crisis fiscal packages (as a percentage of GDP) in 2020 alone amounted to as much as 13% (for comparison: during the Great Depression, it was 4%, and in 2007–2009 the packages reached 7%). According to Sharma's preliminary estimates, combined fiscal and monetary stimuli could reach the equivalent of 28% of GDP in the US and in other developed economies, an average of 40%. The reactions of fiscal authorities and central banks should be seen in the context of economic globalisation, which was vital for low inflation in the pre-COVID time. The pandemic was the second blow to globalisation in eleven years, forcing policymakers and businesses to reconsider their strategies.

2.4. Reactions of national economies

The empirical analyses of the two years of reactions of the eight economies to COVID-19 and the stabilisation policy measures are focused on seven dimensions. These are inflation, industrial production and the unemployment rate—all expressed by monthly data. The other three dimensions: GDP growth rate and shifts in GDP expenditure structure are analysed quarterly. The real effective exchange rate, a simple proxy of international competitiveness, complements the analyses of the economies' reactions. The time series (Figures 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 and 2.12) are embedded in the SRAS/LRAS/AD framework discussed in Section 2.

As follows from the model (Figures 2.1 & 2.2), in 2020, the expansionary economic policies did not transform into higher consumer price inflation. It is particularly evident in the case of four EMU countries (Figures 2.6a & 2.6b). In Hungary and Poland, the inflation dynamic was different (Figure 2.6c). In earlier years, the Polish government and central bank followed expansionary fiscal and monetary policies that led to a revival of inflation expectations and finally to higher inflation. In a certain sense, that was also the case in Hungary. The inflationary pressure gathered in 2021 and continued in 2022. The COVID-19 disruption did not change Japanese behaviour of prices, whereas, in the US, its rate sharply declined in reaction to COVID-19-related disturbances and then began to grow[9] (Figure 2.6d).

[9] See the recent studies of Ball et al. (2022) and Harding et al. (2023).

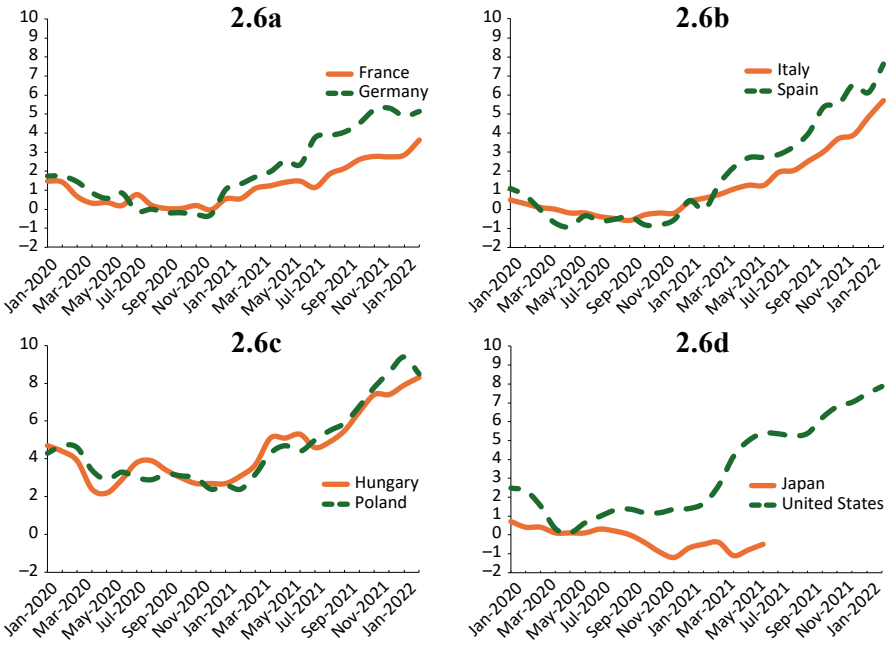

Figure 2.6 (a–d). Consumer prices in 2020 (January)–2023 (March), monthly. Growth on the same period of the previous year

Source: based on (OECD, 2023).

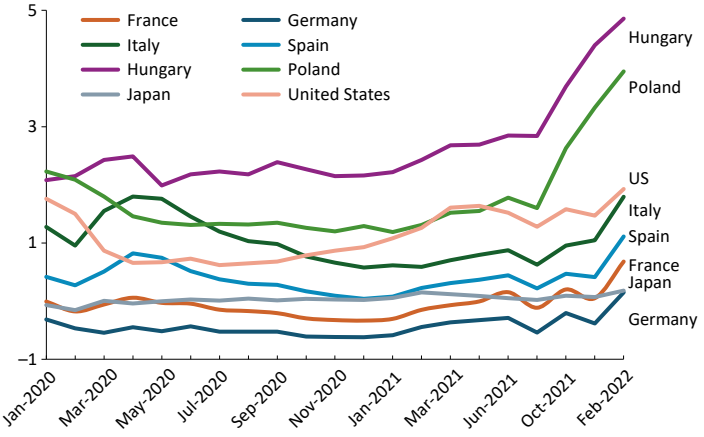

Figure 2.6e. 10-year bond yield in 2020 (January)–2022 (February)

Source: (OECD, 2023).

The dynamic changes in inflation were reflected in shifts in 10-year bond yields (Figure 2.6e). They represent market long-term interest rate and reflect agents' expectations of the future inflation. Up to August 2021 they were stable, but later, due to new information of inflation hikes the yield increased the most for the Hungarian and Polish bonds. The dynamics of market long term interest rates signals the yields that market requires purchasing Treasury bonds. It also shows the power of credibility that can only be earned by deeds. In Figure 2.6e it is marked by the gap between T-Bonds issued by Germany and French, Spanish or Italian T-bonds.

All European economies had troughs and industrial dynamics peaks in the same months. After the trough in March 2020, all recorded volatile growth (Figures 2.7a, 2.7b & 2.7c). German, Polish and Spanish industrial production dynamics showed a similar pattern (Figures 7a, 7b & 7c)—their volatility was milder than in France, Italy and Hungary. Analysing the reaction of industrial production, it needs to be noticed that Japan and the US had the lowest variance (Figure 2.7d). It could be linked to how Japan coped with the pandemic (section 1). A relatively

Figure 2.7. Industrial production in 2020 (January)–2023 (March), monthly. Growth on the same period of the previous year

Source: based on (OECD, 2023).

smooth pattern of US production might be attributed to the large territory and domestic market.

Monthly unemployment data is presented in Figures 8a, 8b, 8c and 8d. During two years of the pandemic—three economies, namely Japan, Poland, and Germany—proved COVID-resistant in terms of their unemployment rates (UR). They enjoyed the lowest UR in the sample of the studied countries. France's UR displayed transitory frictions up to September 2020, then steadily declined and in February 2022 reached 7.3%. In Italy, the UR declined to reach its lowest point (7.3%) in April 2020. Since May, it began to increase and, up to April 2021, stabilised at around 10%. Spanish UR displayed a similar to the French pattern of changes but at a higher level. In the summer and autumn of 2020, UR in Spain stabilised at over 16%. Since then, the UR decreased, reaching 13.3% in February 2022. The US labour market entered 2020 with a very low UR of 3.6% and 3.5% in January and February, respectively (Figure 2.8d). It increased by a 0.9 percentage point in March and rocketed by 10.3 percentage points to 14.7% in April. This shift reflects the nature of American labour market relations, where labour is treated as an asset swiftly adjusted to the current economic

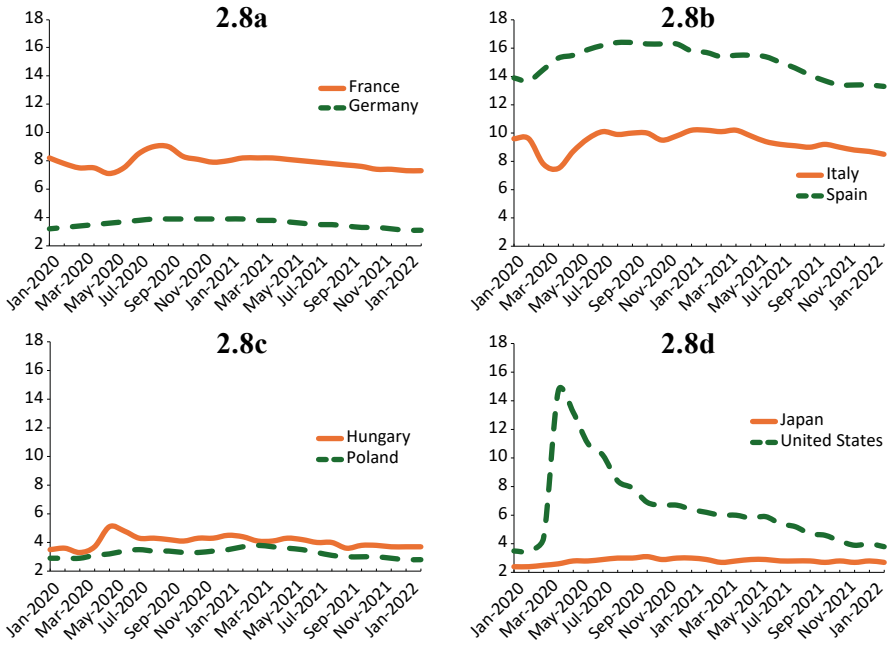

Figure 2.8. Unemployment rate in 2020 (January)–2023 (March), monthly

Source: based on (OECD, 2023).

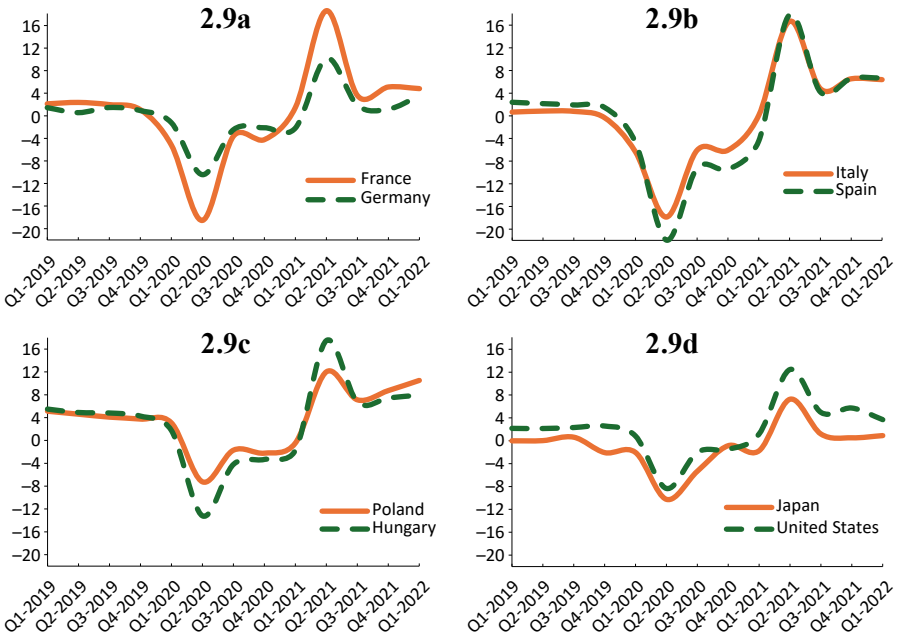

Figure 2.9. GDP in 2020Q1–2022Q1, quarterly, growth rate the same period previous year, seasonally adjusted
Source: based on (OECD, 2023).

situation. The sharp decline of the US UR (to 3.8% in October) proves this American regularity.

GDP presents a broader picture of the overall economic dynamics. Figures 2.9a, 2.9b, 2.9c and 2.9d show GDP dynamics during the two years of the pandemic. In the pre-COVID 2019 quarters, the EMU economies grow slowly. The first two quarters of 2020 saw negative growth rates, with 2020 Q2 record slump of 11.25%. The third quarter in Germany was better (but still minus 4.23%). All countries recorded the most profound GDP drop in 2020Q2, and all retained negative GDP dynamics despite improvement in 2020Q3. In the first three quarters of 2020, Spain, Italy, France and Hungary noted the most significant growth volatility. In the rest of the two years, all countries displayed a similar pattern of GDP dynamics proving how the open economies are interdependent. The USA, Japan, Poland, and Germany had relatively more stable GDP dynamics.

Figure 2.10 shows shares of private final consumption expenditure in gross domestic product. Fiscal, monetary and regulatory measures implemented in response to the pandemic shock aimed at protecting business activity and thus output, employment and consumption. Due to path dependence, countries differ

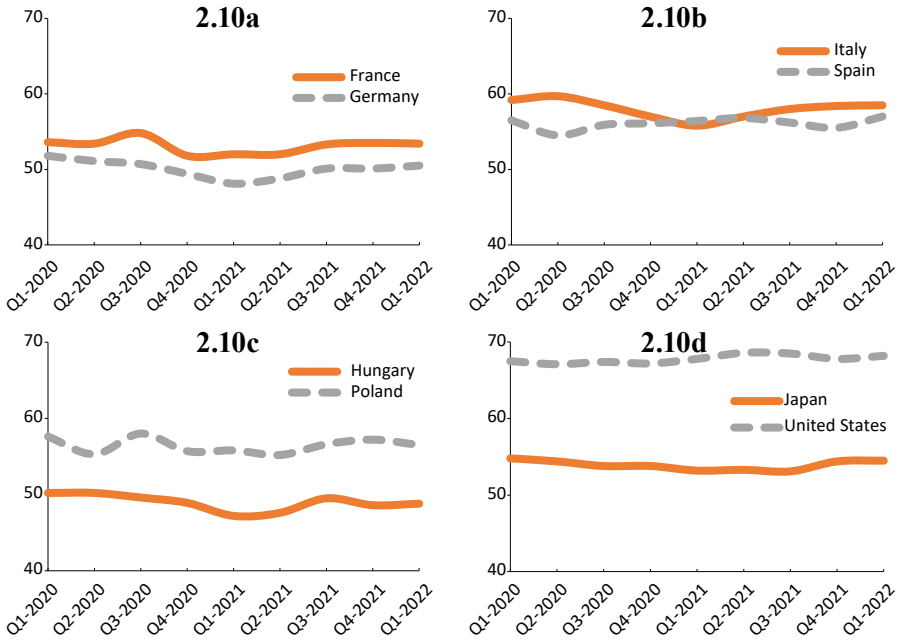

Figure 2.10. Share of private final consumption expenditure in GDP in 2020Q1–2022Q1, per cent of GDP, quarterly
Source: based on (OECD, 2023).

regarding the share of private final consumption expenditure in GDP (Figures 2.10a, 2.10b, 2.10c & 2.10d). Despite the severe shock, the analysed countries maintained the pre-COVID level of final consumption with relatively low variability. Italy had the highest level of consumption (55.8%–59.7%) and the highest volatility (Figure 2.10b). Paradoxically Poland displayed the second, after Italy's share level of consumption expenditure (Figure 2.10c).

Figure 2.11 presents the share of gross fixed capital formation expenditure in GDP. There are profound differences between the economies. The highest share but relatively volatile was investment expenditure in Hungary. The high and stable share had investments in Japan (Figure 2.11d). The most stable share was achieved in the US. Poland distinguished herself by the lowest share of GFCF in GDP, varying between 16.7%–18.4%.

The real effective exchange rate is a simple, price-based measure of shifts international competitiveness (Van Marrewijk, 2004). It mirrors cost-price adjustments in the face of competition in international markets for goods and services. In countries having their national currencies (Hungary, Poland, Japan and

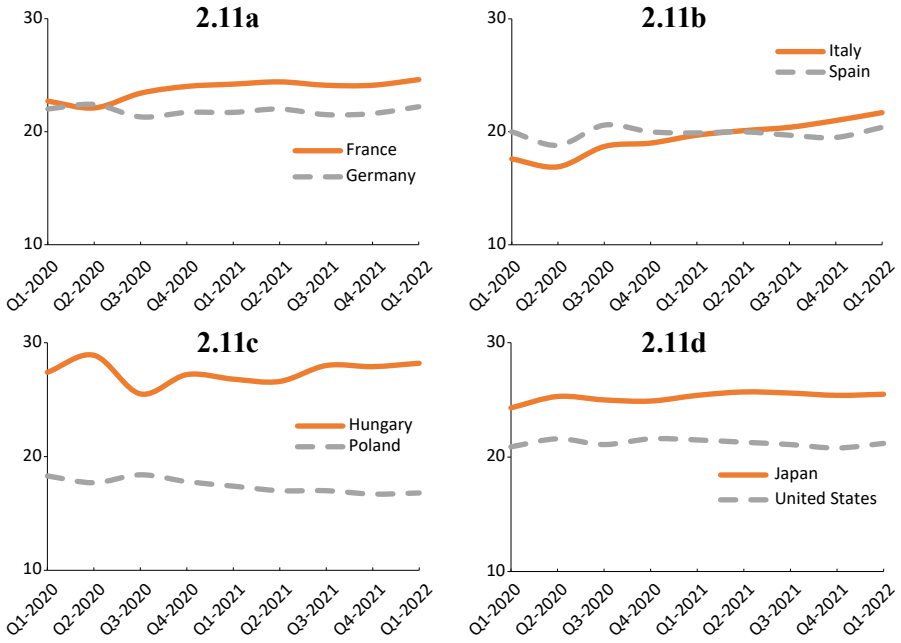

Figure 2.11. Share of Gross Fixed Capital Formation (GFCF) in GDP in 2020Q1–2022Q1, per cent of GDP, quarterly

Source: based on (OECD, 2023).

the US), the shifts might also stem from fluctuations in their nominal exchange rates. Figure 2.12 shows that during the two years of the pandemic international competitiveness of France, Germany, Italy, and Spain was relatively stable. In the mid of the pandemic, however, France and Italy recorded decreases in REER and, thus, upward shifts in their international competitiveness. REERs of Poland and Hungary recorded similar changes, but the cost-price competitiveness of the Hungarian economy was higher than Poland's. Japan and the US entered the pandemic, showing sizable differences in international price-cost competitiveness. The gap in favour of Japanese traded goods and services widened (Figure 2.12).

The above survey of macroeconomic policies designed and implemented to overcome the pandemic-triggered shock and the reactions of the economies prove that governments and central banks provided relatively high stability in the key components of GDP. The real shocks transmitted to the demand and supply sides were mostly neutralised; countries protected their employment and consumption levels. However, the restored real economy's stability was achieved at a significant cost of inflation, higher public debt and hikes in the cost of debt servicing.

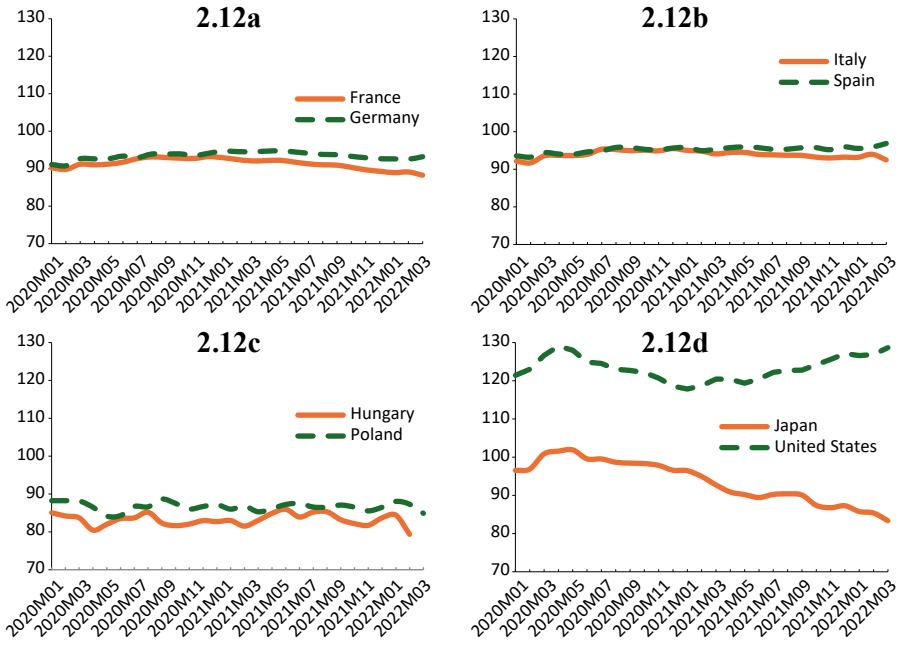

Figure 2.12. REER in 2020 (January)–2023 (March), monthly
Source: based on (OECD, 2023).

Conclusions

In 2020 some European economies still did not fully recover from the consequences of the 2007–2009 financial crisis. That crisis undermined prevailing earlier optimism concerning globalisation. The new pandemic-triggered crisis was a consecutive blow to globalisation and added existential threats. It caused a significant shock to national economies and changed other aspects of social and political life. The pandemic forced lawmakers, politicians, business leaders and men in the street to reconsider their plans and attitudes. The dire existential and economic challenges prompted the legislatures, governments and central banks to work out and implement anti-crisis measures speedily, not devoid of mistakes.

There was a prevailing certitude that the circumstances required massive fiscal, monetary, and regulatory actions. Policymakers at national levels focused their attention and economic policy measures on the labour market's actual and potential adverse developments. It reflected standard, short-term social, and economic welfare concerns. The orchestrated demand-side stabilisation policy soon added inflationary impulses to already tight labour market conditions that stemmed from long-term structural-demographic trends.

The combined economic policy stimuli were more substantial than those implemented to overcome the Great Depression. In some countries, in the regulatory domain, there were cases of efforts and actual actions to introduce special prerogatives and legal acts, including exemptions from legal liability of politicians and civil service engaged in anti-pandemic activities. They undermined the principles of the rule of law.

Based on available data, most countries overcome the negative pandemic-driven shock in the real economy. It was achieved, however, at a high cost of inflation and public debt. The trial time brought to light the scale of inter-sectoral and international interdependencies and the scope of vulnerabilities that are difficult to control nationally. Instead of multilateral coopetition it revived the idea of national industrial policies and enhanced protection. If not staggered, they will further reduce the advantages of open trade and capital flows and contribute to an upward shift of cost and prices.

The fading threat of the pandemic was abruptly replaced by a new geopolitical, military and economic shock caused by the 24th February 2022 Russian Federation's invasion of Ukraine. The economies entered a new global crisis with over-expansionary fiscal and monetary policies. The latest economic and political environment and the need to continue zero-emission economic reforms require orchestrated multilateral efforts. The COVID-triggered economic crisis and the war in Ukraine show the utmost importance of international cooperation. It also proves the need to accumulate financial resources and to work out new monitoring standards for economic, political, and environmental threats. This new trial time will be far more demanding than all previous crises.

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