Special Difficulties in Forecasting GDP in the Pandemic Situation (2020–2021)

Is there a Keynesian resurgence?

Antal István Magas
Corvinus University of Budapest
istvan.magas@uni-corvinus.hu

Summary

Why was it extremely difficult to forecast GDP worldwide, especially in the years of 2020-2021? Mainly because a double shock hit both the aggregate demand and supply sides, and it had substantially changed the known behaviour of key participants. Reactions of households and firms became largely unpredictable. The IMF projections of April 2020 had to be revised sharply. It appears the world economy could recover from the biggest output drop since World War II only with the help of extensive public spending schemes. We ask if one can speak of a new wave of Keynesian policies. How long this present overwhelmingly loose fiscal and monetary stance can last? One cannot tell. There are visible threats, for instance in the inflationary environment.

Keywords: GDP forecasting, supply/demand double-shocks, Keynesian resurgence, economic roles of the state, spending multiplier

JEL Codes: G01, G10, G12

DOI: https://doi.org/10.35551/PFQ_2022_1_4

'There are two kinds of forecasters: those who don't know, and those who don't know they don't know. The only function of economic forecasting is to make astrology look respectable.'

Kenneth Galbraith
(John Kenneth Galbraith Quotes)

Macroeconomics is not a science that works with engineering precision. The most important theses of recovery from crisis situations have changed significantly over the last century and a half, as described by renowned foreign and Hungarian authors (Bernanke, 2017; Blinder, 2013; Csaba, 2018; Furman, 2018). Although our knowledge of macroeconomic processes is expanding at a dizzying pace, thanks to rapid and detailed data provision and modernization, yet we can understand the nature of crisis processes only by a nuance better. In addition, completely new, hitherto unknown problems have arisen. The ability of the discipline to provide forecasts for special crisis situations has not improved substantially, so the wisdom of more than half a century, quoted in the motto, still seems convincing today.

Well-measurable, real-time data (values) that can be linked to key variables are simply not available in time to make an accurate (approximately accurate) forecast. But we also do not have a stable 'reaction function' leading to a reliable result that would show the time needed for an economic downturn and reconstruction, and the crisis to end (Baldwin, Weder di Mauro, 2020b).

We have long known that maintaining a continuous cycle of production and consumption in a modern national economy is a complex operation, even during 'normal' periods. In an emergency, this is especially true. In the post-World War II period, there may not have been a period of crisis in which an accurate or only relatively accurate GDP forecast was needed as much as in the period of 2020–2021, the general global economic upheaval caused by Covid–19. In this special situation, even research institutes with the best possible forecasting teams like the International Monetary Fund (IMF), for whom world economic processes are the most transparent, have been able to provide estimates only with large margins of error concerning the impacts of the pandemic on GDP in key countries, regions and, of course, the world economy as a whole. International forecasts prepared by the IMF, representing the 'top' of the profession, such as the World Economic Outlook (WEO) GDP estimates and the official IMF reports published twice a year on the state of the world economy, were also characterized by particularly large 'errors' and anomalies in estimates.

This analysis attempts to explore some of the specific – country-specific – characteristics of persistent global cyclical difficulties, in particular the difficulties in forecasting GDP in the pandemic situation (hitherto unprecedented in the last eight decades), in a broader perspective of the global economic crisis. In our arguments, we do not want to take a new methodological approach, but we gather the main lessons of crisis management by relying on the IMF database and official reports, above all the WEO reports and some key sources in academic literature. Although the database we used cannot be regarded to be of full value, it is still one of the best possible sources in terms of GDP data, because the countries in the relevant IMF database accounted for 83% of the global GDP in 2019 (IMF WEO Data, 2020a); and data for each country considered cover the full – official – fiscal year. In addition, this article seeks to contribute to a discussion that has come into the spotlight again: it is about interventionism and state involvement, the quasi-revival of

Keynesian thinking and the possibilities for a neo-Keynesian operation of the economy.

The analysis takes a closer look at this special period between the third quarter of 2019 and the second quarter of 2021. First, it outlines the world economic situation, attempting to illustrate the extent of the global downturn suffering a double shock. Then it provides a review of the special circumstances that have brought roles to be played by the state – and thus Keynesian ideas – back into the focus. It clarifies whether we can talk about a kind of Keynesian resurgence. It also seeks to point out the particular difficulties of forecasting in 2020, as well as the special circumstances of crisis vulnerability.

WORLD ECONOMIC SITUATION IN THE PANDEMIC YEARS 2020–2021

Evaluation and methodological difficulties

There have been some serious calculation difficulties (methodological and practical) in terms of accurately assessing complex economic impacts (lost income, reopening costs) associated with the pandemic of year 2020. Perhaps it is no coincidence that all preliminary estimates have failed as well. Nevertheless, an attempt should be made to set up such an interim balance, which quantifies the damage as a ratio of GDP. The cited WEO reports provide a good starting point for this.

According to a report released in the second week of January 2021, in 2020, the world economy contracted by 0.9 percentage points less than preliminary data suggested, at 'only' about 3.9 percent (IMF, WEO Data 2021a). However, this dramatic overall decline of nearly 4 percent does not yet include all lost output and lost income. It does not cover all the costs of restarting: for example, it does not show the fiscal spending and negative cyclical consequences of state aid, which is necessarily of enormous amount currently, but will presumably stop later; it does not include income and tax losses resulting from bankruptcies of entrepreneurs and companies, nor the persistent industrial difficulties (such as transport and global logistics) that have emerged as a result of the crisis. It also excludes indirect costs resulting from a necessary labour market restructuring that will have to be taken into account. These are costs that do not occur in a 'normal' (meaning pandemic-free) situation, but still distort the benchmark. However, the 'extraordinary' items listed above, which have not yet been accounted for, represent only a minor distorting factor. The other major factor causing downward distortion simply is that the loss of output already indicated is still measured against to the original, normal level at which the world economy had been before the pandemic.

Difficulties of recovery

When considering the path and realistic expansion levels of the recovery cycle, it should also be borne in mind that the huge global growth losses already reported and quantified do not represent the full cost sacrifice associated with the pandemic.

One must understand that the damage caused by the pandemic is not only represented by the unrealised economic growth in 2020–2021, but somehow by the relatively long-term sacrifice of redirecting funds that was necessitated by some very significant fiscal easing policies and decisions on delaying some investments must also be reflected. Such rescheduling policies will unfortunately weaken the future performance of both human and physical infrastructure interpreted in terms of

potential growth processes of an economy and the renewal or modernization of production factors. One must not ignore the fact that the 'normal' periodic renewal or modernization of resources, or their replacement due to obsolescence could not take place at the pace originally planned either. Due to the pandemic, resources had to be poured into the healthcare system and the systems supporting it in a relatively 'unplanned' manner akin to fire-fighting. The justification of immediate reallocation of resources cannot be called into question, as the devastating effects of the pandemic are indisputable in health and, in particular, social terms; in the event of an emergency reminiscent of extraordinary 'war damage', standard budgeting practices and careful, prudent fiscal planning and implementation cannot be expected. The traditional fiscal principles were significantly transformed, loosened, and made more permissive in terms of state spending as well. Such changes, however, will have an impact on potential growth that is still unclear today; see more details on this topic (Baldwin, Weder di Mario, 2020a; Goldberg, 2020; and Wyplosz, 2020).

Thinking about the global economic impact of the pandemic, it is definitely worth mentioning a specific benefit. Namely, that the importance of community and individual needs had to undergo a thorough reorganization and rearrangement (Aghion, Antonin, Bunel, 2021). The functions and critical points of large social supply systems (for example, in the field of transport and public transport) had to be reorganized. The unexpected and persistent emergency situation represented a 'drive' and a stimulus to 21st century urban planning, energy usage, engineering, as well as business and logistics thinking, helping humanity to gain a number of innovative solutions. A multitude of new IT applications emerged, and the opportunity and spreading of remote work together with the compulsion to learn fast made both private and public decision-makers adapt to innovative opportunities in many areas at an unusual speed. For example, across the EU, progress in 'green' and digital transformation accelerated, both in the functioning of the Single Market and in capital markets. However, looking at the EU area as a whole, it is undeniable that opportunities for economic catching up improved only in a few high-tech sectors inherently underpinned by innovation, especially in IT-based financial services (Buti, Székely, 2021).

The pandemic also transformed the scene and sectoral structure of foreign direct investment and FDI flows. The Visegrad Four (V4) countries were no exception to these changes either, as the attractiveness of the model of investing in low-wage processing industries declined markedly during the pandemic and is approaching its limits (Kalotay, Sass, 2021).

Labour markets were quickly transformed by necessary restrictions, a shift towards remote work, as well as a growth in online orders/purchases. Consequently, in a number of sectors, changes took place also in the structure of jobs typically sought and offered, and in the average number of jobs emerging in the labour market on a monthly basis. These necessary labour market transformations also varied widely across countries and sectors, and labour market vulnerabilities were strongly influenced by initial (pre-pandemic) development (IT supply) statuses (Autor, Reynolds, 2020; Battistini, Stoevsky, 2021).

It is not yet clear which countries succeeded in adapting quickly. However, there is a good chance that financial strength that could be used immediately, as well as the level of organization and development of state administration were decisive factors to adaptation. Unfortunately, the opposite

is also true: the pandemic claimed far more victims in countries characterized by lack of resources, disorganization and economic backwardness, making differences stemming from the level of development becoming even more pronounced. In the European Union, for example, the welfare situation in countries lagging behind the EU average in terms of per-capita income did not improve in the years of the pandemic, on the contrary, the outlook for TFP-based (Total Factor Productivity-based) general economic catching-up deteriorated, rather than improved, with the time horizon extended (Halmai, 2021).

GENERAL ECONOMIC DOWNTURN AND VARYING DEGREES OF VULNERABILITY IN THE DEVELOPED WORLD – A PARTICULAR DIFFICULTY IN FORECASTING GDP

In its report of 14 April 2020, the IMF had already forecast that the world economy was ahead of the worst economic downturn since World War II (IMF WEO, 2020a). And in an official estimate released in June, it further worsened the outlook for the year as a whole. The global scale and severity of the coronavirus pandemic increased the likelihood of protracted global economic recession scenarios. In a situation caused by simultaneous double shocks (drastic supply-side and demand-side shocks arising concurrently) and fear of the virus, the average expected length of the real business cycle, and factors influencing shifts in it, had to be reconsidered. The double-digit contraction in GDP and the immediate loss of output and income were of such an extent that the possibility of a rapid recovery could not be ensured by traditional stimulus measures. Compared to the well-known and accepted models, expectations of key players on both the supply and demand sides became much more uncertain than usual and were 'groping in the dark' about time horizons and expected additional adjustment costs, as noted by several experts (Baldwin, Weder di Muro, 2020b; Mann, 2020).

It can be stated with sufficient certainty that, in the third quarter of 2020, the crisis – even considering the entire post-World War II period – demanded the most severe economic sacrifices in OECD countries. But the extent of sacrifices and vulnerabilities varied markedly across the individual groups of national economies. Many countries proved to be relatively crisis-tolerant, while others proved to be much more vulnerable. Experience in past decades showed that in the industrialised world, in persistently upward and prosperous periods, economic growth rates were characterized by convergence. In times of recession, however, the situation was just the opposite: the 'players' scattered and significant differences emerged, as described by some well-known authors (Stiglitz, 2018; Tooze, 2018).

The extent to which a country suffers from recession during and after a pandemic can depend on several factors. A non-exhaustive list of the main factors that caused countries to range between 'severely vulnerable' and 'least vulnerable' is provided as follows:

- the sectoral structure of countries' GDP at the time of the pandemic;
- the corporate composition and markets and of critical sectors, and the respective sizes of companies in difficulty;
- the extent and adequate targetedness of fiscal stimulus, and the effectiveness of immediate stimulus to demand, especially in the area of household consumption;
- the financial magnitude and the duration of measures to support labour markets.

The lockdown of factories and investments affected those countries the most where the share of labour-intensive sectors within output

was already relatively high, be it plants in the construction, processing or service industries. For example, within the service sector, tourism and catering were particularly vulnerable, as the 'closure' policy had extremely severe crisis impacts. Necessary and long-term shutdowns in the aforementioned labour-intensive sectors in Central and Eastern Europe and closures, for example, in the service sector (tourism) in Southern Europe almost led to a collapse; in the Southern European regions, close to one in eight (12.5 percent) non-financial service jobs were affected (Dingel, Neiman, 2020b). By comparison, in a developed country like Canada, where extractive industries (mining, energy) play a significant role in output, there were much milder symptoms of the crisis, at least in the labour market.

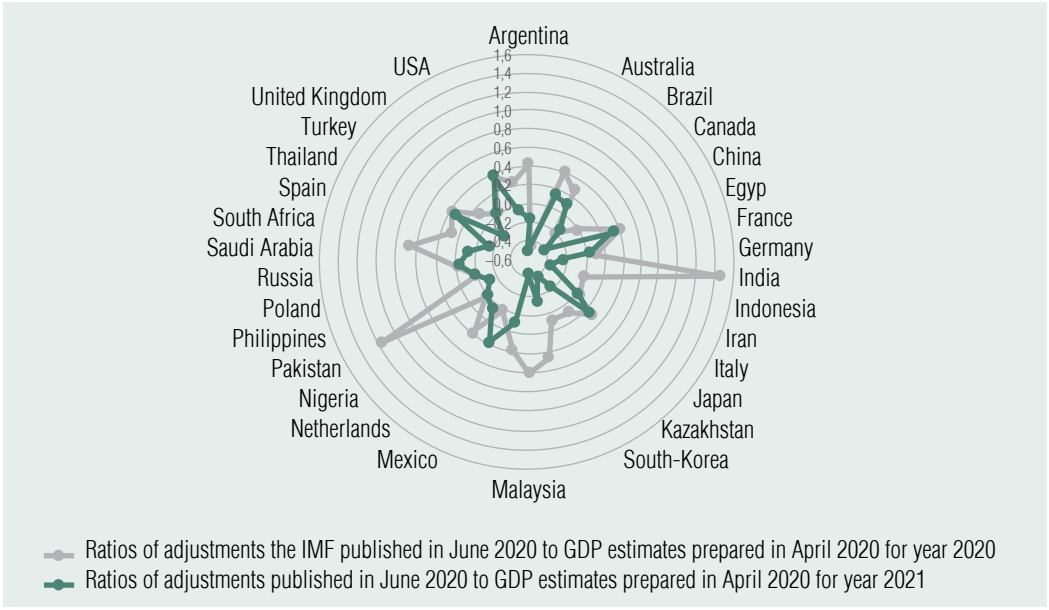
It can also be stated that, during the Covid–19 pandemic, essentially in the first half of 2020, ideas about the future growth of the economy, which can otherwise be modelled numerically correctly, and the associated computer modelling routines failed: human actors, and thus the main input parameters as well, behaved very 'strangely' on both the aggregate supply and aggregate demand sides (and, of course, with regard to state revenues and its allocated transfers, too). In the production and service industries alike, levels of activity and expected output became 'unplannable', and indications of past time series often proved to be incorrect, as they only applied to 'normal times', showing their previous moving averages. Initially, the pandemic period itself was an abnormality for forecasters. The particular difficulty of forecasting economic growth rates (GDP) in this dramatic crisis environment – a world economy plagued by uncertainty unprecedented since World War II – is illustrated in *Figure 1*, showing adjustments which the IMF was forced to make in April and June 2020 to its prior estimates.

Figure 1 shows the IMF updates (adjustments), and the extent of them compared to the original April 2020 flash estimate, after adjustments in June, for the then current year (gray line) and for the following year, i.e. 2021 (green line). The correction ratio, the difference between the April and June 2020 forecasts divided by the April 2020 figure (the accuracy of an estimate) is the better the closer the absolute value of the ratio is to zero (i.e., the smaller the absolute value of the country-relevant point of data in the figure). The data shown are based on (i) statistics reported by selected countries which are indicated in the figure are considered as key countries for a global economic upswing and the world economy and (ii) the IMF's own official database. The green correction-ratio cobweb line (ratio of April 2020 estimates to June 2020 updates for year 2021) is located much more inward compared to the first update of the IMF estimate (compared to the April 2020 estimate, i.e. compared to the gray line), forecasts for 2021 show a significant improvement in GDP estimates for the most developed and largest economies, which are the most important for a global economic upswing.

Larger errors in estimates may be of particular interest only for countries where data provision is otherwise of high standard and which have for decades been viewed as major players in the world economy. For example, in the case of the USA and Canada, the decline forecasts for 2020 in April were updated only by a quarter (26.25 percent and 26.2 percent, in the previous order, i.e. by a correction-ratio of 0.26; IMF WEO, Data, 2020b); in the case of France, it was updated by less than half (42.4 percent) of the estimate (a correction-ratio of 0.42; IMF WEO, Data, 2020b). The difficulty of estimating is well illustrated by the size range of errors in GDP forecasts, which ranged from 10 to 43 percent (0.1 to 0.43) in key countries (IMF WEO,

Figure 1

EXTENT OF IMF ADJUSTMENTS PUBLISHED IN JUNE 2020 TO GDP ESTIMATES PREPARED IN APRIL 2020 FOR YEARS 2020 AND 2021, FOR SOME SELECTED COUNTRIES



Source: own calculations based on IMF WEO update of June 2020

Data, 2020b). The standard deviation of the correction ratios for years 2020 and 2021 were quite large – even without Pakistan and Indonesia (the two extreme cases, outliers) –, 37 percent and 30 percent, respectively (IMF WEO, Data, 2020b), which are very significant ratios as the United Kingdom represented the typical estimation error in the sample. Error rates were 10.2 percent for Germany and 37.5 percent and 16.6 percent for Spain and Italy, respectively (IMF WEO, Data, 2020b). The 20 percent error rate for China (IMF WEO, Data 2020b) is difficult to assess due to a very low base level (1 percent), and the Chinese statistical authority did not even issue an official estimate for the full year of 2020. Of course, there were also positive examples: in the case of the Netherlands, the extent of decline was adjusted by only 1/40 of the original data for 2020 (the error rate is only 2.6 percent; IMF WEO, Data, 2020b), which is a perfectly acceptable rate. These highly dispersed data provide good evidence that, with the protracted pandemic and the multitude of 'lockdown measures,' GDP projections also became largely impossible. But for 2021, estimates were much better for two key countries, the US and Germany (representing a difference/error of –4.4 percent for the former and +3.7 percent for the latter; IMF WEO, Data, 2020b).

Armed with some experience after having fact figures for growth in 2019 and 2020, we would be likely to get more accurate and better explanations of both the nature of the downturn and its sectoral characteristics, and the time required for recovery. But, in the autumn of 2021, we still had to wait for that to happen. The good news was that the October 2021 issue of the WEO (IMF WEO,

2021b) no longer included substantial updates compared to data of April 2021.

UPDATES TO GDP FORECASTS FOR 2021: OCTOBER 2020 AND APRIL 2021

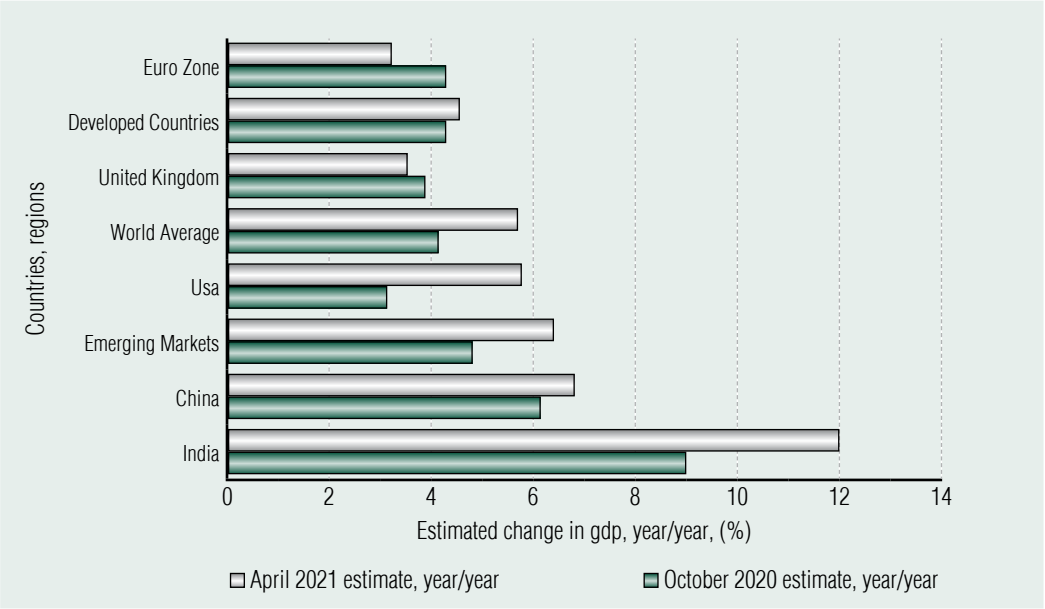
On 6 April 2021, the IMF issued an updated (adjusted) version of its global forecast published in October 2020 for 2021, and this time it significantly improved its expectations upwards, raising the adjusted levels of global economic upswing for the most important regions of the world economy, and for the most developed countries, taking into account the easing of the pandemic and the start of reconstruction. *Figure 2* shows the improved GDP growth forecasts for 2021 for countries and regions that play a key role in the overall expansion of a global economic upswing.

The growth rates (reassessed year-on-year in the spring of 2021) were up to 2–4 percentage-points higher than in previous years: thus, in the case of China, which was already a growth leader in 2019–2020, GDP growth for 2021 was raised by 0.5 percent to 6.7 percent, while India's expected GDP growth rate was revised from 9 percent to 12 percent per annum (IMF WEO, Data, 2021b). For emerging economies – the US and the developed countries –, the previously projected GDP growth levels were also raised. On the other hand, for the UK, which has exited the EU, as well as for the euro area, the IMF forecast GDP growth rates which were adjusted downwards and thus got worse than earlier. These estimates still included some uncertainty due to the pandemic situation.

If we look ahead to 2024, only the US will outperform the IMF's pre-pandemic GDP estimate for 2024, as shown in *Figure 3*.

Figure 2

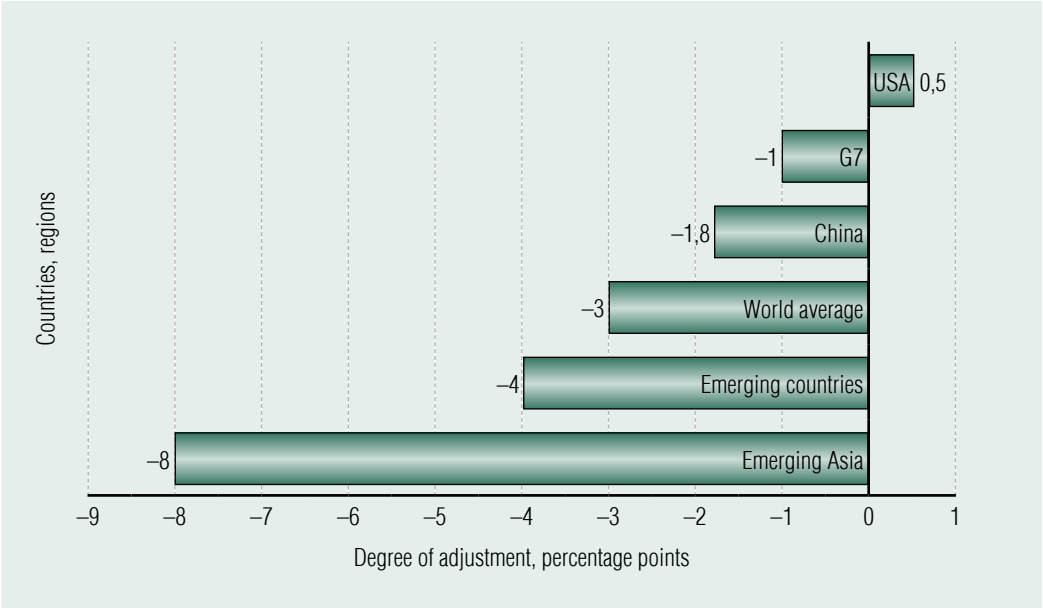
GDP GROWTH FORECASTS (OCTOBER 2020) AND UPDATES (APRIL 2021) IN KEY COUNTRIES OF THE WORLD ECONOMY



Source: IMF WEO of October 2020 and April 2021, self-edited

Figure 3

JUNE 2021 UPDATE OF GDP DATA PROJECTED FOR 2024



Source: self-edited based on IMF WEO data of April and June 2021

In the US, an especially rapid and 'generous' economic recovery policy was particularly successful, because a series of actions by the federal state (stimulated by brave and particularly large-scale fiscal stimulus and coupled with a sustained monetary easing policy) restored pre-pandemic cyclical conditions within a relatively short period of time. An annual growth of 6.7 percent was observed as early as in the first quarter of 2021 (The Economist, 2021a). In contrast, all developed countries would remain approximately 1 percent below their pre-pandemic levels (IMF WEO, Data, 2021b). In the light of this data, it is worth noting that in 2012, the first 'normal' year following the 2008–2009 financial crisis, the developed world was able to recover less quickly: in 2012, it was still at a level which was 10 percent lower than what had been estimated in late 2007, the year before the crisis, for year 2012, of course without a crisis (IMF WEO, Data, 2012). That the reconstruction phase now is different is indicated, among others, by the shortened recovery period. China, the growth 'winner' of the year of the Covid–19 pandemic (2020), was forecast to be about 1.8 percentage points lower by the end of 2024 (IMF WEO, Data, 2021b). For emerging countries, a 4.2 percent decline in output was forecast, while emerging Asian countries, which were hit the hardest in the years of the pandemic, were forecast to experience the worst growth loss at minus 8 percent (IMF WEO, Data, 2021b). For the countries, development appears to have contributed significantly to a faster output regeneration, at least as GDP calculations suggest.

By now, it may also be established that the crises of the 21st century introduced new concepts (crisis resistance, varying degrees of macroeconomic vulnerability, resilience) to the general public. Perhaps more importantly,

the 'economics of the pandemic' required also a new approach: the task of managing concurrent dual shocks appeared for the first time after World War II, suddenly and unexpectedly. Leading researchers in the macroeconomic profession also responded quickly to the challenge (Blanchard, 2020; Goldberg, 2020; Mann, 2020; Wyplosz, 2020). Following a successful management of, and response to, the Covid–19 pandemic it will be rightly hoped that economic forecasts will be able to improve in terms of detail and accuracy in exceptional times, when they are needed, even more. As for the accuracy of forecasts for the world economy as a whole, however, there is room for improvement not only in technical and statistical terms, but also in terms of approach. It is also worth looking at the totality of global processes differently – over a reasonable and sufficiently long time horizon that affects all of humanity.

KEY AND CENTRALIZED ROLE PLAYED BY THE STATE

A simultaneous decline in transport and production in the global economy as a result of the pandemic has reinforced the importance of understanding global processes and the need for joint and largely one-way crisis mitigation actions.

In the crisis caused by the pandemic, the role of the state in balancing the business cycle quickly and effectively became inevitable again and so did its role as a welfare provider. However, in this emergency situation, the state should play this role as an economic agent that is able to act on its own financially and has both concentrated and quick-to-mobilize resources. The logic already formulated in previous crises – following *Keynes*' original idea – proved to be right again, namely, that the lack of a continuous spending (stream) could lead to job losses and, ultimately, to lasting economic turmoil. Although the approach currently, again, gets support, which believes in the success of a fiscal expansion (and the *Spending Multiplier*), is close to the original Keynesian thinking, and to the renewed Keynesian suggestions of the 1970s, it is far from being the same. But it is not equivalent to the new Keynesian view either. This paper does not seek to explain these differences; there are excellent modern studies on Keynesian economics and its topicality (Jahan, Mahmud, Papageorgiu, 2014; Mellár, 2015). In connection with the pandemic situation, the logic found in new Keynesian models, which specifically build on special labour and money market conditions and unique tax assumptions, cannot be applied, or itis very difficult (Rupert, Šustek, 2019). In the midst of the pandemic, however, the general practice of crisis management, which considers the strength and legitimacy of the so-called discretionary fiscal policies has been reaffirmed in the most developed countries affected by the crisis. These fiscal expansions can be regarded as a recent recognition of the old Keynesian thesis. Essentially, in the wake of the bitter experience of the pandemic, the re-extended and reaccentuated fiscal policies have gained new momentum in both economic recovery and income equalization functions. Moreover, fiscal expansion has received not only theoretical recognition, but also a formal government mandate in the US and the UK as well. In this sense, but only in this way, we can speak of a kind of 'Keynesian-inspired new wave' in economic policies. Successful crisis management practices have essentially reaffirmed the relevance of counter-cyclical interventions: in the event of contraction or loss of output, the state has to step up spending to boost lost aggregate demand; but when the economy returns to normal growth, and the state is able to generate income (and income tax), then the state needs to retreat and

start curbing public spending and pay off the new debts that have accumulated during the crisis. The effectiveness of this process is not yet visible, as the world economy has not yet returned to its 'normal' state.

Even in the global economic crisis caused by the pandemic in 2020, the above public finance thesis was proven, namely, that a more favourable initial fiscal position (more favourable equilibrium situation) will result in a more favourable course of the crisis and would guarantee less contraction and lost output. Based on past experience, a new crisis management approach could be used to interpret protective actions against the pandemic, as well as the dual shocks resulting in global recession. The size of the typical (double-digit) downturn and the length of the recession (an additional 3 to 5 quarters as forecast in the first quarter of 2021) justified and still justifies that governments responsible for economic policy of developed countries and their central banks (both in the US and the EU, as well as in the Far East) should support economic activity with particularly generous and ultra-loose fiscal and monetary conditions and should revitalize the contracting economic environment losing jobs and income. As a result of the global wave of fiscal stimulus, the value of the created 'artificial demand' pumped back into the economic circulation of the developed world has already reached $ 10 trillion (The Economist, 2022), a level essentially equal to the calculated pandemic-related loss of global output. This almost immediate massive demand replacement policy means an unusual, but not unjustified fiscal activism. The rise in government spending on infrastructure also marks a remarkable fiscal expansion: in the US, the Democratic Party government's Build Back Better programme ($ 1.9 trillion) and the EU's New Generation Reconstruction Programme (€ 750 billion; The Economist, 2022) also demonstrate this resolutely strong economic policy thinking aimed at providing fiscal-based stimulus to achieve an economic upswing and the easing of the pandemic.

As a result of the protracted and severe pandemic, fiscal and monetary policies were again on the agenda in early 2022, focusing on the controversial issue of finding the most desirable mix, the right proportions of these policies, which are the most worthwhile to support (Smaga, 2021). This is because all special fiscal measures of extraordinary extent, designed to offset extreme cyclical fluctuations, seem to become permanent and reflected in the growing budget deficits, which are associated with new legislation and are planned to be long-term-accepted by governments. However, fiscal dominance will have foreseeable limits and serious inflationary risks. As long as interest rates were low, and real interest rates remained even in the negative zone for a long time, the financing of the increasing budget deficits or the refinancing of maturing debts did not cause any serious (inflationary) tensions, as new sovereign debts were relatively cheap to sell. However, in an inflationary environment, opportunities can change rapidly, and, as far as this can be judged in early 2022, they are changing, as government debt is becoming more expensive to finance. By December 2021, inflation in the US had reached an all-time high of 6.8 percent (The Economist, 2022), and bond market observers suggest that inflation could pick up not only in the short term but also in the medium term (three-year perspective). Inflation fears are present, and generate many open and unanswered questions, not only about the pandemic period but also about the outlook for the future beyond it. What will be the long-term net impact of government spending financed from new government debts on output? Could an unusually strong fiscal expansion associated with the years of

the pandemic in itself heat inflation and will it not lead to consequent tax increases? Will it work when, in an already suspiciously inflationary environment due to supply shocks and shortfalls, central banks of large countries continue to facilitate the purchase of newly issued government bonds to the extent (or close to the extent) experienced during the years of the pandemic?

After the dramatic years of 2020–2021, the science of macroeconomics may again need to reinterpret some of its previous doctrines, such as the role of money markets, a more accurate measurement of output, and the typical behaviour of labour markets. The idea of austerity – as a recommended fiscal recipe – has not even been raised now, although it was one of the options after the 2008 crisis (Magas, 2016; 2019). But completely new questions have also emerged about interpretations of a persistent negative real interest rate environment and its sudden changes, as well as expected savings and government indebtedness.

SUMMARY AND CONCLUSIONS

This paper sought to answer two basic questions.

Why was it particularly difficult to forecast GDP during the period of the Covid–19 pandemic, especially in 2020? The answer is: basically, because dual shocks affected the world and thus the world economy, in which a multitude of unpredictable factors, on both the demand and supply side, made it difficult to form a clear picture. Existing and already developed GDP models are not very helpful in forecasting in such a situation. This is a fact that had to be realized even by the organization that has one of the most competent teams of statisticians in the world: the IMF. In 2021, after significant normalization, the accuracy of forecasts improved substantially and no adjustments had to be made to estimates, beyond standard error limits.

There is another important question – namely whether, in the wake of managing the Covid–19 crisis, there is a need for the state to play a lasting role unprecedented in the post-World War II period, with a kind of renaissance of Keynesian ideology? The answer to this question is affirmative, rather than not. The state once again has a key role to play. The pandemic has again made the leading economies of the developed world realise obvious weaknesses in their social, healthcare and infrastructure networks (energy and transport) and a need for thorough and urgent renewal thereof. This demand, both in the US and the UK as well as in the EU, has been unanimously accepted by governments on the fiscal side, and they have been unafraid to 'plan' increased annual budget deficits and more persistent indebtedness. The budget deficits undertaken in the wake of the pandemic have increased to double digits, as a ratio of GDP, even in the large open economies (USA, France, UK). Both the path of maintaining aggregate demand through public spending and the 'rediscovery' of financing massive public investment projects can indeed be described as being 'Keynesian-inspired'. Of course, not in terms of the strict application of the original ideas, but only in the nuanced design of economic policies, to fasten recovery from the crisis and help sustain a lasting business cycle stabilization, too.

The vulnerability of developed, and especially moderately developed, countries caused by the pandemic has shown different pictures, mainly in terms of structural characteristics of GDP and fiscal resilience. A general stabilization 'recipe', as such, could not work everywhere. ■

References

Aghion, P., Antonin, C., Bunel, S. (2021). *The Power of Creative Destruction. Economic Upheaval and the Wealth of Nations*. Harvard University Press, MA

Autor, D., Reynolds, E. B. (2020). *The Nature of Work after the COVID Crisis: Too Few Low-Wage Jobs. The Hamilton Project. Brookings Institution*. Washington, D.C. https://www.brookings.edu/wp-content/uploads/2020/08/AutorReynolds_LO_FINAL.pdf

Baldwin, R., Weder di Mauro, B. (ed. 2020a). *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever it Takes*. CEPR Press, London, Online: https://voxeu.org/content/mitigating-COVID-economic-crisis-act-fast-and-do-whatever-it-takes

Baldwin, R., Weder di Mauro, B. (ed. 2020b). *Economics in the Time of COVID-19*. CEPR Press, London, Online: https://voxeu.org/system/files/epublication/COVID-19.pdf

Battistini, N., Stoevsky, G. (2021). The impact of containment measures across sectors and countries during the COVID-19 pandemic. *ECB Economic Bulletin*, 2 https://econpapers.repec.org/article/ecbecbbox/2021_3a0002_3a4.htm

Bernanke, B. S. (2017). *The Courage to Act: A Memoir of a Crisis and its Aftermath* Published in Hungarian by: Napvilág, Budapest

Blanchard, O. (2020). Italy, the ECB, and the need to avoid another euro crisis. In: Baldwin, R. & Weder di Mauro, B. (ed.). *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever it Takes*. CEPR Press, London, pp. 49–50

Blinder, A. S. (2013). *After the Music Stopped: The Financial Crisis, the Response, and the Work Ahead*. The Penguin Press, New York

Buti, M., Székely, P. I. (2021). The European Union post COVID-19: Preserving innovation's cutting edge and fostering social cohesion. *Acta Oeconomica*. 71(S1), pp. 141–163, https://doi.org/10.1556/032.2021.00033

Csaba, L. (2018). Illiberális kapitalizmus? [Illiberal Capitalism?] In: Halm, T., Hurta, H. és Koller, B. (edit.) *Gazdasági, politikai* és *társadalmi kihívások a 21. században*. [Economic, political and social challenges in the 21st century] Published by: Dialóg Campus Budapest, pp. 93–104

Dingel, J., Nieman B. (2020b). How many jobs can be done at home? *Journal of Public Economics*, 189., pp. 1–8, https://doi.org/10.1016/j.jpubeco.2020.104235

Furman, J. (2018). *The Fiscal Response to the Great Recession: Steps Taken, Paths Rejected, and Lessons for Next Time. Brookings Institution*, https://www.brookings.edu/wp-content/uploads/2018/08/12-Fiscal-Policy-Prelim-Disc-Draft-2018.09.11.pdf

Goldberg, P. (2020). Policy in the time of coronavirus. in: Baldwin, R., Weder di Mauro, B. (eds.) *Economics in the Time of COVID-19*. CEPR Press, London, pp. 197–202

Halmai, P. (2021). COVID-crisis and economic growth: Tendencies on potential growth in the European Union. *Acta Oeconomica*, 71(S1), pp. 165–186, https://doi.org/10.1556/032.2021.00034

Jahan, S., Mahmud, A. S., Papageorgiou, C. (2014). What Is Keynesian Economics? *IMF Finance & Development*. 51(3), pp. 53–54 https://www.imf.org/external/pubs/ft/fandd/2014/09/pdf/basics.pdf

John Kenneth Galbraith Quotes. https://www.goodreads.com/author/quotes/23458.John_Kenneth_Galbraith

Kalotay, K., Sass, M. (2021). Foreign direct investment in the storm of the COVID-19 pandemic and the example of Visegrad countries. *Acta Oeconomica*, 71(S1), pp. 73–92, https://doi.org/10.1556/032.2021.00030

Magas, I. (2016). Megszorítók és keynesiánusok. A válságkezelés tanulságai az OECD-ben, 2008–2015. [Austerity Policy Makers and Keynesians. Lessons from Crisis Management in the OECD, 2008–2015] *Külgazdaság* [Foreign Economy], 60(11–12), pp. 3–24

Magas, I. (2019). Ten Years after the Global Economic Crisis. A Retrospective Analysis. *Public Finance Quarterly*, 64(1) pp. 93–109

Mann, C. L. (2020). *Real and financial lenses to assess the economic consequences of COVID-19*. In: Baldwin, R., Weder di Mauro, B. (ed.) *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever it Takes*. CEPR Press, London, pp. 81–85

Mellár, T. (2015). *Szemben az* árral – *Rendhagyó közgazdasági előadások*. [Against the tide – Unusual economic lectures] Published by: Akadémiai Kiadó Zrt. Budapest

Rupert, P., Šustek, R. (2019). On the mechanics of New-Keynesian models. *Journal of Monetary Economics*, 102, pp 53–69, https://doi.org/10.1016/j.jmoneco.2019.01.024

Smaga, P. (2021). Are interest rate changes comoving with financial cycle? *Acta Oeconomica*, 71(2), pp. 259–277, https://doi.org/10.1556/032.2021.00013

Stiglitz, J. E. (2018). Where Modern Macroeconomics Went Wrong. *Oxford Review of Economic Policy*. 34(1–2), pp. 70–106, https://doi.org/10.1093/oxrep/grx057

Tooze, A. (2018). *Crashed: How a Decade of Financial Crises Changed the World*. Viking Random House, New York

Wyplosz, C. (2020). So far, so good: And now don't be afraid of moral hazard. In: Baldwin, R., Weder di Mauro, B. (ed.) *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever it Takes*. CEPR Press, London, pp. 25–30

IMF, WEO (2012). Coping with High Debt and Sluggish Growth. https://www.imf.org/en/Publications/WEO/Issues/2016/12/31/World-Economic-Outlook-October-2012-Coping-with-High-Debt-and-Sluggish-Growth-25845

IMF, WEO (2020a). The Great Lockdown. Global Financial Stability Report: Markets in the Time of COVID-19. https://www.imf.org/~/media/Files/Publications/WEO/2020/April/English/text.ashx?la=en

IMF, WEO (2020b). Update. A Crisis Like No Other, An Uncertain Recovery. https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020

IMF, WEO (2020c). A Long and Difficult Ascent. https://www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020

IMF, WEO (2021a). Update. Policy Support and Vaccines Expected to Lift Activity. https://www.imf.org/en/Publications/WEO/Issues/2021/01/26/2021-world-economic-outlook-update

IMF, WEO (2021b). Recovery During a Pandemic. https://www.imf.org/en/Publications/WEO/weo-database/2021/October

The Economist (2021). Economic & financial indicators. https://www.economist.com/economic-and-financial-indicators/2021/10/07/economic-data-commodities-and-markets

The Economist (2022). Special Report: Business and the state. https://www.economist.com/special-report/2022-01-15