

Lessons from recent OECD experience of macroeconomic forecasting

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Abstract

Evaluating past projections can help us better think about future economic scenarios. This requires a good understanding of how projections and forecasts differ. Considering the experience of two recent shocks, the pandemic and Russia's war of aggression against Ukraine, this note illustrates how new tools and data can support robust policymaking, even in times of enormous uncertainty. A key lesson from past crises is the importance of tracking developments with high frequency data and better identifying and highlighting risks around a baseline, either qualitatively or quantitatively.

1 Introduction

The OECD has provided macroeconomic projections since the 1960s, to assist its work providing relevant macroeconomic and structural policy advice for its member and partner economies. The projection process has been evolving alongside the changing nature of economies. But the scale and scope of the two last recent shocks – COVID-19 and Russia's war of aggression against Ukraine - have sparked debates on how to assess and improve projections and their usefulness for policymaking.

This note sheds light on the OECD approach to projections, focussing on these recent shocks. A major takeaway is the increased importance of capturing and highlighting risks surrounding a baseline projection.

While new data and tools have helped to produce meaningful projections, recent developments such as the persistence of inflation underlines the need for further improvements.

1.1 The OECD projections in a nutshell

The OECD publishes four sets of macroeconomic projections every year. The two Economic Outlooks (EO), which are released in May (or early June) and November (or early December), provide projections across a range of variables for all 38

¹ The author is the Chief Economist of the OECD. I would like to thank Takashi Miyahara, Dennis Dlugosch, Tomasz Koźluk and Nigel Pain for their inputs and useful comments. This note should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

member countries, the euro area, and selected non-member countries, which include G20 countries that are not OECD members. Two Interim Economic Outlooks (IEO), usually released around March and September, give updates on annual GDP and inflation projections for G20 countries, the OECD, euro area and world aggregates (GDP).

OECD projections cover the current year, one year ahead and - in the November Outlook - two years ahead.

Every EO features a General Assessment and dedicated Country Notes. The General Assessment develops a common narrative based on country-level projections and provides broad policy recommendations on monetary, fiscal and structural policies. Country notes discuss the macroeconomic context, highlight important country-specific factors like major policy changes and provide an assessment of risks with the goal of giving appropriate policy recommendations. Country notes constitute an important communication vehicle that accompany the publication of projection data in every Economic Outlook.

A collaborative process helps ensure consistency across and within countries. First, a central set of top-down guidelines, assumptions and a common global narrative are developed, with model-based scenarios providing guidelines on potential developments, for example trade patterns or cross-border spillovers. Second, based on these guidelines, assumptions and common narrative, OECD Country Desks produce individual country projections, which are then subject to centralised reviews and consultation.

As part of the committee consultation process, OECD preliminary projections, assumptions and policy recommendations are then discussed by member and key partner country delegates from central banks and finance ministries. Comments from delegates are taken into account, though projections remain the responsibility of the OECD, and may differ from the views of member states.

1.1.1 Projections not forecasts

OECD projections are conditional projections rather than pure forecasts. They are the modal projection conditional on a pre-defined and publicly disclosed set of assumptions regarding certain global and domestic variables and policies.

Projections attempt to tell a quantitative story of “what is likely to happen” under the chosen set of assumptions on policies, exchange rates and commodity prices while ensuring the story is consistent both within and between countries.

In contrast to institutions such as central banks and governments, the OECD is not directly involved in policy making. This allows more flexibility on assumptions regarding policy reactions to certain developments.

1.2 What can be learned from projection errors

Meaningful interpretation of projection errors requires understanding why the errors happened. Errors can come from assumptions not being fulfilled, or from misjudgements of forecasters, or from unexpected events. Hence, projections can be “wrong” not only ex-post, but also ex-ante – for good or bad reasons. For example, projections that warn about weak growth prospects may spark governments to react by increasing discretionary fiscal spending. If successful, the outcome could be stronger growth than in the projection, resulting in a projection error, but would still be seen as evidence of a good projection. In this case, the projection would have been “correct” ex-ante even though it was “off” ex-post. Similarly, a projection could have low errors, but be flawed if these occur for the wrong reasons.

1.2.1 Growth projection errors are largest around major crises

Inspection of errors of GDP growth projections for G7 countries over the last 50 years yields the following insights (see Figure 1).

First, in the years following the GFC, OECD projection errors, outside years of major shocks, have generally been of similar magnitude as in the previous decades.

Second, projection errors have been larger around major crises like the oil crisis in the early 1970s or the Global Financial Crisis. Projection errors were particularly large during the pandemic. The focus on modal (i.e., most-likely) outcomes in OECD projections implies that tail events, such as the pandemic, or Russia’s aggression against Ukraine would not be part of the central scenario. As a result, projection errors spike when such events materialise.

Third, looking ahead a further 6 or 12 months reduces projection accuracy considerably.

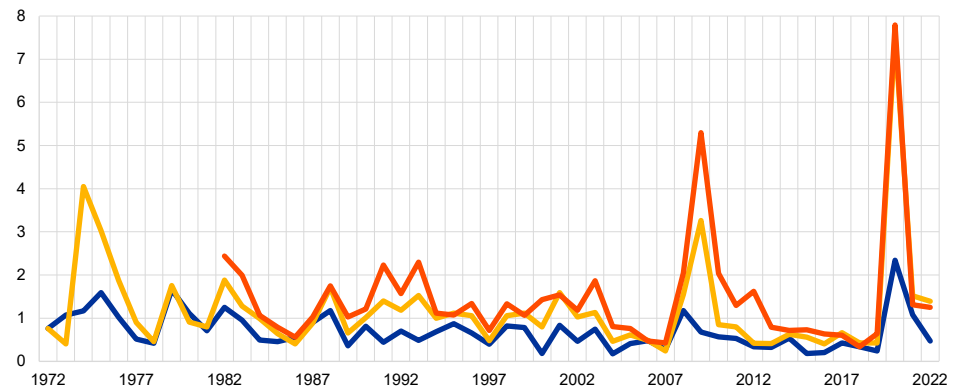
Chart 1

Projection errors are larger around tail events

GDP growth average absolute projection errors

(%pts, unweighted mean of G7 countries)

- May current year error
- November year ahead error
- May year ahead error



Notes: The projection error for year t is defined as outturn minus projection. The Outturn is the official estimate for growth published in the May Economic Outlook in year $t+1$. Three sets of projections for year t are considered: the projection published in the May Economic Outlook in year t , and the projections published in the May and November Economic Outlooks in year $t-1$.
Sources: OECD Economic Outlook database; and OECD calculations.

In response to the considerable projection errors around the Global Financial Crisis the OECD embarked on a post-mortem exercise (see Pain et al., 2014). During and after the financial crisis, i.e., over the 2007-2012 period, projections were found to repeatedly over-estimate growth, failing to anticipate the extent of the slowdown and later the weak pace of the recovery – errors made by many other forecasters. At the same time, inflation was stronger than expected on average.

In response the OECD made changes to improve projection accuracy and to highlight the uncertainty surrounding exceptional events. These changes included greater centralisation in the earlier stages of the projection process to ensure a more consistent treatment of global developments and cross-country spillovers and enhanced monitoring of near-term activity with high frequency data. And an increased focus on the assessment and communication of risks, both qualitatively in Country Notes and quantitatively using tools like model simulations and alternative scenarios.

1.2.2 Dealing with exceptional events: The pandemic

The OECD takes a flexible approach to projections and employs a high degree of expert judgement in its projection exercise. This allows a more tailored treatment of risks around the projections.

The economic projections in June 2020 in the OECD Economic Outlook were subject to an unusually high level of uncertainty about the evolution of infections with COVID-19 and potential policy reactions to contain them.

To accommodate these exceptional circumstances the OECD produced a bi-modal projection with two growth scenarios: one in which a second wave of infections, with renewed lock-downs, was assumed to occur before the end of 2020, and one in which another major outbreak was assumed to be avoided (see Figure 2).

The two growth scenarios were calibrated in part by using information on differences in industrial structures across countries and assumptions on the speed at which production could be restarted in different sectors as restrictions were relaxed.

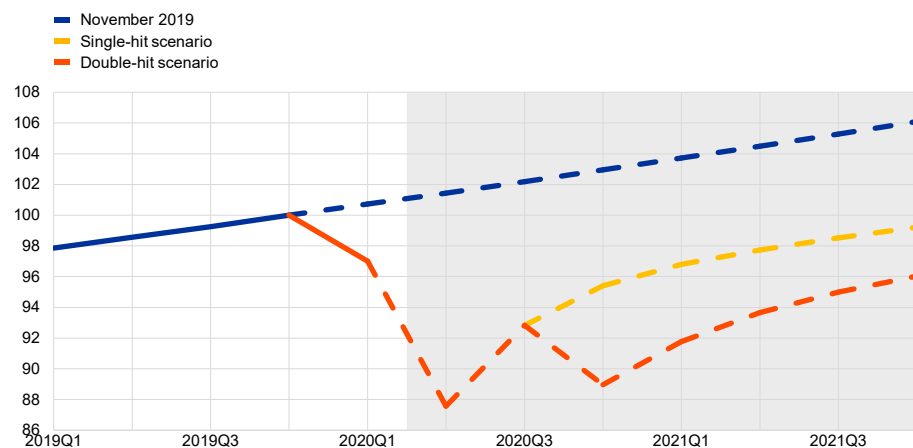
Frequent changes in COVID-19 lockdowns and restrictions as well as supply disruptions and related cross-country spillovers made it necessary to use new tools to track activity at higher frequency than the typical monthly or quarterly indicators. Examples of how OECD projection tools adapted include using new high frequency data to track specific aspects of economic activity e.g., tracking container ships and consumer spending based on credit cards, or the OECD GDP Weekly Tracker. The Tracker, based on an application of machine learning to data from Google searches calibrated to provide a weekly indication of GDP, provided an almost real-time picture of economic activity, complementing the standard indicators which were lagging and less reliable due to the exceptional economic shutdowns (Woloszko, 2020).

Chart 2

Scenario analysis can help to address uncertainty

Two-scenario GDP projections from the June 2020 OECD Economic Outlook

(2019Q4=100, Global real GDP index)



Notes: The chart shows the global GDP projection based on the OECD Economic Outlook 106 (EO106) released in November 2019 and EO107 in June 2020. The double-hit scenario assumes a second wave of infections hits and triggers a return to lockdowns before the end of 2020. The single-hit scenario assumes a second wave is avoided. Shaded area indicates projection period. Sources: OECD Economic Outlook 106 database; OECD Economic Outlook 107 database; and OECD calculations.

1.2.3 Dealing with exceptional events: Russia's aggression against Ukraine

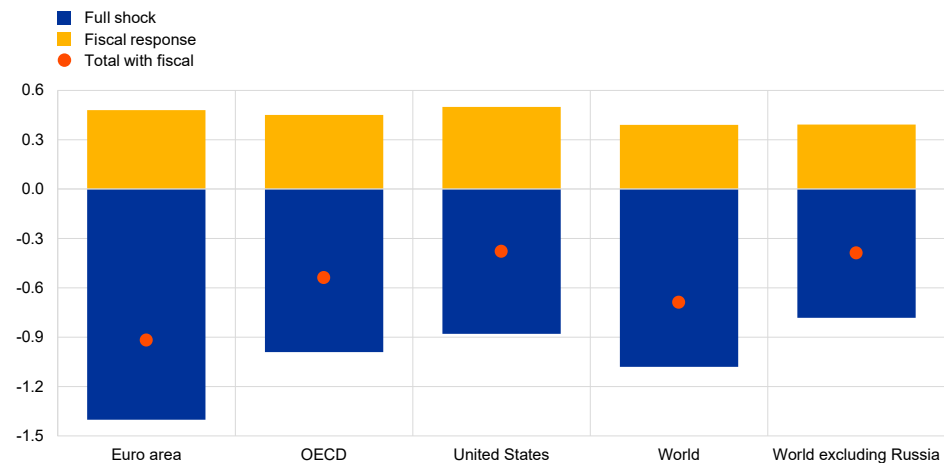
The OECD Interim Economic Outlook was published in March 2022, shortly after Russia's invasion of Ukraine when there was high uncertainty over the economic impact of the war. Rather than publish detailed country-specific projections, this

Interim Economic Outlook focussed on the risks and exposures through different channels and their potential macroeconomic impacts. Model-based simulations were used to anchor the discussion on potential impacts on GDP growth and inflation together with the potential to offset these impacts through fiscal policy responses, providing policy recommendations even though no projection data was published.

Chart 3
Scenario analysis can highlight risks

Simulations of the potential GDP impact of the Russia’s war of aggression against Ukraine

(%, impact on GDP in the first full year with and without policy response,)



Notes: The full shock scenario assumes that commodity and financial market shocks seen in the first two weeks of the conflict persist for at least one year and includes a deep recession in Russia. The fiscal response scenario assumes a well-targeted rise in final government spending of 0.5% of GDP for one year in all the OECD economies. More details on these simulations can be found in the technical appendix (p. 13) of the OECD Interim Economic Outlook March 2022.
Sources: OECD calculations using the NIGEM global macroeconomic model, OECD Interim Economic Outlook March 2022.

Increased monitoring of energy-market related risks, simulations of energy price shocks and detailed input-output analysis has allowed a richer set of policy recommendations linked to OECD projections. In the 2021 December Economic Outlook, and in particular since Russia’s invasion of Ukraine, the OECD has been warning about the risks related to low gas storage in Europe and since then embarked on monitoring gas storage levels and simulating their evolution under different scenarios. Together with simulations of further energy price shocks and detailed input-output analysis of the industries and countries most at risk from gas, oil and coal supply disruptions further, this work complemented the Economic Outlook projections to support government reactions to energy risks.

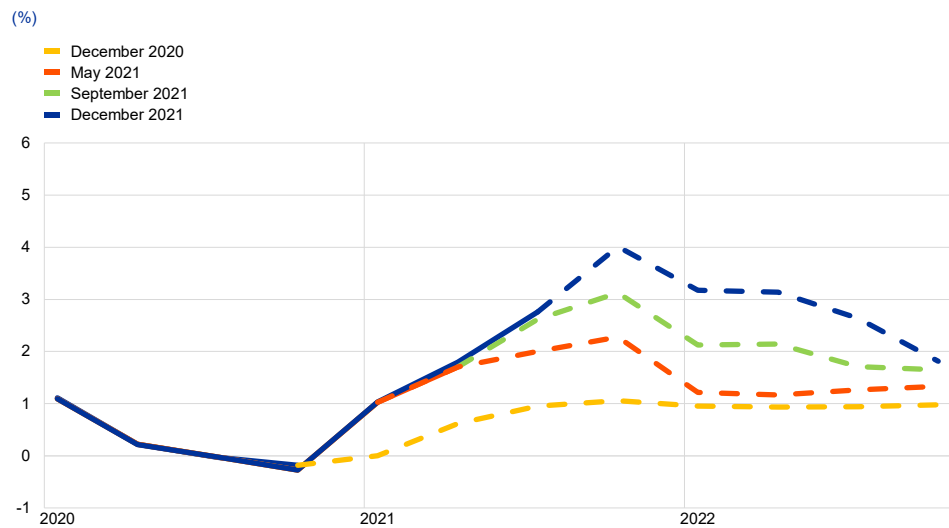
1.2.4 Despite innovations there are continued surprises

Despite the lessons learned and all the improvements implemented over the years, OECD projections have consistently underestimated the persistence of post-COVID inflation (see Figure 4). In this we are not alone.

The OECD is investigating further various aspects and potential drivers of this persistence in inflation in its Economic Outlooks, in particular by looking into issues like demand and supply drivers of inflation, the global synchronisation of monetary

policy tightening and the way in which this changes monetary policy transmission, wage and profit formation, structural changes in labour markets, consumption and technological patterns, the specific role of fiscal and monetary policy interventions in the recent years and the formation of inflation expectations.

Chart 4
OECD projections for inflation in the euro area



Notes: Dashed lines represent projections for the headline harmonised consumer price index.
Sources: OECD Economic Outlook 110 database; OECD Economic Outlook 109 database; OECD Economic Outlook 108 database; and OECD calculations.

1.3 Conclusion

A forecaster may be wrong for the right reasons or right for the wrong reasons. Evaluating previous projections requires a good understanding of why the economy evolved differently from the projection. As uncertainty increases, clarity over what projections assume and how results change with those assumptions is increasingly important. A flexible approach is essential in responding usefully to acute uncertainty or exceptional shocks. New data sources and tools and supplementing modal projections with multiple scenarios can improve projections and make them more useful for policymakers.

References

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