Upgrading the Modelling Toolbox to Support Macroeconomic Forecasting in Slovenia

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Non-technical summary

This paper summarises work carried out under a Technical Support Instrument (TSI) of the European Commission's Reform and Investment Task Force (SG REFORM). The focus of this TSI was 'Upgrading the Modelling Toolbox to Support Macroeconomic Forecasting in Slovenia', to provide technical support (new tools and capabilities) to the Institute of Macroeconomic Analysis and Development (IMAD) in Slovenia.

The project was delivered by the ASCENT+ consortium, bringing together experts from BDO Slovenia, Cambridge Econometrics, and Professor George Kapetanios and Dr Fotis Papailias.

As it relates to this TSI project, the relevant responsibility in IMAD's mandate is:

> *to produce official macroeconomic forecasts that are credible and accurate, at an annual frequency, to feed into the Ministry of Finance's budgetary forecasts*

IMAD publishes its forecast but also transmits the information directly to the Ministry of Finance, for the Ministry to then produce its own fiscal forecast.

Currently, production of the forecast involves IMAD developing projections in an initially decentralised fashion. In this way, individual teams are assigned to forecast the various components of the Slovenian economy, such as exports, imports, household consumption, employment etc. The subsequent process consists of several iterations of adjustment, bringing the various components together into a coherent forecast. IMAD employs a variety of tools to develop this forecast, including a nowcasting model designed to take more timely but partial data, e.g. monthly indicators like prices and production indices, to form an estimate of GDP and its expenditure components in advance of the official release of such data. These nowcasts help to inform the development of the short-term forecast by giving some indication of the current/recent state of the economy.

The project had two aims:

1. To **upgrade IMAD's existing tools for nowcasting**, to take advantage of new advances in the field since the original tools were developed. Specifically, the single method already operated by IMAD was complemented by a range of other methods. Modern practices favour deploying a range of approaches and combining them as needed, because each fares differently depending on current economic conditions e.g. nowcasting in more normal times versus periods in which the economy might change direction.
2. To **develop a new macroeconomic model** to aid IMAD's forecasting process, in a manner similar to that operated by similar forecasting organisations around Europe and the rest of the world. While not a replacement for the forecaster, such a model offers various efficiencies by providing a structured framework with which IMAD can consider the coherence of its forecasts and make adjustments according to expert judgment. Moreover, the new model allows IMAD to carry out scenario analysis (examine alternative futures under different assumptions), which is a new capability that would be too labour-intensive to do regularly by existing methods.

In collaborating with IMAD in the design and development of these tools, the sophistication of IMAD's forecasting capabilities has been augmented, both to be able to take account of more recent advances in the field of macroeconomic analysis and to be able to examine alternative futures for the Slovenian economy in ways that support IMAD's role as an EU Independent Fiscal Institution (IFI) in the role of the producer of macroeconomic forecasts that are officially used as the basis for budgetary forecasts. The new tools support IMAD's obligations under

recent (2024) Economic Governance Reform to ensure the greater involvement of IFIs in monitoring economic and fiscal developments in Europe.

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In this regard, the aim of the project was to review IMAD's existing approaches, to then recommend and implement new tools to augment the organisation's capabilities. In light of the original TSI request, the requirements of the project were confirmed, to:

1. Provide **an upgraded toolbox for nowcasting** GDP as well as its main expenditure-side components, in place of IMAD's existing models. In doing so, IMAD's tools have been brought up to the date with the current state of the art.
2. Develop **a new macroeconomic model** to support IMAD's existing forecasting activities but also to provide new capabilities in the assessment of scenarios and sensitivities (the latter will also support a growing need to be able to examine alternative macroeconomic trajectories under European Economic Governance Reform). The model should be rich enough to generate coherent projections for all major variables/blocks published by IMAD in its regular *Forecast of Economic Trends*. This includes expenditure components of GDP, employment and unemployment (by various measures), prices and wages.

Table 1 provides an overview of IMAD's existing capabilities and how these have been augmented by the new tools.

Table 1: Summary of project developments under the TSI

	Before	After	Benefits
Nowcasting	Dynamic Factor Models only i.e. a single class of model.	Toolbox of multiple nowcasting models/methods, with options for forecast combination, multi-step ahead forecasts, time-varying parameters and quantile regression.	Multi-method approach reflects current best practices for nowcasting e.g. to consider models better suited for trend analysis alongside those better equipped to examine potential turning points. This confers greater robustness in the practice of nowcasting.

	Before	After	Benefits
Forecasting	Collectively developed forecast, as a combination of various quantitative models/methods paired with expert judgment.	Formal macroeconomic model, ensuring accounting consistency between components and a coherent macroeconomic picture.	Formal forecasting device with which to improve efficiency of forecast production. Simulation properties permit new capabilities, to carry out scenario/ sensitivity analysis. Both serve as aids to the expert forecaster when developing coherent projections and the accompanying narrative.

The rest of this paper presents the work carried out and the features of the new models and modelling system in more detail.

The collaboration with the entire IMAD team, and especially Dr. Andrej Kuštrin, Mag. Janez Kušar, and Mag. Marijana Bednaš, is gratefully acknowledged, with extensive discussion throughout.

1 Approach

Overall, the project followed standard principles, in line with those of similar SG REFORM TSIs. This involved a sequence of tasks to:

1. Confirm IMAD's objectives and support needs
2. Review IMAD's current capabilities and approaches (the 'as-is' situation)
3. Propose new capabilities and approaches (the 'to-be' situation)
4. Develop, build capacity in, and hand over, the resulting tools to IMAD, thus moving from the 'as-is' to the 'to-be' situation

This chapter provides a summary of the first three activities and findings, with the later parts of this paper then describing the new tools in more detail.

1.1 Objectives and support needs

The TSI concerned two linked strands of work:

1. The development of **upgraded nowcasting models** for short-term estimates of GDP as well as its main expenditure-side components, to replace IMAD's existing nowcasting tools.
2. The development of **a new macroeconomic model** for medium-term projections (to at least *t+4* years), to both support IMAD's regular (twice-yearly) forecast production and confer a new ability to efficiently carry out scenario/sensitivity analysis. Such capability is also relevant under European Economic Governance Reform, to support development of, and responses relating to, Slovenia's national medium-term fiscal-structural plans. This includes the need to be able to examine alternative trajectories for the Slovenian economy.

The two are related because the nowcasts inform IMAD's regular forecasts (in spring and autumn of each year) and, currently, while IMAD's expert judgment-led approach to forecasting has proven effective (IMAD regularly assesses forecast performance in spring forecasts, the latest assessment is available in the Spring Forecast of Economic Trends 2025, p. 61 [1]), it is rather labour intensive in its current form.

The thinking that motivated the TSI centred on how to bring IMAD's tools up to date with the state of the art (in terms of nowcasting) and how to improve the efficiency of medium-term forecasting and enable scenario analysis.

1.2 Capabilities and approaches

IMAD's principal activity in developing and delivering its forecasts involves the IMAD team working together to produce the official macroeconomic forecast for Slovenia at least twice each year. The full forecast process takes a matter of weeks with the timing determined by legal obligations (Public finance law[2]) to publish the results within one week of the Statistical Office of the Republic of Slovenia's data releases of GDP growth for:

- The last quarter of the previous year (i.e. quarterly GDP growth), typically requiring the spring forecast to be published in late February.

[1] https://www.umar.gov.si/fileadmin/user_upload/napovedi/pomlad/pomladanska_2025/PN2025_EN_.pdf
[2] https://pisrs.si/pregledPredpisa?id=ZAKO1227

- The second quarter of the current year (i.e. quarterly GDP growth) and the whole of the previous year (i.e. annual GDP growth), typically requiring the autumn forecast to be published in mid-September.

The forecast is a collaborative effort, with teams in IMAD allocated responsibility for different components according to their expertise. The first step in the process is predominantly decentralised development of each forecast component whereby the individual teams produce them using their own quantitative tools. The subsequent process consists of several iterations and adjustments during the forecast rounds, bringing the various components together into a coherent forecast.

One expressly quantitative component of the forecast process is the nowcasts, which serve to inform IMAD's short-term economic outlook. At any given time, partial data for the current and/or previous year may be available. In IMAD's case, these data concern especially quarterly national accounts, i.e. GDP and its expenditure components. Other more recent/timely data, including higher-frequency price indices and business surveys, may provide useful information about the current year to inform the short-term view. The role of the nowcasts in IMAD's forecasts is to generate estimates that complete the data for a full year.

The main conclusions from the review were that, while IMAD's current methods were suitable for recent/past needs and would be recognisable to similar organisations with a forecasting mandate, there were clear benefits to upgrading the organisation's tools. More specifically:

- Since the development of IMAD's nowcasting models, various advances have been made, especially in the application of other (i.e. additional) model types that fare better under different economic conditions, as set out in a wide body of academic literature and as practised by central banks and international institutions such as Eurostat and the IMF.[3] This was an opportune time to consider how newer techniques and practices might be incorporated into IMAD's toolbox.
- There was merit in developing a new macroeconomic model for IMAD. This would provide a central tool/forecasting device to improve the efficiency of the forecasting process, which will always require expert judgment. A new benefit of such a model would be the ability to carry out scenario and sensitivity analysis, adding capabilities alongside IMAD's current expert judgment-led methods.

These improved/new capabilities thus:

- **Improve the efficiency of the forecasting process**, particularly to help address the time- and labour-intensive nature of the existing approach.
- In improving efficiency, **support the production of analysis that better meets the evolving requirements of European economic governance reform**, especially with respect to the growing need for scenario analysis.
- Make use of **more modern techniques** (models and modelling approaches in use by organisations with comparable interests and remits, including forecasting methods and macroeconomic models) **and modern practices** (in the application of those techniques, potentially in combination, to generate forecasts), to improve the sophistication, accuracy and reliability of the projections, particularly the nowcasts.

[3] In the literature, European applications have been demonstrated by researchers such as those (i.e. non-exhaustively) at the European Central Bank, Bank of Italy and Bank of Slovenia.

1.3 New capabilities and approaches

Given the assessment, and a subsequent review of candidate approaches and methods in use elsewhere, the proposed 'to-be' situation was as follows, to:

- **Upgrade IMAD's existing nowcasting system**, to make better use of recent advances to produce quarterly estimates of macroeconomic aggregates, to inform the short-term component of the forecast.
- Enable the **production of *model*-based forecasts**, to at least *t+4* years, to complement the current approach, which places much more reliance on the team's collective expert judgment. In doing so, IMAD should gain efficiencies that also support the ability to produce multiple projections each forecast round e.g. in the form of scenario/sensitivity analysis.

The above require a **new macroeconomic modelling system**, including mechanisms with which to integrate the nowcasts from the point immediately above.

Further details are provided in the following chapters.

2 Design

An important feature of the TSI is that the project delivers both modelling tools and modelling capability. This speaks to the need to ensure that IMAD is equipped with an upgraded modelling *system*, encompassing the new tools/software but also how the tools integrate with IMAD's systems and processes.

As such, the new tools have the following common characteristics:

1. A decision agreed with IMAD to **implement both the nowcasting toolbox and the forecasting model in the R programming language**.[4,5] R is a statistical programming language with which some of the IMAD team are already familiar. As well as taking advantage of open-source software, deploying a new generation of tools in this language was considered an effective way to further promote adoption in the organisation.
2. Relating to the above, express **efforts to ensure that the new tools can interface with IMAD's internal database of economic and other statistics**. This database was an ongoing IMAD initiative even before the TSI, with the aim of providing a single source of data within the organisation, to eventually replace staff's own efforts to collect and archive data for individual use. The advantage of IMAD's database is that the data are collected from public sources using automated methods, enabling frequent ongoing updates, as well as the ability to store vintages over time. Internally, IMAD staff can access the database using standard methods (including in R).
3. **Implementation and storage of the code using modern version control software and techniques**; namely, Git/GitHub.[6,7] Such software is a vital tool for maintaining modern codebases for the long term, by ensuring:
   - The ability to log code changes in a deliberate fashion, with information about changes and the reasoning behind those changes stored in the code's history.
   - The ability to examine the entire history of the codebase, and 'tag' important versions (e.g. those used to produce specific forecasts) and retrieve them at will.
   - Modern software development conveniences including the ability to work in parallel (by the creation of separate code 'branches') and easily re-integrate/merge code changes once ready for inclusion in the core model.
4. In both cases, **flexibility of design to ensure that IMAD can continue to develop the tools independently in the future**. This manifests as:
   - Nowcasting toolbox: A wide range of options and settings to allow the user to refine the various parameters of the model(s), should the accuracy of the toolbox need to be tuned.
   - Forecasting model: A flexible framework in which to amend the database, respecify and re-estimate equations (by a variety of different methods: the model is largely agnostic to the source of its equations) and then apply the model, whether for historical simulation/validation, forecasting, scenario analysis or sensitivity analysis.[8]

[4] https://www.r-project.org/
[5] We have also been careful to ensure that any third-party libraries required by the tools are well established and well supported, to reduce the risk of obsolescence over time.
[6] https://git-scm.com/
[7] https://github.com/
[8] A core R package in the implementation of the model is `bimets`, which was developed by staff at the Bank of Italy, and thus proven for economic modelling such as this: https://cran.r-project.org/package=bimets

3 Nowcasting toolbox

As noted in the assessment conducted during the project, IMAD's existing approach employs recognised statistical techniques for nowcasts, drawing on the relevant academic thinking of the time (namely, dynamic factor models); and representing an advance over approaches that rely primarily on autoregression, which remain common in institutions with interests in macroeconomic analysis and forecasting. With over 15 years of experience using this framework, IMAD is well positioned to benefit from recent methodological developments and best practices from other institutions, such as the European Central Bank, various central banks in EU Member States, Eurostat, the Federal Reserve System (notably the New York Fed) and the Bank of England. These developments offer opportunities both to enhance the specific formulation of dynamic factor models and to adopt more flexible toolboxes that combine multiple approaches, rather than relying on a single model class. In this context, using a wider range of techniques also facilitates model combination, whereby results are aggregated or averaged to produce robust final estimates.

The advantages of considering different model types extend to their performance under varying circumstances; for example, some models are better suited for trend projections, while others are more effective at identifying turning points.

The toolbox developed under the project allows for nowcasting GDP as well as its main expenditure-side components.

All target variables are quarterly in frequency, with 45 predictor variables considered, all of which are available at monthly frequency, such that more recent observations are available relative to the quarterly figures.

In contrast to the existing approach of only using dynamic factor models, the new toolbox employs a range of methods and variants (see Table 2) along with multiple averaging options: across all models, by approach or sub-approach, and through dynamic averaging based on inverted mean-square error (considering the top 5, 10 or 25 models).

Table 2: Nowcasting toolbox methods

Approach	Method	Variants
Univariate time series	Naïve	-
	Rolling average	Variants averaging over 2, 4, 8 and 16 quarters
	Autoregressive models	Up to four lags as well as automatic selection by either the Akaike or Bayesian Information Criterion
	Autoregressive moving average models	Orders selected by either the Akaike or Bayesian Information Criterion
	BATS	Box-Cox transformation, ARMA errors, trend and seasonal components
	ETS	Exponential state space smoothing
Factor models	Dynamic Factor Models	First factor and lag Factor orders determined by criteria from Bai and Ng;[9] and lag orders determined by either the Akaike or Bayesian Information Criterion Factor and lag orders determined by cross-validation
	Principal Component Analysis	One factor only Factor order determined by either the Akaike or Bayesian Information Criterion Factor order determined by cross-validation

[9] Bai, J., Ng, S. (2002). Determining the Number of Factors in Approximate Factor Models. *Econometrica*, **70**(**1**), 191-221.

Approach	Method	Variants
	Partial Least Squares	One factor only Factor order determined by minimising either the Akaike or Bayesian Information Criterion Factor order determined by cross-validation
Linear machine learning	Ridge regression	-
	LASSO regression	-
	Adaptive LASSO	Ridge betas used in the first step
	Elastic Net regression	Alternative mixing coefficients: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9
Nonlinear machine learning	Random forests	-
	Neural Network	Multilayer Perceptron
	Support Vector Regression	-

As well as providing the user with options to alter the parameters for the various methods in Table 2, the toolbox also provides various ways of handling, optionally:

- Data imputation, to fill missing values to achieve an overall longer timespan for the dataset than otherwise
- Seasonality, by the X13-ARIMA-SEATS procedure
- Stationarity, using a range of different transformations
- Outliers, using various detection methods
- Alternative methods for linking higher-frequency monthly predictors to lower-frequency target variables, by either bridge equations or unrestricted mixed-data sampling (UMIDAS)[10]

Other features available in the new toolbox concern:

- Forecasting over longer time horizons than just the current period
- Time-varying adjustments derived from rolling window estimation (with the window adjustable as desired)
- Quantile regression to produce fan charts, based on an autoregressive model of order 1, to gauge forecast uncertainty

In the above respects, the new nowcasting toolbox complements IMAD's existing approach by offering additional variety and flexibility for projections.

[10] Foroni, C., Marcellino, M., Schumacher, C. (2015). Unrestricted mixed data sampling (MIDAS): MIDAS regressions with unrestricted lag polynomials. *Journal of the Royal Statistical Society*: Series A (Statistics in Society), **178**(**1**), 57–82.

4 Forecasting model

The purpose of the new forecasting model is not to replace the forecaster. Rather, the model seeks to provide a more formal and structured framework and forecasting device to IMAD. In this regard, the new model provides a focal point for IMAD to generate and adjust (by expert judgment) forecasts in a coherent manner. This serves to improve the efficiency of forecast production.

Structurally, the new model is built, alternately, in the large macroeconometric / semi-structural tradition. Such models lie between the extremes of:

- Pure / near-pure time-series econometric techniques, which have favourable predictive properties in the short term (as exemplified by the new nowcasting toolbox) but lack the economic structure desired for longer-term projection.
- Economic models that place greater emphasis on theory (as might be found in a dynamic stochastic general equilibrium model) but then tend to be overly compact for the purposes of organisations such as IMAD.

The chosen model class represents a compromise between these two extremes, allowing the data to 'speak' in the application of econometric techniques (with, as mentioned previously, openness to the precise estimation methods employed) while also offering a great deal of flexibility to modify the structure e.g. to impose more structural features where desired. Such flexibility is an advantage of these models, with ample room to introduce expert judgment as desired.

The advantages of such models are evident in their use in other IFIs including the Dutch Centraal Planbureau, Italian Parliamentary Budget Office, and UK Office for Budget Responsibility. Some European central banks also maintain models of a similar class, including the European Central Bank and De Nederlandsche Bank in the Netherlands.

Table 3 provides a summary of the forecasting model's main features.

Table 3: Forecasting model features

Feature	Description	Comment
Frequency	Quarterly	Quarterly dynamics agreed as preferred, even if forecasts will be generally published at annual frequency
Forecast horizon	Flexible, depending on input assumptions	Currently tested to around *t+5* years
Accounting	National accounts-consistent	Various accounting residuals implemented to handle statistical discrepancies
Equation specification	Flexible (if compatible with `bimets`)	General preference for either explicit or implied error-correction form, to be able to interpret in economic terms (short- and long-term dynamics)
Parameterisation	Open	Main approaches in use, depending on the equation: • Autoregressive distributed lag • Nonlinear least squares • Ordinary least squares
Expert judgment	Available throughout	Mechanisms for introducing add factors to behavioural equations
Scenario/ sensitivity capability	Various	Array of exogenous assumptions available, including: • Rest of world trends e.g. economic activity, exchange rates • Alternative demographic projections (as inputs) • Government spending decisions • (Implicit) tax rates

In terms of specification, as mentioned in Table 3, the preference is for equations that either follow or have valid representations in an error-correction form. Such equations (if found to be statistically valid) have convenient economic properties, distinguishing:

- A long-run equilibrium relationship described by the explanatory variables, which can frequently be interpreted in economic-theoretical terms e.g. the long-run relationship between household consumption and household income
- An adjustment process, with a coefficient that determines the speed of return to the aforementioned long-run relationship, which can also be thought of as a proxy for the overall strength of the relationship
- Shorter-term dynamics/fluctuations that tend to arise more from the statistical/predictive features of the data i.e. as a matter of statistical fit

Because such equations can be easily decomposed into the previously described components, they allow the model to be analysed from economic, statistical, and simulation perspectives.

In terms of implementation, the structure of the model is flexible and straightforward to update and modify in the future. An overview of the current model structure is provided in Table 4.

Table 4: Forecasting model blocks

Block	Description	Comment
Consumption	Final consumption expenditure of households and non-profit institutions serving households: Econometric equation	Aggregate consumption equation with income as the principal driver
Investment	Private investment: Econometric equation	Output as the principal driver
	Public investment: Assumption	-
Exports	Econometric equation	Aggregate equation (capturing both goods and services), driven by a market share-weighted indicator of Slovenia's ten largest trading partners by real imports, and the real effective exchange rate (42 trading partners)
Imports	Econometric equation	Aggregate equation (capturing both goods and services), driven by domestic demand, with separate propensities to import for household final consumption, investment (in aggregate) and exports
Labour	Private employment (national accounts): Econometric equation	Private GVA and real (private sector) wages as the principal drivers Labour force survey and Employment Service of Slovenia measures derived from ratios and/or standard labour market accounting
	Public employment: Assumption	-
Prices	Consumer price index (CPI): Econometric equation	Driven by domestic costs (unit labour costs) and import prices (import deflator) Harmonised Index of Consumer Prices derived from a ratio linked to the CPI
Wages	Private-sector wages: Econometric equation	Wage-bargaining model, driven by consumer prices, labour productivity and the unemployment rate
	Public-sector wages: Assumption	-

Block	Description	Comment
Fiscal block	Revenues: Mix of technical equations and assumptions	Endogenous revenues determined according to implicit tax rates linked to specific tax bases in the model (time-varying in the history; held constant by default over the forecast period)
	Expenditures: Mix of assumptions and technical equations	Endogenous expenditures determined according to implicit rates linked to specific variables in the model (time-varying in the history; held constant by default over the forecast period) Key government expenditures set by assumption

The model thus covers the core blocks of a standard macroeconomic model, with the ability to:

- Run the model over the historical period to test system-level goodness of fit
- Generate forecasts according to input assumptions
- Simulate alternative scenarios and/or examine a range of sensitivities in both the past and future by varying the exogenous variables

Of note in the current implementation is that the model does not expressly model forward-looking expectations, although the flexibility of the software is such that extensions (alongside various others) could be added as desired, and optionally so, in the future.

Overall, the new forecasting model offers comparable structure to that already considered by IMAD in producing its current forecasts, with the ability to adjust the raw model projections to produce a final forecast.

5 Conclusion

This paper summarises the work carried out under an SG REFORM TSI to upgrade IMAD's macroeconomic modelling capabilities in the following ways:

1. **Upgraded nowcasting capability**, in the form of a new toolbox offering a range of different nowcasting methods. The new toolbox offers substantial flexibility in parameterisation and other user settings, with the ability to combine different forecasts, forecast further into the (near-)future and consider uncertainty and the possibility of (mild) structural change in the short term. All of these have been shown in the literature to improve the robustness of short-term forecasts.

   The new toolbox provides IMAD with a broader set of methods, complementing the existing approach.

2. **New modelling capabilities for forecasting and other simulation**, with the development of a new and modular macroeconomic model of a similar class to those in use in other macroeconomic forecasting/analysis institutions. The new model provides a coherent economic framework for projection and forecast production (including the imposition of expert judgment), to aid IMAD in more efficient forecast production. Moreover, as a formal macroeconomic model, it is also possible to examine alternative scenarios and sensitivities in a way that complement IMAD's existing approach.

   The new model augments IMAD's existing forecasting capability while also conferring new simulation capabilities.

With this upgraded toolbox, IMAD is in a position to carry out more robust nowcasting and more efficient forecasting, while also gaining a more sophisticated ability to consider alternative scenarios, to examine different futures. This is in line with new European requirements for analysing fiscal performance and sustainability. In doing so, IMAD will be even better equipped to provide insights to policymakers, including at the Ministry of Finance as well as the public, on the prospects for the Slovenian economy.

Alongside the structure of the models as economic tools, the software implementation is also crucial. The decision to use R was made on practical grounds, reflecting IMAD's existing experience and preferences (including its new internal database), and modern version-control software was used from the outset to host the two tools. In this way, IMAD is equipped not only with new tools but also with a platform for their maintenance and further development beyond the project.

The project has shown the scope to develop new tools for (and with) an EU IFI in ways that support long-term embedding, application and independent development/maintenance of those tools. While IFIs differ in their precise institutional context and responsibilities, the ability to benchmark and/or produce macroeconomic forecasts is quite prevalent as a requirement across Europe and, in this regard, the work may offer insights and learnings that may benefit other similar organisations as they adapt to the growing demands of EU Economic Governance Reform. This is the case both in the ability to carry out model-based macroeconomic forecasting and scenario/sensitivity analysis, as well as understanding or estimating the short-term evolution of the economy.

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