GDP Forecast Report for Brazil

Produced in collaboration with the University of Brasília and the Nowcasting Lab @ KOF, ETH Zurich

Next Release: September 30, 2025

The current prediction for Brazil's annual GDP growth in 2025 is estimated at **2.29%**. On a year-on-year basis, GDP growth for the 3rd quarter of 2025 is projected at **1.46%**, increasing to **1.51%** in the 4th quarter. For quarter-on-quarter changes, the growth prediction for the 3rd quarter is **0.05%**, increasing to **0.07%** in the 4th quarter of 2025. These projections draw on high-frequency economic data, coupled with advanced nowcasting methods, to provide a timely understanding of Brazil's economic trajectory.

The **GDP Forecast Report for Brazil** is a joint project by the University of Brasília, Brazil, and the Nowcasting Lab @ KOF, ETH Zurich, Switzerland.

Contacts: Lucas Martins De Oliveira (lucasgmartins04@gmail.com) and nowcastinglab@kof.ethz.ch.

Figure 1: Annual GDP Growth Rate Prediction for 2025

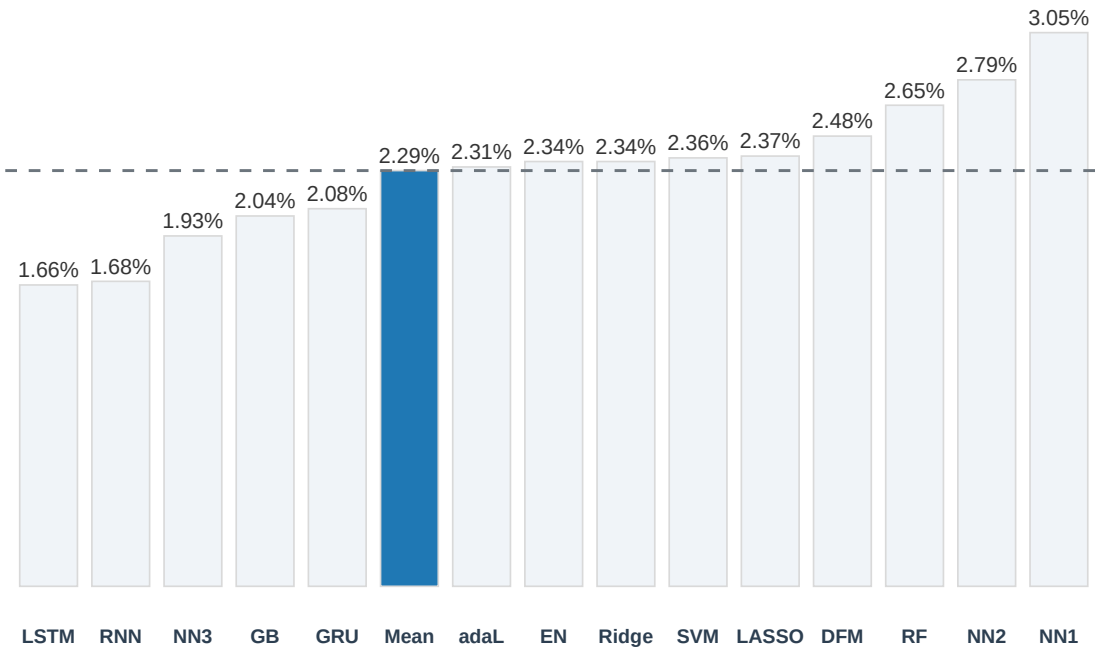
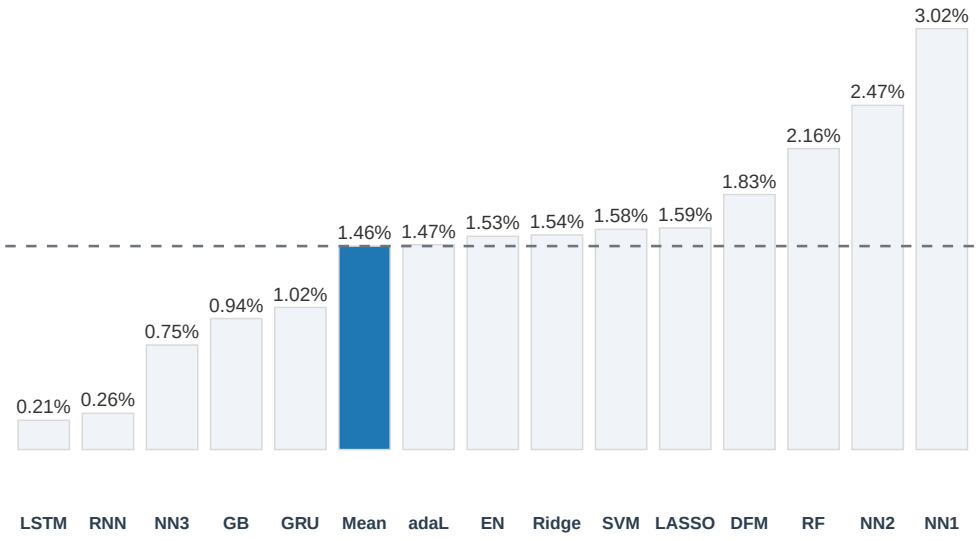
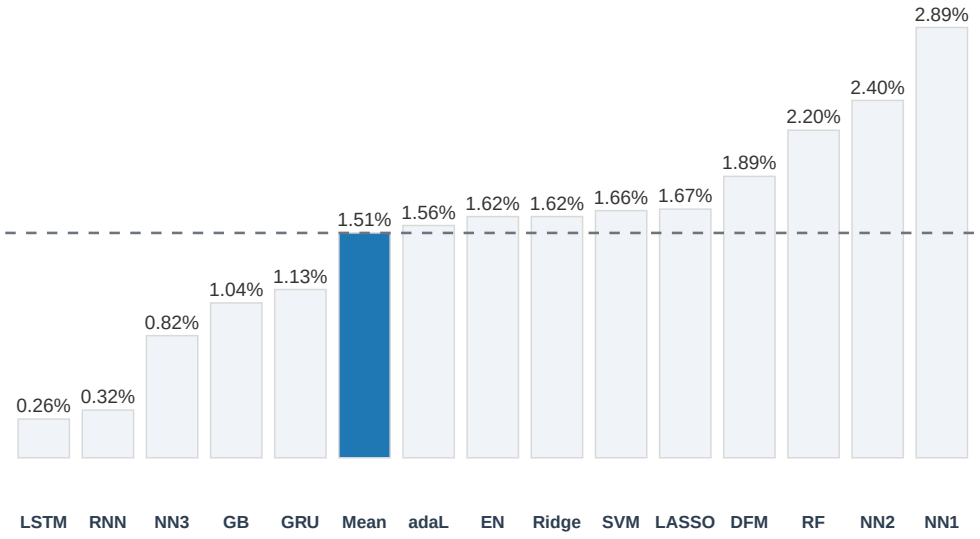


Figure 2: Year-on-Year GDP Growth Rate Predictions

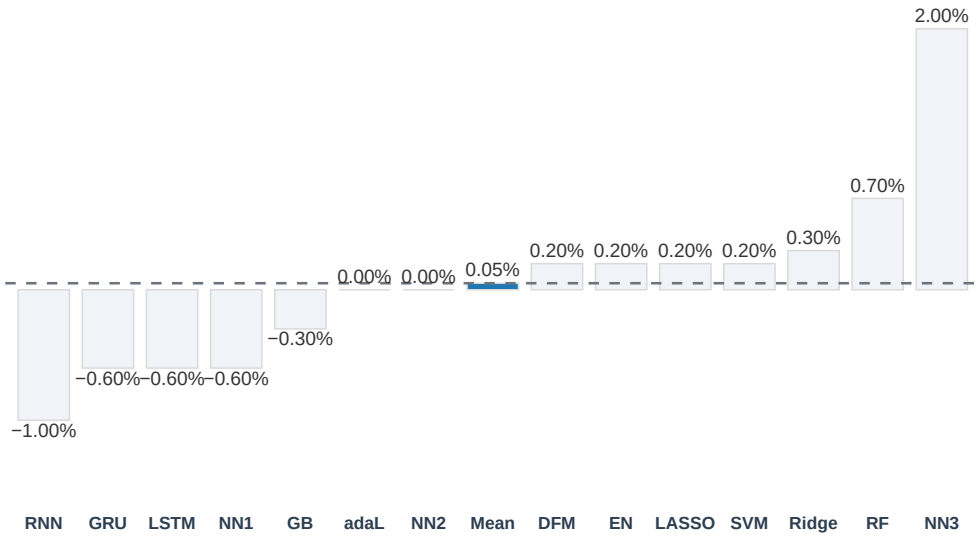


(a) YoY GDP growth rate prediction for 3rd quarter 2025

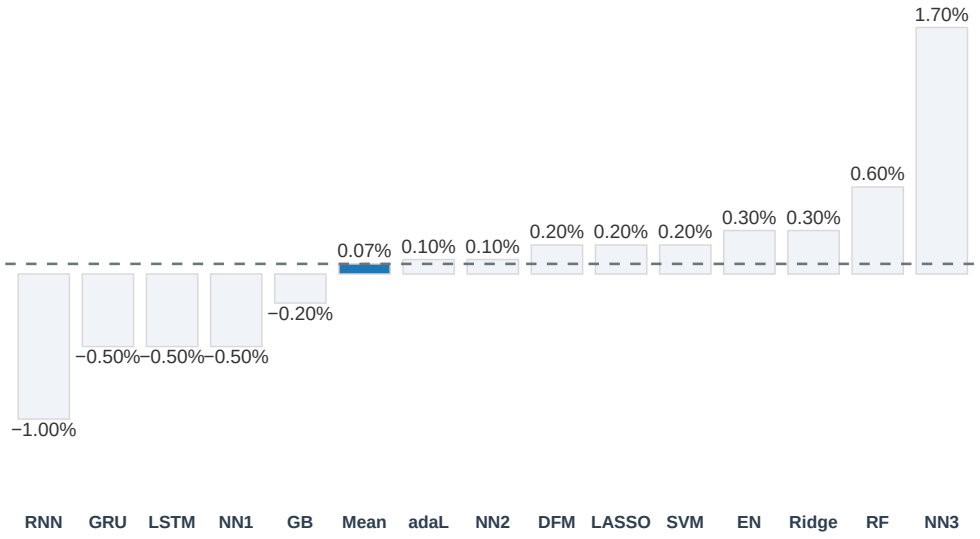


(b) YoY GDP growth rate prediction for 4th quarter 2025

Figure 3: Quarter-on-Quarter GDP Growth Rate Predictions

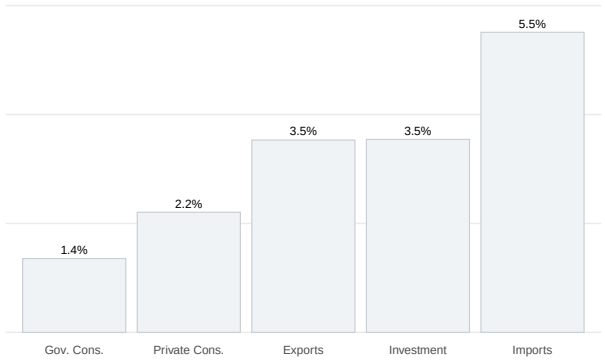


(a) QoQ GDP growth rate prediction for 3rd quarter 2025

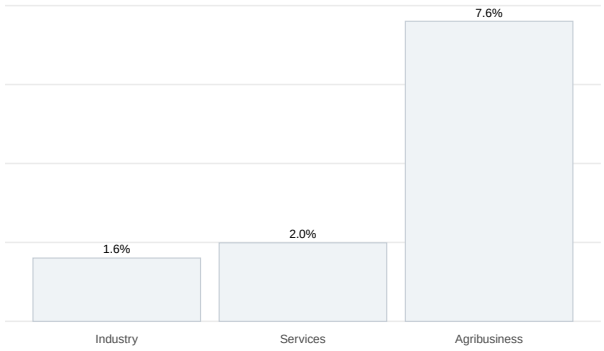


(b) QoQ GDP growth rate prediction for 4th quarter 2025

Figure 4: Brazilian GDP Sectoral Growth Forecast



(a) GDP Forecast of Demand Sectors for 2025



(b) GDP Forecast of Supply Sectors for 2025

Appendix

Forecasting & Nowcasting

This report presents the results of nowcasting and forecasting Brazil's GDP using multiple high-frequency data inputs and a range of machine learning models. In macroeconomics, *forecasting* refers to the estimation of a future value of an indicator (e.g., GDP or inflation). *Nowcasting*, on the other hand, focuses on the current or very near-future state of an indicator—particularly critical for GDP, which is published with significant delays. Nowcasting thus offers timely estimates before official numbers are released.

Prediction Models

This report presents nowcasts and forecasts for Brazilian GDP growth using a dynamic factor model (DFM) and several machine learning methods/models.

- **Neural Network (NN):** Capture nonlinear relationships in macro data with few functional assumptions.
  - **NN1**: Single-hidden-layer (shallow architecture).
  - **NN2**: Two hidden layers for higher representational capacity.
  - **NN3**: Three hidden layers for more complex patterns (with implicit regularization).
- **LASSO**: Variable selection via ℓ_1 penalty, improving interpretability.
- **Adaptive LASSO (AdaLASSO)**: Adaptive weights for more flexible penalization and lower bias.
- **Ridge Regression**: ℓ_2 penalization; robust to multicollinearity.
- **Elastic Net (EN)**: Combines ℓ_1 and ℓ_2, balancing selection and shrinkage.
- **Long Short-Term Memory (LSTM)**: RNN with memory/forget gates learning long-term dependencies; useful with persistent lags/seasonality.
- **Recurrent Neural Network (RNN)**: Simpler recurrent variant modeling temporal dependence via hidden states.
- **Gated Recurrent Unit (GRU)**: LSTM-like with fewer parameters (update/reset gates), often trains faster on smaller samples.
- **Support Vector Regression (SVM)**: Maximizes margin with kernels (e.g., RBF) to capture nonlinearities with good overfitting control.
- **Gradient Boosting (GBM)**: Additive ensemble of trees, strong for non-linear patterns/interactions; good bias–variance via depth and learning rate.

For further methodological details, see Rossi Júnior and Martins de Oliveira (2023) and Martins de Oliveira and Rossi Júnior (2024).

Balanced Panel Algorithm

A balanced panel algorithm ensures data consistency across varying timespans. Missing values are imputed using neural networks and time-series models, yielding a robust panel for further analysis.

References

Kronenberg, P., Mikosch, H., Neuwirth, S., Bannert, M. and Thöni, S. (2023): *The Nowcasting Lab: Live Out-of-Sample Forecasting and Model Testing.* Available at SSRN: https://ssrn.com/abstract=4353052 or http://dx.doi.org/10.2139/ssrn.4353052.

Rossi Júnior, J. L. and Martins de Oliveira, L. G. (2023): *Which One Predicts Better? Comparing Different GDP Nowcasting Methods Using Brazilian Data.* IDB Discussion Paper, 01012, Inter-American Development Bank.

Martins de Oliveira, L. G. and Rossi Júnior, J. L. (2024): *Which One Predicts Better? Comparing Different GDP Nowcasting Methods Using Brazilian Data.* ANPEC 2024 (latest version). Available at: https://www.anpec.org.br/encontro/2024/submissao/files_I/i8-7893a8b48b482c7db93429f5630d3765.pdf.