

TECHNICAL ASSISTANCE REPORT

PHILIPPINES

Report on the Residential Property Price Index Mission (January 20–24, 2025)

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Acronyms

TA Technical Assistance

D4D Data for Decisions

BSP Bangko Sentral ng Pilipinas

IMF International Monetary Fund

RPPI Residential Property Price Index

DOF-BLGF Department of Finance-Bureau of Local Government Finance

RPIS Real Property Information System

RREPI Residential Real Estate Price Index

CPPI Commercial Property Price Index

NCR National Capital Region

AONCR Areas Outside the National Capital Region

GMA Greater Manila Area

HDMF Home Development Mutual Fund

SPVs Special Purpose Vehicles

REIT Real Estate Investment Trust

Summary of Mission Outcomes and Priority Recommendations

- 1. A technical assistance (TA) mission was conducted from January 20-24, 2025, to assist the Bangko Sentral ng Pilipinas (BSP) with the development of hedonic methods for their property price statistics. The mission's primary focus was the Residential Property Price Index (RPPI). The mission completed the following tasks: (i) checked that the authorities implemented the recommendations from previous mission, (ii) updated the methods as appropriate, (iii) finalized the updated RPPI and compared to the published index, (iv) devised a strategy for dissemination of the revised results, (v) agreed on a timeline for the release of the updated RPPI and (vi) made recommendations on a way forward to develop statistics on commercial property prices.
- The authorities are strongly committed to publishing the updated RPPI. Reliable property price indices and other indicators of real estate markets are essential for the assessment of developments and risks in property markets and understanding the linkages between property markets and financial soundness, as well as to IMF surveillance.
- 3. The key goal of the mission was to review the implementation of previous recommendations. The authorities had transferred the procedures to the R statistical package and implemented the hedonic approach to index compilation. They had compiled the sub-indices from the results of the regressions and aggregated to higher-level indices, including the overall RPPI for the Philippines. The current mission checked the procedures step-by-step and provided additional recommendations as required.
- 4. A workplan was agreed with the authorities on the dissemination of the updated RPPI. While the initial target for publication was March 2025, the timeline has been adjusted to June 2025 to allow for necessary refinements and align with key procedural requirements. The updated RPPI is significantly higher quality than the currently published index. The main improvements are as follows: (i) updated index covers all properties whereas the published index only covers new properties (ii) more detailed sub-indices by regional groups can be disseminated (iii) quality adjustment using hedonic models is applied to the sub-indices (iv) acquisition price is used instead of appraisal price, and (v) the weights are updated annually.
- The revisions to the RPPI should be communicated effectively to users. The BSP has drafted communication documents, e.g., press release and methods document, to highlight the revisions to the data and outline the improved methods. These were reviewed during the mission and some recommendations were provided. The updated index is more stable and shows higher inflation in recent periods than the published index. The additional stability as measured by year-on-year growth, e.g., in 2020, is a result of the quality adjustment being applied to the sub-indices. It is noticeable that the most recent year-on-year growth rate in Q3 2024 for the updated index is 7.6 percent whereas the published index is -2.3 percent.
- Other indicators of residential property market activity can be published to complement the RPPI. These would include the number/volume of transactions, value of transactions, and median price levels e.g. price per square meter. When used alongside the RPPI, these additional indicators provide important information on transactions in the residential property market.

7. The BSP should continue to engage other agencies and stakeholders who have relevant information on property prices to broaden the coverage of the RPPI in the long run. Given that the coverage of the loan data is limited to the part of the residential property market financed by bank loans, the BSP is encouraged to explore other administrative data sources. This is intended to expand its coverage and for sustainability of data support. It is understood that the BSP will continue to collaborate with the Department of Finance-Bureau of Local Government Finance (DOF-BLGF) on their Real Property Information System (RPIS) project. The RPIS is set to function as a database of all real property transactions to help prepare a schedule of market values. The BSP should advocate for the inclusion of information required to compile the RPPI.

TABLE 1. Priority Recommendations

| Target Date | Priority Recommendation | Responsible Institution |
|---------------|--|----------------------------|
| February 2025 | Prepare communication documents e.g. press release and methods document. | BSP |
| February 2025 | Provide advance notice to users of the upcoming revisions to the RPPI. | BSP |
| June 2025 | Publish the updated RPPI. | BSP |

8. Further details on the priority recommendations and the related actions/milestones can be found in the action plan under Detailed Technical Assessment and Recommendations.

Section I. Detailed Technical Assessment and Recommendations

TABLE 2. RPPI Workplan for the Philippines, 2025

| Priority | Action/Milestone | Target Completion Date | |
|----------------------------------|--|---------------------------|--|
| Topic: Co | mpilation methods for the RPPI | | |
| Н | Finalize the methods for the compilation of the RPPI. | February 2025 | |
| Topic: Dis | Topic: Dissemination | | |
| Н | Consult with stakeholders on revisions to the RPPI. | February 2025 | |
| Н | Prepare communication documents e.g. press release, methods document. | April 2025 | |
| Н | Compile the Q4 2024 results and prepare final publication for the BSP website. | April 2025 | |
| Н | Send to Monetary Board for approval. | April 2025 | |
| Н | Provide advance notice to users of the upcoming revisions to the RPPI. | April 2025 | |
| Н | Publish the updated RPPI. | June 2025 | |
| Topic: Data sources for the RPPI | | | |

| Priority | Action/Milestone | Target Completion Date |
|-----------|---|---------------------------|
| M | Devise a longer-term strategy to broaden the coverage of the RPPI by identifying new data sources. | December 2025 |
| M | Advocate for the new Real Property Information System (RPIS) to include the information required to compile the RPPI. | December 2025 |
| Topic: Co | mmercial Property | |
| М | Analyze the existing data on commercial property using a similar approach to residential property. | June 2025 |
| M | Meet with industry experts to understand how transactions take place in the commercial property market. | September 2025 |
| М | Estimate the coverage of the data collected from the banking system. | December 2025 |
| M | The reporting template should be amended to collect the transaction prices. | March 2026 |
| M | Identify potential new data sources and assess how accessible they are to the BSP. | June 2026 |

A. INTRODUCTION

- **9.** A TA mission was conducted from January 20–24, 2025, to assist the authorities in the Philippines to finalize the methods for the updated RPPI. The mission was conducted under the auspices of the Data for Decisions (D4D) Trust Fund. A pre-mission meeting was held on December 4, 2024, attended by officials from the mission team and the BSP. The objectives for the mission were discussed and agreed.
- **10.** This TA report should be read alongside the report for the January 2024 mission.¹ Where possible, this report does not repeat information that has already been discussed in the previous TA report. The report outlines the progress achieved during this mission and, as appropriate, provides new or updated information.
- 11. Throughout the mission, there was a focus on increasing the capacity and knowledge of the authorities. The mission provided practical training on the application of hedonic methods for the calculation of the RPPI. The mission will continue to support the authorities as required while the agreed workplan is being implemented.

B. COMPILATION METHODS

12. The BSP currently publish a quarterly RPPI on their website. The authorities refer to this index as the Residential Real Estate Price Index (RREPI), while this TA report uses the more common name of the Residential Property Price Index (RPPI). The data source for the index are quarterly returns from banks on property loans. Sub-indices are published for the National Capital Region (NCR) and

https://www.imf.org/en/Publications/technical-assistance-reports/Issues/2024/07/22/The-Philippines-Report-on-the-Residential-Property-Price-Index-Mission-January-22-26-2024-

^{552176#:~:}text=A%20technical%20assistance%20(TA)%20mission,Property%20Price%20Index%20(RPPI).

Areas Outside the National Capital Region (AONCR) as well as for different types of housing units i.e. single house, duplex, townhouse, apartment and condominium.

- 13. The authorities follow the stratification approach for the published RPPI. The main drawback to this method is that average prices within the strata are not adjusted for the changing mix of properties in the sample from period to period. This can lead to a significant bias in the index, especially during turning points in the residential property market. The objective of the BSP is to improve the methods used for the RPPI. The mission assisted the BSP to replace the stratification approach with hedonic regression methods. These methods adjust the indices for the changing mix of properties, within the strata, across periods.
- 14. The property prices team at the BSP had successfully implemented most of the technical recommendations from the previous mission in January 2024. The team had transferred the procedures from MS Excel to the R statistical package and implemented the time-dummy hedonic method with a four-quarter rolling window. They had also compiled the sub-indices from the results of the regressions and aggregated to higher-level indices, including the overall RPPI for Philippines. The current mission checked the procedures step-by-step and provided additional recommendations as required.
- 15. The updated RPPI is significantly higher quality than the currently published index. The main improvements are as follows: (i) updated index covers all properties in the sample (pre-owned, new and foreclosed) whereas the published index only covers new properties (ii) more detailed sub-indices by regional groups can be disseminated (iii) quality adjustment using hedonic models is applied to the subindices (iv) acquisition price is used instead of appraisal price, and (v) the weights are updated annually.
- 16. The stratification of the data was finalized. There was some discussion on the best approach to stratification. This is an important decision as it is used for the compilation of the indices i.e; a sub-index is constructed for each stratum, and it is used as the basis for the dissemination of the results. It was decided to use ten strata as outlined in Table 3. The strata were devised using a combination of five locations (NCR, Balance Greater Manila Area (GMA), Metro Cebu, Metro Mindanao and Other Areas in the Philippines) and two dwelling types (condominiums and houses). In terms of the expenditure weights in 2023, Balance GMA Houses was the largest at 31.1 percent, followed by NCR Condos at 28.6 percent.

TABLE 3. Stratification of the Data and Corresponding Weights

| Stratum | Weight % (2023) |
|---|-----------------|
| NCR Condos | 28.6 |
| NCR Houses | 12.4 |
| Balance GMA Condominiums | 3.9 |
| Balance GMA Houses | 31.1 |
| Metro Cebu Condominiums | 2.8 |
| Metro Cebu Houses | 2.7 |
| Metro Mindanao Condominiums | 1.9 |
| Metro Mindanao Houses | 3.2 |
| Other Areas in the Philippines Condominiums | 1.7 |

| Stratum | Weight % (2023) |
|---------------------------------------|-----------------|
| Other Areas in the Philippines Houses | 11.7 |

17. The specification of each regression model was reviewed, and the outputs were checked in detail. The team explained that the initial variables included in the models were assessed using machine learning, in collaboration with the department's Data Management and Analytics Unit. The mission spent a significant amount of time re-assessing reviewing the initial specification of each stratumlevel regression model and made modifications. This included decisions around which independent variables, i.e; property characteristics, to include in each and analyzing the overall fit of the models. Table 4 shows a measure of overall fit, i.e. R-squared, for each model for a single rolling window to Q3 2024. Six of the ten models are showing an R-squared of 0.75 or greater. The standardized residual plots were also analyzed to ensure the residuals are not displaying any particular trends. The results of the regression were analyzed to ensure the estimated coefficients on the property characteristics, i.e, shadow prices, are plausible in terms of their sign and magnitude and are statistically significant. In addition, some checks were carried out on the stability of the coefficients on the property characteristics for each stratum and rolling window. We expect to see similar coefficients generated for each run of the regression, e.g., the impact of floor area on price should not display significant volatility over time.

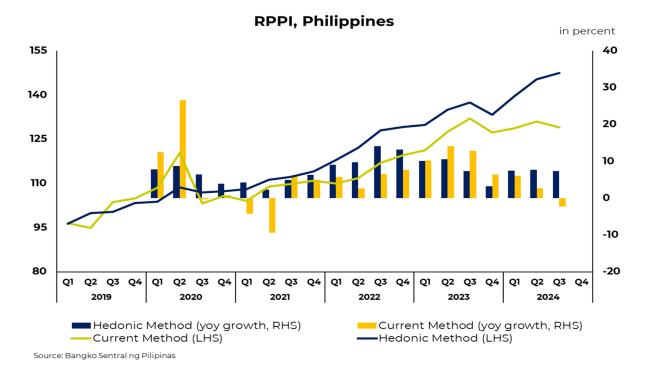
TABLE 4. Stratification of the Data and Corresponding Weights

| Stratum | R-Squared (Q3 2024) |
|---|------------------------|
| NCR Condos | 0.67 |
| NCR Houses | 0.78 |
| Balance GMA Condominiums | 0.53 |
| Balance GMA Houses | 0.78 |
| Metro Cebu Condominiums | 0.78 |
| Metro Cebu Houses | 0.77 |
| Metro Mindanao Condominiums | 0.66 |
| Metro Mindanao Houses | 0.78 |
| Other Areas in the Philippines Condominiums | 0.75 |
| Other Areas in the Philippines Houses | 0.66 |

18. There were concerns about the quality of the data from 2016–2018, prompting a decision to use only data from 2019 onward to compile the indices. This issue came to light when unusual patterns were evident from the standardized residual plots for pre-2019 data. In the initial RREPI methodology, appraised values were the primary measure of prices, leading to less rigorous validation of other variables, such as acquisition costs, prior to 2019. However, starting in 2019, a comprehensive overhaul of data management practices was implemented. This included (1) enhanced reporting systems, (2) stringent validation checks, and (3) broader scope of data verification. These improvements have resulted in a marked increase in data quality and reliability since their implementation. The refined methodology ensures a more accurate representation of market trends and provides a solid foundation for analysis and decision-making.

19. By the end of the mission, an updated quarterly RPPI was compiled from Q1 2019 to Q3 **2024.** The updated RPPI was compared to the existing RPPI that is currently published on the BSP website. Figure 1 shows the updated and published national price indices for the Philippines (2019=100), and the corresponding year-on-year growth rates. The updated index is more stable and shows higher inflation in recent periods than the published index. The additional stability, e.g., in 2020, is a result of the quality adjustment being applied to the sub-indices. It is noticeable that the most recent year-on-year growth rate in Q3 2024 for the updated index is 7.6 percent whereas the published index is -2.3 percent.

FIGURE 1. RPPIs for the Philippines (2019=100), 2019Q1–2024Q3, Comparison of Updated and Published, Indices and YoY percent Growth



20. The indices can be analyzed by location and type of dwelling. Figures 2 shows the updated indices broken down by the NCR and AONCR. This latter category is compiled by aggregating the subindices for Balance GMA, Metro Cebu, Metro Mindanao and Other Areas in the Philippines. Based on 2023 weights, the NCR (houses and condominiums) comprises 41 percent of the overall index, while the AONCR (houses and condominiums) comprises 59 percent. Figure 3, which analyzes year-on-year growth rates in 2022 to 2024, shows the sub-indices for locations within the AONCR. Figure 4 shows the aggregated indices for houses and condominiums. The indices in this chart are compiled by aggregating the five sub-indices for houses to construct an overall index for houses and a similar calculation is made for condominiums.

FIGURE 2. Updated RPPIs by Area (2019=100), 2019Q1-2024Q3, Indices and YoY percent Growth

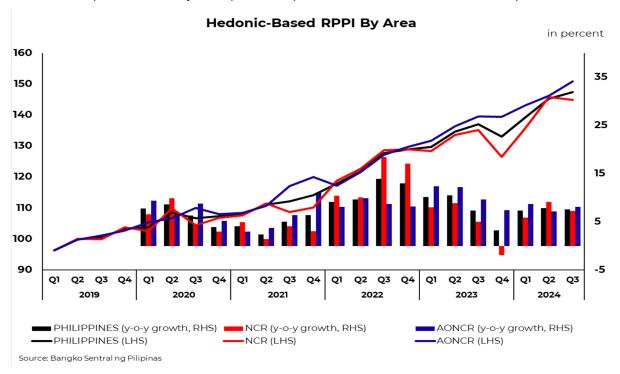
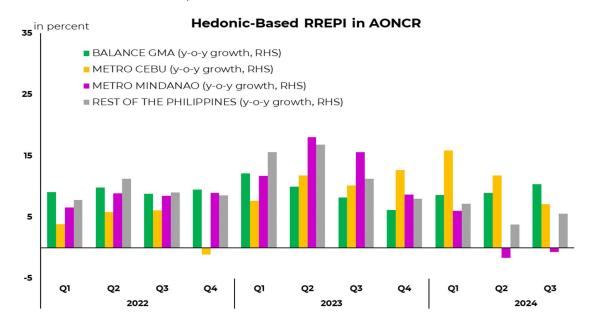


FIGURE 3. Updated RPPIs by Areas Outside the National Capital Region (2019=100), 2019Q1-2024Q3, YoY Percent Growth



Hedonic-Based RREPI By Type in percent 160.0 35 30 150.0 25 140.0 20 130.0 15 120.0 10 110.0 5 100.0 O 90.0 -5 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 2019 2020 2021 2022 2023 2024 HOUSES (y-o-y growth, RHS) CONDOMINIUM (y-o-y growth, RHS) —CONDOMINIUM (LHS) -HOUSES (LHS)

FIGURE 4. Updated RPPIs by Houses and Condominiums (2019=100), 2019Q1-2024Q3, Indices and YoY Percent Growth

Recommended Action:

Finalize the methods for the compilation of RPPIs.

C. **DISSEMINATION**

Source: Bangko Sentral ng Pilipinas

- 21. A workplan was agreed with the authorities on the dissemination of the updated RPPI. While the initial target for publication was March 2025, the timeline has been adjusted to June 2025 to allow for necessary refinements and align with key procedural requirements. The methodological changes being applied to the RPPI will greatly enhance its quality and reliability over the current methodology. In addition, stakeholders should be consulted, and an advance notice should be provided to users, e.g., via website for general users and bilaterally for important users.
- 22. The BSP has drafted communication documents, e.g. press release and methods document, to highlight the revisions to the data and outline the improved methods. These were reviewed during the mission and some recommendations were provided. As the BSP will revise the retrospective data, additional information should be included in the statistical release at the time of the launch, such as differences between the updated and published indices and an explanation of the improved methods.
- A detailed methodological document should be drafted and published on the authorities' 23. website. A methods document is an important step for ensuring transparency and providing detailed information for users on the steps for data compilation. For example, the document should include information on the data source, coverage of the index, data quality and cleaning, outlier detection, stratification, weighting information, and methods for index compilation and aggregation.
- 24. The BSP should consider publishing additional indicators on activity in the residential property market. These would include the number/volume of transactions, value of transactions, and median price levels, e.g., price per square meter. When used alongside the RPPI, these additional indicators provide important information on transactions in the residential property market. The authorities

should be careful when disseminating mean and median price levels over time. It should be very clear that the RPPI is used for measuring the change in prices over time, while the price levels can be used to compare prices by location or type of dwelling.

25. The authorities should provide more prominence to the RPPI statistical release. The existing RPPI data can be quite difficult to find on the website. The authorities should develop a new webpage that can be used to store all relevant documents related to the RPPI. This webpage should be easily discoverable from the main BSP webpage.

Recommended Actions:

- Consult with stakeholders on revisions to the RPPI.
- Prepare communication documents, e.g., press release, methods document.
- Compile the Q4 2024 results and prepare final publication for the BSP website.
- Send to Monetary Board for approval.
- Provide advance notice of the upcoming revisions to the RPPI.
- Publish of the updated RPPI.

D. **DATA SOURCES**

- 26. Loan data coverage is limited to residential properties financed by universal/commercial banks and thrift banks. This excludes: (i) cash purchases, (ii) developer-financed transactions, and (iii) Home Development Mutual Fund (HDMF) financed transactions. While current loan data is sufficient for index compilation in the short to medium term, the BSP should expand its data sources by leveraging administrative data and employing advanced techniques like web scraping. This approach will address existing data gaps and enhance the comprehensiveness of the index in the long run.
- 27. The BSP should advocate for the new Real Property Information System (RPIS) to include the information required to compile the RPPI. The RPIS is an initiative under the Land Governance Reform Project of the Department of Finance Bureau of Local Government Finance (DoF-BLGF) and will be developed through the collaboration of different government institutions. The BSP may be able to use this centralized database for better coverage of the residential property market. The BSP, who will become involved in the project during the second phase, should communicate with the main stakeholders to ensure the database meets their requirements for property price statistics.
- 28. The BSP should coordinate with the DOF-BLGF on the inclusion of RPPI-relevant data in the new RPIS and ensure the RPIS meets the requirements for comprehensive property price statistics. This centralized property database is an initiative under the DOF-BLGF's Land Governance Reform Project, developed through an inter-agency collaboration.

Recommended Actions:

- Continue initiatives to broaden the coverage of the RPPI.
- Advocate for the new RPIS to include the information required to compile the RPPI.

E. **COMMERCIAL PROPERTY**

The BSP also collects data on loan appraisals for the purpose of purchasing commercial 29. property. There is significant user demand for price statistics on commercial property in the Philippines. There are various reasons why the development of price indices for commercial property will be significantly more challenging than residential property. These include infrequent transactions, i.e. few

observations, and the heterogenous nature of commercial properties. This can lead to more volatile price indices, making it difficult to capture the trend in prices.

- 30. The authorities should meet with industry experts to understand how transactions take place in the commercial property market in the Philippines. Transactions are often not financed by loans from commercial banks and can instead be funded via special purpose vehicles (SPVs), real estate investment trust (REIT) etc. In addition, large transactions can be structured in order to minimize the liability for taxes. For example, an equity transaction may be subject to lower taxes than a property transaction. Therefore, the bank data currently being collected by the BSP may cover non-prime locations whereas the more significant transactions in prime locations may not appear in the data set at all. By developing an understanding of how transactions take place in the market, the BSP will be able to assess the coverage of the existing data set. It would also allow them to identify potential new data sources and assess how accessible they are to the BSP.
- 31. The reporting template should be amended to collect transaction prices. Currently, the reporting template collects the appraised value of the land associated with the commercial property. However, the BSP should collect the transaction price. This would be the value of the land and the associated structures on the land.
- 32. The authorities can analyze the existing data on commercial property using a similar approach to residential property. Despite the potential drawbacks with the existing data set, the team at the BSP should analyze the data using the methods already developed for the RPPI. The first step is to produce a graphical analysis of the data. Data visualization plots (histograms, scatter plots, etc.) and descriptive statistics (e.g; mean, and median price per region) should be produced. For internal purposes, the team can also develop some experimental indices by type of commercial property, e.g., retail, office, industry, etc. This type of analysis will provide the authorities with an in-depth understanding of the data currently being collected. Depending on the quality and coverage of the data, the authorities can consider publishing basic descriptive statistics e.g. appraisal price (land only) per square meter by type and location. This would provide the BSP with further opportunities to engage with users of price statistics on commercial property.

Recommended Actions:

- Analyze the existing data on commercial property using a similar approach to residential property.
- Meet with industry experts to understand how transactions take place in the commercial property market.
- Estimate the coverage of the data collected from the banking system.
- The reporting template should be amended to collect transaction prices.
- Identify potential new data sources and assess how accessible they are to the BSP.

F. OFFICIALS MET DURING THE MISSION

| Name | Position | Organization |
|------------------------------|--|--------------|
| Mr. Francisco G. Dakila, Jr. | Deputy Governor, Monetary and Economics Sector | BSP |
| Mr. Zeno Ronald R. Abenoja | Assistant Governor, Monetary Policy Sub-sector | BSP |
| Mr. Dennis D. Lapid | Managing Director, Department of Economic Research | BSP |

| Name | Position | Organization |
|-----------------------------------|---|--------------|
| Mr. Redentor Paolo M. Alegre, Jr. | Senior Director, Department of Economic Statistics | BSP |
| Ms. Haydee R. Paulino* | Deputy Director, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Ms. Willa Boots J. Tolo* | Bank Officer V, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Mr. Jeremy L. De Jesus* | Bank Officer V, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Ms. Gloria A Cubinar* | Bank Officer V, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Ms. Raquel A. Silva | Bank Officer V, Department of Economic Research – Monetary Policy Research Group | BSP |
| Mr. Richer King R. Supnet* | Bank Officer IV, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Mr. Gian Paolo T. De La Torre* | Bank Officer IV, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Ms. Chelsea Anne S. Ong | Bank Officer II, Department of Economic Statistics – Data Management Analytics Unit | BSP |
| Mr. Gabriel A. Masangkay | Junior Central Bank Associate, Department of Economic Statistics – Data Management Analytics Unit | BSP |
| Ms. Hazel Anne V. Paguirigan* | Junior Central Bank Associate, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |
| Ms. Marina T. Mata* | Junior Central Bank Associate, Department of Economic Statistics – Expectations Survey and Leading Indicators Group | BSP |

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