

# **SAARCFINANCE Database Seminar**

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Male, Maldives

## **Use of High-Frequency Indicators by Nepal Rastra Bank: Experience and Plans Going Forward**

## **Background**

1. Nepal Rastra Bank produces a number of indicators as well as publishes the data from other agencies/ministries. These indicators cover real sector, prices, external sector, government finance, monetary and credit aggregates, monetary operations, interest rates, and stock market. Most of the indicators are traditional and of monthly frequency as expected. However, the Bank has been striving to make addition to its list of indicators.
2. Just before the Covid-19 pandemic, the bank conducted Inflation Expectations Survey and then released the data in quarterly basis since 2021. Another addition to the list of indicators in the near future is Housing Price Index which has been under pilot study since the last fiscal year. Meanwhile, Nepal Rastra Bank has included Business Confidence Survey in the annual plan this fiscal year in line with its Strategic Plan.
3. The Covid pandemic changed the dynamics of economic indicators worldwide, including Nepal. Since the available indicators were insufficient to monitor economic activities, Nepal Rastra Bank conducted industrial/business activities survey in online platform to collect concurrent data. These surveys covered business operations, layoffs, electricity consumption, salary cuts, production levels, business prospects, expectations of the future, business continuity plans. The results showed the movements in the industrial/business activities along the different phases of lockdowns and different waves of pandemic.
4. In addition to the surveys, the bank closely monitored the pattern of imports of which it paid direct attention to the movement in the imports of goods, beverages, industrial supplies, fuels and lubricants, capital goods, parts and accessories, for the purpose of monitoring external sector balance.
5. Nepal Rastra Bank also kept watch of other traditional indicators such as travel income and spending, government expenditure (with special attention to capital expenditure) and revenue, private sector credit among others. Knowing that the pandemic changed the consumption pattern and payment system of the public, it was imperative to closely monitor the data on e-Banking, debit/credit cards, prepaid cards, mobile banking, branchless banking, wallets, QR based payments, POS payments and E-commerce payments as well. Hence, such data was keenly observed at relatively higher frequencies during the pandemic.

6. Though we have nearly returned to normalcy after the pandemic, the change in the pattern of economic indicators are here to stay. Globally, the central banks have shifted to non-traditional data sources including big data. It is now possible due global integration as well as improved digitalization.

## **Current Experience**

7. Nepal Rastra Bank prepares Economic Activity Reports semi-annually. Due to difficulty in obtaining high frequency data, the objective of preparing the report in quarterly or even higher frequency has not been achieved yet. The report uses data of various frequencies covering agriculture, industry, tourism, real estate, banking, cooperatives, education, health, communication, infrastructure, international trade, provincial government finance, and mega projects. Among them, the most notable high frequency indicators include real estate transactions; purchase/sale of FC/IC noted in the banking sector besides other traditional indicators.
8. Other distinctive high frequency indicators are hydropower generation, FDI inflow and number of registered vehicles. The economic study report also lays special emphasis on the cooperative sector. In addition to capital and savings/credit data, the study uses number of members and employees in the cooperatives as inputs. Furthermore, physical progress, financial progress and expenditure till date as well as employment generated by mega projects are also watched as distinct indicators in the study.
9. Another use of high frequency indicators by Nepal Rastra Bank is in its periodic GDP forecasts. The forecasting uses a mix of high frequency indicators covering remittance, foreign employment, trade, tourism, banking, government finance, agriculture, construction, education and prices. Petroleum imports and electricity production are remarkable higher frequency indicators in the mix.
10. Recently, Nepal Rastra Bank has started nowcasting current year GDP using a mix of high frequency indicators. Since the nowcasting model makes it possible to mix data of different frequencies, extra higher frequency indicators have been included in the model. Prominent inclusions are capital market indicators including NEPSE index, exchange rates, crude oil prices and MPI of India and USA. Traditional indicators like remittance, tourist arrivals and CPI are applied in higher frequencies as well.

11. In its price statistics, Nepal Rastra Bank collects weekly data of items with volatile price to be able get real picture of the economy. Since the country's exchange rate is pegged with Indian currency, Indian inflation is inserted in every forecasts/projections.
12. Being an import based economy with consistently huge current account deficit in the recent years; Nepal Rastra Bank monitors daily trade data to get insight of import trend for the month. The current account deficit is mostly offset by inflow of remittance. Hence, along with foreign exchange reserves data, remittance data is observed weekly based on banking data.
13. In addition, Nepal Rastra Bank makes use of various high frequency indicators in its weekly liquidity forecasts. The forecast uses weekly indicators such as government expenditure/revenue, issuance/renewal of T-bills, overnight repo, SLF, forex intervention, open market operation indicators and deposits. On top of that, weekly payments to Indian Oil Corporation by Nepal Oil Corporation are a decisive high frequency indicator in the forecasting task.

## **Issues**

14. Using high frequency indicators have given edge in monitoring the overall economic and financial development of the country. However, such indicators are not readily available.
15. First of all, the statistical agencies/ministries in Nepal are gradually starting to collect data and produce these indicators. It will take some time. By then, new indicators could be identified.
16. Next issue is the coverage of data. Significant population lives in rural areas that are not covered by many indicators. There is significant difference in use of technology in different geographical regions due to which available data may have only partial coverage at a point of time.
17. Another issue is the cost of producing and disseminating the high frequency indicators. As a recently formed federal republic, there is huge pressure for infrastructural investment. Hence, not much resource can be diverted towards data generation nor such need is felt at mass level.

## **Concluding Remarks**

18. Today, it has become necessary for central banks to use high frequency indicators in its forecast/projection. With regards to Economic Activities Report, Nepal Rastra Bank is striving to collect the data in higher frequencies in the near future. The COVID pandemic reshaped the use of indicators as new indicators of economic and financial activities were identified during the period. Regarding big data, the progress in technology has given the ability to collect data in new formats and dimensions. In fact, the abundance of data demands different processing and analytical framework. Nepal Rastra Bank needs to be prepared with adept human and capital resource to make use of these data in coming days.

**LIST OF MONTHLY INDICATORS PUBLISHED/REPUBLISHED BY NEPAL  
RASTRA BANK**

<b>Prices</b>
National Consumer Price Index
National Wholesale Price Index
National Salary and Wage Rate Index
<b>External Sector</b>
Direction of Foreign Trade
Exports of Major Commodities
Imports of Major Commodities
Composition of Exports (Based on Broad Economic Classification)
Composition of Imports (Based on Broad Economic Classification)
Custom-wise Foreign Trade
Imports from India against Payment in Convertible Currency
Export and Import Unit Value Price Index and Terms of Trade
Number of Nepalese going for Foreign Employment
Monthly Tourist Arrival
Summary of Balance of Payments as per BPM5 (A)
Summary of Balance of Payments as per BPM6 (B)
Summary of Balance of Payments in US Dollar as per BPM5 (A)
Summary of Balance of Payments in US Dollar as per BPM6 (B)
Gross Foreign Assets of the Banking Sector
Gross Foreign Assets of the Banking Sector in US Dollar
Exchange Rate of US Dollar
Price of Oil and Gold in the International Market
<b>Government Finance</b>
Government Budgetary Operations
Government Revenue Collection
Outstanding Domestic Government Debt
<b>Monetary and Credit Aggregates</b>
Monetary Survey
Central Bank Survey
Other Depository Corporation Survey
Condensed Assets and Liabilities of Commercial Banks
Deposit Details of Banks and Financial Institutions
Sector-wise Outstanding Credit of Banks and Financial Institutions
Security-wise Outstanding Credit of Banks and Financial Institutions
Product-wise Outstanding Credit of Banks and Financial Institutions

Loan of Commercial Banks to Government Enterprises
Interest Subsidized Concessional Loan
<b>Monetary Operations</b>
Summary of Monetary Operations
Monetary Operations
Purchase/Sale of Foreign Currency
<b>Inter-bank Transaction and Interest Rates</b>
Structure of Interest Rates
Inter-bank Transaction Amount & Weighted Average Interest Rate
Weighted Average Treasury Bills Rate
<b>Stock Market</b>
Stock Market Indicators
Listed Companies and Market Capitalization
Structure of Share Price Indices
Securities Market Turnover
Electronic Payment Transactions

**LIST OF INDICATORS COLLECTED AND USED BY NEPAL RASTRA BANK IN ITS  
SEMI-ANNUAL ECONOMIC ACTIVITIES STUDY**

<b>Indicator</b>	<b>Frequency</b>
<b>AGRICULTURE</b>	
Agricultural land	Semi Annual
Agricultural production	Semi Annual
Agriculture Credit	Quarterly
<b>INDUSTRY</b>	
Industrial Production Capacity	Quarterly
Capacity Utilization	Quarterly
Sectoral Credit	Quarterly
<b>TOURISM</b>	
No of Hotel Beds	Quarterly
Hotel Occupancy	Quarterly
Tourist Arrival	Monthly
<b>REAL ESTATE</b>	
No of Registration	Semi Annual
Land Revenue	Semi Annual
<b>BANKING</b>	
No of BFI branches	Quarterly
Deposit	Quarterly
Credit	Quarterly
No of money changer	Semi Annual

Size of Fund Transfer	Semi Annual
Convertible FC Purchase/Sales	Semi Annual
<b>FINANCIAL COOPERATIVE</b>	
Capital	Quarterly
Saving/Credit	Quarterly
Members	Quarterly
No. of employees	Quarterly
<b>EDUCATION</b>	
Government/Community School (No. of school/students/teachers)	Semi Annual
Private/Institutional School (No. of school/students/teachers)	Semi Annual
<b>HEALTH</b>	
No of Hospitals	Semi Annual
No of Doctors	Semi Annual
No of Bed	Semi Annual
<b>COMMUNICATION</b>	
No of telephone set	Semi Annual
No of internet connection	Semi Annual
<b>INFRASTRUCTURE</b>	
Length of road/railroad/cable-car	Semi Annual
Transmission line	Semi Annual
Hydropower Generation	Semi Annual
No. of Airports	Semi Annual
No. of Vehicles Registered	Semi Annual
<b>INTERNATIONAL TRADE</b>	
Export/Import	Monthly
Balance of Payment	Monthly
Foreign Labor	Monthly
Inward Remittance	Monthly
FDI (Agriculture/Industry/Service)	Monthly
<b>PROVINCIAL GOVERNMENT FINANCE</b>	
Revenue	Semi Annual
Expenditure	Semi Annual
Grants	Semi Annual
Debts	Semi Annual
<b>BIG PROJECTS</b>	
Capacity Utilization	Semi Annual
Expenditure till date	Semi Annual
Employment	Semi Annual



## LIST OF HIGH FREQUENCY INDICATORS USED IN PERIODIC GDP FORECASTS

Remittance	Monthly
Foreign Employment	Monthly
Imports/Exports	Monthly
Petroleum Import	Monthly
Tourist Arrival	Monthly
Deposit/Loan	Monthly
Profit of BFIs	Monthly
Government Current Expenditure/Capital Expenditure/Revenue	Monthly
Agriculture Production	As required
Construction	As required
Electricity Production	As required
Education	As required
Inflation	Monthly

## LIST OF HIGH FREQUENCY INDICATORS EXPECTED TO BE USED IN NOWCASTING OF GDP

Private sector credit	Monthly
Imports	Monthly
Exports	Monthly
Tourists arrival	Monthly
Remittances inflows	Monthly
NEPSE index	Monthly
CPI	Monthly
MPI India	Monthly
MPI USA	Monthly
Exchange rate	Daily
Crude oil prices	Daily