FinTech-Enabled Economic Forecasting: Inflation and GDP Dynamics in India

DR. SUMANPREET KAUR, DR. RAMANDEEP KAUR, DR. SUMEET KAUR

Abstract: *In the recent years, fintech has grown significantly in India, gathering fresh and creative methods for generating data about the creation of financial transactions and macroeconomic monitoring. This study looks at how Fintech Innovation will forecast GDP and inflation using both traditional macroeconomic indicators and digital financial signals. To accomplish this, both Forms of Fintech (Digital Payments, Digital Transactions and Tax Compliance Data) and Traditional Macro Economic Indices (GDP and CPI Trends) have been used to predict future changes in the trend rates of GDP growth, as well as changes in the CPI inflation rate over the period 2016-2025, using time series analysis to analyze the accuracy of results between prediction models based on Fintech Data and models based on traditional econometric methodologies. The empirical work provides descriptive and trend analysis of both GDP and Inflation for the period 2014-2025, showing the impact of Digital Reforms on the prediction performance. It also finds that models that incorporate Fintech Data provide a greater degree of accuracy in their predictions than models using Traditional Econometric Methods and can help inform Policymakers about macroeconomic risks and sustainable policy responses. Finally, recommendations are provided for creating methods to integrate Digital Financial Data into national statistical systems.*

Keywords: Fintech Innovation; GDP Forecasting; Inflation Forecasting; Digital Payments; Tax Compliance Data; Time Series Analysis; Macroeconomic Indicators.

Dr. Sumanpreet Kaur (preet.suman912@gmail.com) Assistant Professor, Department of Economics, Amity School of Social Sciences, Amity University Punjab
Dr. Ramandeep Kaur (ramandeep.e10052@cumail.in) Associate Professor, Department of Economics, University School of Business, Chandigarh University
Dr. Sumeet Kaur (sumeetkaur81@yahoo.co.in) Corressponding Author and Assistant Professor, Department of Economics, Amity School of Social Sciences, Amity University Punjab

Introduction

Over the past decade, tremendous development has been witnessed in India (India) as financial and economic infrastructure is created using new technology, including digital currency. The introduction and wide acceptance of Digital Currency, UPI Platform, GSTN, Aadhaar based identity systems and implementation of real-time payment infrastructure has completely changed how people conduct business in India and gain access to financial services. The presence of digital footprints will not only allow for an increase in efficiency of transactions and accessibility to these transactions, but also provide policymakers with a significant quantity of timely and detailed economic data regarding customers utilizing Digital Currency. Historically, there has been very little or no past economic data to use to identify consumer behaviour. Macroeconomic projections have almost exclusively been based on high-frequency measures of the state of the economy, such as quarterly GDP estimates from Statistics Canada, monthly CPI from Statistics Canada, and periodic index of industrial production reports. Because many of these economic indicators are not released until several months after the quarter they measure, there is generally a time lag between when these economic indicators become publicly available and what is happening in the economy (Stock & Watson 2003, Croushore 2011).

Most of the current preliminary studies regarding macroeconomic measurement have an advanced economy focus and have demonstrated the benefits of using higher-frequency (i.e., multiple times per month) financial and transaction data to generate increased real-time indicators (and significantly improved forecasts) for macroeconomic activity (Baker et al., 2020; Choi and Varian, 2012). For example, using digital payment card information and trends from internet search engines has resulted in significantly improved forecasts for both consumption and inflation as compared with conventional economic indicators alone (Mohr et al., 2021; Sheng et al., 2020). Additionally, there is also more recent research regarding the ability to use data from digital tax compliance in order to capture formal sector activities. More specifically, researchers have established that using real-time invoicing systems and integrated tax reporting systems has led to the formulation of more accurate estimates of economic output and decreased informal sector leakage (Kudlyak, 2021; Gupta et al., 2023). For example, preliminary investigations of the Indian economy and studies on the Indian economy's macroeconomic aggregates, have concluded that the various results (i.e., UPI transactions and GST e-invocies) produced from fintech inputs correlate strongly with traditional macroeconomic aggregates and therefore, it is the least likely to produce inaccurate data.

This paper demonstrates how the addition of FinTech infrastructure to the current Macroeconomic Model will advance the predictive ability of Macroeconomic Variables. The improvement will give better projections than have previously been made. By reducing the lag time of information, utilizing more granular amounts of data and capturing real-time Economic Dynamics as they are generated by FinTech advancement, the North American digital economy will create a new Augmented Macroeconomic Forecasting Framework (AMFF) for the digital economies of India. By utilizing Digital Data (i.e., Distributed Ledger Technology, UPI and Goods and Services Tax (GST)) from many sources, such as the Reserve Bank of India (RBI) and the Ministry of Statistics and Programme Implementation (MOSPI), this AMFF framework

creates a complete view of applying the new economy to the development of digital economies. The ARIMA(p,d,q) and VAR(k) analyses have been used to assess the accuracy of GDP Growth as well as Inflation; including FinTech indicators in the analyses has led to improvement in all projections in India for both corporate and consumer expenditures.

Review of Literature

The role that FinTech plays in the prediction of macroeconomic variables particularly related to emerging digital economies, like India, is a newly evolving research field among the academic research community – this review aims to synthesize current literature related to this evolving field of interest.

1.Online Payments and Financial Inclusion.
A number of studies provide evidence regarding how digital payments can improve financial inclusion and engagement in economic activity. Rout & Ray (2024) studied the effects of implementing digital payment systems like Unified Payment Interfaces (UPIs) and Aadhaar-enabled Payment Systems (AePS) on how people engage with their finances, with particular focus on the rural and semi-rural areas of India. The growth of digital payments also allows measurement of consumption patterns/behaviors and will aid in accurately measuring the economy.

Gupta & Lahiri (2025) have noted several trends within the digital payments industry that demonstrate how UPIs have been instrumental in changing the nature of Financial Services throughout India, due to innovative technologies, government-based regulatory support, and widespread digital media usage.

2. Economic Development and FinTech Use
The use of digital payments has been directly correlated to the overall macroeconomic health or 'health' of an economy. Bhavsar & Samanta (2022) state there is a long-term positive correlation between UPI utilization and GDP growth in India using ARDL and DOLS methodologies, while also noting that there has been a decline in financial transparency and legitimate market activity as a result of UPI utilization. This is consistent with the theory that the transition from 'traditional' methods of digital finance utilization (e.g. Full-service Banks) to 'Fintech' methods of digital finance utilization will lead to improved outcomes.

3.Financial Technology Data as a Macroeconomic Forecasting tool:
Since July 2019, the Bank of Indonesia has provided an updated list of all existing economic data related to ecommerce technologies in Indonesia, such as PayPal and Stripe. The use of high-frequency data (financial technology) to help predict Macroeconomic statistics (using payment system data) has become increasingly popular. Badrawani's empirical work draws upon the theoretical understanding of how to use digital transaction data for Macroeconomic forecasting, even though it is not directly related to India. The use of financial technology payment system data for Macroeconomic forecasting is being further researched through the development of new statistical methods that will allow for straightforward usage of real-time or alternative data for macroeconomic forecasting. Lapinski and Ziolkowski support the idea

of using an ensemble of various macroeconomic forecasting models, with their projected model yielding superior performance and with applicability to forecasting FinTech-based economic activity. The relationship between the shadow economy, FinTech, and formalisation (of shadow economy participants) is important to consider. Fintech has an integral relationship to the size of the shadow economy and exists at a particular level of financial integration.

4.UPI as Indian Economic Metamorphosis:

Researchers have described UPI in India as a significant milestone within a global context of a digital payment revolution. UPI is pivotal to changing purchasing trends, with older consumers and demographic individuals noticeably changing their purchasing habits due to UPI offers. UPI transaction volumes in India have indeed been shown to be positively associated with GDP growth in India since 2019. Additionally, as noted by the International Monetary Fund (IMF), India ranks as one of the world's leaders with respect to real-time payments, and through the interoperable features of FinTech, UPI continues to be a driver of increased adoption of FinTech. Further, there are examples of how UPI has had an impact on financial inclusion in rural areas and participation within the formal economy, making UPI a macroeconomic variable in nature; therefore, UPI's adoption is associated with a wider and deeper engagement in formal financial systems.

5.Global and Relative Contexts of FinTech Development Research:

FinTech as a comparative study is subject to numerous regulatory and structural impediments resulting in a lack of complete integration into the overall economy of Fintech. Through the work of Vijayagopal et al. (2024), they evaluated many of these regulatory and structural impediments to Fintech's complete integration by looking at multiple approaches used by different countries globally for their Fintech integration model.

Gaps in Literature

Research literature has been able to identify gaps in empirical studies of FinTech and its macroeconomic predictive capacity through both descriptive and case based surveys that have been performed; however, the empirical data of FinTech connection to economy has not been assessed in any way. Most studies to date have mainly focused on either studying financial inclusion or knowing how beneficial payment service application will be. To better demonstrate the relationships and correlation between FinTech (in general terms through way of measuring), there is currently no published empirical analysis for creating an economy. Previous studies have not taken the opportunity to do so by not applying multivariate type time - series models (i.e utilise powerful methods for viewing data) to Fintech indicators. As an example, if an empirical study exists that has been created using VAR models and FinTech indicators to measure their ability to serve as a predictive tool of real time economic forecasting in India; therefore, in future research studies greater use of powerful multivariate time – series models will need to occur.

This is what the present research paper proposes, using UPI and GST digital transaction data, and finding new empirical evidence supporting the idea that FinTech indicators do provide real

time economic forecasting in India when working in conjunction with other existing economic indicators such as (GDP and Inflation).

Methodology / Data Sources

To measure what the variables are to a greater extent than has been done, the researcher will use both traditional economic indicators that are macroeconomic (traditional). Along with that, electronic banking/finance will be used while comparing and contrasting them, etc. as so that differences and similarities between the two types of economic indicators is used (taking each's historic time series data) for determining the GDP and Inflation in India.

National accounts statistics (NAS): The Ministry of Statistics and Programme Implementation (MOSPI) of the Government of India publishes National Accounts data that will be the source of quarterly GDP. GDP will be calculated at constant prices to obtain the impact of inflation and to capture the total value of output across all sectors. GDP is released on a quarterly basis, thus providing users with sufficient data to perform effective econometric modelling and to reflect business cycle and short-run variations of business activity.

Because GDP will come from the MOSPI, it will conform to internatio
nally accepted National Accounting Standards for data published by the Indian Government and thus, will provide users with a consistent time series of quarterly GDP data that may be analysed for historical trends.

Reserve Bank of India (RBI) DBIE, Consumer Price Index (CPI): The Consumer Price Index (CPI) data used for reporting on inflation are released monthly and quarterly from the RBI as part of the DBIE database. Since CPI is the nominal reference for the Indian inflation-targeting framework, the data are published monthly and aggregated to a quarterly average to allow them to be compared to quarterly GDP.

The research has used Fintech based proxies to measure transaction activity in real time within the Indian economy in order to highlight how fintech enabled high frequency indicators can be used to understand more about the economic activity occurring within India itself.

The data was accessed via official government sources via GSTN which is the source for goods and services tax under which all goods and services are taxed in accordance with law. The data was made available online as per the requirement for both the Reserve Bank of India and Ministry of Finance to post data on their respective portals. The GST collection is made up of indirect taxation collected in the formal market by businesses. Therefore, this data can serve as a measure of how much overall economic activity is taking place within the formal market as well as the general patterns and trends of consumption and the flow of commodities through both suppliers and customers.

Through the use of e-commerce type transactions to obtain the GST data, it offers a view on the current state of growth within a country, through the general trends of economic activity within the formal economy.

Data collected by RBI across all transaction types indicates the volume and value of transactions each month, along with all available transaction related information, via UPI- A measure of household, commercial and government adoption of digital payment systems. The time frame for analysis is the period from 2016 to 2024 during a time when the Indian financial system was changing structurally and digitizing quickly. In this timeframe, major national changes occurred like; the introduction of GST, increased use of UPI and improvements to the digital compliance ecosystem- all coincided with this time period providing an exceptional opportunity to analyze the impact of Financial Technology (FinTech) on macroeconomic forecasts.

The seasonality of all variables was adjusted through seasonally adjusted time series analysis and log-transformed to create level variables with constant variance, thus allowing the interpretation of the growth rates in practical terms. Prior to engaging in the econometric analyses, the stationarity of the time series and consistency with the only datasets noted in this report were confirmed through standard unit root testing to ensure replicability - i.e., if the same calculation was performed by other economists, the same results would be achieved.

This research utilizes a quantitative time-series econometric design to explore the extent to which Fintech-enabled high-frequency digital metrics can improve the forecasting accuracy of key macroeconomic variable, including GDP growth and inflation, for the Indian economy. To accomplish this research goal, this empirical methodology incorporates both univariate forecasts of statistical data series as well as the development of multivariate dynamic systems models through an overall framework of comparative and detailed, and superior modeling.

The methodological approach can be described as follows:
- Initial diagnostics of the individual series data sets will be conducted.
- To estimate and forecast respective models, the research will utilize Auto Regressive Integrated Moving Average (ARIMA) models and Vector Auto Regression (VAR) models.
- The final phase will be the evaluation of the accuracy of the forecasts, as well as the comparative analysis of their ability to provide predictive insight with respect to Fintech proxy data in regard to the forecasting process.

The primary benefit of this research methodology is the ability to analyze and understand both the short-term associations and the long-term relationships that exist between both macroeconomic indices and digital financial proxies.

Data Specifications

Variables and Measurement

The study incorporates two categories of variables: core macroeconomic indicators and FinTech-enabled digital proxies.

Variable	Description	Source	Frequency	Transformation
GDP	Real GDP at constant prices	MOSPI (NAS)	Quarterly	Log first difference
CPI	Consumer Price Index inflation	RBI (DBIE)	Monthly → Quarterly	Quarterly average
Repo Rate	Policy interest rate	RBI	Monthly → Quarterly	Level
M3	Broad money supply	RBI	Monthly → Quarterly	Log
GST	GST collections	GSTN / MoF	Monthly → Quarterly	Log
UPI	UPI transaction value	RBI	Monthly → Quarterly	Log

Source: Authors' Elaborations

All monetary values are expressed in real terms where applicable to eliminate inflationary distortions.

Time Frame and Rationale

For this research project, the data is based on a period that goes from the first quarter of 2016 to the fourth quarter of 2024. The overall goal of this work is to provide insight into how India's financial system evolved during 2016-2024 as well as the influence of new FinTech Innovations on macroeconomic models, through the following major historical milestones/accomplishments achieved by 2024:

i. Implementation of GST,
ii. Rapid increase in acceptance of UPI,
iii. Establishment of electronic compliance,
iv. Transition to an inflation targeting-based monetary policy.

Using these data points over the aforementioned dates, provides valuable information on how FinTech Innovations will impact macroeconomic forecast performance.

Data Preparation and Treatment

In preparation of the data to create an econometrically sound dataset, the following procedures were followed:

i. Monthly data sets were aggregated into quarterly data sets using a mean value approach.
ii. The data sets for level variables were computed using Logarithms to stabilize variance.
iii. The data sets were trend-adjusted using the standard method of seasonal decomposition.

iv. All missing data, when data were available, were filled through Interpolation Techniques.
v. An analysis of any outliers was performed to eliminate any potential erroneous model estimates.

Stationarity & Diagnostic Testing
Before creating models, stationarity tests were performed on each variable using the following tests:

- Augmented Dickey-Fuller ADF Test
- Phillips-Perron PP Test

The null hypothesis for unit root tests was examined at the level of statistical significance established; resulting in all non-stationary variables.

Univariate Forecasting Model – ARIMA

To obtain the initial forecasts, Autoregressive Integrated Moving Average ARIMA was applied to forecast each of the CPI Inflation Rate and GDP Growth Rate.
Model Specification
The general ARIMA(p,d,q) model is expressed as:

$$\Delta^d y_t = c + \sum_{i=1}^{p} \phi_i \Delta^d y_{t-i} + \sum_{j=1}^{q} \theta_j \varepsilon_{t-j} + \varepsilon_t$$

where:

- $y_t$represents GDP growth or inflation,
- $d$denotes the order of differencing,
- $p$and $q$represent autoregressive and moving average orders.

Model orders were selected using Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC).
To evaluate the predictive contribution of FinTech variables, a Vector Autoregression (VAR) framework was employed.
VAR Specification
The VAR(k) model is defined as:

$$Y_t = A_0 + \sum_{i=1}^{k} A_i Y_{t-i} + \varepsilon_t$$

where:

- $Y_t$is a vector including GDP growth, CPI inflation, GST collections, UPI transaction value, and monetary variables,
- $A_i$are coefficient matrices capturing dynamic interactions,
- $\varepsilon_t$is a vector of white-noise error terms.

Lag length selection was guided by AIC, BIC, and HQ criteria.

Forecasting Strategy

Out-of-sample forecasts were generated using a rolling-window approach:

- Estimation period: 2016–2022
- Forecast horizon: 2023–2024

Both ARIMA and VAR models were used to generate one-step-ahead and multi-step-ahead forecasts for GDP growth and inflation.

Forecast Evaluation Metrics

Forecast accuracy was assessed using standard statistical measures:

$$RMSE = \sqrt{\frac{1}{n}\sum_{t=1}^{n}(y_t - \hat{y}_t)^2}$$

$$MAE = \frac{1}{n}\sum_{t=1}^{n}|y_t - \hat{y}_t|$$

Lower RMSE and MAE values indicate superior forecasting performance. Comparative evaluation was conducted between baseline ARIMA models and FinTech-augmented VAR models.

Robustness Checks

To ensure robustness, additional tests were conducted:

- Residual autocorrelation tests (LM test),
- Stability diagnostics (CUSUM),
- Impulse response analysis to examine FinTech shocks.

These checks validate model reliability and structural stability.

ARIMA(p,d,q):

Y_t = c + φ1Y_{t-1} + ... + φpY_{t-p} + θ1ε_{t-1} + ... + θqε_{t-q} + ε_t

4.2 VAR Model Specification

VAR(k):

Y_t = A1Y_{t-1} + A2Y_{t-2} + ... + AkY_{t-k} + ε_t

where Y_t includes GDP growth, CPI inflation, GST revenue, and UPI transactions.

Empirical Results

Findings show that there is a strong causality in both directions between FinTech indicators and macroeconomic variables. GST collections are much better in making predictions of GDP whereas UPI volumes are better in making predictions of inflation.

Stationarity Test Results

Table 1: Unit Root Test Results (ADF Test)

Variable	Level ADF Statistic	First Difference ADF	Order of Integration
Real GDP	−1.42 (ns)	−4.87***	I(1)
CPI Inflation	−2.01 (ns)	−5.23***	I(1)
GST Collections	−0.98 (ns)	−6.11***	I(1)
UPI Transaction Value	−1.17 (ns)	−6.45***	I(1)
Repo Rate	−3.76**	—	I(0)
M3 Money Supply	−1.09 (ns)	−5.88***	I(1)

***, ** denote significance at 1% and 5% levels respectively.

Interpretation:
Most macroeconomic and FinTech variables exhibit non-stationarity in levels but become stationary after first differencing, justifying ARIMA and VAR modelling in first differences.
Source: Authors' Calculations.

ARIMA Model Estimation Results

Inflation Forecasting

Table 2: ARIMA Model for CPI Inflation

Parameter	Estimate	Std. Error	t-Statistic
AR(1)	0.54***	0.12	4.5
MA(1)	−0.38**	0.15	−2.53
Constant	0.21*	0.11	1.91

Selected Model: **ARIMA(1,1,1)**
AIC = −312.45 | BIC = −304.18
Source: Authors' Calculations.

GDP Growth Forecasting

Table 3: ARIMA Model for GDP Growth

Parameter	Estimate	Std. Error	t-Statistic
AR(2)	0.62***	0.14	4.43
MA(1)	−0.41**	0.18	−2.28
Constant	0.34**	0.15	2.26

Selected Model: **ARIMA(2,1,1)**
AIC = −298.72 | BIC = −289.64
Source: Authors' Calculations.

VAR Model Estimation Results

VAR Lag Selection

VAR Coefficient Estimates (Key Results)

Table 4: VAR Results – GDP Growth Equation

Variable (Lagged)	Coefficient	Std. Error	Significance
GDP(-1)	0.41***	0.1	Significant
GST(-1)	0.29***	0.09	Significant
UPI(-1)	0.22**	0.11	Significant
CPI(-1)	−0.18**	0.08	Significant
Repo Rate(-1)	−0.12*	0.07	Marginal

Source: Authors' Calculations.

Table 5: VAR Results – Inflation Equation

Variable (Lagged)	Coefficient	Std. Error	Significance
CPI(-1)	0.56***	0.13	Significant
GST(-1)	0.17**	0.08	Significant
UPI(-1)	0.14*	0.09	Marginal

GDP(-1)	0.21**	0.1	Significant
Repo Rate(-1)	−0.26***	0.09	Significant

Source: Authors' Calculations.

Forecast Performance Comparison

Table 6: Forecast Accuracy Metrics

Model	**RMSE (GDP)**	**MAE (GDP)**	**RMSE (CPI)**
ARIMA	1.92	1.51	1.68
VAR (Macro only)	1.61	1.24	1.43
VAR + FinTech	**1.12**	**0.89**	**1.01**

Source: Authors' Calculations.

Results and Discussion

Introduction of Empirical Results.

The empirical findings are a good indication that digital financial infrastructure using FinTech can greatly improve the accuracy of macroeconomic forecasting in India. The study shows that, by introducing GST collections and UPI transaction volumes to time-series forecasting models, measurable better predictability of the inflation and growth of the GDP is seen when compared to the traditional macro-only frameworks. The results confirm the main hypothesis of this research: digital transactions data on a high frequency decrease the information lags and reflect the real-time economic activity, which enhances the forecasting power of the research in an emerging economy setting.

Results Interpretation of ARIMA.

ARIMA forecasting models provide the basis for benchmarking forecast performance. The persistence of adverse inflationary pressures experienced in India, as inferred from the inflation forecast model designs identifying ARIMA(1,1,1), supports the findings associated with the Adaptive Expectations Model (AEM) typically employed by many developing nations. The statistically significant Autoregressive (AR) component reflects the inert nature of inflation dynamics while the Moving Average (MA) component represents the impact of temporary shocks due to supply shocks and/or adjustments to the monetary policy. Correspondingly, ARIMA forecasts of real GDP growth represent some evidence of cyclical

persistence and therefore fail to provide timely adjustments or corrections to cyclical fluctuations; however, models provide ample statistical evidence to support the statement that ARIMA models are inherently backward looking (i.e., all model outputs depend exclusively on historical values). The inability of ARIMA models to incorporate modern structural indicators limits the predictive accuracy of the forecasts produced by these models, particularly during very rapid economic structure changes. 6.3 Impact of FinTech Indicators on VAR Model.

The results of the VAR model suggest that FinTech indicators are statistically significant predictors of macroeconomic variables.

Growth Signal GST Collections.

GST revenue collection positively impacts the economy, demonstrating tax data generated from commerce activity. This is close to real-time reflections of formal sector activity, consumption demand, and supply chain efficiencies. The size and relative importance of GST coefficients show that digital tax data provides a faster indication of economic movements than traditional output measures. Likewise, the importance of GST in inflation calculation shows that increased frequency of transactions may create demand-pull inflationary pressures especially during times of increasing demand for goods and services.

UPI Transactions and Consumer Behaviour.

UPI transaction values significantly affect both GDP and inflation growth indicating how digital payments reflect consumer behaviour, liquidity levels and financial inclusion. Findings indicate UPI data are more representative of micro-level choices that coalesce into macroeconomics trends. Furthermore, the potential for UPI to be a useful predictor will increase further as adoption increases throughout urban and rural India. 6.4 Monetary Policy Interaction The fact that the repo rates have statistically meaningful and negative coefficients in the inflation equation shows that the system of managing inflation in India is effective and efficient.

Predicting the Performance and the Model Superiority.

According to our evaluation, its clear that a strong hierarchy of forecasting has emerged: ARIMA models are adequate for modeling purposes in addition to being limited in scope. The incorporation of FinTech into macroeconomic forecasting has produced superior results than when using only macro-based VAR models (VAR Models vs. Macro Models) or macro based VAR models alone (FinTech vs Macro). Likewise, the reduction of forecast errors by over 30% in some cases demonstrates this methodology's usefulness for combining digital financial data with macroeconomic forecasting models.

Forecasting Accuracy of FinTech Predictors

Models based exclusively on FinTech indicators have lower RMSE and MAE values than models based solely on macroeconomic data.

For example:

Table One: Comparing the accuracy of forecasting

Name of Model	RMSE	MAE
ARIMA GDP	1.82	1.41
ARIMA CPI Value	1.36	1.09
All Var models (ARIMA+Fintech)	1.12	0.87

Source: Authors' Calculations.

Policy Considerations

The empirical evidence gathered from this research study creates relevant Policy Considerations which are directly connected with Macro-Economic policies as well as how to coordinate and govern institutional settings within India. Consequently, the tangible advantages associated with using FinTech based predictions show that digital financial infrastructures should be viewed, not only as a mechanism for making payments or complying with regulations but rather as a valuable Strategic Macro-Economic Resource. A summary of the key policy considerations will be presented in the next section.

Implications to Monetary Policy and Inflation Targeting.

The new study has significant findings that support RBI's flexible approach to inflation targeting: including variables from the FinTech industry (GST collections and UPI transaction volumes) dramatically improves model accuracy for predicting future inflation. Traditional models of inflation only incorporate historical CPI data and survey forecasts, which are produced with a lag and will may miss trends in consumer behavior that occur in between these data releases. With high-frequency transaction level data from FinTech, it is possible for policymakers to see trends in demand much more quickly. Therefore including FinTech data in RBI's forecasting toolbox will help with reducing the lag in responding to inflationary pressures, decreasing policy inertia, and improving credibility of inflation management. In addition, interactions between the FinTech variables and the policy rate indicate that these data may provide policymakers with real-time information about how monetary policy will be transmitted. For example, repo rate changes can be assessed relative to current UPI transaction volume.

Fiscal Policy/ Revenue Forecasting.

The ability of GST collections to forecast GDP growth demonstrates that electronic forms of tax data can provide live feedback as a method of tracking government finances in real time. This is opposed to the standard practice of national accounting data, which is subject to revisions and other delays as a result of time lags; the information obtained from tracking GST revenues reflects the live flow of economic activity by both specific industries and geographically-based areas.

For fiscal policymakers, this suggests that they could incorporate GST-based analytics in determining short-term revenue forecasts, thereby creating more accurate budgeting processes, manipulating mid-year spending trends, and utilizing countercyclical fiscal

interventions. Moreover, during such periods of economic difficulty, such as pandemics, external shocks, etc., the real-time availability of GST information can assist with creating timely and targeted stimulus and industry relief packages.

In addition, the data collected through the GST Network can be used to promote more compliance to the tax system and reduce tax evasion, thereby creating a larger and more stable revenue base. This supports the notion that online tax systems facilitate the stability of macroeconomic conditions and the sustainability of fiscal policies over time.

Strengthening Economic Measurement and Statistical Systems.
According to the results, the need for statistics agencies such as the Ministry of Statistics and Programme Implementation (MOSPI) to complement traditional survey-based methods using alternative methods such as administrative data sources or electronic data is evident. With the advancement of FinTech, the information generated by these entities may be used as lead indicators in nowcasting GDP, measuring inflation rates, and evaluating performance by sector.

Transitioning to the use of digital financial data would require a better degree of integration and standardization of data, as well as greater inter-agency interoperability between the RBI, GSTN, Income Tax Department, and MOSPI. By establishing a unified macroeconomic data system, efforts to make evidence-based policy will improve greatly and the frequency of ex-post revision will decrease.

Implications for Structural Transformation and Financial Inclusion
The role that UPI plays in describing macroeconomic dynamics demonstrates the macroeconomic benefits of financial inclusion. The introduction of informal economic activity into the formal economy results from digital payment systems, which provide a level of visibility for economic activity and help to reduce information asymmetry. There are also indirect macroeconomic benefits that can attach to inclusion. Thus, it stands to reason that any policies that support the wider adoption of digital payments, particularly in rural or semi-urban areas will have macroeconomic benefits. More extensive online engagement increases the availability of the data used in predictive models for economic forecasting, while also increasing a government's ability to track economic performance over time.

Governance, Regulation and Data Ethics.
While there are many benefits of using forecasting based on FinTech as a policy tool, there are challenges related to data privacy, governance, and ethical abuses of data. Policymakers must ensure that the use of transaction high-frequency data complies with applicable data protection laws, and addresses data anonymization and security issues.

Clear guidelines should also be developed for both inter-agency sharing of data and access to data to facilitate the balance between innovation and individual rights. Future efforts to reinforce digital governance structures will be instrumental in ensuring that the public continue to have confidence in data-driven policymaking.

Lessons for Emerging Economies.

The experience of India contains a number of key lessons for other emerging and developing economies. It has been demonstrated through this paper how investments in digital financial infrastructure supports all three goals of financial inclusion, compliance, and macroeconomic governance. FinTech provides the opportunity for countries with low levels of data and informality to bypass the barriers that traditional statistics impose.

Conclusion

Through the analysis of how FinTech-driven digital financial infrastructure can enhance macroeconomic inflation and real GDP forecasts in India, it has been demonstrated that when high-frequency indicators of FinTech - specifically GST and UPI - increase, there will be a corresponding increase in the corresponding macroeconomic indicators.

The empirical results confirm that the digital transaction data has better real-time economic behaviour capture than the traditional macroeconomic indicators. FinTech-enhanced VAR models are better than classical ARIMA and macro-only VAR models, as they lower the forecast error and enhance the timeliness of economic information. The findings indicate a paradigm change in the informational basis of macroeconomic analysis in the digitally transforming economies.

In addition to the methodological contributions, the paper highlights the increased significance of digital financial ecosystems to the economic governance. FinTech infrastructure does not just allow payments and compliance but it also creates valuable data that can be used to inform monetary policy, fiscal planning as well as economic measurement. In Indian scenario, websites like UPI and GSTN have come up as important elements of the macroeconomic information architecture.

Nevertheless, other limitations of the study are associated with data availability, structural discontinuities, and the dynamic aspect of digital systems. This study can be further extended by future studies through the application of machine learning methods, the investigation of heterogeneity on the state or sectoral level, and the long-term sustainability of FinTech-macro linkages.

Finally, the paper contends that the economic forecasting based on FinTech is a paradigm shift in making macroeconomic policies. In the case of India and other emerging economies, policy responsiveness and governance, as well as sustainable economic development, can be achieved by using digital financial data. With the advancement of digitalisation, the inclusion of FinTech data in the management of macroeconomies can become more vital to the efficient and inclusive economic management.

References

Badrawani, W. (2025). An interpretable machine learning approach in predicting inflation using payment system data: A case study of Indonesia. arXiv.

Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020). COVID-induced economic uncertainty. Journal of Economic Perspectives.

Bhavsar, & Samanta. (2022). Macroeconomic impacts of UPI adoption in India. International Journal of Social Science and Economic Research.

Croushore, D. (2011). Frontiers of real-time data analysis. Journal of Economic Literature.

Gupta, K., & Lahiri, M. (2025). Digital transactions in Indian payment ecosystem. Journal of Marketing & Social Research.

Gupta, P., & Ratha, D. (2019). Informality, data gaps, and macroeconomic forecasting in developing economies. World Bank Policy Research.

Gupta, S., Sarkar, S., & Verma, P. (2023). Digital tax compliance and economic output measurement. Indian Journal of Economics.

IMF. (2025). Growing retail digital payments: Value of interoperability. IMF Fintech Notes.

Kudlyak, M. (2021). Real-time tax data and economic activity. Federal Reserve Research.

Mohr, J., Sheng, N., & Wilson, S. (2021). High-frequency indicators for macro forecasting. Journal of Forecasting.

Reserve Bank of India. (2023). Handbook of Statistics on the Indian Economy.
MOSPI. (2024). National Accounts Statistics.
IMF. (2022). Digital Financial Inclusion and Macroeconomic Stability.

Rout, M., & Ray, R. (2024). Analytical study of digital payment system for financial inclusion. ShodhKosh Journal.

Schneider, F., Buehn, A., & Montenegro, C. (2010). Shadow economies all over the world. World Bank Policy Research.

Vijayagopal, P., Jain, B., & Viswanathan, S. (2024). Regulations and FinTech: A comparative study. Journal of Risk and Financial Management.