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Regional Banking Intermediation and Economic Development in India: Cross-State Empirical Evidence

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Abstract: Banking development is generally expected to promote economic development by mobilising savings, allocating credit and financing productive investment. However, India continues to exhibit substantial interstate differences in both banking activity and economic performance. This study empirically examines whether stronger regional banking intermediation is associated with higher economic development across Indian states. The credit-deposit (C/D) ratio of scheduled commercial banks is employed as the measure of banking intermediation, while per-capita Net State Domestic Product (NSDP) at constant 2011–12 prices represents real economic development. The study conducts two complementary analyses. First, a cross-sectional analysis compares the end-March 2021 C/D ratios of 28 states with their 2021–22 real per-capita NSDP. Second, a decade-change analysis examines whether changes in C/D ratios between 2011 and 2021 are associated with real per-capita income growth among 26 comparable states. Descriptive statistics, Pearson and Spearman correlations, quartile comparisons and heteroskedasticity-robust ordinary least squares regressions are employed. Considerable interstate variation is observed in both banking intermediation and income. However, the cross-sectional relationship between the C/D ratio and real per-capita income is positive but statistically insignificant. Similarly, increases in C/D ratios over the decade do not significantly explain differences in real per-capita income growth. The findings indicate that credit intensity alone is insufficient to explain regional economic development. The developmental contribution of banking appears to depend on credit quality, sectoral allocation, infrastructure, financial inclusion and the ability of regional economies to transform finance into productive investment.

Keywords: *Banking Development, Credit-Deposit Ratio, Economic Development, Regional Disparity, Per-Capita NSDP, India.*

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I. INTRODUCTION

Banks play an important role in economic development by mobilising savings and transferring financial resources to households, firms and productive sectors. An effective banking system can reduce information and transaction costs, improve resource allocation, facilitate investment and support entrepreneurship. Financial development has consequently been regarded as an important determinant of economic performance (King & Levine, 1993; Levine, 1997).

The relationship between banking and development is particularly important in India because economic conditions differ considerably across states. Indian states vary in their levels of income, industrialisation, infrastructure, urbanisation, entrepreneurship and access to formal financial services. These structural differences are accompanied by substantial disparities in banking development. Arora and Anand (2021) demonstrate that despite financial-sector reforms, banking development remains considerably stronger in several high-income and economically advanced Indian states than in less-developed regions. Similarly, Pradhan and Sharma (2022) identify significant geographical differences in financial inclusion across India.

One useful measure of regional banking intermediation is the credit-deposit ratio (C/D ratio). The ratio indicates the amount of credit sanctioned by banks relative to deposits mobilised. A high C/D ratio may reflect greater credit absorption and more intensive financial intermediation. Conversely, persistently low ratios may indicate limited

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investment opportunities, weak demand for formal credit or structural constraints on economic activity.

Nevertheless, a high C/D ratio cannot automatically be equated with superior economic development. The developmental effect of credit depends on where and how borrowed resources are used. Credit directed towards productive enterprise, infrastructure, manufacturing and viable investment can enhance productive capacity, while poorly allocated lending may have limited developmental impact.

Evidence from India supports the broader importance of banking. Burgess and Pande (2005) found that the expansion of rural bank branches under India's social-banking programme contributed to reductions in rural poverty. Pal (2011) similarly reported that the outreach of banking services positively influenced industrial growth across major Indian states.

The relationship may, however, operate in both directions. More prosperous and industrialised states can themselves generate greater demand for deposits, loans and other financial services. Hence, a high level of banking activity may partly reflect economic development rather than being its sole cause.

The present paper investigates this issue through two related empirical questions: Do Indian states with greater banking intermediation have higher levels of real per-capita income? And do states that experience larger increases in their C/D ratios subsequently record faster real per-capita income growth?

By shifting the analysis from national aggregates to cross-state variation, the study provides a regional perspective on the relationship between India's banking industry and economic development.

II. REVIEW OF LITERATURE

- *Financial Development and Economic Growth*

The theoretical finance-growth relationship is based on the capacity of financial institutions to improve the allocation of savings and investment. Banks reduce information asymmetry between borrowers and lenders, evaluate investment opportunities, monitor borrowers and facilitate risk management.

King and Levine (1993) provided influential evidence that financial development is associated with subsequent economic growth, capital accumulation and improvements in economic efficiency. Levine (1997) later identified several channels through which financial systems affect economic activity, including information production, corporate monitoring, risk diversification, mobilisation of savings and facilitation of transactions.

Beck, Levine, and Loayza (2000) further showed that financial intermediary development was positively associated with economic growth, particularly through improvements in productivity. These findings imply that banking systems can affect development not merely through greater credit volume but through improvements in the allocation and productivity of financial resources.

The causal direction is nevertheless debated. Demetriades and Hussein (1996) found that the relationship between finance and growth differed considerably across countries and that reverse or bidirectional causality was common. This suggests that economic development can itself encourage financial deepening by increasing demand for credit and financial services.

- *Evidence from Indian States*

Indian state-level studies provide substantial evidence regarding the developmental role of finance.

Acharya, Amanulla, and Joy (2009) analysed annual data for 14 Indian states over 1981–2002. Their panel cointegration analysis identified a stable long-run relationship between financial development and economic growth.

Pal (2011) investigated banking outreach, infrastructure and industrial performance across 14 major states during the post-liberalisation period. Banking outreach and infrastructure penetration were both found to have significant positive effects on industrial growth. The study is particularly important because it demonstrates that finance interacts with the broader productive environment of a state.

Sehrawat and Giri (2015) studied Indian states during 1993–2012 using panel unit-root, cointegration and causality methods. Their findings confirmed a long-run relationship between financial development and economic growth and provided support for the supply-leading hypothesis.

Using data for 26 states over 1981–2012, Sharma and Bardhan (2017) adopted a broader measure of financial development incorporating the credit-GSDP ratio, deposit-GSDP ratio, C/D ratio and branch density. Their panel GMM estimates showed a positive and significant effect of financial development on economic growth.

Together, these studies establish that banking and financial development can have important regional growth effects. However, they also suggest that financial development is multidimensional and may not be adequately captured by a single ratio.

- *Banking Access, Financial Inclusion and Regional Disparity*

Another important strand of Indian research examines access to formal banking.

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Burgess and Pande (2005) analysed India's rural branch expansion policy and found that the extension of banking into previously unbanked locations contributed to reductions in rural poverty. The result demonstrates that banking development can affect welfare even when the impact is not immediately captured through aggregate income measures.

Chakravarty and Pal (2013) examined financial inclusion across Indian states during 1972–2009 and found that the social-banking programme played an important role in expanding financial inclusion. Geographic penetration and access to credit emerged as important dimensions of inclusive banking development.

More recent research continues to document regional disparities. Ghosh and Sahu (2021) found considerable interstate differences in financial inclusion and highlighted its relationship with the broader economic status of states.

Arora and Anand (2021) constructed a composite banking-development index covering 25 Indian states during 1996–2015. They found that financially advanced regions continued to outperform lagging states despite reforms intended to expand banking development.

Pradhan and Sharma (2022) similarly documented substantial spatial differences in financial inclusion. The southern region performed considerably better than the northeastern region, while per-capita income, industrial activity and infrastructure were among the factors associated with stronger financial inclusion.

These findings suggest that banking and regional development may reinforce one another. Financial development can facilitate economic activity, but more prosperous economies also provide stronger conditions for financial deepening.

III. RESEARCH GAP

Existing research establishes a positive long-term role for financial development in many Indian states (Acharya et al., 2009; Sehrawat & Giri, 2015; Sharma & Bardhan, 2017). However, three issues remain relevant.

First, much of the state-level finance-growth literature relies on historical samples ending before more recent changes in banking technology, financial inclusion and credit delivery.

Second, broader financial-development indices incorporate several dimensions, while the C/D ratio specifically captures the intensity with which deposits are converted into credit. It is therefore useful to examine whether credit intensity alone corresponds with contemporary economic development.

Third, comparing current banking and income levels does not reveal whether states experiencing an increase in banking intermediation also experience faster development.

The present paper therefore combines a contemporary cross-sectional analysis with a decade-change specification.

IV. OBJECTIVES OF THE STUDY

The study has the following objectives:

- To examine interstate variation in banking intermediation in India.
- To analyse the relationship between state C/D ratios and real per-capita NSDP.
- To determine whether changes in C/D ratios are associated with long-term real per-capita income growth.
- To assess whether a high C/D ratio alone is sufficient to explain interstate differences in economic development.
- To derive policy implications for regionally balanced banking development.

➢ *Hypotheses*

- H01: The state-level credit-deposit ratio has no statistically significant relationship with real per-capita NSDP.
- H11: The state-level credit-deposit ratio has a statistically significant relationship with real per-capita NSDP.
- H02: Changes in state credit-deposit ratios between 2011 and 2021 have no statistically significant relationship with real per-capita NSDP growth.
- H12: Changes in state credit-deposit ratios between 2011 and 2021 have a statistically significant relationship with real per-capita NSDP growth.

V. RESEARCH METHODOLOGY

➢ *Data Sources and Sample*

The study uses secondary data obtained from official sources.

State-wise C/D ratios of scheduled commercial banks according to the place of sanction are obtained from the Reserve Bank of India. Real per-capita NSDP is measured at constant 2011–12 prices using state domestic-product statistics compiled by the National Statistical Office and reported in the Reserve Bank of India's *Handbook of Statistics on Indian States*.

The cross-sectional analysis contains **28 Indian states**. The banking variable refers to the C/D ratio at end-March 2021, while economic development is measured through real per-capita NSDP during 2021–22.

A second sample contains **26 comparable states** and examines changes between 2011 and 2021. Andhra Pradesh and Telangana are excluded from this dynamic exercise because the 2011 banking series refers to the undivided state of Andhra

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Pradesh, preventing a consistent state-level comparison after bifurcation.

Table 1 Variables

Variable	Symbol	Measurement
Banking intermediation	CDR	Credit-deposit ratio (%)
Real per-capita income	PCI	Per-capita NSDP at constant 2011–12 prices
Change in banking intermediation	ΔCDR	CDR in 2021 minus CDR in 2011
Real per-capita income growth	PCIG	CAGR of real PCI from 2011–12 to 2021–22

➢ *Empirical Models*

The cross-sectional model is:

$$\ln(PCI_i) = \alpha + \beta_1 CDR_i + \varepsilon_i$$

The natural logarithm of real per-capita income is used to reduce the influence of extreme values and permit an approximate percentage interpretation of the C/D coefficient.

The decade-change model is:

$$PCIG_i = \alpha + \beta_1 \Delta CDR_i + \varepsilon_i$$

where PCIG represents the compound annual growth rate of real per-capita NSDP.

The study employs descriptive statistics, Pearson correlation, Spearman rank correlation, quartile comparisons and ordinary least squares regression. HC1 heteroskedasticity-robust standard errors are reported.

The analysis identifies statistical associations rather than definitive structural causality.

VI. EMPIRICAL RESULTS

➢ *Descriptive Statistics*

Table 2 Descriptive Statistics: 28-State Cross-Section

Variable	Mean	Std. Dev.	Minimum	Maximum
C/D ratio (%)	55.22	25.32	24.50	131.50
Real per-capita NSDP (₹)	116,723	63,349	28,679	310,201

Source: Author's calculations from RBI state-wise banking statistics and RBI/NSO state domestic-product data.

The statistics show pronounced regional variation. The average C/D ratio is 55.22 per cent, but individual state ratios range from 24.5 per cent in Goa to 131.5 per cent in Andhra Pradesh.

Differences in real per-capita income are similarly substantial. Real PCI ranges from ₹28,679 in Bihar to ₹310,201 in Goa.

The distribution illustrates an immediate limitation of assuming a simple positive banking-income relationship. Goa combines the highest real per-capita NSDP in the sample with the lowest C/D ratio. Sikkim also records relatively high real income despite a modest C/D ratio. In contrast, Andhra Pradesh records the highest C/D ratio without being among the highest-income states.

➢ *Correlation Analysis*

The Pearson correlation between the C/D ratio and real per-capita NSDP is only **0.017** ($p = 0.930$), implying virtually no simple linear association.

When real PCI is transformed into logarithmic form, the correlation increases to **0.141**, but remains statistically insignificant ($p = 0.476$).

The Spearman rank correlation is similarly weak at **0.102** ($p = 0.604$).

Therefore, states ranking highly in credit deployment do not systematically rank highly in real per-capita income.

➢ *Quartile Analysis*

States are divided into four groups based on their C/D ratios.

Table 3 Real Per-Capita Income by C/D Ratio Quartile

C/D Quartile	Mean C/D (%)	Mean PCI (₹)	Median PCI (₹)
Lowest	31.30	154,430	143,639
Second	42.13	72,597	70,020
Third	56.80	113,981	118,227
Highest	90.66	125,882	138,490

Source: Author's calculations.

There is no monotonic increase in income as banking intermediation rises.

Indeed, the lowest C/D quartile records a higher average real PCI than the highest quartile, largely because several high-income states have comparatively low ratios.

A Welch test comparing mean PCI in the highest and lowest quartiles produces a p-value of **0.481**, indicating that the difference is statistically insignificant.

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VII. CROSS-SECTIONAL REGRESSION RESULTS

Table 4 Robust OLS Regression: Dependent Variable = ln(Real PCI)

Variable	Coefficient	Robust Std. Error	p-value
Constant	11.3600	0.265	<0.001
C/D ratio	0.0030	0.003	0.374

N = 28
R^2 = 0.020
Adjusted R^2 = -0.018

The C/D coefficient is positive but statistically insignificant.

The estimated coefficient suggests that a one-percentage-point increase in the C/D ratio is associated with approximately a 0.3 per cent increase in real per-capita income in the point estimate. However, the probability value of 0.374 means that this relationship cannot be statistically distinguished from zero.

Accordingly, H01 is not rejected.

The model explains only around 2 per cent of the variation in logged state income. This indicates that regional economic development is overwhelmingly shaped by factors beyond the aggregate C/D ratio.

The Jarque-Bera test produces a p-value of 0.981, providing no evidence against residual normality. The Breusch-Pagan test produces a p-value of approximately **0.057**. Given its closeness to conventional significance levels, heteroskedasticity-robust standard errors are retained.

VIII. DECADE-CHANGE ANALYSIS

A second analysis investigates whether states experiencing stronger improvements in banking intermediation also achieved faster income growth.

Among the 26 comparable states, the change in C/D ratios between 2011 and 2021 ranges from approximately **-22.8 to +22.9 percentage points**. The average change is approximately -1.08 percentage points.

The average compound annual growth rate of real per-capita NSDP between 2011–12 and 2021–22 is approximately **4.16 per cent**.

The Pearson correlation between ΔCDR and real PCI growth is **-0.260** (p = 0.200). The Spearman correlation is **-0.296** (p = 0.141).

Neither relationship is statistically significant.

Table 5 Decade-Change Regression

Variable	Coefficient	Robust Std. Error	p-value
Constant	4.121	0.327	<0.001
Change in C/D ratio	-0.035	0.023	0.127

N = 26
R^2 = 0.067
Adjusted R^2 = 0.029

The change in the C/D ratio carries a negative coefficient but is statistically insignificant.

Hence, H02 is not rejected.

A one-percentage-point larger increase in the C/D ratio is associated with an estimated 0.035-percentage-point lower annual real PCI growth rate, but the relationship is not statistically reliable.

A robustness specification controlling for the state's initial level of real per-capita income leaves ΔCDR statistically insignificant (p = 0.171). Therefore, the result does not materially change after accounting for initial income differences.

The Breusch-Pagan test yields p = 0.751, while the Jarque-Bera test yields p = 0.455, providing no indication of serious heteroskedasticity or residual non-normality in the decade-change model.

IX. DISCUSSION

The results demonstrate that a high C/D ratio alone cannot explain interstate differences in economic development.

This finding should not be interpreted as evidence that banking is unimportant. Earlier Indian studies using broader measures of financial development have found significant positive long-run relationships between finance and state-level growth (Acharya et al., 2009; Sehrawat & Giri, 2015; Sharma & Bardhan, 2017).

The distinction concerns what is being measured.

The C/D ratio measures the intensity with which bank deposits are converted into credit. It does not reveal the quality, sectoral allocation or economic productivity of that lending.

Two states with identical C/D ratios may therefore experience very different developmental outcomes. In one state, loans may support manufacturing, infrastructure, viable MSMEs and productivity-enhancing investment. In another, a similar volume of credit may be concentrated in activities generating lower long-term productive returns.

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Pal (2011) provides support for this interpretation by demonstrating that banking outreach and infrastructure jointly affect industrial development. Finance therefore works within a larger regional productive environment.

Financial inclusion research reaches a similar conclusion. Burgess and Pande (2005) show that the expansion of banking access reduced rural poverty, while Chakravarty and Pal (2013) highlight the role of geographic banking penetration and credit availability. The developmental effects of banking are therefore broader than those captured by a single credit ratio.

Reverse causality must also be considered. Higher-income and more industrialised states may possess greater demand for loans, more bankable projects and stronger formal-sector activity. Economic development can consequently stimulate financial intermediation.
This interaction can be represented as:

Banking development → Productive credit → Investment → Output and income

while simultaneously:

Higher income and business activity → Greater demand for financial services → Banking development

Regional banking and regional development may therefore reinforce each other rather than follow a simple one-directional relationship.

The results also align with evidence on financial disparities. Arora and Anand (2021) found that financially developed regions tend to coincide with economically stronger parts of India, while Pradhan and Sharma (2022) demonstrate that infrastructure, economic status and industrial conditions are associated with financial inclusion.

Thus, the insignificant C/D coefficient does not weaken the broader finance-growth argument. Rather, it establishes that credit intensity by itself is an incomplete measure of a banking system's developmental contribution.

X. POLICY IMPLICATIONS

The findings have important policy implications.

First, policymakers should avoid treating higher C/D ratios as an independent policy objective. Raising credit mechanically can be counterproductive if lending is not supported by viable economic opportunities and adequate risk assessment.

Second, the composition and productivity of credit deserve greater attention. Lending directed towards viable MSMEs, infrastructure, manufacturing, technology, agricultural value chains and productive services is more likely to generate sustainable regional development.

Third, low-credit states may require interventions beyond the banking sector. Inadequate infrastructure, limited industrialization, poor project viability and weak entrepreneurial ecosystems can restrict demand for productive credit even when banks are physically present.

Fourth, banking development should be assessed through a broader set of indicators. Branch density, per-capita deposits and credit, digital access, financial inclusion, sector-wise lending and credit quality should supplement the C/D ratio (Arora & Anand, 2021; Chakravarty & Pal, 2013).

Finally, financial policy should be coordinated with regional development policy. Banking institutions can finance economic opportunities, but they cannot independently create infrastructure, human capital or viable investment projects.

XI. LIMITATIONS OF THE STUDY

The study has several limitations.

First, the cross-sectional model contains only 28 observations and therefore should not be interpreted as a comprehensive structural model of state development.

Second, the C/D ratio captures only one dimension of banking development.

Third, the analysis does not control simultaneously for infrastructure, education, urbanisation, industrial structure or governance, each of which may influence income.

Fourth, the study identifies associations rather than definitive causality.

Finally, changes in state boundaries restrict the comparability of Andhra Pradesh and Telangana in the decade analysis.

Future research can address these limitations through a state-level panel dataset incorporating multiple indicators of banking development and relevant socioeconomic controls.

XII. CONCLUSION

This paper examined the relationship between regional banking intermediation and economic development across Indian states using official state-level data.

Substantial interstate variation exists in both banking activity and real per-capita income. However, states with higher C/D ratios do not systematically exhibit higher economic development.

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The cross-sectional regression produces a positive but statistically insignificant relationship between the C/D ratio and real per-capita NSDP. Similarly, states experiencing larger changes in their C/D ratios between 2011 and 2021 did not record statistically significantly faster real per-capita income growth.

The findings therefore indicate that greater credit deployment alone is insufficient to generate regional economic development.

This conclusion does not diminish the importance of banking. Instead, it suggests that the developmental contribution of finance depends on its quality and use. Banking resources must be directed towards productive activities, supported by infrastructure and absorbed through viable investment opportunities before they can translate into sustainable improvements in income.

For policymakers, the objective should consequently extend beyond increasing regional C/D ratios. A development-oriented banking system should combine broad access, efficient intermediation, sound credit assessment and productive allocation of finance.

REFERENCES

[1]. Acharya, D., Amanulla, S., & Joy, S. (2009). Financial development and economic growth in Indian states: An examination. *International Research Journal of Finance and Economics, 24*, 117–130.

[2]. Arora, R. U., & Anand, P. B. (2021). Regional financial disparity in India: Can it be measured? *Journal of Institutional Economics, 17*(5), 836–860. https://doi.org/10.1017/S1744137421000291

[3]. Beck, T., Levine, R., & Loayza, N. (2000). Finance and the sources of growth. *Journal of Financial Economics, 58*(1–2), 261–300. https://doi.org/10.1016/S0304-405X(00)00072-6

[4]. Burgess, R., & Pande, R. (2005). Do rural banks matter? Evidence from the Indian social banking experiment. *American Economic Review, 95*(3), 780–795. https://doi.org/10.1257/0002828054201242

[5]. Chakravarty, S. R., & Pal, R. (2013). Financial inclusion in India: An axiomatic approach. *Journal of Policy Modeling, 35*(5), 813–837. https://doi.org/10.1016/j.jpolmod.2012.12.007

[6]. Demetriades, P. O., & Hussein, K. A. (1996). Does financial development cause economic growth? Time-series evidence from 16 countries. *Journal of Development Economics, 51*(2), 387–411. https://doi.org/10.1016/S0304-3878(96)00421-X

[7]. Ghosh, S., & Sahu, T. N. (2021). Financial inclusion and economic status of the states of India: An empirical evidence. *Economic Notes, 50*, e12182. https://doi.org/10.1111/ecno.12182

[8]. King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The Quarterly Journal of Economics, 108*(3), 717–737. https://doi.org/10.2307/2118406

[9]. Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature, 35*(2), 688–726.

[10]. Pal, R. (2011). The relative impacts of banking, infrastructure and labour on industrial growth: Evidence from Indian states. *Macroeconomics and Finance in Emerging Market Economies, 4*(1), 101–124. https://doi.org/10.1080/17520843.2011.548621

[11]. Pradhan, K. C., & Sharma, R. (2022). Assessing the spatiotemporal financial inclusion and its determinants: A sub-national analysis of India. *Asia-Pacific Journal of Regional Science, 6*, 635–681. https://doi.org/10.1007/s41685-022-00245-8

[12]. Reserve Bank of India. (2021). *State-wise credit-deposit ratio of scheduled commercial banks according to place of sanction* (Table 136). Reserve Bank of India.

[13]. Reserve Bank of India. (2023). *Handbook of statistics on Indian states 2022–23: Per capita net state domestic product at constant prices* (Table 26). Reserve Bank of India.

[14]. Sehrawat, M., & Giri, A. K. (2015). The role of financial development in economic growth: Empirical evidence from Indian states. *International Journal of Emerging Markets, 10*(4), 765–780. https://doi.org/10.1108/IJoEM-05-2014-0064

[15]. Sharma, R., & Bardhan, S. (2017). Does regional financial development matter for growth? Evidence from Indian states. *International Economic Journal, 31*(4), 621–646. https://doi.org/10.1080/10168737.2017.1403460