International Journal of Engineering Research & Management Technology
ISSN: 2348-4039
September-2020 Volume 7, Issue-5
Email: editor@ijermt.org www.ijermt.org

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN INDIA

P.S Lakshmi
Lecturere in Economics
Government Degree College
Kalyanadurgh, A.P

Abstract

This paper aims to investigate the relationship between financial development and economic growth (FE) in the Indian states. In pursuit of this objective, the tests of Panel Co integration and Fully Modified Ordinary Least Squares (FMOLS) are conducted by using three panel data sets viz., (i) data on BIMAARU states, (consisting of five states); (ii) data on nine other Indian States and (iii) data on full sample of fourteen states (BIMAARU states as well as nine other Indian states). The data used in this study consists of the annual data on Net State Domestic Product and Total Commercial Bank Credit Outstanding in various sectors during period 1981-2002, collected from various publications of Reserve Bank of India and Central Statistical Organisation. The panel cointegration results confirm a long-run relationship between financial development and growth across Indian states.

keywords : *Financial , Economic*

Introduction

Extensive empirical research has been conducted on the hypothesis that there is a causal link between the expansion of the financial sector and overall economic growth. The findings, which show that causation may run in either direction, are properly documented in the relevant body of academic work. This nexus has been explored by a number of scholars using a wide range of econometric models, and the results have been shown to be contradictory in character. Examining the relationship between financial development and economic growth has been done in the empirical literature using three distinct approaches: I cross-sectional analysis; (ii) time-series analysis; and (iii) cross-sectional time series analysis. Each of these approaches has their own strengths and weaknesses. In order to carry out the cross-sectional analysis, we make the assumption that there is a certain economic structure, and that this structure has a consistent influence on all of the variables that are being looked at. Any larger (lower) economic contribution or development is attributed, according to this thesis, to variable(s) that has (have) bigger cross-sectional difference among them. As a consequence of this, the subject matter of inquiry is focused on cross-sectional differences among the factors that are being investigated and their relative effect on higher (or lower) economic growth. For instance, past research along these lines, such as those carried out by Gelb (1989), King and Levine (1993), Fry (1995), Levine (1997), Levine (1998), Levine and Zervos (1998), and Rajan and Zingales (1998), came to the conclusion that financial development leads to economic growth. In the second method of time-series analysis, the focus of the inquiry is placed on the development that has taken place over a certain span of time. The hypothesis that the passage of time calls for a shift in the values of the variables being studied might demonstrate a constructive (destructive) influence on the progression of financial development over a span of time, thereby contributing to either positive (destructive) or negative (constructive) changes in economic growth, or vice

versa. To explore the financial development-economic growth nexus (FE), economists (such as Sims (1972), Gupta (1984), Jung (1986), Demetriades and Hussein (1996), Demetriades and Luintel (1996), Arestis and Demetriades (1997), and Shan et al. (2001)) proceed in this line and present mixed evidence. Although it is plausible to accept these two methodologies of I and (ii), it is quite possible to anticipate a combined influence of cross-sectional and time series changes together and their combined impact on economic growth. This is despite the fact that it is convincing to accept these methodologies. In other words, the explanation of the FE nexus may be described more effectively by combining cross-section analysis with time series analysis, rather than by conducting either type of research alone. The term "Panel Data Analysis" refers to this kind of empirical research study. As a result of the fact that the variables under inquiry are going to be evaluated in both the cross-sectional and the time series dimensions, this method accounts for all of the potential shifts that might occur in the economy, hence preventing omitted variable bias. Research such as that conducted by Roger Kelly and George Mavrotas (2003), Valpy FitzGerald (2006), Okan Veli Safakli and Behiye Tuzel (2007), and Jordan Shan (2005), amongst others, uses panel data analysis to investigate the connection between financial development and economic growth. The topic of whether or not these methods are appropriate for a given setting is outside the purview of this study; yet, each of these approaches does have some degree of value in certain contexts. This investigation makes use of the panel data analysis, which is founded on a theoretical framework that accounts for the joint effect of cross-sectional and time-series requirements in empirical testing. The investigation of the FE nexus, in particular, has to take into account the already-existing economic structure and the state's involvement in both cross-sectional and time-series dimensions; this model may be able to offer a relevant explanation of the FE nexus in the context of India.

Previous Studies

Panel data analysis has been utilised by researchers to undertake a variety of investigations in order to investigate the potential connection that exists between financial development and economic growth. In the FE literature, the test of Panel data analysis may be carried out using either I a Fixed Effects Regression Model or (ii) a Random Effects Regression Model. Both of these models include regression on the data. In the instance of model I it takes into account the time series fluctuations in the independent variables and assesses the influence that these fluctuations have on the variable that is being modelled. In order to investigate the influence of independent factors on dependent variables, the model (ii) takes into consideration cross-sectional changes in those variables. Reviewing the research on the FE nexus reveals that there are three potential explanations for the relationship between the two variables: I Finance is an essential component of growth (Schumpeter, 1911; Goldsmith, 1969; McKinnon, 1973; Shaw, 1973; Odedokun, 1996; Jordan Shan (2005); King and Levine (1993a, 1993b)); (ii) Finance is considered to be a relatively unimportant factor in growth (Robinson, 1952; In line with these perspectives, empirical investigations on the FE nexus have yielded contradictory findings, indicating neither a role nor a positive association between the two (Xu, 2000). In addition, the direction of causation direction between financial development and economic growth has not been addressed because of the effect of an independent third factor on these variables. Misra (2003) conducted research on the credit-output nexus in the Indian setting by utilising data from 25 Indian states over the course of the time period 1981-2000. The authors of this study used the causality model found in the vector error correction framework, and they came to the conclusion that there is substantial evidence to support the credit-output link in Indian states. It verified further that a large presence of causality exists between output and credit rather than causation being between credit and production. According to the findings of the study, a lack of credit off-take is caused by growth weariness. As a result,

India has to focus a great deal of attention on the relationship between credit and production. In a separate piece of research, Misra (2003a) compared the allocative efficiency of the Indian banking system before (1981-1992) and after (1992-present) the implementation of financial sector reforms (1993-2001). The study came to the following conclusions: I in the post reform period, allocative efficiency had doubled, which ensured the success of financial sector reforms in improving allocative efficiency; (ii) a higher allocative efficiency was evidenced in the service sector than the allocative efficiency that was evidenced in the agricultural and industrial sectors. However, in these two studies, the tests of Vector Error Correction and Panel Cointegration were performed using a total of only twenty yearly data points in order to evaluate the connection between credit and production. In other words, a limited data set may lead to an empirical challenge, particularly when the model is to be estimated in lags; hence, a bigger data set may give adequate degrees of freedom to evaluate the relationship between credit and output. There is a pressing need to find a solution to this problem in both developed and under-developed states in India. The relationship between credit and output may be much more obvious in developed states as compared to less-developed and under-developed ones. In addition, the preceding research investigated the credit output nexus using Granger's framework. Therefore, evaluating the same in a framework known as panel cointegration may be able to eliminate the challenges caused by a limited sample size and shed some light on the credit output nexus in Indian states. As a result, the current study is being conducted with the intention of bridging this gap. Consequently, the purpose of this study is to determine the FE nexus by making use of panel cointegration and collecting information on the levels of credit and production across fourteen different Indian states.

Methodology

Pedroni Panel Cointegration Test

This investigation makes an effort to utilise the Pedroni Panel cointegration test in order to evaluate the connection that exists between financial development and economic expansion. Leaving more details to be covered in Annexure-1, the test for Pedroni's (1999) panel cointegration may be provided as:. This is based on the assumption that each variable is integrated of order one.

$$Y_{i,t} = \alpha_i + \rho_{i,t} + \beta_{1i,t}X_{1i,t} + \ldots\ldots \beta_{Mi}X_{Mi,t} + \varepsilon_{i,t} \qquad (1)$$

In this case, t equals 1,...T, I equals 1,...N, and m equals 1,...M, where T stands for the number of observations throughout time, N stands for the number of individual provinces included in the panel, and M stands for the number of regression variables. In the same way as in a standard bivariate co-integration test, the existence of cointegration is evaluated based on the testing error estimation from equation (1). Next, the same is utilised in another difference equation to obtain the test-statistics, which are used to determine whether or not there is a potential relationship between financial development and economic growth. (For details, see Annexure-1).

The equation (1) is general specification of Pedroni Panel cointegration and it is necessary to re-formulate the equation as:

$$LPCNSDP_{it} = \alpha + \beta\, LPCC_{it} + \varepsilon_{it} \qquad (2)$$

where I is a variable that represents an Indian state (for example, I = 1, 2,...., 5 for BIMAARU states; I = 1, 2,...., 9 for the rest of nine states; and I = 1, 2,...., 14 for all states); and t is a variable that represents the

passage of time. The abbreviations LPCNSDP and LPCC stand for the Natural Log of per-capita Net State Domestic Product and Natural Log of per-capita Credit, respectively. For the purpose of analysing the connection between financial development and economic growth, Equation (2) takes into account two variables, namely, I Net State Domestic Product and (ii) Per capita credit. It is necessary to have a close proximal representation of both the financial development and the economic growth. As an illustration, monetary aggregates such as M2/GDP or M3/GDP are typically utilised as indicators of the progression of financial growth. Credit is also regarded to be a good indication of financial growth because it symbolises the mobilisation of deposits, which are subsequently invested in productive sectors through credit availability. This is one reason why credit is thought to be acceptable. It guides the movement of savings and investment within the economy in order to facilitate the accumulation of capital and the creation of goods. The Per-capita Net State Domestic Product is a measure that may be used to reflect economic growth or production.

FMOLS Panel Estimates

We construct FMOLS panel estimates for real per-capita credit since the model is cointegrated. Fully modified least squares, often known as FMOLS regression, was first conceptualised in the work of Phillips and Hansen (1990) with the intention of providing optimum estimates of cointegrating regressions. It is not possible to eliminate endogeneities in the regressors by employing vector autoregressions (VARs) as if they were merely reduced forms because cointegrating relationships between nonstationary series result in endogeneities in the regressors. The method adjusts the least squares approach in order to take into consideration the impacts of serial correlation as well as the endogeneity in the regressors that arises as a direct consequence of the presence of a cointegrating connection. Consider the following cointegrated system for a panel consisting of I = 1, 2,..., N states during a period of time t = 1,2,...,M:

$$Y_{it} = \alpha_{it} + \beta X_{it} + \varepsilon_{it} \qquad (3)$$

Where $X_{it} = X_{it}\text{-}1 + \varepsilon_{it}$.; the estimates αit and β is done through FMOLS methodology (For technical details, see Annexure-II). To prove that financial development leads to economic growth, the elasticity of real per-capita Net State Domestic Product with respect to real per-capita credit must exceed unity.

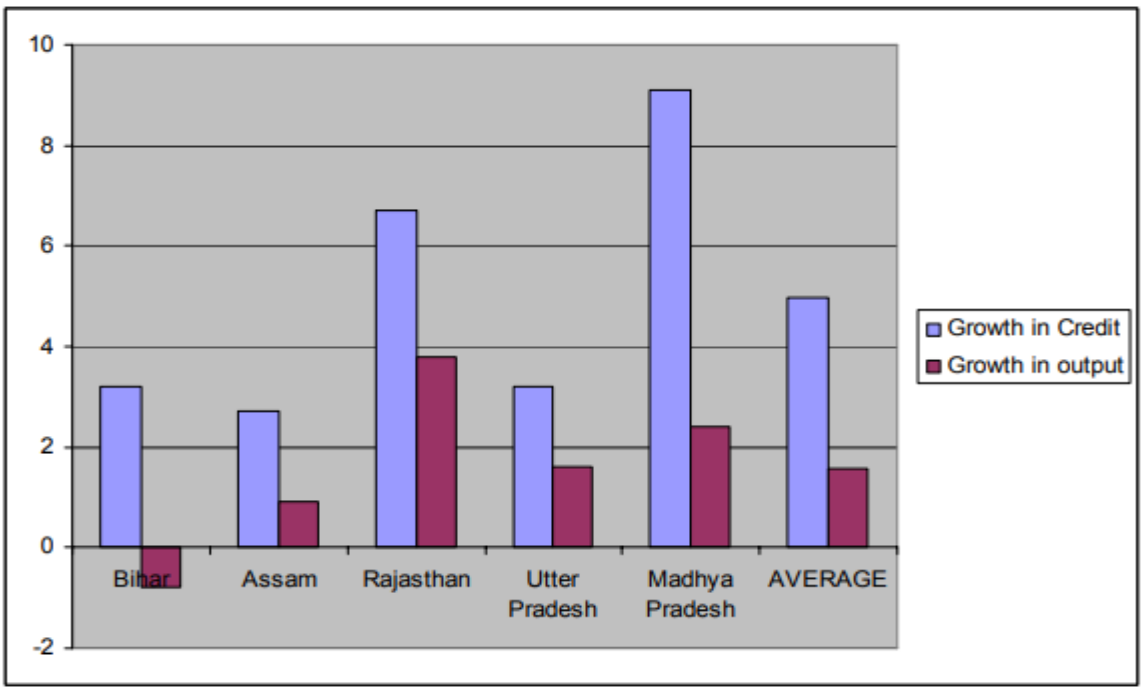
Data and its Sources

Data on per capita Net State Domestic Product (PCNSDP) and per capita credit for the states (PCC) for a panel of 14 Indian states were collected on an annual basis for the period of 1981-2002 in order to evaluate the possibility of a link between financial development and economic development using panel co-integration. This was done in order to assess the possible linkage between financial development and economic development. The figures for the Net State Domestic Product (NSDP) were obtained from the Central Statistical Organization. The base year used for these calculations was 1993-1994. The statistics for credit, that is, the outstanding credit to various sectors from all scheduled commercial banks in a state, have been collected from the RBI's database on the Indian economy, which is available on the RBI website. These figures may be found on the RBI website. When deciding whether or not to include concerned states in the study, one of the most important factors to take into account is the availability of data for the time in question. In this study, fourteen different states were taken into consideration. These states are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. The study was based on consistent data that was available between the years

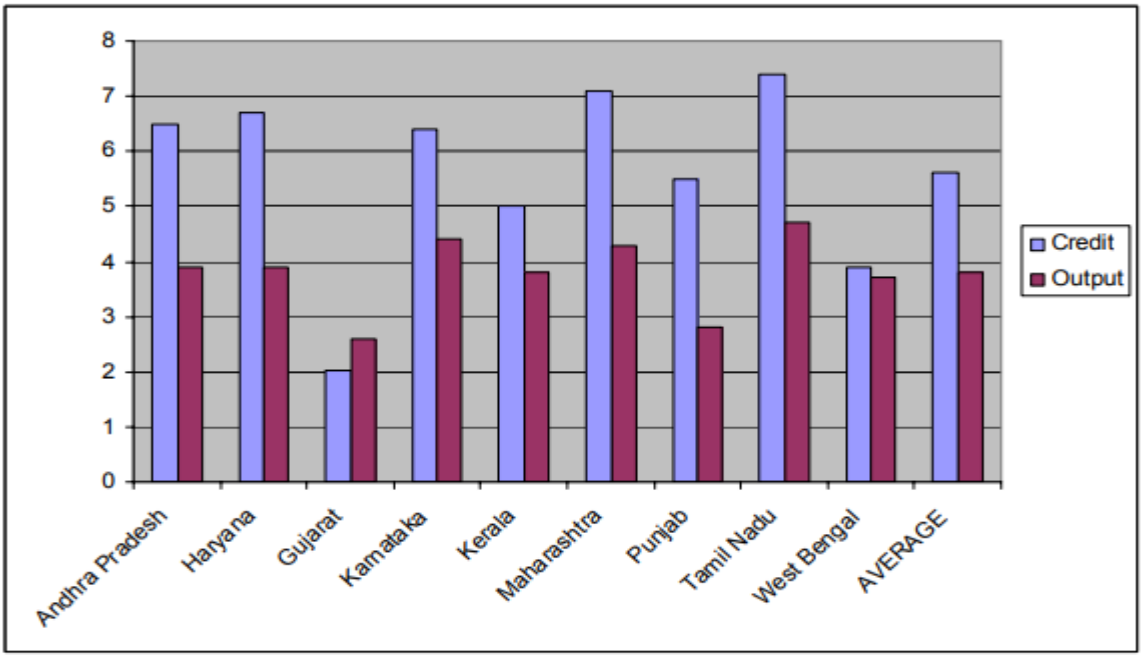
1981 and 2002. This study divides the total sample into two sub-samples in order to investigate the financial development and economic growth in developed and backward states. These sub-samples are referred to as I backward states, also known as BIMAARU states, which consist of Bihar, Madhya Pradesh, Assam, Rajasthan, and Uttar Pradesh; and (ii) developed states, which include Andhra Pradesh, Gujarat, Haryana, Karnataka, Kerala, Maharashtra Because Assam meets the requirements, in terms of economic statistics, to be included in this group, we have decided to classify it as belonging to the BIMAARU category. This is a different categorization from the typical BIMARU system that is used in conversations about the Indian economy.

Credit Allocation and Output Growth in Indian States: Summary Statistics

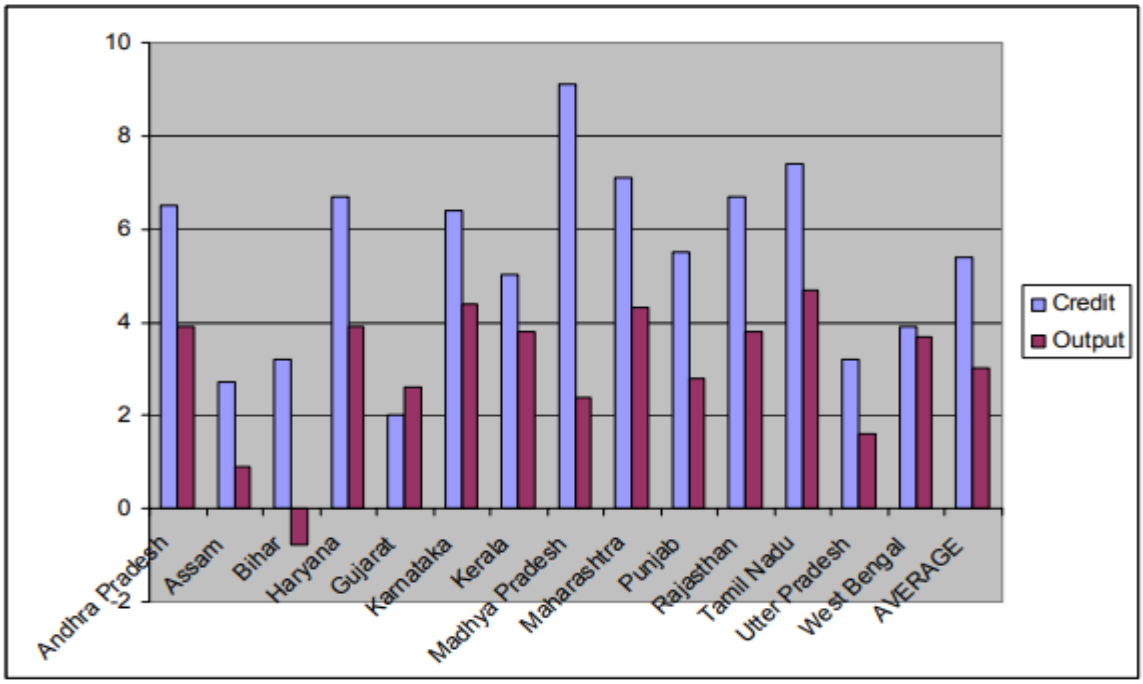
Table-1 and Graph-1 offer a summary of the information regarding the average increase of credit and output throughout the time period of 1981-2002, which can be used to get a fundamental understanding of the link between credit and output. Table-1 suggests that I the average credit growth and output growth (in total) is higher in developed states (5.62 and 3.79) in comparison to BIMAARU states (4.98 and 1.58); (ii) with the exception of Bihar, all Indian states, both developed and BIMAARU states, show a growth in credit and output individually during this period; (iii) in a similar way, all states, except for Bihar, show a significant correlation between credit and output growth; and (i.e., -0.16907) 1 . The ranking of the states in terms of the association between loan growth and production growth is presented in Table-2 for both BIMAARU and other developed states. According to Table-2, I among developed states, Tamil Nadu ranks at the top of the list (that is, 0.9695), while Haryana figures as the lowest with 0.7595; (ii) among BIMAARU states, Madhya Pradesh ranks at the top, with 0.9219, and Bihar is listed as the lowest with -0.1691; and (iii) the credit and output growth relationship (that is, 0.9219) in Madhya Pradesh is higher than (0.7595). It is possible to deduce the following from Tables 1 and 2: I on average, BIMAARU states have a lower credit output growth relationship when compared to other developed Indian states; (ii) Madhya Pradesh, a state hailing from BIMAARU, has the unique status of evidencing a higher creditoutput growth relationship when compared to four developed states including Gujarat, West Bengal, Andhra Pradesh, and Haryana.



Graph 1(a): Average growth in credit and output for BIMAARU States



Graph 1(b): Average Growth in Credit and Output for Developed States



Graph 1(c): Indian States: Average Growth in Credit and Output

Table 1: Growth of Credit and Output in Indian States (1981-2002): Summary Statistics [Growth of Credit and Output in Indian States]

Tate	Credit (%)	Output (%)	Correlation
India: BIMAARU States			

1) Bihar	3.2	-0.79	-0.16907
2) Madhya Pradesh	9.1	2.4	0.921942
3) Assam	2.7	0.9	0.700649
4) Rajasthan	6.7	3.8	0.863359
5) Utter Pradesh	3.2	1.6	0.845637
Average Growth Rates	4.98	1.58	-
India: Other States			
1) Andhra Pradesh	6.5	3.9	0.813654
2) Gujarat	6.7	3.9	0.885999
3) Haryana	2.03	2.6	0.759475
4) Karnataka	6.4	4.4	0.888786
5) Kerala	5.01	3.8	0.926757
6) Maharashtra	7.1	4.3	0.930803
7) Punjab	5.5	2.8	0.942402
8) Tamil Nadu	7.4	4.7	0.969588
9) West Bengal	3.9	3.7	0.841269
Average Growth Rates	5.62	3.79	-
All India Average Growth Rate	5.39	3.00	-

Table 2: There is a correlation between the expansion of credit and the growth of output in Indian states. (1981-2002): Ranking

Particulars	**Negative Corr.**	**70 < Corr. < 90 %**	**Corr. >90%**
India: BIMAARU States	Bihar (14)	Rajasthan (8): Utter Pradesh (9) Assam (13)	Madhya Pradesh (5)
India: Other States	-NIL-	Kerala (6) Gujarat (7) West Bengal (10) Andhra Pradesh (11) Haryana (12)	Tamil Nadu (1) Punjab (2) Maharashtra (3) Karnataka (4)

The information on the link between credit and output may help explain the credit-output nexus in part. For example, each state is considered to be a separate entity when calculating the percentage increase in credit-output that can be attributed to the state's own efforts alone. In fact, the credit-output connection of a single state is impacted not only by the efforts that state makes over the course of a certain time period (known as the "time series effect"), but also by the credit-output influences of other states (cross-sectional influences). A simple correlation might not give any evidence of a cross-sectional link between the states, which would narrow the window of opportunity for policy recommendations. In addition, it may show the "direction" of correlations, but it cannot suggest the "extent" of the link that exists between two variables. As a result, an empirical test that takes into account both cross-sectional and time series variables may be able to better explain the relationship between credit and production. As a result, the purpose of this article is to make an

attempt to estimate the credit-output nexus that exists across Indian states by taking fourteen Indian states to be a panel. Each member of the panel exerts effect on the other across a variety of cross-sections and time periods. In order to accomplish this goal, Pedroni's panel co-integration is used to determine how the various Indian states are related to one another in terms of credit output.

Credit Allocation and Output Growth in Indian States: Evidence from Panel Cointegration Framework

To put it another way, even while each panel member acts erratically in the short run (also known as short-term disequilibrium or non-stationary series), the panel members as a whole have a tendency to move in tandem over the course of a longer period of time. Even if there is a short run disequilibrium2, the mutual reinforcement that all of the panel members get from one another will, in the long run, lead to a condition of equilibrium (also known as a stationary series). Technically speaking, the existence of such a phenomenon among panel members is referred to as the presence of "Panel cointegration." The test of Pedroni's panel co-integration requires, in essence, that the panel members together be expected to be non-stationary series of the same order. This is denoted by the symbol I(d), and it is important to note that d refers to the order of differencing that is necessary to make a series as a stationary series. The panel unit root approach is typically utilised if there is a need to determine whether or not the panel member series in question are stationary. Confirming the existence or absence of a unit root in panel data analysis is accomplished through the use of test statistics derived from panel unit roots. In this study, the panel unit root methodology developed by Im, Pesaran, and Shin (IPS) (2003) was applied to three distinct panel data samples: I the panel data from the BIMAARU states; (ii) the panel data from the nine developed Indian states; and (iii) the full sample panel data, which included both the BIMAARU states and the developed Indian states. The purpose of this was to determine whether the growth rates of state credit and output are observing the same order of integration Table 3 displays the findings of the investigation of the IPS panel's unit roots. The conclusion that can be drawn from Table-3 is: I the null hypothesis of non-stationary is not rejected in the level itself, with the exception of a few cases, even in the presence of an absence of trend in all three panel data sets; (ii) the null hypothesis is rejected in the first difference, evidencing panel member series as non-stationary series of order 1, I; and (iii) the null hypothesis is not rejected in the second difference, evidencing panel member series as non-stationary series of order (I). This study believes the credit and output variables in the three panel data samples to be non-stationary of order I, i.e., I, despite the fact that there are some mixed findings in the presence of trend, and it leaves the same question open for further investigation (1).

Table 3: Im, Pesaran and Shin (IPS) (2003) Panel Unit Root Test Results

Variables	**IPS Test Statistic (Without Trend)**		**IPS Test Statistic (With Trend)**	
	t-bar	**t-tilde-bar**	**t-bar**	**t-tilde-bar**
BIMAARU States				
LPCC	-2.29834***	-2.03237	-2.83967***	-2.36196
LPCNSDP	-1.52039	-1.43520	-3.47540***	-2.64275
DLPCC	-4.84598***	-3.23905***	-4.72040***	-3.15686***
DLPCNSDP	-6.66380***	-3.63991***	-6.53717***	-3.55914***
Other States:				
LPCC	-1.61145	-1.36872	-3.68169***	-2.73727***

LPCNSDP	-0.11786	-0.12908	-3.10970***	-2.40431
DLPCC	-6.60153***	- 3.48012***	-6.49328***	-3.38937***
DLPCNSDP	-6.84100***	-3.49497***	-7.05326***	-3.46535***
All India				
LPCC	-1.85677***	-1.60574	-3.38096***	-2.60323***
LPCNSDP	-0.61876	-0.59555	-3.24031***	-2.48947
DLPCC	-5.97455***	-3.39402***	-5.86011***	-3.30633
DLPCNSDP	-6.77771***	-3.54673***	-6.86894***	-3.49885***

Notes: *** denotes rejecting the null hypothesis at 10% level.

It is feasible to use Pedroni's panel cointegration in situations in which the panel data show signs of being non-stationary of I(1) order. In this particular piece of research, the test of Pedroni's panel cointegration with trend and without trend was carried out independently for each of the three panel data sets. Table-4 contains the results that were obtained from this examination. This table offers seven test statistics, including I vstatistics; (ii) panel rho-statistics; (iii) panel adf-statistics; and (iv) panel pp-statistics. Further information will be provided in annexure-III. (vii) Group pp-statistics, Group rhostatistics, and Group adf-statistics 3 . Based on the information shown in Table-4, we may conclude the following: I the null hypothesis of no-cointegration is rejected in the case of BIMAARU states, other developed Indian States, and the whole panel data sample. The long-run panel co-integration between credit and output across BIMAARU and other developed Indian states is ensured by the fact that cointegration with trend also confirms the rejection of the null hypothesis of no-cointegration in all three panel data sets. This is the only way to account for a small number of cases. To put it another way, even while it may appear that the link between credit and production is demonstrating a disequilibrium in the short run, there is, in fact, a relationship between credit and output in the long run throughout all of India's states.

Table 4: Results of Pedroni panel cointegration (Without Trend)

Test Statistic	**(Without Trend)**			**(With Trend)**		
	BIMAARU	**Other States**	**All States**	**BIMAARU**	**Other States**	**All States**
Panel v-statistics	1.28665	2.25267	2.55990	0.45331	2.25267	0.87331
Panel rho-statistics	-2.33426	-5.12984	-5.45044	-0.24850	-5.12984	-2.49856
Panel pp-statistics	-3.74505	-5.98493	-7.00747	-1.39362	-5.98493	-5.85110
Panel adf- statistics	-4.01750	-5.04253	-6.38550	-2.20567	-5.04253	-5.16046
Group rho-statistics	-1.90107	-3.01386	-3.55258	-0.39090	-3.01386	-0.61175
Group pp-statistics	-4.27284	-5.78793	-7.19418	-1.37686	-5.78793	-5.00934
Group adf-statistics	-4.64098	-3.38449	-5.48714	-2.25112	-3.38449	-4.92982

FMOLS Results

The previous section provides evidence that a co-integration exists between credit and output throughout all of India's states. FMOLS is computed using the equation (3), and the results are displayed in Table-5. Based on the information shown in Table 5, it appears that the responsive co-efficient of credit is very significant in the BIMAARU states, where it sits at 0.42, in other developed Indian states, where it sits at 0.70, and in the whole panel data sample of Indian states, where it sits at 0.54. In addition, as compared to BIMAARU states, developed Indian states have a responsive co-efficient that is far more prominent. This indicates that developed states in India have an active credit-output connection in the short-run, guaranteeing that credit plays an essential role in the expansion of the economy. Although a similar result was also reached in the

BIMAARU states, the combination of the BIMAARU states with other developed Indian states demonstrates a responsive co-efficient in between the BIMAARU states and other developed States. It indicates that the average strength of the relationship between credit and output has decreased from 0.70 to 0.54 as a direct result of the less active credit-output link in BIMAARU states. Any effort that is made to increase the credit output connection in BIMAARU states will also ensure that the credit and output nexus is greater and stronger in all of India's states.

Table 5: The FMOLS Estimates

$(LPCNSDP_{it} = \alpha + \beta\ LPCC_{it} + \varepsilon_{it})$			
	BIMAARU	**Other States**	**All States**
Coefficient	0.42	0.70	0.54
t-statistics	(8.01*)	(22.68*)	(24.28*)

Note: * denotes statistical significance at the 1% level.

Concluding Remarks and Recommendations

This study makes an effort to reevaluate the connection that exists in India between expanding credit and expanding economic production. Earlier efforts on the credit and output nexus were either carried out with a small data set or without placing a strong focus on panel data analysis. Both of these approaches had their limitations. This paper collected annual data on Net State Domestic Product and Total Commercial Bank Credit Outstanding for the period 1981-2002 from various publications of Reserve Bank of India (RBI) and Central Statistical Organisation in order to have larger data sets with which to evaluate the credit-output relationship. This was done with the intention of having more information with which to analyse the credit-output relationship (CSO). This study classified the full panel data sample into three sets, namely, I BIMAARU states, which are considered to be backward states; (ii) Nine developed Indian states; and (iii) full sample panel data sets, which include both BIMAARU and developed states. The purpose of this study was to determine whether the credit-output relationship is different between developed and backward states.

The preliminary investigation into credit growth and output growth revealed the following: I a support for independent credit growth / output growth was evidenced in BIMAARU states as well as Nine developed states; (ii) the correlation co-efficient suggested a significant relationship between credit growth and output growth in developed Indian states as compared to BIMAARU states in India. Because the coefficient of correlation indicates the direction of the relationship (whether it is a positive or negative relationship), it is necessary to determine the extent of the connection that exists between the expansion of credit and the expansion of output by using models such as Panel Cointegration and Fully Modified Ordinary Least Squares (FMOLS). In addition, when conducting empirical estimation of the relationship between credit and output, it is preferable to take into account the influence of time series as well as cross sectional dimensions. This is on account of the belief that doing so can explain the relationship between credit and output better than doing so either with a focus on time series or with a focus on cross sectional dimensions. In light of the fact that both credit growth and output growth were found to have panel unit roots according to IPS panel unit root, this research utilised Pedroni's Panel co-integration framework in order to determine whether or not there is a long-term relationship between credit and output among the various Indian states. The findings demonstrated the existence of a long-run co-integration link between the expansion of credit and the expansion of output throughout the various states of India, including both developed and backward Indian

states. It indicates that the credit-output connection across Indian states in the short term may have a tendency to wander quite far from one another, but in the long run, they have reverted to a movement that is similar across all Indian states. As a consequence of this, financial development is seen as a primary factor in the expansion of the economy of Indian states.

According to the findings of FMOLS, the sensitivity of the link between credit and output is lower in BIMAARU states, and there is a need for a clear intervention on the part of the government or regulatory agencies in order to encourage credit output growth. In addition, the poor credit-output link may also be the result of inefficient structural or regulatory difficulties in activities related to the real sector. If I the structural challenges in real sector industries and (ii) the incorrect support of credit mechanism are addressed, it is possible that BIMAARU states may see a robust relationship between credit and production.

REFERENCES

1. Arestis, P. and Demetriades, P. (1997), "Financial development and economic growth: assessing the evidence" Economic Journal 107,442
2. Berthe´lemy, J.-C., and A. Varoudakis (1998), "De´veloppement financier, re´formes financie´res et croissance: une approche en donne´es de panel", Revue e´conomique 49, 195– 207
3. Buffie, E. F. (1984), "Financial repression, the new structuralists, and stabilization policy in semi-industrialized economics, Journal of Development Economics, 14, 305-22.
4. Demetriades, P. and Hussein, K. (1996), "Does financial development cause economic growth? Time-series evidence from 16 countries", Journal of Development Economics 51,387-411.
5. Demetriades, P. and Luintel, K. (1996), "Financial development, economic growth and bankingsector controls: evidence from India", Economic Journal, 106, 359–74.
6. FitzGerald Valpy(2006), "Financial development and economic Growth: A Critical View",
7. Background paper for World Economic and Social Survey 2006
8. Fry, M. J. (1995), Money, Interest and Banking in Economic Development, Johns Hopkins University Press, Baltimore.
9. Gelb, A. H. (1989), "Financial policies, growth and efficiency", Policy Planning and Research Working Papers, No. 202, World Bank.
10. Goldsmith R W (1969), Financial Structure and Development• New Haven: Yale University Press,
11. Gupta, K.L. (1984), Finance and Economic Growth in Developing Countries, Croom Helm, London.
12. Güryay Erdal, Okan Veli Şafakli, Behiye Tüzel(2007), "Financial dvelopment and eonomic gowth: Evidence from Northern Cyprus", International Research Journal of Finance andEconomics, 8, 57-62.
13. Im, K. S., Pesaran, M. H. and Shin, S. (1995): "Testing for Unit Roots in Heterogeneous Panels", Mimeo, Department of Applied Economics, University of Cambridge.
14. Im, K.S., Pesaran, M.H., and Y. Shin (1997): "Testing for unit roots in heterogeneous panels", Mimeo, Department of Applied Economics, University of Cambridge.
15. Jung, W. S. (1986), "Financial development and economic Growth: International evidence",
16. Economic Development and Cultural Change, Vol. 34, No. 2, PP. 333-346
17. King, Robert G. and Levine Ross (1993), "Finance and growth: Schumpeter might be right",
18. Quarterly Journal of Economics, Vol.108 (3), pp. 717-738.