GROWTH AND STRUCTURAL CHANGE IN INDIA'S FINANCIAL SERVICES

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Abstract

A striking feature of India's growth performance over the two decades has been the strength of the service sector. The service sector emerged as the major sector of the economy both in terms of growth rates as well as its share in GDP in 1990s. The share of subsectors of services in GDP like transport, storage and communication and banking, insurance and business services have increased substantially. These two broad subsectors are considered as the modern dynamic components of service sector which are primarily instrumental in the India's service sector growth. The purpose of this paper is mainly on determining the turning points of growth, suggesting that these growth patterns were different resulting from the pattern of structural change in GDP, financial sector and sub-sectors of financial services sector in India from 1950-2010. The paper deals with the endogenous multiple structural breaks developed by Bai Perron (1998, 2003) and the Boyce method (1986) of estimating kinked exponential models for growth rate. The paper further tries to establish the relationship between financial services and the non-financial sector using a cointegration analysis.

The paper asserts with broad four regimes of growth of India's services GDP and the plausible reasons for the corresponding growth of financial services in its process. The main policies that contributed to the acceleration of growth rates since the 1980s were the government liberalised credit for big borrowers, gave tax concession to large investors, and allowed the private sector to borrow directly from the public. The period from the 1990s brought about the private organized sector led crucial strengthening of services dominated growth trajectory with the opening up of the economy along with the increased investments, growing consumption and the outsourcing boom boosted the growth of the software sector. The banking sector reforms of 1992 and 1995 formulated major policies in the financial sector as a part of the liberalisation process such as providing licenses to private sector banks, opening of the insurance sector, etc. Real estate sector development has been backed by both demand factors such as unfulfilled demand of dwelling units and lack of infrastructure and supply side factors such as increased rationalisation of tax structure, reduced borrowings cost and tax benefits to loan seekers, etc. The highest growth in banking and finance met the demand for personal loans, thereby leading to real estate boom. The paper finally establishes a long standing literature of finance-led growth when there exist a positive bi-directional relationship between financial services sector and non-financial sector. The financial sector like banking and insurance has been able to facilitate the growth of the other sectors in the form of financial intermediation.

Keywords: *Endogenous Structural Breaks, Unit Root, Financial Services, Growth of GDP, Indian Economy*

JEL Classifications: *C22, O47*

Introduction

A striking feature of India's growth performance over the two decades has been the strength of the service sector. Service sector in India has played the role of engine of growth in its structural transformation. India's growth performance has been diverse yet fascinating. From a slow growing nation in the 1950s until 1980s, India moved to a high growth path in terms of real GDP following the initiation of the economic reforms in 1991. Except for serious downturn since 2007 due to the onset of global recession, India in recent years has become the second fastest growing nation in the world, second only to China, and this has been continuing systematically over the years. The growth processes in the Indian economy and its change over time, both sectorally and spatially, are major issues for economists and policy makers.

India was designated as an agricultural country with a highest share of agricultural output initially just after independence. Recent acceleration in her growth performance, is however, driven by service sector , which picked up in the 1980s, accelerated in the 1990s, and further accelerated after 2000-01, when it averaged 8.8% per annum. Interestingly, since 2005-06, it has been growing at the rate of 9.8% per annum, though in 2010, it decelerated negligibly due to the onset of global recession. The emergence of services as the most dynamic sector in the Indian economy has in many ways been phenomenal.

This paper takes a comprehensive investigation into India's service sector, the main growth engine for Indian economy over past two decades. The share of subsectors of services in GDP like transport, storage and communication and banking, insurance and business services have increased substantially. These two broad subsectors are considered as the modern dynamic components of service sector which are primarily instrumental in the India's service sector growth. The paper tries to see how the financial sector in India along with its components has grown over time, and how far the financial sector has contributed to the growth of India's GDP. The purpose of this paper is mainly on determining the turning points of growth, suggesting that these growth patterns were different resulting from the pattern of structural change in GDP, financial sector and sub-sectors of financial services sector in India from 1950-2010. This paper is divided into five sections. Section I considers a selective survey of literature regarding India's service sector growth. Section II discusses the overall macro perspective of India's service sector experience. Section III discusses the data used and the method of multiple structural break used by Bai-Perron (1998,2003) and the corresponding method of estimating growth rate by using the semi-logarithmic kinked model used by Boyce (1986) is explained here. The method of cointegration to establish a long run relationship between the financial sector and non-financial sector is also discussed here. Section IV gives a detailed interpretation of the results of the tests on structural change in India's financial sector growth. It also determines the influence of the financial sector on the non-financial sector. Section V summarises the study.

Section I: A Selective Literature Survey on Service Sector Growth with particular emphasis to financial sector services in India

The standard format of change during economic development, as suggested by development theorists, has been movements from the primary to secondary to tertiary sector activities. As economy develops, the share of agricultural sector reduces and manufacturing increases, and at a later stage, the share of service activities expands. In the process of economic growth, Kaldor (1967) suggested that manufacturing sector is the engine of growth, as the potential for productivity growth is highest in this sector. However, Kuznets (1966) also suggested on the basis of the empirical evidences from developed countries that tertiary sector expands in relative terms only after the secondary sector has already acquired dominance both in terms of value-added and work-force in the process of rapid industrialization. But in context of developing countries, the phenomenon of a relatively large tertiary sector could be evident much before the secondary sector could acquire a reasonable size of at least one-third in terms of value added or work force.

According to traditional development theory, share of services in GDP is supposedly linked with development of the country. In India, some paradoxical developments are observed due to a rapid transition from agriculture to services with industry lagging behind. Many studies have engaged to explain this paradox. A recent study done by the World Bank by Gordon and Gupta (2004) suggested that in the last 10 years, the growth of GDP has been largely substantiated by the growth of the service sector. The studies were pursued in the Indian context started with Bhattacharya and Mitra, (1989), (1990), (1991) and (1997), Datta, (1989) and Mitra, (1989). Some of the subsectors within the tertiary sector, which are crucial for the growth of industry and the rest of the economy, like transport, storage and communication, and financial and business services, have been expanding during this period.

Bhattacharya and Mitra (1989) stated that higher the discrepancy between the industry and agriculture growth, the higher is the growth of services across Indian states, implying that higher levels of per capita income originating from industrialisation leads to higher demand for services. In a later work Bhattacharya and Mitra (1990) argued that a wide disparity arising between the growth of income from services and commodity producing sector tends to result in inflation.Using data on a cross section of developed and developing economies over the period from 1950-2005, Eichengreen and Gupta (2009) identified two waves of service sector growth: first wave as a country moves from 'low' to 'middle' income status, and second wave as it moves from 'middle' to 'high' income status. According to them, the first wave primarily consists of traditional services, whilst the second wave comprises modern services.

In the literature on structural break in India's GDP, several studies like Nagraj (1990), (1991), Dholakia (1994), Panagaria (2004), Wallack (2004) Nagraj (2006), Nayyar (2006), Balakrishnan & Permeshwaran (2007, 2007a), Dholakia (2007), Dholakia & Sapre (2011) attempted to examine the question of structural breaks in the long-term trend growth of the Indian economy at an aggregate and sectoral level. The identification of structural breaks in the growth path is essential for analysing the changes and for evaluating the impact of shifts in policy regimes in the economy. The results of these studies have established on some specific break dates and hence there has been a disagreement about the impact of the shifts in policy regime in the country.

In recent times, there has been much discussion about the trend break in India's growth rate of GDP (DeLong, 2003; Wallack, 2004; Rodrick and Subramanian, 2004; Virmani, 2004; Sinha and Tejani, 2004). DeLong (2003) argued that the growth rate accelerated from the traditional 'Hindu' growth rate during the rule of the Rajiv Gandhi-led Congress government in the mid-1980s. This, he associated with the economic reforms that took place during Rajiv Gandhi's tenure. Wallack (2004) makes an attempt to econometrically determine the dates on which shifts in the growth rate could have taken place. As far as GDP growth is concerned, she finds that 1980 was the most significant date for the break, whereas the break in GNP growth took place in 1987. She finds a significant break in the trade, transport, storage and communication growth rate in 1992, but fails to find statistically significant break dates for the primary and secondary sectors as well as public administration, defence and other services. Pangariya (2004), countering DeLong, argues that the growth in the 1980s was fragile and unsustainable. On the other hand, the more systematic and systemic reforms of the 1990s gave rise to more sustainable and stable growth. Sinha and Tejani (2004) argue that the period around 1980-81 marked the break in growth in India's GDP. They argue that the major factor behind the growth in the 1980s was improvements in labour productivity, propelled by imports of higher quality machinery and capital goods. All the above papers implicitly contain an evaluation of economic policy from independence to the onset of economic reforms at some date, even though authors differ about the specific dates. Some, like Pangariya, would like to place the beginning of reforms in the 1990s, while others like Sinha and Tejani would extend it backwards to the early 1980s. The general evaluation of economic policy between 1951 and the author-specific trend break date is overall pessimistic, with the possible exception of DeLong (2003).

However, for some important series like growth in real GDP, there has been a discussion among macroeconomists regarding the timing of the structural break. One contention is that there was a structural break in 1980-81 in the case of India's aggregate real GDP. DeLong (2003) argues that the growth rate accelerated from the traditional "Hindu" growth rate during the mid-1980s. Wallack (2004) finds that for GDP growth, 1980 was the most significant date for the break. Rodrick and Subramanian (2004) computed, using the procedure described in Bai and Perron (1998, 2003), the optimal one, two, and three break points for the growth rate of four series: per capita GDP computed at constant dollars and at PPP prices, GDP per worker, and total factor productivity. In all four cases, they find that the single break occurs in 1979. Panagariya (2004) has found that the reforms of the 1990s gave rise to more sustainable and stable growth. Balakrishnan and Parmeswaran (2007) identify 1979-80 as the single break date for GDP. For different sectors individually also break dates have been specified. Roy Choudhury and Chatterjee (2016) also determined multiple structural breaks using Bai- Perron methodology with a larger timespan and using both the pure and partial structural break methods. Dholakia and Sapre (2011) argues that use of different sample periods and different length of the partitionusing the Bai-Perron methodology can lead to different break dates and endogenous determination of break dates may not necessarily lead to unique answers.

On the literature of the financial sector and growth, in recent times a large body of literature has emerged that asserts the role of financial intermediation in the macroeconomic models. The bank is the institution through which savings are channelized into investment in the absence of a perfect insurance market for loans. Thus the process is conducive to growth in the real economy. Levine (2004) gives an excellent survey of this literature. On the other hand, a large number of noted economists hold diametrically just the opposite view. For example, Robinson (1952) argued that the development of financial markets and institutions simply follows growth in the real sector. Lucas (1988) stated that the role of financial markets is overstressed in the growth process. There is a third view that sees the role of finance in growth as a *negative* one. The proponents of this view argue that the development of financial systems hinders growth by reducing the availability of loans to domestic firms. This happens because, as financial development in the formal sector takes place, borrowers shift from the informal to the formal sector for loans. As a result the total supply of credit shrinks, which affects the growth process in the negative direction.

There are three running hypotheses in the literature on finance and growth, of which the first one dominates the literature. The empirical evidence generally supports the first hypothesis though researchers have often found a bi-directional causality. The general strategy in the empirical literature on finance and growth has been to test the hypothesis of association between the level of financial development and the growth rate of GDP or GNP. The econometric tests are employed for cross-section, time series and panel data.

Section II: Data and Methodology

The analysis of structural break in India's growth pattern is based on data from Central Statistical Organisation's National Accounts Statistics (NAS), 2004-05 base year series, NAS 2011, and the NAS 2004-05 base year back series, between the entire period from 1950-51 to 2009-10. The overall growth performances of broad sectors of India's economy are shown in Table 1, and that of the subsector of services are reported in Table 2. The growth of the services sector in India has shown an enormous rise since the mid-1980s and subsequently increased by leaps and bounds thereafter in the post globalisation era.

Table 1: Share of agriculture, industry, services in GDP and decadal growth rates

Year	1950-51 Share in GDP	1960-61 Share in GDP (Average Decadal Growth)	1970-71 Share in GDP (Average Decadal Growth)	1980-81 Share in GDP (Average Decadal Growth)	1990-91 Share in GDP (Average Decadal Growth)	2000-01 Share in GDP (Average Decadal Growth)	2009-10 Share in GDP (Average Decadal Growth)
Agriculture	55.28	50.81 (2.55)	44.31 (2.51)	37.92 (1.26)	31.37 (4.41)	23.89 (3.24)	15.68 (2.42)
Industry	15.08	18.75 (5.15)	22.10 (6.47)	24.04 (3.64)	25.92 (5.97)	25.80 (5.64)	26.78 (7.85)
Services	29.64	30.43 (3.71)	33.59 (4.84)	38.04 (4.44)	42.71 (6.53)	50.31 (7.28)	57.53 (8.80)
GDP	100	100 (3.30)	100 (4.00)	100 (2.91)	100 (5.62)	100 (5.68)	100 (7.22)

Source: Handbook of Statistics on Indian Economy, Reserve Bank of India
National Accounts Statistics, Central Statistical Organisation
Note: The contribution of sectoral shares as a percentage of GDP is taken at factor cost with 2004-05 asbase year.

The service sector emerged as the major sector of the economy both in terms of growth rates as well as its share in GDP in 1990s.It is to be noted here that while agriculture and manufacturing sectors have experienced phases of deceleration, stagnation and growth, the service sector has shown a uniform increasing growth trend during the period 1950-51 to 2009-2010.

Table 2: Share of Subsector of services in India's services GDP and aggregate GDP

Sector	1970-71 Share in Services GDP (Share in GDP) {Average Annual Decadal Growth Rate}	1980-81 Share in Services GDP (Share in GDP) {Average Annual Decadal Growth Rate}	1990-91 Share in Services GDP (Share in GDP) {Average Annual Decadal Growth Rate}	2000-01 Share in Services GDP (Share in GDP) {Average Annual Decadal Growth Rate}	2009-10 Share in Services GDP (Share in GDP) {Average Annual Decadal Growth Rate}
Trade, Hotel, Restaurants	31.84 (10.5) {5.18}	31.42 (11.89) {4.31}	29.29 (12.4) {5.93}	29.19 (14.55) {7.48}	28.60 (16.39) {8.22}
Transport, Storage, Communication	11.08 (3.6) {5.83}	13.12 (4.93) {5.84}	12.17 (5.18) {6.04}	13.32 (6.64) {7.49}	17.73 (10.16) {13.17}
Banking, Insurance and Business Services	22.29 (7.41) {3.21}	21.6 (8.1) {4.31}	26.79 (11.41) {8.67}	28.12 (14.02) {8.05}	29.97 (17.17) {9.23}
Community, Social and Personal services	34.77 (11.56) {5.24}	33.81 (12.73) {4.13}	31.73 (13.51) {5.90}	29.35 (14.63) {6.46}	23.68 (13.56) {6.77}

Source: Handbook of Statistics on Indian Economy, Reserve Bank of India
National Accounts Statistics, Central Statistical Organisation.
Note: The share and growth of subsector of services in services and GDP is calculated with 2004-05 as base year.

The share of subsectors in aggregate GDP like transport, storage and communication and banking, insurance and business services have increased substantially. These two broad subsectors are considered as the modern dynamic components of India’s service sector. The other two sectors like trade, hotel and restaurants and community, social and personal services have shown in decrease in its share in aggregate GDP. These two subsectors are generally defined as the traditional components of services. The dyanamic components are primarily instrumental in the growth of India’s service sector, while these traditional components somewhat donot influence much to the growth of India’s service sector.

But the share of the financial sector can further be stated as the sum of the share of the services in banking and insurance sector and real estate, ownership of dwellings and business services sector. The share of the banking and insurance sector had increased many fold in the last four decades, i.e from 23.17% in 1970-71 to 45.86% in 2009-10. The financial sector mainly the banking and insurance sector is the fast growing sector of the Indian economy. However, the share of the real estate, ownership of dwellings and business services sector has shown a decline from 78.99% in 1970-71 to 54.14% in 2009-10. It needs to be ascertained that the contribution of the financial sector’s share in total services is huge compared to the other services. Moreover, the share of banking and insurance sector in GDP has increased frpm 1.72% in 1970-71 to 7.88% in 2009-10. The share of the real estate, ownership of dwellings and business services sector in GDP has also increased from 5.86% from 1970-71 to 9.30% to 2009-10. The decadal growth rates of both the sub-sectors of the finacial sector grew over time. The banking and insuarnce sector showed a double digit decadal growth rate from the 1990s to the end of 2009-10. The banking and insurance sector is considered as the most steady and the fastest growing sector in the Indian economy, especially after the commencement of economic reforms in India. The other broad financial sector which comprises real estate, ownership of dwellings and business services also grew at a faster rate, especially after the 1990s. The reasons for this huge growth may be due to the various fical policy recommendation on the financial sector reforms.

Table 3: Share of Subsector of financial services in India's financial services GDP, services GDP and aggregate GDP

Sector	1970-71 Share in financial services GDP (Share in Services GDP) {Share in GDP} [Average Annual Decadal Growth	1980-81 Share in financial services GDP (Share in Services GDP) {Share in GDP} [Average Annual Decadal Growth	1990-91 Share in financial services GDP (Share in Services GDP) {Share in GDP} [Average Annual Decadal Growth	2000-01 Share in financial services GDP (Share in Services GDP) {Share in GDP} [Average Annual Decadal Growth	2009-10 Share in financial services GDP (Share in Services GDP) {Share in GDP} [Average Annual Decadal Growth

	Rate]	Rate]	Rate]	Rate]	Rate]
Banking and Insurance	23.17 (22.68) {1.72} [5.74]	29.21 (28.67) (2.38) [7.82]	33.63 (33.29) {3.87} [10.5]	39.00 (37.22) {5.48} [10.03]	45.86 (44.28) {7.88} [9.04]
Real Estate, Ownership of Dwellings and Business Services	78.99 (77.32) {5.86} [3.21]	72.66 (71.33) {5.92} [3.13]	67.40 (66.71) {7.76} [7.68]	63.85 (62.08) {8.97} [7.40]	54.14 (52.25) {9.30} [7.90]

Source: Handbook of Statistics on Indian Economy, Reserve Bank of India
National Accounts Statistics, Central Statistical Organisation

Note: The contribution of sectoral shares as a percentage of GDP is taken at factor cost with 2004-05 as base year.

However, these broad macroeconomic data though provides for more than a somewhat cursory supposition of the forces at work and certainly do not make a definitive statement on the nature of services growth and its breaks. A detailed analytical research is required to examine the forces involved in such a high growth in the service sector specially the financial sector in India especially in the post liberalisation era.

Before analyzing the trend breaks in the time–series of GDP and its components, it is appropriate to examine whether the series is stationary or not with the help of unit root test. There are a number of methods of unit root tests, namely Dickey-Fuller test, Augmented Dickey Fuller test, Phillips Perron test, etc. all of which have become very popular and important. But it needs to be mentioned at this point that there has been increasing trend in improving the methodology of unit root test as well. For instance, Perron (1989) shows that the test of unit roots that do not follow a structural break, if there is instead structural break(s), are biased in favour of non-stationarity.

The three steps involved in the whole exercise of estimating the time trend of services. First, the structural break test has been tested for the data series on services following the methodology suggested by Bai and Perron (1998). Then the presence of unit root with structural break including the break point has been tested using the methods suggested by Banerjee, Lumsdaine and Papell (1992) and Lumsdaine and Stock (1997). Finally the trend growth rate of GDP, services and sub-sectoral services are estimated using the Boyce (1986) method in various sub-periods. However, a further extension of this research paper is to formally ascertain the influence of the financial services on the non-financial sector, establishing a long drawn conclusion of finance led growth conjecture.

Test for structural Break: Bai-Perron Test

Both the statistics and economics literature contains a vast amount of work on the issues related to structural change, most of it specifically designed for the case of a single change. But most macroeconomic time series usually can contain more than one structural break. The econometrics literature has witnessed recently an upsurge of interest in extending procedure to various models with unknown breakpoint. With respect to the problem of testing for structural change, recent contribution include the treatment by Andrews (1993a, 1993b), Andrews, Lee, & Ploberger (1994, 1996) and Bai and Perron (1998,2003). In this section, Bai and Perron (1998) method is used in order to examine if there are any structural break in the series. To that effect, Bai and Perron (1998) provide a comprehensive analysis of several issues in the context of multiple structural change models and are helpful to endogenously determine the points of break with no prior knowledge.

The details of the methodology on structural break may be found in Bai and Perron (1998). We consider the following linear regression with m breaks (m+1 regime):

$$y_t = x_t{'}\beta + z_t{'}\delta_j + \mu_t, t = T_{j-1}, \ldots\ldots\ldots\ldots T \qquad 1$$

(j=1,……,m+1, T_0=0 and T_{m+1}=T)

wherey_t is the observed dependent variable, $x_t \in \Re^p$ and $z_t \in \Re^q$ are vectors of covariates, β and $\delta_j$are the corresponding vectors of coefficients with $\delta_i \neq \delta_{i+1} (1 \leq i \leq m)$ and μ_t is the error term at time *t*. The break dates *(T_1,….,T_m)* are explicitly regarded as unknown. It may be noted that this is a partial structural change model insofar as β doesn't shift and is effectively estimated over the entire sample. Then the purpose is to estimate the unknown regression coefficients and the break dates, that is to say *(β, δ_1 ,…… δ_{m+1}, T_1,….,T_m)*, when T observations on *(y_t ,x_t, z_t)* are available.Note that this is a partial change model in the sense that β is not subject to shifts and is effectively estimated using the entire sample.

Bai and Perrron (1998) built a method of estimation based on the least square principle. For an m-partition *(T_1,….,T_m)*, denoted $\{T_j\}$, the associated least square estimator of δ_i is obtained by minimizing the sum of squared residuals $\sum_{i=1}^{m+1} \sum_{t=Ti-1}^{Ti} [y_t - x_t{'}\beta + z_t{'}\delta_j]^2$ under the constraint $\delta_i \neq \delta_{i+1} (1 \leq i \leq m)$. Let $\hat{\delta}(\{T_j\})$ be the resulting estimate. Substituting it in the objective function and denoting the resulting sum of squared residuals as $S_T(T_1,\ldots,T_m)$, the estimated break dates $(\hat{T}_1,\ldots\ldots\hat{T}_m)$ are such that

$$(\hat{T}_1,\ldots\ldots\hat{T}_m) = \arg\min_{T_1\ldots\ldots T_m} S_T(T_1,\ldots\ldots Tm) \qquad 2$$

where the minimisation is taken over all partitions $(T_1,\ldots,T_m)$ such as $T_i - T_{i-1} \geq [\varepsilon T]$. The term $[\varepsilon T]$ is interpreted as the minimal number of observations in each segment. Thus the breakpoint estimators are global estimators are global minimisers of the objective function. Finally, the regression parameter estimates are obtained using the associate least-squares estimates at the estimated m-partition, $\{\hat{T}_j\} i, e. \hat{\delta} = \hat{\delta}(\{\hat{T}_j\})$

Kinked Exponential Models for Growth Rate Estimation

Next, after having determined the breakpoints by the Bai and Perron (1998) test, the calculations of the sub-period growth rates are examined using the kinked semi-logarithmic trend equation used by Boyce (1986). The usual technique for estimating growth rates in the sub-periods of a time series is to fit separate exponential trend lines by ordinary least squares to each segment of the series. These trend lines are likely to be discontinuous, which can result in anomalies such as sub-period growth rates which can exceed, or are less than, the estimated growth rate for the period as a whole. Discontinuities between segments of a piece-wise regression can be eliminated via the imposition of linear restrictions. Kinked exponential models with one, two and multiple kink points are derived and are estimated with standard OLS regression packages.

For the generalized kinked exponential model for *m* sub-periods and *m – 1* kinks. Let the kink points be denoted as $k_1,\ldots,k_{m-1}$, and the sub-period dummy variables as $D_1,\ldots,D_m$. The unrestricted model for joint estimation of the sub-period growth rates, with no continuity requirement imposed, is given by,

$$\ln y_t = a_1 D_1 + a_2 D_2 + \ldots\ldots + a_m D_m + (\beta_1 D_1 + \beta_2 D_2 + \ldots\ldots + \beta_m D_m)t + u_t. \qquad 3$$

Appling the appropriate *m-1* linear restrictions,

$$a_i + \beta i k i = a_{i+1} + \beta_{i+1} k i. \quad \text{for} \quad \text{all } i = 1,2,......,m-1 \qquad 4$$

we obtain the generalized kinked exponential model:

$$\ln y_t = a_1 + \beta_1(D_1 t + \sum_{j=1}^{m} D_j k_1) + \beta_2(D_2 t - \sum_{j=2}^{m} D_j k_1 + \sum_{j=3}^{m} D_j k_2)........$$
$$+ \beta_i(D_i t - \sum_{j=i}^{m} D_j k_{i-1} + \sum_{j=i+1}^{m} D_j k_i) + ... + \beta_m(D_m t - D_m k_{m-1}) + u_t. \qquad 5$$

The number of sub-periods into which a given time series can be meaningfully partitioned will vary from case to caseand the novelty of this approach of calculating growth rates is that it not only uses the break points years but also uses the time points where the structural breaks have occurred.

Cointegration

Cointegration methods have been very popular tools in applied economic work since their introduction. The concept of cointegration, as introduced by Granger (1981), uses an important property of $I(1)$ variables *viz.*, there can be linear combinations of these variables that are $I(0)$ In case there indeed exist such linear combinations, then the variables are said to be cointegrated. Suppose that there are two $I(1)$ variables, y_t and x_t, then y_t and x_t are said to be cointegrated if there exists a β such that $y_t - \beta x_t$ is $I(0)$. This is denoted by stating that y_t and x_t are $CI(1,1)$. This means that the regression equation

$$y_t = \beta x_t + u_t \qquad 10$$

makes sense since y_t and x_t do not drift too far apart from each other over time. Thus, there is a long-run equilibrium relationship between the two variables. In case y_t and x_t are not cointegrated, then $y_t - \beta x_t = u_t$is also $I(1)$, and hence these two variables would drift apart from each other over time. Any relationship between the two, which is obtained by regressing y_t on x_t, would then be spurious.

Since cointegration necessitates that all the variables be integrated of order one, the first step in testing for cointegration requires testing for the order of integration for each of the variables involved in the single equation. The standard unit root tests like the augmented Dickey – Fuller (ADF) test by Said and Dickey (1984) and Phillips – Perron (PP) test (1988) are applied to each of the variables to infer about their orders of integration. In case all the variables are $I(0)$ i.e., all are stationary series, then the issue of cointegration does not obviously arise and the standard time series models for stationary series may be applied. If the variables are integrated of different orders, it is then concluded that these variables are not cointegrated but various subsets may be cointegrated in case there are three or more variables in the equation. If the results of unit root tests indicate that each of the variables is $I(1)$, then we need to test for cointegration.

Johansen's procedure

This procedure begins with a vector autoregressive (VAR) model. For a set of K time series variables $y_t = (y_{1t} y_{2t} \ldots y_{Kt})'$, each being $I(1)$, a VAR model captures their dynamic interactions. The basic model of order p, called $VAR(p)$, has the form

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + \ldots + A_p y_{t-p} + u_t, t = 1, \ldots, T \qquad 11$$

where $A_i (i = 1,2,....., p)$ are $(K \times K)$ coefficient matrices and $u_t = (u_{1t} u_{2t} \ldots u_{Kt})'$ is the unobservable error term. u_t is usually assumed to be an independent white noise process with zero mean and time invariant, positive definite covariance matrix $E(u_t u_t') = \Sigma_u$ i.e., u_t's are independent stochastic vectors with $u_t \sim (0, \Sigma_u)$. Johansen's procedure applies the method of maximum likelihood (ML) to the $VAR(p)$ model assuming that the errors i.e., u_t's, are Gaussian. Although the VAR model (A2) is general enough to accommodate variables with stochastic trends, it is not the most suitable representation if one is primarily interested in cointegrating relations because they do not appear explicitly in the representation. By subtracting y_{t-1} from both sides of (11) and then rearranging terms, (11) can easily be shown to reduce to

$$\Delta y_t = \Pi y_{t-1} + \Gamma_1 \Delta y_{t-1} + ... + \Gamma_{p-1} \Delta y_{t-p+1} + \mu Dt + u_t \qquad 12$$

where $\Pi = -\left(I_K - \sum_{i=1}^{p} A_i \right)$ and $\Gamma_i = -\sum_{j=i+1}^{p} A_j, i = 1,2, \ldots, p-1$ and *Yt*is the column vector of the current values of all the variables in the system (integrated of order one), *Dt*is a matrix of deterministic variables such as an intercept and time trend u_t is the vector of errors are assumed to be an independent white noise process; The p is the number of lag periods included in this model, which is determined by using the Akaike Information Criterion (AIC) and Schwartz Bayesian Criterion (BIC). The first term in equation (12) captures the long-run effects on the regressors and the other term captures the short-run impact. It is worthwhile to note that (12) is nothing but the vector error correction model (VECM) or, more appropriately, VECM of order $p-1$, and therefore, a more convenient modeling set-up for cointegration analysis.

By our assumption of y_t being a $K \times 1$ vector of $I(1)$ variables, $\Delta y_{t-1}, \ldots, \Delta y_{t-p+1}$ are all $K \times 1$ vectors of $I(0)$ variables, but y_{t-1} in the right hand side of 4 is $I(1)$. Hence, in order that the system of equations is consistent, Πy_{t-1} must also be $I(0)$. It may be noted that a VECM is a restricted VAR that has cointegration restrictions built into the specification so that it is used for non-stationary series that are known to be cointegrated. The VECM specification restricts the long-run behaviour of the endogenous variables to converge to their cointegrating relationships while allowing a wide range of short-run dynamics. The cointegration term is the error correction term as it captures the deviation from the long-run equilibrium through a series of partial short-run adjustments.

Now, for Πy_{t-1} to be $I(0)$, Π should not be of full rank. Let its rank be r then Π can be written as product of two matrices α and β i.e., $\Pi = \alpha\beta'$ where each of α and β is a $K \times r$ matrix of rank r. Then $\beta' y_{t-1}$ are the r cointegratingrelations. The rank of Π is, therefore, referred to as the cointegrating rank of the system. β' is the matrix of coefficients of the cointegrating vectors (or, cointegrating matrix, in short) and α is the matrix of weights attached to the cointegrating relations, or, sometimes called the loading matrix. The matrices α and β are not unique, and thus there are many possible α and β matrices that contain the cointegrating relations or linear transformations of them. In fact, using any nonsingular $r \times r$ matrix B, we have a new loading matrix αB and new cointegrating matrix $\beta B^{'-1}$, which satisfy $\Pi = \alpha B(\beta B^{'-1})'$. Consequently, cointegrating relations with economic content cannot be extracted purely from the observed time series. Some non-sample information is required to identify them uniquely.

Evidence for Cointegration

The cointegration rank is usually tested by using the maximum eigenvalue and trace statistics proposed by Johansen (1988).The long-run information of the series were taken into account in analyzing the short-run sectoral growth and the resulting model is a short-run error correction model.The number of distinct cointegrating vectors can be obtained by checking the significance of the characteristic roots of Π . This means that the rank of matrix is equal to the number of its characteristic roots that differ from zero. The test for the number of characteristics roots that are insignificantly different from unity can be conducted using the following test statistics:

$$\lambda_{trace} = -T \sum_{i=r+1}^{K} \ln(1-\hat{\lambda}_i) \qquad 13$$

$$\lambda_{\max} = -T \ln \sum_{i=r+1}^{K} \left(1-\hat{\lambda}_{r+1}\right) \qquad 14$$

Where $\hat{\lambda}_i$ is the estimated values of the characteristics roots (called eigenvalues) obtained from the estimated matrix λ and T is the number of usable observations. The first, called the trace test, tests the hypothesis that there are at most r cointegrating vectors. In this test, λ_{trace} equals zero when all λ_i are zero. The further the estimated characteristic roots are from zero, the more negative is $\ln(1-\hat{\lambda}_i)$ and the larger the λ_{trace} statistic. The testing sequence terminates and the corresponding cointegrating rank in the null hypothesis is selected when the null hypothesis cannot be rejected for the first time. In case the first null hypothesis in the sequence cannot be rejected, then it means that there is no cointegrating relationship involving the K $I(1)$ variables, and hence a VAR process in first difference is then considered for studying relationships involving the K variables. The second, called the maximum eigenvalue test, tests the hypothesis that there are r cointegrating vectors versus the hypothesis that there are r+1 cointegrating vectors. This means if the value of characteristic root is close to zero, then the $\lambda_{\max}$ will be small. Like the trace test, this test statistic also has a non-standard limiting distribution and this distribution depends on the specification of the deterministic terms. Further, the critical values are available in Johansen (1995b). While Johansen and Juselius (1990) have suggested that the maximum eigenvalue test may perform better, Lütkepohl, Saikkonen and Trenkler (2001) have found, based on their study comparing between trace and maximum eigenvalue tests, that the former sometimes has slightly more distorted sizes than the latter in small samples, but at the same time it i.e., the former, may also have some power advantages.

Section III: Results and Interpretation

In this section, the breakpoints in subsector of financial services, financial services, services and GDP are estimated using Bai and Perron methodology. For each individual variable, the model is characterized as:

Pure Structural break model: $y_t = c_j + \beta_j t + \rho_j y_{t-1} + u_t, t = T_{j-1}, \ldots\ldots\ldots T$ 15

Partial Structural break model: $y_t = c_j + \beta_j t + \rho y_{t-1} + u_t, t = T_{j-1}, \ldots\ldots\ldots T$ 16

Therefore, the two structural breaks model differ in the way that in the generalized case, the break is taken into consideration with a variable deterministic trend coefficient β and autoregressive parameter ρ. The partial structural break model is restricted in the sense that it assumes the autoregressive parameter, ρ, to be constant.

In order to detect for the structural breaks, the steps suggested by this method are followed. First, the UDMAX and WDMAX statistics, which are double maximum tests, where the null hypothesis of no structural breaks is tests against the alternative of an unknown number of breaks, are calculated. These tests are used to determine if at least one structural break is present. Subsequently, the sup $F_T(0|l)$ which is a series of Wald tests for hypothesis of 0 breaks vs. l breaks are calculated. In the implementation of the procedure, a maximum up to 5 breaks is allowed and a trimming ε=0.05 which corresponds to each segment having at least 11 observations. If these tests show evidence of at least one structural break, then the number of breaks can be determined by the SupF(l+1/l). If the test is significant at the 5 per cent level, l+1 breaks are chosen.

This table provides the results following this procedure for specialised services and GDP. It may be observed that the *SupF(0|l)*, the UDMAX and WDMAX tests are all significant indicating that each series contains at least one break in its structure. Consequently, the number of breaks can be determined using the sequential test sup F_T (l+1/l). The results show that the value of the sup $F(0|l)$ test is statistically significant at the 5% level of significance for all l. The sequential Sup $F(l+1/l)$ is statistically significant up to l=3 for log value of specialised services and GDP. The results of the partial structural change model and the break dates of each series are provided by Bai and Perron (1998, 2003) is presented in Table 4.

Table 4: Results of the Bai Perron Partial Structural Break Model (1998,2003)

	Banking and Insurance	**Real estate, Ownership of dwellings and business services**	**Banking Insurance and Financial Services**	**Total Services**	**GDP**	**Non-Financial Sector**
Udmax	329.90*	388.24*	353.49*	351.59*	319.54*	317.25*
Wdmax	723.93*	840.19*	770.72*	771.27*	701.18*	696.16*
$SupF_T(0\|1)$	190.27*	235.47*	224.66*	223.60*	168.16*	161.32*
$SupF_T(0\|2)$	228.70*	267.21*	247.53*	248.48*	211.63*	208.95*
$SupF_T(0\|3)$	279.81*	330.56*	311.32*	314.94*	258.65*	254.86*
$SupF_T(0\|4)$	829.83*	388.24*	353.49*	351.59*	296.91*	296.77*
$SupF_T (0\|5)$	329.90*	382.88	351.22	351.48	319.53*	317.25*
$SupF_T(2\|1)$	39.84*	38.01*	39.30*	39.89*	36.87*	39.54*
$SupF_T(3\|2)$	67.11*	67.68*	64.23*	65.26*	73.00*	70.54*
$SupF_T(4\|3)$	18.29*	10.62	9.80	10.36	16.88*	15.49*
$SupF_T(5\|4)$	0.00	0.00	0.00	0.00	0.00	19.31*
Sequential	4	3	3	3	4	5
Estimated break dates with m=5	**1959, 1969, 1985, 1997**	**1972, 1987, 1999**	**1971, 1986, 1998**	**1971, 1986, 1998**	**1960, 1969, 1986, 1999**	**1959, 1968, 1977, 1986, 1999**

Notes: The number of breaks (in our case, five) has been determined according to the sequential procedure by Bai and Perron(1998), at the 5% size for the sequential test Sup F_T(l+1/l). SupF statistics estimated using Bai and Perron(1998,2003) methods, with Gauss mode available by Bai and Perron.
*: significant at the 5% level.

The results of the partial break model reveal that the first break in India's services and well as financial services in India occurred at 1971-72. This may be fallout of the nationalization of banks in 1969. The next two breaks for both the aggregate service sector as well as the financial services sector, as evident from economic policy change in India are at 1986-87 and 1998-99. Therefore, a break in the service sector of the Indian economy came during the Rajiv Gandhi led Government, much before the commencement of the new economic policy of 1991. Though the government after 1991 strategically and formally came up with the liberalization- privatization and globalization policy, the process of liberalization actually started to set in as early as the mid-1980s. However, the last break in the aggregate services and financial services comes during 1998-99 where the effect on the opening up of the economy with other financial sector reforms of 1992 and 1995 on the financial sector is clearly seen with the recorded highest rate of services growth and financial sector growth. This table also confirms the fact that the breakpoints in aggregate services GDP and financial services are the same, implying that the impact of the financial services sector growth actually determines the growth of the service sector as a whole. It further elaborates that the service sector growth as well as financial sector growth in India is not necessarily led by economic reforms of 1991. Moreover, the structural change in India's financial sector is similar to that of India's GDP emphasizing the fact that the financial services are the most dynamic sector in the structure change of India's GDP.

Several studies like Nagraj(1990,1991), Dholakia(1994), Panagariya (2004), Wallack (2004), Hatekar and Dongre(2005), Balakrishnan and Permeshwaran (2007), Dholakia (2007) have addressed the problem of estimation of structural break in the long term trend growth of the Indian economy at the aggregate and the sectoral level. Our results are found to be similar with the growth of GDP in India by Balakrishnan and Permeshwaran (2007) but have been little different from their results because of a different base year period and the length of the period under study. Even Wallack (2004) found that the first structural break in India's GDP growth rate to be at 1980-81.

Next, having found out the break points, the sub-period growth rates in the different sectors in the growth regimes in India are calculated. The model put forward by Boyce (1986) as a kinked exponential model for estimating growth gives the results illustrated in Table 5.

Table 5: Results of sub-period growth rates using the Boyce method(1986)

Sectors	Regime 1	Regime 2	Regime 3	Regime 4	Regime 5
Banking and Insurance	**8.01** (1950/51-1959/60)	**5.13** (1960/61-1969/70)	**8.12** (1970/71-1985/86)	**10.48** (1986/87-1997/98)	**10.05** (1998/99-2009/10)
Real Estate, Ownership of dwellings and business services	**2.32** 1950/51-1972/73)	**6.66** (1973/74-1987/88)	**7.83** (1987/88-1999/2000)	**7.59** (2000/01-2009/10)	
Banking Insurance and Financial Services	**2.91** (1950/51-1971/72)	**5.75** (1972/73-1986/87)	**8.84** (1987/88-1998/99)	**8.60** (1999/2000-2009/10)	
Total Services	**2.95** (1950/51-1971/72)	**5.68** (1972/73-1986/87)	**8.81** (1987/88-1998/99)	**8.53** (1999/2000-2009/10)	
GDP	**3.96** (1950/51-1960/61)	**3.32** (1962/63-1969/70)	**3.99** (1970/71-1986/87)	**5.88** (1987/88-1999/00)	**7.13** (2000/01-2009/10)

Note: The growth rates are significant at the 1% level.

The growth rates are very high, especially in the last two regimes for all the sub-sectors of financial services, aggregate services and GDP as a whole. The growth rate of financial sevices as well as total services seems to be similar. But, the growth rates have been seen to rise mostly from the mid-1980s. The initial periods actually have been growth rates which happen to be quite low as services as well as the financial sector did not grow at a faster rate as it did following the economic reforms in India. However, it needs to be mentioned that this growth rate is not reforms led as the rise in the growth rate started much earlier than the initiation of economic reforms. The banking and insurance sector grew at the fastest rate in the last two regimes. It must also be noted that the services sector as a whole and all the financial services subsector grew at a much faster rate than that of GDP.

To analyse the relationship between financial services sector and non-financial services sector, it was only during the 1980s and 1990s, especially after the economic reforms in India, the preponderance of the service sector is noticed with special reference to the financial sector. But how far this financial sector has affected or is influenced by the non-financial sectors needs to be assessed. The econometric methodology and results are presented in three steps. First, the order of integration of all the variables using unit root tests is established. Second, a Johansen–Juselius (JJ) co-integration test is conducted to find out whether there exits long-run relationship among all the variables, and third the VECM Granger causality test is conducted.

The two variables taken for this empirical study are the annual data of financial sector and non-financial sector for the period 1950-51 to 2009-10. Since these two sectors are expected to capture the behavior of overall Indian economy in terms of production structure and reflect the changing structural composition of the economy in terms of size, share and growth of the respective sectors, these two broad components of GDP time series are likely to have co-movement over time in a way so that in the long-run there is an equilibrium relationship involving the two indices.

The study uses time series analysis to understand the relationships among the sectors for India. At the outset of any cointegration exercise, it is required to check that all the variables are $I(1)$. Accordingly, the standard unit root tests *viz.,* the augmented Dickey Fuller (ADF) test and the Phillips – Perron (PP) test on the level values i.e., the log values of the broad sectors of GDP.

Table 6: Tests of Unit Root Hypothesis

Test statistic value				
Log of Series	Level		First difference	
	ADF	PP	ADF	PP

Financial Sector	-0.0419 (0.9948)	-0.1022 (0.9937)	-6.2713* (0.0000)	-6.2517 (0.0000)
Non-financial sector	0.1078 (0.9967)	1.2633 (0.9999)	-9.8617* (0.0000)	-10.5158 (0.0000)

Note: * indicates that the corresponding test statistic value is significant at 1% level of significance.

The values of these unit root tests of the two test statistics for the three series are shown in Table 3. It is evident from these values that the two series are non-stationary since the null hypothesis of unit root could not be rejected for any of the two series. Obviously, therefore, first difference of each series was then taken, and both the ADF and the PP test statistics were once again computed with these differenced values. The null hypothesis of unit root in the differenced series is rejected in favor of the alternative of stationarity for two series. Therefore, it can be concluded that each of the two time series on Indian components of GDP are integrated of the same order, $I(1)$ and the dataset therefore is appropriate for further analysis.

Johansen and Juselius(1992) developed a procedure to estimate a cointegrated system involving two or more variables. The procedure is independent of the choice of endogenous variables and it allows reseachers to estimate and test for the existence of more than one cointegrating vector in the multivariate system. The method is explained in the Appendix. Using Johansen's ML – based reduced rank (RR) regression procedure, λ_{trace} and $\lambda_{\max}$ test statistics were computed to determine the number of cointegrating vectors. As regards the choice between the two versions – the mean / trend adjusted and the intercept versions - from consideration of treating the deterministic terms, we have applied Johansen's intercept version for this cointegration exercise. The values of the two test statistics under the assumption of a constant term and a linear trend term in the cointegrating equation are reported in Table 9.

Table 7: Results of the Cointegration tests

Eigen value (λ_i)	Null hypothesis	Test statistic value	
		λ_{trace}	$\lambda_{\max}$
0.2866	$r = 0$	26.20*	19.58*
0.1078	$r = 1$	12.51	6.61

Note: * indicate significant values at 5% levels of significance, respectively. Critical values have been taken from Osterwald -Lenum (1992, Table 2*, p. 469) and Johansen (1995b). The lag order has been taken to be 1.

The table reveals that the value of λ_{trace} test statistic under the null hypothesis of no cointegration (i.e., H_0^0: r = 0) is 26.20 which is higher than the corresponding critical value of 25.87 at 5% critical value, and hence the conclusion is that the null of no cointegration is rejected in favour of cointegration involving the two time series. The next test for the null hypothesis in sequence *viz*., H_0^1: r =1, however indicates the null be rejected in favour of the corresponding r>1 as the computed value of λ_{trace} under this null *viz.*, 6.61 is smaller than the critical value of 12.51 at 5% level of significance. Thus the trace test λ_{trace} suggests that there can be at most one cointegrating relations involving these three variables.

The findings by the other variant of Johansen's test *viz.* $\lambda_{\max}$, also indicate the existence of at most one cointegrating relation at 5% level of significance. It is quite evident that the null hypothesis of r = 0 be rejected in favour of the alternative $r = 1$ because the test statistic value of 19.58 is greater than the critical value, 19.38 at 5% level of significance. However, the null hypothesis of r=1 cannot be rejected in favour of alternative r=2, as the value of the test statistic 6.61 is smaller than the critical value of 12.51. Therefore, both the trace test and maximum eigenvalue test confirms the presence of at most one cointegrating equation.

Long run relationship and short run VECM

After testing for co-integration, the long run relationship and the VECM procedure for the direction of causality between financial services and non-financial sector is evaluated. Here, the multivariate model is extended to allow for the simultaneity of all included variables. Therefore, first, by checking statistical significance of the lagged differences of the variables for each vector; this is so called short-run causality; and second, by testing the statistical significance of the error-correction term for the vector which explains the existence of a long-run relationship. Thus, this procedure has the dynamics or disequilibrium adjustment.

After normalizing with respect to financial sector, this cointegrating relation involving the two Indian components of GDP i.e. the financial sector and the non-financial sector has been obtained as,

$$lnFIRB = \underset{(13.13)\ ***}{1.6457\ lnnonFIRB} - 11.003 \qquad 17$$

[The t-ratio values are given in parentheses.]

where lnFIRB and lnnonFIRB stand for log values of financial sector and non-financial sector respectively. This results of this stable long run equation show that the coefficients of nonFIRB are significant at 5% level of significance in this estimated long-run relation involving the two major components of the Indian GDP. In India, in the process of transition, the financial sector established a positive relation with the non-financial sector and a finance-growth nexus is long recorded in the literature. This implies that an increase in the non-financial sector will affect the financial sector positively. The estimated VECM in the form of a structural VAR model which captures the short-run dynamics involving the two time series are presented in these following equations below.

Table 8 : Results of VECM model

Dependent Variable	Δ(lnFIRB(-1))	Δ(lnFIRB(-2))	Δ(lnnonFIRB(-1))	Δ(lnnonFIRB(-2))	ECM(-1)	C
Relationship between financials sector and non-financial sector						
ΔlnFIRB	0.18 (1.37)	0.28** (2.42)	0.27** (2.74)	-0.019 (-0.18)	-0.052** (-2.98)	0.02** (2.37)
ΔlnnonFIRB	0.25 (1.33)	0.22 (1.27)	-0.28* (-1.96)	-0.18 (-1.11)	0.00 (NA)	0.038** (2.85)

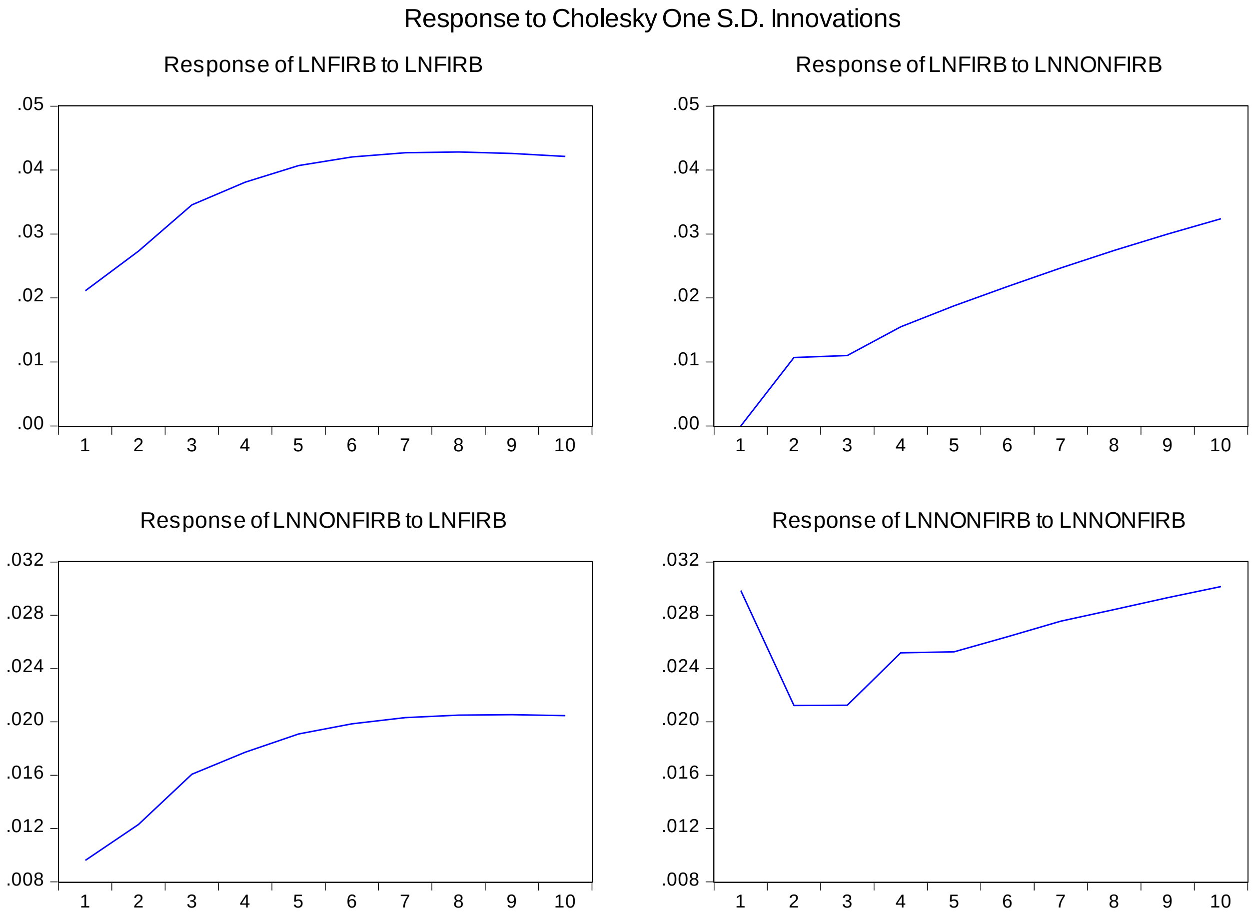
Note: The figures in parentheses are the corresponding *t*statistic values. * and** indicate significant values at 10% and 5% level of significance, respectively. $EC_{i,t-1}$ (i = 1, 2 3,) stands for the error correction term.

Looking at the estimates of the coefficients attached to $EC_{i,t-1}$, called the loading or the speed of adjustment parameter and denoted by α, the coefficient of three ECM is found to be significant given in the first only. As it is known that at least one of these two coefficients corresponding to the VECM represented through these three equations must be negative and significant for the cointegration to hold good.

For the same, the results derived by a vector error correction model (VECM) reveal there is a highly significant unidirectional relationship between industry and services. Therefore, importance of financial services has an impact on non-financial sector has been profound in the Indian context. The results support that there is a bidirectional causality running from the financial sector to the non-financial sector. The development of the financing, insurance, real estate and banking services sector has enabled the economy to sustain its growth momentum on account of the significant linkages with crucial and critical sectors of the economy such as infrastructure, construction activity etc. This may be attributed to the fact that subsectors like transport, storage and communication, banking are believed to contribute significantly to overall economic growth as well as growth of the broad sector like agriculture and manufacturing. The role of information technology (IT) and business process outsourcing services (BPOS) has helped in enhancing the economic growth especially industrial growth in the post economic reforms in India since 1991.

The main purpose of structural VAR (SVAR) estimation is to obtain non-recursive orthogonalization of the error terms for impulse response analysis. This alternative to the recursive Cholesky orthogonalization requires the user to impose enough restrictions to identify the orthogonal (structural) components of the error terms. A shock to the *i*th variable not only directly affects the *i*th variable but is also transmitted to all of the other endogenous variables through the dynamic (lag) structure of the VAR. An impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables. Figure 1 determines the Cholesky decomposition.

Figure 1: Cholesky Decomposition



Therefore the post-independence process of growth of India's structural change in India as far as service sector as a whole and financial sector in particular has thereby gone through four phases:

Phase 1: 1950s to early 1970s: In this phase, acceleration in growth and structural change was driven chiefly by the agricultural and industrial sector till mid 1960s and later on by the slackening of the momentum of industrial growth. With the strategic industrial policy of the Second Plan on heavy industry led growth, the demand for transport and communication services through spread of railways and telephones increased during this time. The public administration and defence were the main contributors of the service sector during this phase. Other sectors like retail trade, transport and communication also showed a growth rate, relatively high as the public sector. The banking sector saw the first important change in terms of bank nationalization in 1969. The conservative economic policies of the government during this phase were the reason for this nature of economic growth.

Phase 2: Early 1970s to mid-1980s: The main factor that contributed to the acceleration of growth rates since the 1980s are the government withdrew some constraints on big business to expand, and encouraged them to areas hitherto reserved for the public sector. The government liberalised credit for big borrowers, gave tax concession to large investors, and allowed the private sector to borrow directly from the public. The shift towards a more service dominated pattern of growth happened in this phase as a fallout of the government liberal policies. The structural change in India's GDP sector happened long before the initiation of economic reforms in India in the early 1990s. The rising share of public sector was the main source of increasing share of services in GDP during this period. Among the service sector components, community, social and personal services and financial services were those that developed during this period in conjunction to the earlier phase.

Phase 3: Mid 1980s to late 1990s: This phase brought about the private organized sector led crucial strengthening of services dominated growth trajectory as a consequence to the earlier phase. This may be due to the fallout of the economic reforms initiated in the early 1990s. The opening up of the economy along with the increased investments, growing consumption and the outsourcing boom boosted the growth of the software sector. The banking sector reforms of 1992 and 1995 formulated major policies in the financial sector as a part of the liberalisation process such as providing licenses to private sector banks, opening of the insurance sector, etc. Real estate sector development has been backed by both demand factors such as unfulfilled demand of dwelling units and lack of infrastructure and supply side factors such as increased rationalisation of tax structure, reduced borrowings cost and tax benefits to loan seekers, etc.The highest growth in banking and finance met the demand for personal loans, thereby leading to real estate boom. The car industry, like real estate developed during this period, with increased benefits to loan takers and improved post purchase services.

Phase 4: Late 1990s to 2010: This phase brought about an increase in GDP via infrastructure like construction, transport, communication and business services in conjunction to the earlier phase. With the innovations in transport storage and communications and financial services there has been an upsurge in services GDP. The tourism industry that includes hotels and restaurants has witnessed good times on account of increased passenger traffic (business and leisure). The communication sector is one of the fastest growing sectors domestically. India’s teledensity has improved but it is still low as compared to other developing nations. India's mobile subscriber base has increased manifold and low tariffs enhance higher usage to give a further impetus to growth.

This periodisation of India’s post-independence economic history points towards the importance of going beyond relating the dynamics of the Indian economy to the degree to which the prevalent economic policy regime was restrictive or liberal in different periods. Therefore India’s economic growth is a longterm story related to constraints embedded in her economic structure, which neither the actual interventions nor liberalisation have been able to eliminate. It is these constraints that need to be investigated towards proper understanding of the peculiarity of Indian economic change.

Section IV: Conclusion

In a nutshell, this paper focuses on the turning points of growth, suggesting that these growth patterns were different resulting from the pattern of structural change in output in these periods. This paper uses annual data of the components of GDP to determine endogenously the most important years when structural breaks occurred and simultaneously test for the unit root hypothesis in the presence of these breaks in GDP, services and financial services and subsector of financial services for the Indian economy from 1950-51 to 2009-10. Based on the multiple structural breaks model of Bai and Perron (1998, 2003), the post-independence Indian service service growth structure has been broadly defined into four regimes. The high service sector growth in the last two decades has been brought about by the most dominant component of the service sector namely, banking, insurance and financial services. The high growth in financial services brings about the high growth of the service sector. The banking and insurance sector exhibited the highest growth rate. The real estate, ownership of dwellings and business services also exhibited a huge growth rate in the last two decades. The subsequent unit root test by BLS (1992) and LP (1997) corroborates that fact in spite of the presence of multiple structural breaks; all of these series are non-stationary at levels. The growth rates of the sub-sector of financial services and aggregate financial services, total services and GDP as a whole showed that the growth in the post globalisation era is India has been massive as compared to the earlier regimes. However, the break in services came long back as compared to that change in economic policies with the initiation of economic reforms in 1991. On the whole, the final break in service sector growth started much after the commencement of reforms, and therefore may not be considered as an effect of liberalisation. But in case of fastest growing specialised services like banking, insurance and financial services the structural break has more or less matched with the break in services sector GDP, establishing that this sector in particular had the positive fallout of liberalisation in India. Finally, the paper finally emphasizes the fact that there has been a bi-directional positive causality between financial sector and the non-financial sectors. The financial sector like banking and insurance has been able to facilitate the growth of the other sectors in the form of financial intermediation.

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