Understanding the Forward and Backward Linkages In Banking Sector: Application of Input-Output Method

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Abstract

Banking Sector provides the backbone of the financial Sector in any country. However a successful banking sector depends on the strength of the forward and backward linkage of its input and product use that shows the value additions the sector is making to any economy. The emergent and recurring crisis in the financial sector throws a monkey wrench into operation that makes it difficult of revival. It is therefore imperative that an attempt is made to assess the structural dependencies of a sector that enables its sustenance and revival strength.. Input-output analysis is largely used for attaining this objective. In this paper, data from the Indian banking sector has been leveraged for interpretation and with the help of inter-industry transaction tables.

Keywords: *Input-Output Analysis, Backward Linkages, Forward Linkages, Banking Sector, Technical Coefficients.*

Introduction

Input-output analysis refers to the structural analysis of the industry, sector, economy, region showing the strengths and effects of inter-linkages of units that make for an economic unit's resilience and growth and that which enables a functional interpretation of development processes. The analysis is represented as a matrix, where different rows and columns representing the functional and structural dependencies of inputs and outputs of various sectors.

Interpretation of Rows and Columns: Rows describe how one industry's (Row head) total product is divided among various production processes and final consumption (Column heads). Columns describe how combination of various productive resources (Row heads) are used within one industry (Column head)

Research Objectives

- To identify major industries that have linkage effect with the banking sector
- To calculate the backward and forward linkages of Indian banking sector

Methodology

This paper is based on secondary data. The inter-industry transaction tables used have been taken from the official website of Ministry of Statistics and Program Implementation. The tables used are for the years 1993-94, 1998-99, 2003-04 and 2007-08. With the help of tables, forward and backward linkages for the Indian banking sector have been calculated for the respective years. (Thirlwall:2011). This enables interpretation of post reform scenario in India and before

the global recession period that would make for consistent interpretation and in the growth phase of Indian economic development.

Literature Review

Tounsi et al (1998)in Key Sectors in the Moroccan Economy: An Application of Input-Output Analysis studies the Moroccan economy with the focus on identifying the key sector and then finding the inter-sectoral linkages. A, classification of productive sectors is performed by using the Unweighted Rassmussen Approach and the ordering of sectors is done on the basis of the intensity of their links with the other sectors. The conclusions from this study reveal that (i) the ordering of the sectors is highly sensitive to the precision of the data and to the year in which the classification is realized (ii) key sectors of the Moroccan economy reduced to two sectors and analysis undertaken.

Singh I and Singh L in Regional Input-Output table for the State of Punjab

constructed regional input-output table for the state of Punjab. Because of high cost incurred in the construction of input-output table using the survey method, this paper aims at developing the desired table using non-survey method. Construction of input-output table using non-survey method is a relatively rare phenomenon in India. This work validates the alternative non-survey, location quotient methodologies and finally uses comparatively better approach to generate the forty two sector regional input-output table for the state of Punjab for 2006-07.

Theorization

The banking industry provides inputs for other sectors to grow and are linked with user-sectors. This implies its forward linkages and should give a higher value than its backward linkage. This would show efficiency of the banking sector of the concerned economy This could also act as a determining criteria for measuring the level of growth of the banking industry for any economy. In India banks like State Bank of India, ICICI, Union Bank of India show high growth and diversity in terms of supply of product range and reach though reach in rural India and to the poor remains a challenge. The government has developed initiatives to address this through the State bank of India expanding its branch network and through the National Bank for Agriculture and Rural Development with instruments and institutions like microfinance[4]   . The Input Output technique used here with reference to the banking sector in India would enable further work to raise efficiency and mitigate poverty.

Backward linkage is a channel used between a company and its suppliers to make a flow of information, material and money by creating an economic interdependence.[2] It shows how a particular industry or company depends on other industries (or companies) to produce its goods and services. **Forward linkages** are a distribution chain that connects a producer with the customers.[2] It shows how the produce of a particular industry or company is used by other industries or companies. Better opportunities for investment growth through reduced uncertainty give an incentive for investment. Also, national industries are better positioned against foreign competition with forward and backward integration of industrial sectors. It also leads to higher investment leading to development of the nation as a whole.

Hirschman stressed the concept of linkages for unbalanced growth. Because developing countries are short of decision making skills, disequilibria to stimulate these and help mobilize resources should be encouraged. Key to this was encouraging industries with a large number of linkages to other firms.[6

Methodology

$L_{Bj} = \Sigma_i X_{ij} / X_j$

Where L_{Bj} : Backward linkage

X_{ij} : Input of ith industry used by the jth industry

X_j : Total output of the jth industry

$L_{Fj} = \Sigma_j X_{ij} / X_i$

Where L_{Fj} : Forward linkage

X_{ij} : Demand of output of ith industry by the jth industry

X_j : Total output of the ith industry

Table 1: Backward linkage values

Year	193-94	1998-99	2003-04	2007-08
Total input	626977	2222527	3534482	3920570
Total output produced	4260318	10793927	16842282	24535622
Backward linkage	0.147167	0.205905	0.209858	0.159791

Table 2: Forward linkage values

Year	193-94	1998-99	2003-04	2007-08
Total output used by other industries	3330389	7473710	12809807	17946268
Total output produced	4260319	10793927	16842282	24535622
Forward linkage	0.781723	0.692400	0.760574	0.731437

Interpretation of Results and Conclusion

- As is predictable the Indian banking sector has higher value of forward linkage than that of backward linkage. In fact, the difference in 1993-94 has been highest and is valued around 0.634556 and the minimum has been in the year 1998-99 which valued to 0.486495. This shows that economic reforms in India started with right earnest but took time to pick up steam.

- The forward linkages for India are quite high, indicating towards its reasonably efficient banking system.

- The forward linkages have remained at almost the same level, showing the constancy in the expansion of banking sector into forming linkages.

- The backward linkages of banking sector increased (by around 0.05 as compared to 1993-94) during the later- half of 1990s decade, increased during the first half of the 2000-2010 decade but then declined in the later half of 2000-2010 reaching to the same level as it was in 1993-94.

- It is remarkable that the reforms process had provided necessary cushion for economy to survive even in the backdrop of impending crisis that ws to hit in 2008.

- However the inter-industry transaction tables for the year 1993-94 and 1998-99 differ from those of 2003-04 and 2007-08 in the sense that the former identifies 115 sectors where as the later ones identifies 130 sectors. So the number of sectors under computation showed increase but poor growth was an outcome probably due to poor spread of funds despite high liquidity in the banking system. That reveals impact of behavioral variable like lack of trust and less robust entrepreneurial decisions because of impending global gloom that was absorbed and reflected by Indian domestic investors but not overcome.

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