

Sources of Industrial Finance: Some Econometric Evidence

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Indian industry is passing through a crucial phase of transition and restructuring. The country has been embarked upon the program of economic reforms since 1991. This will have significant influence on the growth of industry and subsequent development of the economy. This study examines the major determinants of industrial finance from the point of view of investment and credit and attempts to assess the impact of these reforms on industrial production in India.

Section 1: Introduction

Industrialization has an important role to play in the process of economic development. The importance of industrialisation as a means for achieving rapid growth and prosperity had been recognised in the development strategy of independent India. The bold program of industrialization in India was started with the second five-year plan by realizing the need of the economy. Based on Nehru-Mahalanobis strategy, pattern of investment emphasized the reallocation of resources away from the production of consumer goods towards the production of machine tools and capital goods. By the late sixties, during the fourth five year plan (1969-74), policies for protecting the small-scale sector against competition from the large-scale sector were also put into practice.

India followed the strategy of planning for industrialization during the first four decades since the first five-year plan in 1951. The plans were implemented under the framework of a mixed economy with a substantial role for the public sector and state regulated private sector. The former had given stress on heavy and key industries and the latter mainly the consumer

goods industries. Two basic objectives of each successive Five-year plan were self-reliance and social justice.

The principal instruments that served the objective of self-reliance were an elaborate industrial licensing scheme under the Industries Development and Regulation Act (IDRA) of 1951 and a protective foreign trade regime. It controlled not only entry into an industry and capacity expansion, but also technology, output mix and import content. Moreover, concentration of economic power was controlled by the Monopolistic and Restrictive Trade Practices (MRTP) Act of 1970. Finally, the Foreign Exchange Regulation Act (FERA) of 1973 was used to regulate foreign investment in India. These acts together created a highly protected industrial regime during this period.

Robert Lucas (1988) has observed that yet despite very high levels of investment in the industrial sector, the growth has been relatively slow during the period 1960-61 to 1980-81. He found that the package of policy instruments adopted to direct industrial development included controls, industrial licensing, widespread use of administrated prices. Recognising that something had gone wrong in the industrial economy, Isher Judge Ahluwalia (1985) identified the industrial policy regime encompassing both domestic controls and trade policy measures, as the major factor responsible for the poor performance. It was becoming clear that the industrial licensing system had fostered wide-ranging inefficiencies and a high cost economy. Upto the late seventies, the industrial and trade policies were confirmed with the objectives of the import substitution and protection of domestic industry. The industrial stagnation that marked the period from the mid-sixties to the late seventies led to some re-thinking, resulted a gradual liberalization in the eighties and structural adjustment programs in 1991. Policy makers believed that the slower and inefficient growth experienced by India was the result of a tight regulatory system over the industrial sector of the economy. Hence, major policy changes were brought about in July 1991 to accord competitive stimulus for accelerated economic growth. The new economic policy, of which industrial policy of 1991 is the most important part, was launched against this background. It was specifically set in motion with a declared objective of

transforming the basic nature of functioning of the economy in lieu of planned economic development over the period from 1951 to 1990.

The new industrial policy of 1991 effected some very fundamental policy changes such as near abolition of licensing, easing of the rigors of MRTP and FERA, reduced list of industries for the public sector, automatic approvals of foreign technology agreements and for 51% foreign equity, private investment in infrastructure, new liberal and location policy for industry, freer import of capital goods, deregulation in small scale industrial units, and radically liberal policy measures for attracting Foreign Direct Investment (FDI), new technology and Non- Resident Indian investment..

The initial period of economic reforms had seen a steady and marked increase in industrial growth from 0.6 per cent in 1991-92 to 2.3 per cent in 1992-93, 6 per cent in 1993-94, 8.5% in 1994-95 and 12.1 per cent in 1995-96. But in 1996-97, the final year of the Eighth plan (1992-97), industrial production declined to 7.1% and the first year of the Ninth plan, 1997-98 saw the tepid performance of industry (4.6 per cent growth). This has been subjected to many debates in India.

Section 2: Sources of Industrial Finance

This section is framed to identify the various sources of industrial finance and growth. The relationship between these variables and industrial production in Indian context has also been discussed. Variables have been selected based on two aspects a) investment b) credit.

a) Domestic Capital Formation

The planners, in the fifties, had recognized that the material shortage of capital in relation to labor was the principal constraint to the industrial growth. It was envisioned that increased capital formation would contribute for more industrial output & a 'virtuous circle' of growth. Gross Capital Formation (GCF) is estimated across three types of assets, viz., construction, machinery and equipment. The GCF, adjusted for errors and omissions, is termed

as aggregate investment or Gross Domestic Capital Formation (GDCF). A positive association is hypothesized between the capital formation and the industrial production.

b) Foreign Direct Investment

Foreign investment can be classified as foreign direct investment (FDI) and foreign portfolio investment. International investment in financial assets such as shares, debentures and bonds, is called portfolio investment. Foreign investment in real assets is called foreign direct investment (FDI). Multinational corporations (MNC s) are the chief source of foreign direct investment in real assets. Real assets consist of physical things such as factories, land, capital goods, infrastructure and inventories. Multinational may collaborate in joint ventures with host country enterprises or may have fully owned subsidiaries in host countries. Such investments are called foreign direct investments.

A few decades ago, many countries considered FDI as the source of economic imperialism. But things are quite different now. The argument is that FDI contribute to the growth of host economies in many ways. E.g. physical capital formation, technology transfer, human formation, stimulation of productivity, augmentation of output, promotion of foreign trade and improvement of competitiveness of indigenous entrepreneurs. After weighing the prospects and consequences, government of India seems keen to attract ever-increasing amount of FDI, which can be evidenced by its efforts aimed at deregulation, transparency and globalization. In brief, It can be regarded as a source of industrial growth. As part of the economic reforms introduced in 1991, in the wake of a sharp external payments crisis, policies relating to foreign investment and foreign technology agreements were radically changed. Foreign Investment Promotion Board (FIPB) was specifically created to invite and negotiate for substantially large investment by international companies.

c) Primary Issues in the Capital Market

Capital market constitutes primary (new issues market) and secondary (stock) market. The primary market helps the public and private sector companies in raising finance mainly for their new projects, expansion, modernization, acquisition etc. The secondary market provides liquidity for the financial instruments (equity, preference shares and debentures/bonds) through adequate marketability and price continuity. The array of financial institutions also have played crucial role in meeting long-term credit needs of the industrial sector.

With the liberalization of the Indian economy since 1991, the Government has provided a number of additional fiscal and other incentives to foster capital market development. The result has been an explosive growth of the market. The magnitude of the growth has been rapid and vivid in terms of fund mobilised, the amount of market capitalization and the expansion of investor population. The Indian market was opened up for investment by the foreign institutional investors (FIIs) in Sept.1992 and the Indian companies were allowed to raise resources abroad through Global Depository Receipts (GDR) and Foreign Currency Convertible Bonds (FCCB). Both the primary and secondary segments of the capital market displayed rapid expansion and growth accompanied by greater institutionalization and larger participation of individual investors during the post-reform period .

Despite the structural transformation of the Indian capital market, there are many problems which often come on the way of its efficiency. These relate to investor protection, consolidation (after massive expansion), integration with other market segments, product innovation and technology, etc. which are critical and need to be addressed. Reserve Bank of India has expressed concern over continued sluggishness in the primary capital market for the last two years(1996-97 and 1997-98), as long term prospects for industrial development are critically dependent on the revival of primary market.

d) Bank Credit

Banks are the dominant financial intermediaries in developing countries including India. Bank credit is considered as an important source of industrial finance. The dependence on bank for finance could vary according to the size of the companies. The small-scale industrial units have increased their dependence on banks for loans because they have virtually no access to the capital markets.

The Reserve Bank of India's attempt at reforming the financial sector was visible from the recommendations of the Committee to Review the Working of the Monetary system (1985) (referred to as Chakraborty Committee Report). The Committee advocated the necessity of moving away from quantitative controls which, it felt, led to distortions in the credit market and resulted in curbing the growth of the economy. But the impetus to reforms in the financial sector was given by the Report of the Committee on the Financial system (Narasimham Committee). The financial sector reforms, based on this report were mainly aimed to provide credit to the industrial sector by reducing the Cash Reserve Ratio and Statutory Liquidity Ratio. The liberalization policy also called for increased efficiency of commercial banks by encouraging them to compete in the market. The public sector banks were given autonomy to frame their policies including interest rate fixation. It may be noted that the bank credit to the industrial sector has not increased during the post-reform period (Data given as appendix), in spite of the various attempts.

Section 3 Objectives and Model

In light of the above discussions, this paper is aimed to examine the following objectives.

a) To trace out the sources of industrial finance in India b) To analyse whether there is any structural shift in the industrial production as a result of economic reforms .

The objectives were framed to analyze the causal relationship between the industrial production and its determinants such as domestic capital formation, foreign investment, bank credit, capital market transactions . To examine this, the following log-linear regression equation is estimated through Ordinary Least Square method with

$$\text{Log(IIP)}_t = F(\text{log GDCP}, \text{log FDI}, \text{log CAPI}, \text{log BC})_{t-1}, D, U)$$

Where IIP = Index of Industrial Production

GDCF = Gross Domestic Capital Formation

FDI = Foreign Direct Investment

CAPI = Capital issues in the primary market

BC = Bank Credit

D = Dummy Variable representing '0' for pre-reform period and '1' for post-reform period.

U = Random Error term

(Intercept and Slope Dummy variables are estimated separately to find out the impact of economic reforms)

Section 4: Econometric Analysis

The Indian Industry is poised to enter an interesting phase, but the challenges that lie ahead are varied, multidimensional and arduous. Many people have expressed their grievances about the decline in the industrial growth in the last three years 1996-97, 1997-98 and 98-99. This section is designed to analyze the impact of economic reforms on the process of industrial growth based on time-series data for the periods 1984-1998.

The variables in the equation are selected because of their economic meaningfulness and direct relationship. Firstly, all the observations of variables were converted into constant prices and index number series constructed by taking 1990-91 as base year. Secondly, logarithmic values of these 7 variables were calculated for estimating linear equations. Further, dummy variable is added with the regression equation to find out the influence of the economic reforms. Finally, slope dummy variable has also estimated with each and every explanatory variables in order to find out the structural shift in industrial production because of liberalization.

Table 1

Correlation among Explanatory variables

	GDCF	FDI	CAPI	BC
GDCF	1.00			
FDI	.85	1.00		
CAPI	.68	.71	1.00	
BC	.98	.84	.72	1.00

Source: Estimated results using Data given in the appendix

Table 1 illustrates the correlation matrix of the explanatory variables included in the model. . This shows the direct relationship of explanatory variables with the index of industrial production. This shows that GDCF, Bank credit are highly correlated with the industrial production in India.

Table 2
Correlation of Explanatory Variables with Industrial Production

	IIP	GDCF	FDI	CAPI	BC
IIP	1.00	.99	.84	.68	.98

Table 3 Sources of Industrial Finance: Regression Results

	Eqn 1	Eqn 2	Eqn 3	Eqn 4	Eqn 5	Eqn 6
Constant	-.20 (-16.5)*	-.19 (-32)*	-.56 (-3.8)*	-.17 (-23.1)*	.19 (1.6)	-.22 (-5.2)*
Gdcf	.56 (27.8)*	.42 (32.2)*	.45 (8.9)*			
Fdi	-.01 (-.60)		.13 (1.1)	.08 (2.04)**	.25 (2.0)*	
Capi	-.05 (-.32)			.23 (2.9)**		.24 (3.9)*
Bc	-.003 (-.234)	-.006 (-.88)			.65 (11.4)*	.58 (5.6)*
Intercept	.0003	-.00001	.01	-.08	.028	-.006
Dummy	(0.38)	(0.38)	(1.17)	(-1.5)	(1.3)	(1.2)

R ²	.98	.97	.91	.86	.79	.96
F	4526	8745	26.1	19.8	3.65	109.6
DW	2.9	2.8	1.6	1.9	.84	2.5

In table 3, The insignificant dummy variable shows that there is no improvement in industrial production in the post –reform period. With regard to the explanatory variables, the coefficient of GDCF is significant at 1% level in all equations so that, it has strong causal effect on industrial production in India. Bank credit is also found to be important compared to other variables. As GDCF and bank credit are highly correlated (coefficient of correlation is 0.98), the coefficient of bank credit is obtained as insignificant in the regression equations where GDCF is included (equations 1 and 2) as an explanatory variable and it is found to be significant where GDCF is excluded.(eqns 5 & 6).

This may be due to the fact that bank credit itself constitutes the major component of GDCF. The significant F values at 5% and 1% level of significance shows the overall fitness of the models. It is proved that higher the coefficient of determination (R²), higher will be the F value and vice versa. As the value of the Durbin-Watson (DW) statistic is near 2 in the equations, one can conclude that autocorrelation (correlation between the successive values of the residual term) does not arises in these results.

Table 4 Slope Dummy Analysis

	Eqn 1	Eqn 2	Eqn 3	Eqn 4
Constant	-16 (-26.2)*	.17 (3.7)**	-.33 (-5.9)*	-.48 (-3.6)**
Gdcf	.23 (67.9)*			
Fdi		.047 (1.9)***		
Capi			.038 (0.58)	
Bc				0.26 (12.8)*
Slope dummy	-.003 (-.82)	.002 (.204)	.010 (1.2)	-.003 (-1.2)
R ²	.99	.63	.96	.86
F	4939	11.3	178.7	39.1

DW	0.8	0.6	2.4	1.4
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* significant at 1% level ** significant at 5% level ***significant at 10% level

To examine whether the economic reforms have caused for a structural shift on industrial production, slope dummy variable is estimated with each and every explanatory variables separately. In table 4, the coefficient of the slope dummy variable is not significant in any of the equations. Results point out that there is no structural shift in industrial production due to these variables after economic reforms. The coefficients of slope dummy variables of Bank Credit and GDCF are obtained as negative, which indicates that there is decline in the average annual growth rate in the case of these variables during the post-reform period. (One can verify the validity of this statement by calculating the average annual growth rate of Bank Credit and GDCF in the pre-reform as well as post-reform period).

Conclusion

Strong industrial growth is a pre-requisite for raising incomes and living standards. Seven years have passed since India began its transition to market system. This time period is enough to analyze the impact of economic reforms on industrial production in India. From the estimated results of the regression equations, it can be said that the economic reforms have not brought spurt increase in industrial production. This calls for increased investment, which has to be focused for sustained growth in the industrial sector. Ie, in order to achieve long-run goals, we have to attain accelerated rate of capital formation from the domestic investors. The government can contribute by encouraging youth to become entrepreneurs and thereby formulate policies to increase the investment level as well as employment opportunities.

Bank credit constitutes two-third of the total credit to the industrial sector and still continues as the important source of finance for small-scale industries. More attention has to be paid for providing as much as bank credit for the industrial sector. Reserve Bank of India's efforts to reduce the Cash reserve Ratio and withdrawal of adhoc treasury bills (abolition of

automatic monetisation of fiscal deficit) will be helpful to pump more credit to the banking sector. But commercial banks are required to take steps for providing more credit to the industrial sector, rather than investing in government securities. Priority should be given for small-scale units and new entrepreneurs. Bank Rate has to be brought down in order to reduce the cost of funds (interest rate) in India. Similarly, certain measures have to be adopted immediately in the financial sector to recover the buoyancy in the stock market. The trading in Derivative instruments (futures, options, Forward Rate Agreements and Swaps) will attract more buyers in the secondary market and that will have significant impact on primary issues also.

So far as India is concerned, much remains to be done for industrialization. There exists the need to develop a synergic relation between the government and the private sector. State will have to keep constant dialogue with the entrepreneurs and their representatives to revive their confidence. To overcome the severe demand contraction in the economy, India has to rely on higher government spending and tax cuts.. The government has to play a dominant role for allocating the limited resources and for more public investments.

In sum, the study leads to the conclusion that India has to concentrate on domestic capital formation. In order to achieve this goal, we have to promote the private corporate investment from Indians nationals as well as non-resident Indians. Despite the relaxations in some regulatory acts, India continues to repel investors with interminable delays. Indians abroad, have demonstrated to the world that its entrepreneurial and professional skills are as good as best. Corporate sector has entered into a world where only the fittest can survive. To be able to do so, Indian industry must become more quality conscious, invest in human capital and encourage professional management.

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APPENDIX

Table 1 Index of Industrial Production

Year	1980-81=100	1990-91 =100
1985-86	142.1	66.8
1986-87	155.2	73
1987-88	166.4	78.3
1988-89	180.9	85.1
1989-90	196.4	92.4
1990-91	212.6	100
1991-92	213.9	100.6
1992-93	218.9	103
1993-94	232	109.1
1994-95	253.7	119.3
1995-96	284.5	133.8
1996-97	304.7	143.3
1997-98	318.4	149.8

Source: Column 2 is taken from Economic Survey 1997-98 and column 3 computed from column 2, taking 1990-91 as base year.

Table 2 Index of Explanatory Variables

Year	GDCF	FDI	CAPI	BC
1984-85	44.6	64.4	77.7	52.8
85-86	56.1	54	77.9	58
86-87	58.4	51.5	100	65
87-88	65.3	107.2	92.6	71.2
88-89	76.4	105.2	98.1	82.3
89-90	84.2	104.2	107.4	93.6
90-91	100	100	100	100
91-92	85.7	109.2	111.1	97.2
92-93	90.1	187.8	220.3	105.2
93-94	94.7	462.8	261.1	105.1
94-95	110.9	841.3	296.2	114.8
95-96	125.3	1034.5	182.9	118.6
96-97	119.2	1501.4	138.8	131.2

Source: Indices compiled in terms of constant prices

Table 3: Gross Domestic Capital Formation (Rs crore) in India

1984-85	45470	1991-92	144113
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1985-86	58167	1992-93	169549
1986-87	61156	1993-94	191496
1987-88	76456	1994-95	247804
1988-89	96972	1995-96	300760
1989-90	114649	1996-97	303783
1990-91	148195	1997-98	348485

Source: Monthly Abstract of Statistics, Central Statistical Organization, Government of India, Various issues

Table 4: Foreign Direct Investment into India (in Rs.billion)

Year	Amount	90-91	283
84-85	120.7	91-92	351
85-86	107	92-93	675
86-87	107.7	93-94	1787
87-88	239.8	94-95	2738
88-89	255	95-96	4743
89-90	271	96-97	7312

Source: Economic Survey, Ministry of Finance, Various Issues

Table 5: Primary Issues in the capital market (Rs billion)

1984-85	51.6	1991-92	139.1
1985-86	58.9	1992-93	273.9
1986-87	69.5	1993-94	392
1987-88	81.7	1994-95	484.8

1988-89	92.3	1995-96	291.6
1989-90	101.4	1996-97	263.6
1990-91	109.2	1997-98	332.8

Source: Center For Monitoring Indian Economy Monthly Review, Various issues

Table 7: Bank Credit to the Industrial Sector in India (Rs crore)

1983-84	18756	1990-91	59093
84-85	22065	91-92	65212
85-86	23970	92-93	78964
86-87	28335	93-94	84688
87-88	33242	94-95	102310
88-89	41655	95-96	124937
89-90	50845	96-97	134138

Source: 1) Banking Statistics, Reserve Bank of India 1995 2)Annual Report, Reserve Bank of India,1997

