



Impact of financial inclusion on entrepreneurship in India – An empirical analysis

S. Gandhimathi

Department of Economics, Avinashilingam University for Women, Coimbatore, Tamilnadu.

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ABSTRACT

The entrepreneurship is one of the factors accelerating economic growth. There is a strong relationship between entrepreneurship and economic growth. Many of the earlier studies had established this relationship and had constructed theoretical models based on the empirical findings (Casson, 1990 and Livesay 1995, Goel 1997, Glancey and McQuaid, 2000.). Access to finance is one of the factors determining entrepreneurship. The small and medium enterprises in developing countries face significant barriers to finance. The small and medium enterprises are constrained by gaps in the financial system such as high administrative costs, high collateral requirements and lack of experience within financial intermediaries. Increased access to finance for small and medium enterprises can improve economic conditions in developing countries by fostering innovation, macro-economic resilience, and GDP growth. Many studies had identified the access to finance as the major factor determining entrepreneurship. The World Bank and the International Finance Cooperation (IFC) rank economies according to their ease of doing business. In this framework, the ability for business to get credit is an important criterion. The Global Entrepreneurship Monitor (GEM) Entrepreneurship Framework Condition also highlights the availability of financial resources for small, medium enterprises in the form of debt and equity, as one of the key factors for stimulating and supporting entrepreneurial activity. The World Bank Enterprise Surveys reveal that, in low-income countries, on an average 43% of businesses with 20 to 99 employees' rate, access to finance or cost of finance as a major constraint to current operations. In high-income countries, only 11% of businesses of the same size rate, access to finance as a constraint. In this backdrop, an attempt was made to analyze the impact of financial inclusion on entrepreneurship in India.

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Introduction

The entrepreneurship is one of the factors accelerating economic growth. There is a strong relationship between entrepreneurship and economic growth. Many of the earlier studies had established this relationship and had constructed theoretical models based on the empirical findings (Casson, 1990 and Livesay 1995, Goel 1997, Glancey and McQuaid, 2000.). Access to finance is one of the factors determining entrepreneurship. The small and medium enterprises in developing countries face significant barriers to finance. The small and medium enterprises are constrained by gaps in the financial system such as high administrative costs, high collateral requirements and lack of experience within financial intermediaries. Increased access to finance for small and medium enterprises can improve economic conditions in developing countries by fostering innovation, macro-economic resilience, and GDP growth. Many studies had identified the access to finance as the major factor determining entrepreneurship. The World Bank and the International Finance Cooperation (IFC) rank economies according to their ease of doing business. In this framework, the ability for business to get credit is an important criterion. The Global Entrepreneurship Monitor (GEM) Entrepreneurship Framework Condition also highlights the availability of financial resources for small, medium enterprises in the form of debt and equity, as one of the key factors for stimulating and supporting entrepreneurial

activity. The Investment Climate Surveys of the World Bank show that access to finance improves firm performance. It not only facilitates market entry, growth of companies and risk reduction, but also promotes innovation and entrepreneurial activity. Furthermore, firms with greater access to capital are more able to exploit growth and investment opportunities.

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In this backdrop, an attempt was made to analyse the impact of financial inclusion on entrepreneurship in India. The following are the specific objectives of the study.

Objectives

1. To study the trend in the distribution of number of entrepreneurs across states in India
2. To identify the impact of financial inclusion on entrepreneurship and the relative contribution of financial inclusion on entrepreneurship in India.

Methodology

Sources of Data and Period of Study

The study is based on secondary data. The time series data, long period data on number of entrepreneurs registered with District Industrial Center in India were not available which

Tele:

E-mail addresses: gandhimathi_senni@yahoo.co.in

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could reveal the long period impact of financial inclusion on entrepreneurship. The state wise data on number of entrepreneurs registered with District Industrial Center in India were available for a period of 2008 -2012. The recent data on financial inclusion related variables for states were available only for the year 2010 -2011. Hence, to analyse, the impact of financial inclusion on entrepreneurship, the state wise data on micro, small and medium entrepreneurs registered with district industrial center and financial inclusion variables for the year 2010-2011 were taken into account. The data on number of entrepreneurs registered with district industrial center were collected from Entrepreneurs Memorandum, Data on MSME sector, 2011, published by ministry of micro, small and medium enterprises, Government of India. The data on indicators of financial inclusion such as number of bank branches, amount of deposits, amount of credit, ratio of deposits in states to total national deposits and ratio of credit in states to total national credit were collected from Statistical Tables relating to banking in India, 2010-2011, published by the Reserve Bank of India.

Specification of Econometric Models

The relationship between financial inclusion and number of entrepreneurs could be specified as multiple regression model. But in the present study, the dependent factor is number of entrepreneurs, in such case; the regression coefficients would not predict complete relationship. The non parametric test could predict correct and complete relationship than multiple regressions. Hence, in the present study, chi square test was applied to assess the association between entrepreneurs and financial inclusion. The following formula was used in calculating the value of chi square.

$$\chi^2 = E(O-E)^2 / E$$

$$\chi^2 = \text{Value of Chi Square}$$

O = Observed frequency of the variable in the study

E = Expected frequency of the variable in the study

To capture the relative contribution of financial inclusion variables on entrepreneurship, the discriminant analysis was employed. In the discriminant analysis, the states were classified into high entrepreneurial and low entrepreneurial states based on the national average number of entrepreneurs. If the number of entrepreneurs in the state was higher than the national average, those states were classified as high entrepreneurial states. If it is less than the national average in the states, those states were classified as low entrepreneurial states. The above two groups of states were put into the linear discriminant analysis. The form of the discriminant equation specified in the study was

$$L = L1X1 + L2X2 + L3X3 + L4X4$$

L = Discriminant score for high entrepreneurial and low entrepreneurial states

X1 = Number of bank offices across states, X2 = Amount of deposits (Rs.Crore),

X3 =Ratio of deposits to total deposits of all states, X3 = Amount of credit, (Rs.Crore),

X4 = Ratio of credit to total credit of all states.

L1, L2, L3, L4 are the discriminant coefficients of corresponding independent factors.

Results and Discussion

Micro, small and medium enterprises had shown consistent growth in terms of number of Entrepreneurs Memorandum (Part II) [EM-II] filed every year. Number of Entrepreneurs Memorandum filed during 2007-08 in the district Industries Centres across the country was 1.74 lakh which increased to 1.93, 2.14, 2.37 and 2.82 lakh during 2008-09, 2009-10, 2010-

11 and 2011-12 respectively. (Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012).

The state wise distribution of number of entrepreneurs filed with district industrial centre for the period 2008-2009 to 2011 -2012 is shown in table - 1.

Highest number of micro, medium and small entrepreneurs registered with district industrial center was observed in the state of Andhra Pradesh followed by Tamil Nadu in the year 2011. Top ten States in terms of Number of Entrepreneurs Memorandums included Tamil Nadu, Gujarat, Uttar Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, West Bengal, Kerala and Andhra Pradesh. Their contribution ranged from 89% to 92% of the total EM in MSME Sector in the study period.

Association between Entrepreneurship and Financial Inclusion - Chi square Test

Initially to test the association between the entrepreneurship and financial inclusion, chi square values were calculated. The variables such as the number of bank offices in each states, amount of deposits of states, ratio of deposits of each states to total deposits, amount of credit and ratio of credit of states to total deposits were considered as the financial inclusion indicators. Hence the above variables along with number of entrepreneurs were put into the Chi square test. The results of Chi square test are shown in table – 2.

The number of offices, amount of deposits, ratio of deposits to total deposits, amount of credit and ratio of credit to total credit were statistically significant. The above factors had significant association with the number of entrepreneurs. If the number offices, amount of deposits, ratio of deposits to total deposits, amount of credit and ratio of credit to total credit increased, the entrepreneurship could also be improved.

Impact of Financial Inclusion on Entrepreneurship in India - Discriminant Analysis

To identify the relative contribution of financial inclusion variables on entrepreneurship, the specified linear discriminant equation was estimated. The states in India were classified as the states of high and low entrepreneurial states based on the national average entrepreneurial memorandum. If the states had higher number of entrepreneurial memorandum with district industrial center than the national average, they were classified as high entrepreneurial states. If the states had below average number of national entrepreneurial memorandum, they were classified as the low entrepreneurial states. Based on the above classification, the states of Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Meghalaya, Mizoram, Nagaland, Odisha, Puducherry and Punjab were identified as the high entrepreneurial states (Group I). The remaining states were classified as the low entrepreneurial states (Group II). They had below average number of entrepreneurial memorandum with district industrial center. The above high entrepreneurial and low entrepreneurial states were put into the discriminant analysis.

The first step in the discriminant analysis is the estimation of mean and standard deviation of the selected independent variables of two groups. The estimated mean and standard deviation of the selected variables are shown in table -3.

The table -3 shows that the average number of bank offices, amount of deposits, the ratio of deposits in the states to total deposits, amount of credit and ratio of credit to total credit were higher in the high entrepreneurial states than in the low entrepreneurial states. It indicates that high entrepreneurial states had better banking facilities and financial assistance. It implied financial inclusion in the high entrepreneurial states.

Table 1. Statewise deistribution of number of entreneures registered with district industrial center in India

States	2008-09	2009-10	2009-10	2010-2011	2011-2012
Andaman and Nicobar	50	60	68	77	82
Andhra Pradesh	4478	4726	9144	9204	92060
Arunachal Pradesh	63	107	111	50	36
Assam	1811	1711	1678	1506	1218
Bihar	2855	3134	4010	4302	4108
Chandigarh	32	161	255	174	259
Chhattisgarh	1335	1291	1059	1206	1741
Dadra and naga haveli	307	143	104	74	106
Daman Diu	307	143	104	74	106
Delhi	131	70	165	199	345
Goa	57	76	112	88	97
Gujarat	13185	17866	19992	27939	51781
Haryana	2489	2899	2357	2707	2759
Himachal Pradesh	832	925	1053	942	852
Jammu and Kashmir	1044	971	1192	914	1120
Jharkhand	940	1051	669	690	939
Karnataka	14984	15705	17195	18434	21021
Kerala	11068	15935	12013	10194	10020
Lakshadweep	5	14	23	24	8
Madhya Pradesh	12319	14183	19748	19704	20104
Maharashtra	11396	12148	11896	14496	15606
Manipur	54	139	81	122	120
Meghalaya	403	397	1040	748	573
Mizoram	226	478	500	198	131
Nagaland	657	2498	1445	141	NA
Odisha	1515	1588	1758	1657	2155
Puducherry	144	214	200	186	120
Punjab	932	1272	2189	2985	3087
Rajasthan	13873	14609	14630	14904	14678
Sikkim	14	71	18	40	30
TamiNadu	27209	32049	41799	57902	70639
Tripura	156	236	218	218	205
Uttar Pradesh	30443	31629	33479	33027	33568
Uttarkhand	1500	1346	1871	1973	2121
West Bengal	17618	13428	11685	10109	13470
ALL INDIA	174319	193077	213894	237263	282496

Source: Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012.

Table 2. Association between entrepreneurship and financial inclusion-chi square test

Variables	Chi square value	Significant level
Number of bank offices	16.966	Significant at 1 % level
Deposits	14.821	Significant at 1 % level
Ratio of deposits to total deposits	13.909	Significant at 1 % level
Credit	11.212	Significant at 1 % level
Ratio of credit to total credit	10.916	Significant at 1 % level

Source: Estimation based on data collected from Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012 and Statistical tables relating to banking in India, 2011-2012, Reserve Bank of India.

Table 3. Mean and standard deviation of financial inclusion variables

Variables	Mean		Standard Deviation	
	Group I	Group II	Group I	Group II
Number of offices	1296.88	61464.4444	17510.66	21569.0271
Deposits (Rs. Crore)	73466.36	389577.7778	1362613.00217	416756.4646
Ratio of deposits to total deposits	14.72	730.0000	27.7046	7.7682
Credit (Rs. Crore)	2021279	2999323.3333	6609645.0644	348559.2860
Ratio of credit to total credit	12.96	7.36	306.7638	8.5686

Source: Estimation based on data collected from Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012 and Statistical tables relating to banking in India, 2010-2011, Reserve Bank of India.

Table 4. Wilks lamda of financial inclusion variables – Test of equality

Variables	Wilks Lamda	F Value	Significant Level
Number of offices	0.416	44.945	Significant at 1 % level
Deposits (Rs. Crore)	0.735	11.531	Significant at 1 % level
Ratio of deposits to total deposits	0.748	10.784	Significant at 1 % level
Credit (Rs. Crore)	0.995	0.177	Insignificant
Ratio of credit to total credit	0.770	9.562	Significant at 1 % level

Source: Estimation based on data collected from Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012 and Statistical tables relating to banking in India, 2011-2012, Reserve Bank of India.

Table 5. Pooled within-groups correlations between discriminating variables and standardized canonical - discriminant functions

Variables	Correlation Co – efficient	Rank
Number of offices	0.654	1
Deposits	0.331	2
Ratio of deposits to total deposits	0.320	3
Credit	0.302	4
Ratio of credit to total credit	0.041	5

Source: Estimation based on data collected from Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012 and Statistical tables relating to banking in India, 2011-2012, Reserve Bank of India.

Table 6. Relative contribution of financial inclusion variables to entrepreneurship across states in India

Variables	Unstandardised discriminant coefficients	Relative contribution (Percentage)
Number of offices	0.00087	5.141463
Deposits	-0.00003	14.09635
Ratio of deposits to total deposits	0.9635	4.559985
Credit	-0.000003	0.501721
Ratio of credit to total credit	0.7069	75.70047

Source: Estimation based on data collected from Entrepreneurs Memorandum, Ministry of micro, small and medium enterprises, 2012 and Statistical tables relating to banking in India, 2011-2012, Reserve Bank of India.

To test the above mean difference in the financial inclusion variables between the high entrepreneurial and low entrepreneurial states, the Wilks lamda and Uni Variate F statistics were calculated. The wilks lamda and univariate F statistics were calculated and are shown in table – 4.

If the value of Wilks Lamda approaches one, there is no mean difference between the groups. If it approaches zero, group mean differed significantly. The table-4 shows that Wilks Lambda of number of offices, amount of deposits, ratio of deposits to total deposits and ratio of credit to total credit were statistically significant. It indicated that the above financial inclusion variables varied significantly between high entrepreneurial and low entrepreneurial states.

The next step in the discriminant analysis is the estimation of correlation between discriminating variables and discriminant function. The table- 5 shows the correlation between discriminating variables and discriminant function.

The number of bank offices had high correlation with the discriminant function. It means that the number of bank offices was the most important factor in discriminating the states into high entrepreneurial and low entrepreneurial states. The next important factor was the amount of deposits. The ratio of credit was the least correlated factor with the discriminant function. The relative contribution of the financial inclusion variables to entrepreneurship were calculated based on the unstandardised discriminant coefficients. The relative contribution of the financial inclusion variables are shown in table - 6

The table - 6 shows that the ratio of credit to total credit was the dominant factor to determine the entrepreneurship in the states. The ratio of credit to total credit alone contributed 75.7 percent to classify the states into high and low entrepreneurial states. Next to this factor, the amount of deposits and the number of offices were the next dominant factor to determine the entrepreneurship in the states. These two factors

contributed 20 percent to the entrepreneurship among the states. The amount of credit contributed only to the extent of 0.5 percent to the entrepreneurship.

Conclusion

To conclude, highest number of micro, medium and small entrepreneurs registered with district industrial center was observed in the state of Andhra Pradesh followed by Tamil Nadu in the year 2011. Top ten States in terms of number of Entrepreneurs Memorandums included Tamil Nadu, Gujarat, Uttar Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, West Bengal, Kerala and Andhra Pradesh, their contribution ranged from 89% to 92% of the total EM in MSME Sector in the study period. The number of offices, amount of deposits, amount of credit, ratio of deposits to total deposits, amount of credit and ratio of credit to total credit had significant association with the number of entrepreneurs. If the number of offices, amount of deposits, amount of credit, ratio of deposits to total deposits, ratio of credit to total credit, increased, the entrepreneurship could also be improved. But the ratio of credit in the states to total credit was the dominant factor to determine the entrepreneurship in the states. The ratio of credit to total credit alone contributed 75.7 percent to classify the states into high and low entrepreneurial states. Next to this factor, the amount of deposits and the number of offices were the next dominant factor to determine the entrepreneurship in the states.

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