Geography of Business Incubators, Incubatees, and Venture Capitalists: The Untapped Entrepreneurial Talents in India

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Abstract

The geographical concentration (clustering) of economic activities is a global phenomenon, but a detailed study combining on the three critical entrepreneurial talents required for socio-economic transformation of a region has not been carried out so far, particularly in India. The present study analyses the clustering pattern of the three critical factors / entrepreneurial talents which are required for the successful emergence of new business enterprises as well as expansion of existing business enterprises in a region. In the case of 157 venture capitalists (VC's) and also the quantum of venture capital (VC) financing, the concentration exists towards western region indicating *Political-related* as well as *Finance-related* clustering; whereas in the case of 36 business incubators (BI's) and 1170 incubatees, concentration is towards southern region indicating the presence of *Technology-related* clustering. The clustering equation may change in the years to come depending on the development taking place in the technology sector and also on the changing scenario of the political leadership as well as financial market conditions, which may bring in more finance so as to have a uniform development in India as a whole in the near future.

Keywords: Business Incubation, Clustering, Regional Influences, Developing Country, Risk Capital.

1. Introduction

Historically speaking, incubation concept originated in the field of medicine. According to Aernoudt (2004), the etymological roots of incubation concept originated from Europe (Greece) dating back to around 460 BCE and this was called *incubation* which took place in the temple of *Aesculapius* (considered as god of medicine). But Sawandi (2002) argues that when Greek physicians took their oath to *Aesculapius*, they were really swearing in to an African originally named *Imhotep* (Elliott, 2008), who was revered as the god of medicine between 2780-2680 BCE. Western societies has wrongly given credit to a Greek named *Hippocrates*, who had actually taken the *Aesculapius* (*Imhotepian*) oath and lived 2,000 years after the true father/god of medicine. Then the concept spread towards Asia, Middle East, South America and finally towards Europe (Subhash et al, 2010b). Thus geographically speaking the concept of incubation was originated in Africa and was in existence much before it started in Europe. Gradually the concept of incubator became the place where prematurely born infants were nurtured and taken care of till they survive, grow and develop and becomes adaptable to natural environments (Aernoudt, 2004). And from 1946 onwards modern concept of incubator was applied to business in the US (NSTEDB, 2009).

The modern concept of business incubation (BI) refers to *complex services and special environment provided temporarily by incubators for start-up enterprises called incubatees with the aim of improving their chance of survival in the early phase of the life span and establishing their later intensive growth* (NSTEDB, 2009). Thus business incubators are intended to guide incubatees through their growth process with a nurturing environment and hence reflect a strong endeavor to promote entrepreneurship, business formation and innovation with dedicated policy interventions (Aernoudt, 2004; Campbell and Allen, 1987). Apart from these crucial services provided by the BI's to the incubatees that are required for graduating to become successful enterprises, another critical success

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factor which is equally important for a startup is the availability of VC financing. This was rightly pointed out by Hackett and Dilts (2004) that business incubation is a process enacted by business incubators, angels, and venture capital organizations in order to facilitate the entrepreneurial process. Hence there is a direct linkage between BI's, incubatees, and also VC's. Thus birth of a successful enterprise is the result of the successful interaction / amalgamation / partnership of the three types of entrepreneurs; viz.; incubatees whose main aim is to start own enterprise, BI's whose main aim is to provide supporting services to incubatees to successfully start their enterprise, and VC's whose main aim is to provide financial and non-financial supports to new entrepreneurs (including incubatees) so as to make their business venture a successful one. In general the term *entrepreneur* is being used to denote only incubatees and other two (incubators and venture capitalists) are the providers of supporting services, but the ultimate end result of all their entrepreneurial activities is the birth of successful enterprises.

From time immemorial the concept of entrepreneur and entrepreneurship was in existence which led to the spread of human civilization around the world by the great explorers, hence making this a universal concept with varied degrees of quality. Along with these explorations the concept of classical BI and VC came in to existence (Subhash, 2009a). But with respect to modern concept of BI and VC, during 1946 both originated in the US and got successfully transplanted (either in the original form or variation) to almost all parts of the world over a period of 64 years (1946 – 2010). Thus from 1946 onwards BI and VC has been practiced for promoting entrepreneurial talents by many countries and India is not an exception to this. The geographical concentration and also the contribution of the dynamics of BI's, incubatees, and VC's as catalysts of transforming the economy for sustainable development has not been sufficiently researched in India and elsewhere. Present paper analyses the geographical concentration / clustering pattern of BI's, incubatees, and also VC's in India. Subsequent sections deals with the background/literature review for identifying the research gap; followed by analysis of the geography of VC's and VC financing, incubators and incubatees in India which identifies the existing clustering pattern; then combining clustering pattern of all three entrepreneurial talents to see the existence of similarities. This is followed by discussion and the conclusion.

2. Literature Review

There have been many observations in the history of mankind of the geographical concentration of economic activities, these clearly depending on favorable environmental factors and led to systematic development of those clustered regions around the world. The clustering emerged from ancient civilizations onwards and continues unabated (Subhash, 2007a). Economic geographers, economists, sociologists, researchers in business and management, and policy makers have witnessed an increased interest in the study of clusters during the 1990s (Rocha, 2004). Evidence of this interest are the bulk of books (Weiss, 1988; Porter, 1990; Pyke and Sengenberger, 1992; Saxenian, 1994; Van Dijk and Rabellotti, 1997; Steiner, 1998; Crouch et al., 2001), publications of national and international organizations (Nadvi, 1995; OECD, 1996; OECD, 1999; Ceglie and Dini, 1999; World Bank, 2000; UNIDO, 2001; Porter, 2000; Schwab et al., 2001; DTI, 2001; OECD, 2001a; OECD, 2001b; Observatory of European SMEs, 2002), and papers published since 1990 that are related to clusters and similar concepts (Leinback and Amrhein, 1987; Karlsson and Olsson, 1998; Mason and Harisson, 2002; Scott, 2006; Subhash, 2007a; Subhash, 2007b). The growing interest in the study of geographical concentration / clustering of economic activities is because of its impact on firm performance, regional economic development, country competitiveness, and the overall sustainable development. As a consequence, several multilateral organizations, such as the OECD, UNIDO, the World Bank, UNCTAD, the European Commission, and others are assessing and using cluster strategies as tools for economic development (Enright, 2001; Enright and Williams, 2001).

Though the concepts of BI and VC was in existence; in 1946 in the US it got formally recognized and the first incubator outside the student community was created by American Research Development Corporation, started by several MIT alumni, to supply risk capital (modern concept of VC) to entrepreneurs (NSTEDB, 2009). Thus from 1946 onwards the modern concept of BI and VC financing started playing a crucial role in providing impetus to develop the economies around the world. With respect to BIs, many country level research works have been carried out to identify the role of incubators (Evald and Bager, 2008; Patton, et al, 2009 Studdard, 2006; Peters, et al, 2004), types of services provided by

incubators (vonZedtwitz and Grimaldi, 2006; Hackett and Dilts, 2008; Lindelöf and Löfsten, 2003), role of government (Bateman, 2000; Abetti, 2004; Rogerson and Rogerson, 1996; Markusen and Oden, 2005), importance of human capital for incubatees (Peña, 2004), private-public funding of incubatees (Sofouli and Vonortas, 2007; Benson, Lies, Okunade, and Wunnava, 2010), role of innovation (Hackett and Dilts, 2004), problems faced (Adegbite, 2001; Nam, 2000), types of incubators (Becker and Gassmann, 2006; Aernoudt, 2004).

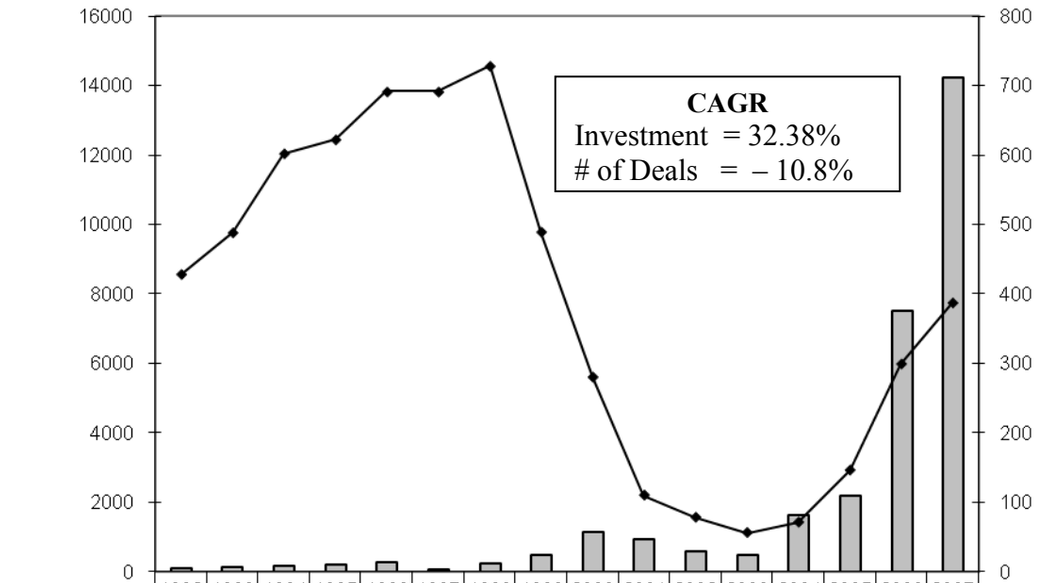
Similarly many such country level studies have been carried out on VC financing also but most of the earlier works during 1964-74 were on US VC industry only which was compiled by Dominguez (1974) and subsequently propagated by Bruno and Tyebjee (1984, 1985). Though during the last 64 years (1964-2010) the concept of VC got transplanted (in its original form or variant) in almost over 80 countries around the world, most of the research studies are being carried out on European VC industry (49%), followed by North America (35%), and Asia Pacific (13%). Two regions where much research activities on VC were not carried out are Middle East & Africa and also Central & South America (Subhash, 2007a; Subhash et al, 2009b; Subhash, 2010a).Thus one can conclude that there exists a variety of literatures on BI's, VC's, and also on incubators separately which is being carried out on country level basis over the last 64 years. This being the case, a detailed study analyzing the geographical concentration / clustering pattern of the origin, development, growth of BI's, incubates, and also VC financing was not yet carried out, including an emerging economy like India. Though the modern concept of BI and VC started in the US in 1946, in India the concept of VC started from the year 1964 and BI started from 1985 onwards. But a study focusing India based on the geographical concentration / clustering pattern of VC's, BI's, and also incubatees makes it unique which tries to fill the gap by adding valuable knowledge, new perspectives, and presents possibilities for consideration. The paper offers valuable inputs for VC's, BI's, incubatees, the government, and other stakeholder groups.

3. Geography of Venture Capital Financing and Venture Capitalists in India

Geographical concentration / clustering of VC financing and VC's has been studied with respect to select countries like U.S., U.K., India, and Canada. As discussed earlier, clustering of economic activities (including VC financing) has significance in shaping the pattern of regional economic development within a country depending on the favorable climate (political, financial, and technological) as such region gets more priority and development takes place faster. These clustering patterns are technically being termed as *Political-related* (due to proximity of political capital), *Finance-related* (due to proximity of financial markets) and *Technology-related* (due to proximity of technological advancement) clustering, which has been identified and studied in developed countries like the U.S. (Leinback and Amrhein, 1987; Kenney and Dossani, 2001; Florida and Kenney, 1988a; Florida and Kenney 1988b), UK (Mason and Harrison, 2002), and Canada (Subhash, 2007b), and also in India (Kenney and Dossani, 2001). The study on developing country like India (Kenny and Dossani, 2001) also revealed that in terms of VC financing and location of VC's does have *Political-related* (New Delhi being national capital falling under Northern region), *Finance-related* (Mumbai being the financial hub falling under Western region), as well as *Technology-related* (Bangaluru emerged as the technology hub falling under Southern region) which indicates the differences in entrepreneurial efficiencies as well as technological superiority of different regions. This being the case, this section tries to identify and study the geographical concentration / clustering pattern with respect to VC financing and location of VC's during (1992-2007) to see whether there is any change taken place from the earlier studies.

Though India had the history of 46 years (1964-2010) of VC financing activities; the first 27 years (1964-81) witnessed only the laying of foundation stone for the venture capital industry (Pre-LPG Era; i.e., Liberalization, Privatization, and Globalization) and the next 15 years (1982-97) actually made Indian VC industry to reach a significant level (early stage of LPG). During 1997-2009 the status of India in the global VC industry has improved and ranking 9th after China (3rd) and Japan (5th) from Asia Pacific region by 2009 (Subhash, 2007a; Subhash et al, 2010a; Subhash et al, 2010b). From the available information (refer Exhibit 1), overall CAGR (1992-2007) of VC investments in India is around 32.38. From a mere 104 US$ mn (averaging 0.24 US$ mn) in 1992, it increased to almost 14,234 US$ mn (averaging 36.78 US$ mn) by 2007. With respect to the number of units got assistance reduced from 428 in 1997 to only 387 in 2007, reflecting

Exhibit 1 Venture Capital Investment in India



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
US $ mn	104	135	182	201	282	80	250	500	1160	937	591	470	1650	2200	7500	1423
# of deals	428	488	602	622	691	691	728	489	280	110	78	56	71	146	299	387

Source: *IVCA Reports 1993, 1994, 1995, 1996, 1997; and IVCA website*

a negative CAGR of 10.8 indicating the increase in the volume of assistance provided over the years.

The geographical breakup of the VC investment in India (refer Exhibit 2) during 1992-2007 shows that in the initial years Southern region was prominent (Bangaluru, Hyderabad, and Chennai became technology hubs), but subsequently Western region (51%) started getting more assistance followed by Northern region (26%) and Southern region (20%) is in the third position only. In the initial years due to technological advancements in Southern region the VC financing was coming under *technology-related clustering*, and still the technological supremacy exists in the Southern region. But over the years, the shift in investment strategy of VC's from high-tech to other categories of industries led to the change in investment pattern and presently falls under *finance-related clustering* (Mumbai is the financial capital in the Western region) as well as *political-related clustering* (Delhi being the national capital in the Northern region).

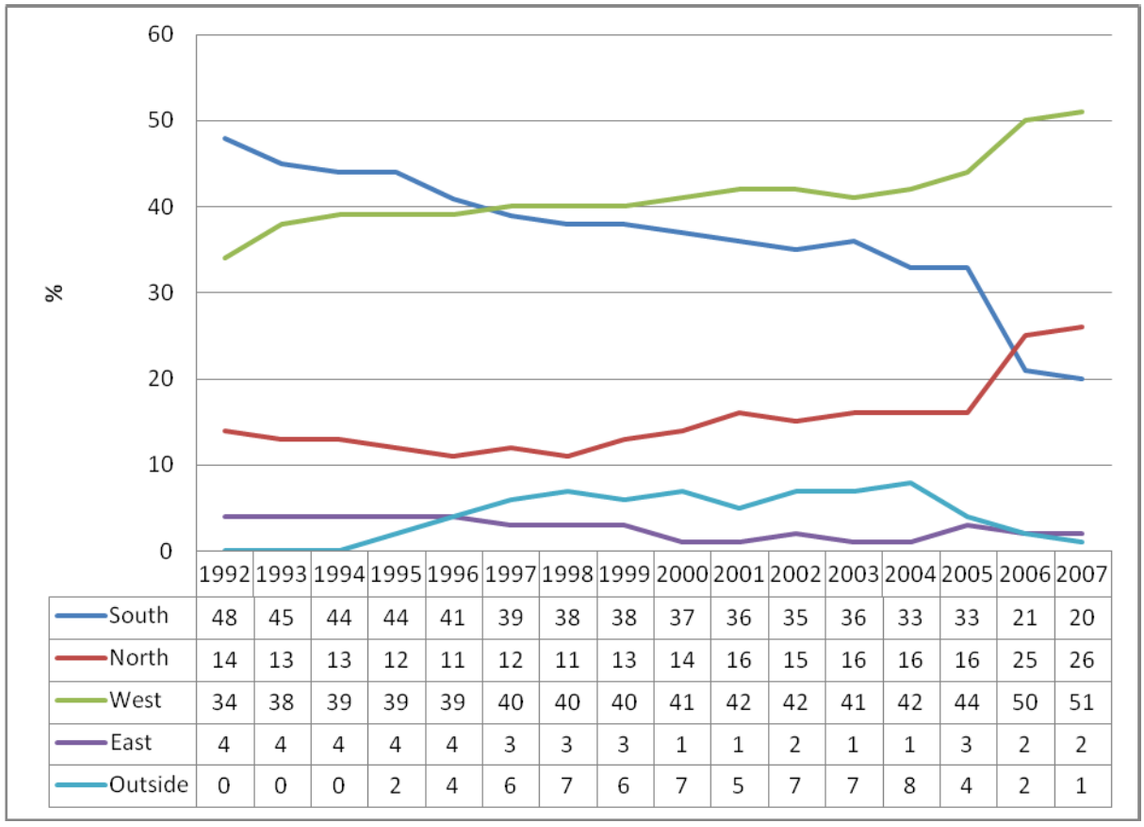
The picture of clustering of VC's in India till 2010 also reveals similar pattern, clearly showing the detailed picture which is being shown in detail (refer Exhibit 3) and explained in the subsequent sections. Of the total 157 VC's (excluding 53 offshore VC's registered in Mauritius) Western region has 59% (of which Mumbai alone has 36%) clearly indicating the existence of *Finance-related* clustering as the most prominent one. This is followed by Southern region with 25% (of which Bangaluru alone has 13%, Hyderabad has 7%, and Chennai has 4%) indicating *Technology-related* clustering. Finally the Northern region accounted only 11% (of which New Delhi has 7%) shows the *Political-related* clustering of VC's in India.

Thus in terms of clustering formations in VC financing and VC's in India, *Political-related* clustering exists in Northern region, *Finance-related* clustering exists in Western region, and *Technology-related* clustering exists in Southern region where three new players have joined the league; viz.; Hyderabad, Chennai, and Thiruvananthapuram which was not in active position in the earlier studies.

4. Geography of Business Incubators and Incubatees in India

In 1982 Government of India established the National Science & Technology Entrepreneurship Development board (NSTEDB) with the main objective of promoting entrepreneurial talents by setting up BI's. Much before

Exhibit 2 Region-wise Venture Capital Investment in India



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
South	48	45	44	44	41	39	38	38	37	36	35	36	33	33	21	20
North	14	13	13	12	11	12	11	13	14	16	15	16	16	16	25	26
West	34	38	39	39	39	40	40	40	41	42	42	41	42	44	50	51
East	4	4	4	4	4	3	3	3	1	1	2	1	1	3	2	2
Outside	0	0	0	2	4	6	7	6	7	5	7	7	8	4	2	1

Source: *IVCA Reports 1993, 1994, 1995, 1996, 1997; and IVCA website*

this, scheme for Science & Technology Entrepreneurs Parks (STEPs) was started in the early 1980's and subsequently the Technology Business Incubators (TBIs) programme was launched in early 2000's. Presently there are 9 STEPs and 19 TBIs actively involved in promoting new entrepreneurial talents, another 8 new TBIs are going to be launched soon and in total 36 BIs are registered with NSTEDB during the period of last 25 years. During the period 1985-2010, NSTEDB has so far catalysed 15 STEPs in different parts of India, which have promoted nearly 788 units generating annual turnover of around Rs. 130 crores and employment for 5000 persons. More than 100 new products and technologies have been developed by the STEPs / STEP promoted entrepreneurs. In addition, over 11,000 persons have been trained through various skill development programmes conducted by STEPs (NSTEDB, 2009). Though there exist two nomenclatures, both STEPs and TBIs technically provide almost similar services to incubatees hence in the subsequent sections both are termed as BI's.

From the overall status of BI's in India it can be seen that the growth and development pattern during the first decade (1985-1994) only 4 BI's were started of which three were in Southern region and one in Eastern Region. In the second decade (1995-2004) almost 16 BI's started (7 in south, 5 in west, and 4 in north) providing services to incubatees. But during the next 5 years (2005-2010) again another 16 BI's (started and about to start) got approval from NSTEDB (7 in south, 6 in north, 2 in west, and 1 in east). Thus in terms of BI's, the existence of *Technological-related* clustering can be seen in Southern region (47%), followed by *Political-related* clustering in Northern region (28%), and finally *Finance-related* clustering in Western region (19%), which is completely different from the geographical concentration of VC financing as well as VC's in India where Western region was prominent (refer Exhibit 3).

Exhibit 3 Geographical Concentration of Business Incubators, Incubatees, and Venture Capitalists in India

Region / States / Cities	*BI's*	*Incubatees*	*VC's*
New Delhi	2	--	**11 (7%)**
Punjab / Chandigarh	2	8	**1**
Rajasthan	1	9	**2**
Uttar Pradesh	5	88	**2**
Haryana			1
NORTH	10 (28%)	105 (9%)	17 (11%)
Karnataka (*Bangaluru*)	4	265	**20 (13%)**
Andhra Pradesh (*Hyderabad*)	2	26	**11 (7%)**
Tamil Nadu (*Chennai*)	8	334	**6 (4%)**
Kerala (*Thiruvananthapuram*)	3	93	**2**
SOUTH	17 (47%)	718 (61%)	39 (25%)
West Bengal	2	220	**8**
EAST	2 (6%)	220 (19%)	8 (5%)
Maharashtra (*Mumbai*)	4	94	**87 (55%)**
Gujarat	3	33	**6**
WEST	7 (19%)	127 (11%)	93 (59%)
TOTAL	36	1170	157 *

* Excluding 53 Offshore Venture Capitalists are registered in Mauritius.

Figures given in parenthesis are the percentage values

Source: *Authors' own compilation based on IVCA Reports 1993, 1994, 1995, 1996, 1997; and IVCA website*

Administrative status of BI's in India reveals that (refer Annexure 1) 26 BI's are having the legal status of a registered society. Around 34 BI's are linked with the parent technical institution / university. Majority of the BI's are providing services to high-tech incubatees (31); one each in agriculture, plastics & rubber processing, rural development; and 2 in herbal health care sector; thus in general it can be seen that most of the incubatees registering and graduating are falling under the category of techno-entrepreneur (engineering entrepreneurs).

The incubation status of the BI's reveals a complete picture of the funding agency, number of companies registered, employment and also the revenue generation by incubatees (refer Annexure 2). Only 17 BI's got the funding from the Department of Science and Technology (DST), Government of India, and the quantum of funding ranges between Rs 0.5 – 2.5 crores (majority got only Rs 1 crores). In terms of the incubating capacity, BI's from Southern region tops (7 to 51) and the number of incubated is also more (4 to 186). Though there are only 2 BI's in Northern region having a capacity of 6 to 16 incubatees, the number of incubated companies are the highest (7 to 213) among all regions and also individual BI's. STEP IIT Karagpur started in 1985 alone helped in graduating almost 213 incubatees during the last 24 years. Thus the number of companies incubated and graduated clearly shows the socio-economic transformational capability of BI's in generating more employment, revenue, and also future R&D investments. Though the full information about the employment and revenue generation is not available, it clearly shows that BI's are acting as catalysts and the incubatees are generating employment to technically skilled people and also generating revenue for their future expansion plans in the form of increased R&D investments.

And finally here also we can see (refer Exhibit 3) that in terms of incubatees, Southern region is having *Technology-based* clustering (61%) followed by Eastern region (19%). *Finance-related* (Western region with 11%) and *Political-related* (Northern region with 9%) clustering exists. First time Eastern region joined the league with Southern region. Next section compares the clustering pattern of the three categories of entrepreneurial talents.

5. Business Incubators, Incubatees, and Venture Capitalists in India: Discussion

As seen in the preceding sections that there exists *Technology-related*, *Finance-related*, as well as *Political-related* clustering patterns in India also with respect to the three categories of entrepreneurs; viz.; incubatees, BI's, and also VC's. When the information is consolidated, complete picture of the clustering pattern as well as regional differences are visible (refer Exhibit 3).

With respect to the BI's and incubatees; Southern region is prominent with 47% of the BI's and 61% of the incubatees; almost half on all India basis. This clearly shows the technological superiority of this region in high-tech industries resulting in *Technology-based* clustering. Prominent places where the technological advancements taking place are Chennai, Bangaluru, Hyderabad, and Thiruvananthapuram. Almost all the BI's in these regions are catering to the needs of such high-tech entrepreneurial talents (incubatees). Since all these cities are the political capitals as well as major financial markets of the respective states, one can deduce that there also exists *Political-related* and *Finance-related* clustering. One interesting fact about the incubatees registered and graduated is that Eastern region (11%) coming second after Southern region (61%). This is the result of one of the oldest BI's, i.e., STEP IIT Karagpur, which indicates the existence of *Technology-related* clustering. With respect to BI's and VC's, Eastern region is coming in the last position.

Though Southern region is considered as the technology hub in India, it comes second after Western region in terms of the VC financing (51%) and location of VC's (59%); which clearly indicates the dominance of Mumbai (55% of VC's) as the financial capital of India; hence the existence of *Finance-related* clustering. This being the case, in terms of BI's (19%) and incubatees (11%), Western region comes in the third position.

The Northern region comes in third position in terms of VC financing (22%) and VC's; second position in terms of BI's (28%); and fourth position in terms of incubatees. Though New Delhi is the political capital of India, supremacy is not being attained, still can be considered as having *Political-related* clustering pattern.

Thus we can conclude that all three types of geographical concentration / clustering (*Political-related*, *Finance-related*, and *Technology-related)* is taking place with respect to the three categories of entrepreneurial talents (BI's, incubatees, VC's) in India with varying degrees of concentration in different geographical locations / regions. The result of such differences in the concentration of the number of VC's, BI's, and incubators are reflecting on the disproportionate development taking place in different regions. Concentrated effort needs to be done so as to identify some rejuvenating strategy so that the socio-economic transformation in the coming years will be uniform among different regions.

6. Conclusion

The existence of clusters (geographical concentration) is being studied around the world as a catalyst of socio-economic transformation of a region. Though separate studies on geography of VC financing and BI's are being carried out, a detailed study combining the three categories of entrepreneurs (BI's, incubatees, and VC's) in India is novel hence offers valuable inputs for VC's, BI's, incubators, the government, and other stakeholders. With respect to VC's (and also VC financing) the study identified the existence of *Political-related* and also *Finance-related* clustering pattern in the Western region; where as in the case of BI's and incubatees existence of *Technology-related* clustering observed in the Southern region. Time has come to exploit the untapped entrepreneurial talents. Detailed study on the functioning of BI's and incubatees in India may provide more information on developing a strategy for uniform socio-economic transformation in all regions, hence the clustering equation may change in the years to come depending on the development taking place in the technology sector and also on the changing scenario of the political leadership as well as financial market conditions, which may bring in more finance so as to have a uniform entrepreneurial development in India as a whole in the near future.

End Note

This paper is from the post doctoral research work, funded by University Grants Commission, New Delhi; India [No.F.30-I/2009 (SA-II); Dated 2nd July 2009].

Annexure 1 Administrative Status of Incubators in India

#	Name	Year	Thrust Area	Legal Status	Affiliation
1	SOUTH				
	SJCE STEP Mysore	1985	IT, Electronics	Registered Society	Technical Institution / University Linked
	NITK STEP Suratkal	1994	IT, ED, MI	Registered Society	Technical Institution / University Linked
	TREC STEP Trichi	1986	EI, MGE, ABT, ET, EI	Registered Society	Technical Institution / University Linked
	PSG STEP Coimbatore	1998	IT, E, Mechanical, TT	Registered Society	Technical Institution / University Linked
	BEC STEP Bagalkot	1999	FP, TT, BT	Registered Society	Technical Institution / University Linked
	NIT TBI Calicut	2003	IT, ITES, Electronics	Part of Institution	Technical Institution / University Linked
	VIT TBI Vellore	2003	AC, CD, Biotechnology	Registered Society	Technical Institution / University Linked
	TBI @ KCE Erode	2003	ICT	Registered Society	Technical Institution / University Linked
	TBI Composite Bangalore	2003	MT, PPD	Registered Society	R&D Lab Linked
	ICRISAT TBI Hyderabad	2003	Agriculture	Part of Institution	Technical Institution / University Linked
	ICICI KP TBI Hyderabad	2005	LS (Biotechnology, Pharma, and Diagnostic)	Sec 25 of Cos. Act	Technical Institution / University Linked
	Techno park TBI Trivandrum	2007	ICT	Registered Society	Others
	Periyar TBI Tanjavur	2006	Herbal Health	Sec 25 of Cos. Act	University Linked
	RTBI IIT Madras	2006	Rural Development	Registered Society	Technical Institution / University Linked
	Bannari TBI Satyamangalam	2007	ABT, Industrial & Rural Sectors	Registered Society	Technical Institution Linked
	Amrita TBI K 8ollam	2008	IT, EC	Registered Society	Technical Institution Linked
	TBI University of Madras	2006	Herbal & Biotech products for Pharma Sector	Registered Society	Technical Institution / University Linked
2	NORTH				
	JSSATE STEP Noida	2001	ICT	Registered Society	Technical Institution / University Linked
	STEP TIET Patiala	2004	ABT , CT	Registered Society	Technical Institution / University Linked
	TBI @ BITS Pilani	2004	VLSI Design & Embedded Systems	Part of Institution	Technical Institution / University Linked
	AMITY TBI Noida	2006	ICT, Bio-Infomatics	Registered Society	Technical Institution / University Linked
	Krishna TBI Gaziabad	2007	ICT, ME, Electronics	Registered Society	Technical Institution / University Linked
	SIDBI IIT Kanpur	2000	TE, Interdisciplinary Areas	Part of Institution	Technical Institution / University Linked
	TBI University of Delhi	2008	IM with emphasis on Fermentation	Registered Society	Technical Institution / University Linked
	NDRI Karnal	2008	DFP, FT, DF	Registered Society	Technical Institution / University Linked
	Sriram IIR Delhi	2009	Plastics, Rubber Processing & Applications	Private Limited	Technical Institution Linked
	IT BHU Varanasi	2009	ICT, Biotech, FP, Agri & Allied Sector	Registered Society	Technical Institution / University Linked
3	WEST				
	STP Pune	1998	IT Open Source, Clean Technologies & Research	Registered Society	Technical Institution / University Linked
	CIIE TBI IIM Ahamadabad	2001	Incubation, Research Training & Projects	Sec 25 of Cos. Act	Management Institute

#	Name	Year	Thrust Area	Legal Status	Affiliation
	SIIE Bombay TBI IIT Mumbai	2004	Broad Spectrum Technology	Registered Society	Technical Institution / University Linked
	NDBI TBI Ahamadabad	2004	ID	Sec 25 of Cos. Act	Others
	MITCON TBI Pune	2004	ABT, Pharma	Public Ltd Company	Technical Institution / University Linked
	Venture Centre NCL Pune	2007	MS, BT	Sec 25 of Cos. Act	Central / R&D Lab
	MICA Ahamadabad	2009	CS, PATE		Part of College
4	EAST				
	STEP IIT Karagpur	1986	NE, NGID	Registered Society	Technical Institution / University Linked
	Ekta Incubation Centre Kolkatta	2007	IT, Biotechnology	Registered Society	Technical Institution / University Linked

IT	=	Information Technology	ABT	=	Agro Bio-Tech	AC	=	Auto components
ED	=	Engineering Design	ET	=	Environmental Technology	CD	=	Consumer Durables
MD	=	Multi-technology Design	EI	=	Electronics & Instrumentation	MT	=	Materials Technology
EI	=	Entrepreneurship & Innovation	FP	=	Food Processing	ITES	=	IT Enabled Services
TT	=	Textile Technology	BT	=	Building Technology	LS	=	Life Science
EC	=	Electronics & Communication	ABT	=	Agro-Biotech	CT	=	Communication Technology
MC	=	Mechanical Engineering	TE	=	Technology Engineering	IM	=	Industrial Micrology
DFP	=	Dairy & Food Processing	FT	=	Feed Technology	DF	=	Dairy Farming
NE	=	Nano-Electronics	NDID	=	Next Generation Integrated Devices	ID	=	Industrial Design
MS	=	Material Science	CS	=	Communication Service	PPD	=	Product & Process Development
MGE	=	Manufacturing & General Engineering	PATE	=	Product Application Tools & Equipment	ICT	=	Information & Communication Technology

Source: *National Science & Technology Entrepreneurship Development Board, Government of India.*

Annexure 2 Incubation Status of Incubators in India

#	Name	Seed Fund		Year	Available area (sq ft)	Time (Years)	Number of Companies				Employment (# of persons)	Revenue ` Crore
		Agency	` Crore				Capacity	Incubated	Graduated	Existing		
1	SOUTH											
	SJCE STEP Mysore	DST	1	1985	500, 1200, 4000	2-3	10	150			2500	
	NITK STEP Suratkal	DST	1	1986	150	2.75	10	30	23	16	1200	20
	TREC STEP Trichi	DST	1	1998	600	3	31	186	180	176	5000	200
	PSG STEP Coimbatore	DST	1	1999	100 to 2000	3	31	89	89	60	1000	40
	BEC STEP Bagalkot			2003	150	0.5	7	29				
	NIT TBI Calicut	DST	0.45	2003	250	3	13	17	4			
	VIT TBI Vellore	DST	1	2003	150	2.5	10	18	5	4	65	1.6
	TBI @ KCE Erode	DST	0.5	2003	440	2	15	22	12	9	200	250
	TBI Composite Bangalore			2003	64	0.5	10	56	53	50	1500	100
	ICRISAT TBI Hyderabad	DST	1	2005	varies	2	10	17	5	5	543	0.7
	ICICI KP TBI Hyderabad	DST	2	2007	225	3	8	9	3			
	Techno park TBI Trivandrum	DST	1	2006	300	3	34	72	40	40	300	250
	Periyar TBI Tanjavur			2006	100	2	15	7				
	RTBI IIT Madras	DST	0.5	2007	500	2	8	12	2			
	Bannari TBI Satyamangalam			2008	109	2-3	13					
	Amrita TBI Kollam			2006	50	2	51	4				
	TBI University of Madras			1985	11750							
2	NORTH											
	JSSATE STEP Noida	DST	1	2001	150	2	15	37	13	10	300	250
	STEP TIET Patiala			2004	100	0.25 - 0.5	8	8	4		29	1
	TBI @ BITS Pilani			2004	150	1	10	9	2	1	127	1
	AMITY TBI Noida			2006	300	3	14	25	3			
	Krishna TBI Gaziabad	DST	0.5	2007	244	2	35	11				
	SIDBI IIT Kanpur	DST	1.8	2000	250	2	12	15	5	4	94	6.7
	TBI University of Delhi			2008	250, 600, 1000	2-3	8					
	NDRI Karnal			2008	700	3	10					
	Sriram IIR Delhi			2009	100	2	10					
	IT BHU Varanasi			2009	2250	1.5-3	10					
3	WEST											
	STP Pune	DST	2	1998	250	3-5	10	25	2			
	CIIE TBI IIM Ahamadabad	DST	1	2001	145	1.75	12	16	2	2	150	2

#	Name	Seed Fund		Year	Available area (sq ft)	Time (Years)	Number of Companies				Employment (# of persons)	Revenue ` Crore
		Agency	` Crore				Capacity	Incubated	Graduated	Existing		
	SIIE Bombay TBI IIT Mumbai	DST	2.4	2004	350	3	16	32	10	6	200	
	NDBI TBI Ahamadabad			2004	100	1.5	7	17	14	8	300	6
	MITCON TBI Pune			2004	2000	2	15	35	15	4	150	4
	Venture Centre NCL Pune			2007	500	2		2				
	MICA Ahamadabad			2009	5000	2-3						
4	EAST											
	STEP IIT Karagpur	DST	1.56	1986	700	3	8	213		10		
	Ekta Incubation Centre Kolkatta			2007	400-600	1-5	16	7				

Source: *National Science & Technology Entrepreneurship Development Board, Government of India.*

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