



Global Innovation Networks or Global Innovation Traps? A study of University Industry Interaction in India's ICT Sector

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Analytical context

- GINs have expanded beyond the traditional high tech regions in the United States, the EU and Japan to new locations in Asia - especially in India and China (Cantwell 2005)
- China had emerged as the most attractive location for R&D affiliates after the United States and the United Kingdom followed by India with 6th position (UNCTAD 2005)
- Various studies have analysed the factors that induce the emergence of GINs and located various centripetal and centrifugal forces
- There is a consensus that unprecedented growth in Gins indicates the presence of factors that undermines the centripetal forces that reduces uncertainty as well as transaction and coordination costs.





Analitical context

- GINs, however, poses new challenges and opportunities for the policy makers as well as the academia (Ernst 2009).
- It has been argued that GINs could be viewed as a double edged sword both for the MNCs and the host counties.
- There are many gains but also pains associated with (Grimpe and Kaiser (2010)
- There are much potential gains for the developing counties; but it could also turn out to be a poisoned chalice (Ernst 2009)
- The developmental impact of GINs depends among others on their bearing on knowledge production and diffusion and therefore on the universities and research institutions.





Analytical context

- Scholars have highlighted the bearing of innovation capacity as critical for reaping the potential advantages of GINs
- And the studies on innovation in the National System of Innovation perspective have assigned a key role for universities and Public Research Institutions (PRIs).
- However, this issue has not received the attention of GINs scholars that it deserves.
- Hence the present study
- The choice of ICT sector is guided by the fact that India's presence in GINs has been most notable in the sphere of Information Technology that accounted for almost 40 percent of foreign Direct Investment in R&D in India





On database: INGINEUS & RoKS survey

Cities chosen for survey	Number of Firms as per NASSCOM survey 2009-10	Number of firms surveyed	Percentage of firms surveyed
Bangalore	281	50	17.79
Delhi/Noida/Gurgaon	256	75	29.30
Mumbai	185	68	36.76
Pune	72	20	27.78
Chennai	147	39	26.53
Trivandrum	184	20	10.87
Hyderabad	107	25	23.36
Kochi	55	10	18.18
Manual Total	1287	307	23.85
Online Total		18	
All Total		325	



On in house R&D by firms

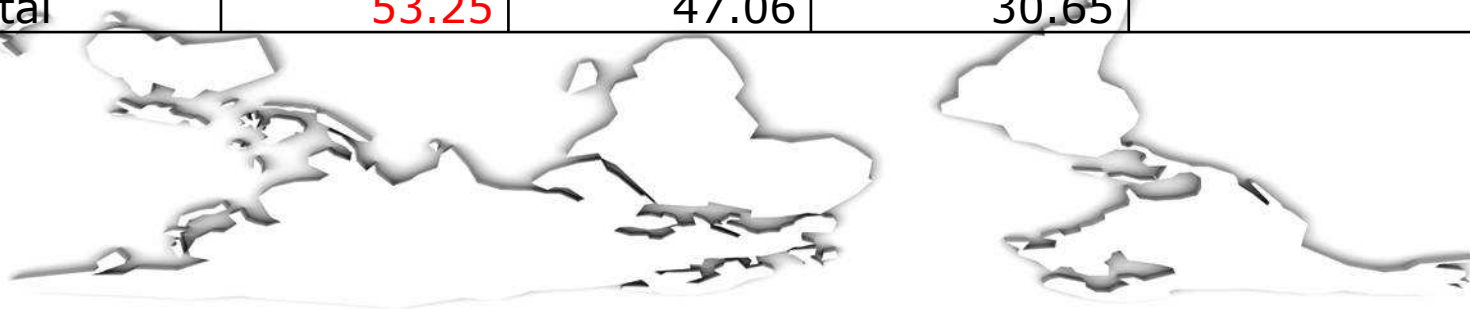
	Stand Alone	Subsidiary of MNCs	Head Quarter of MNCs	Total
R&D No	53.89	25.47	22	39.63
R&D yes	46.11	74.53	78	60.37
Total	100	100	100	100





Scale and pattern of interaction (%)

firm type	any University or RI	any local University or RI	any foreign University or RI	both local and foreign University &_RI
stand alone firms	24.51	39.52	19.76	16.77
MNC subsidiaries	55.66	46.23	36.79	27.36
Indian MNCs	84	74	54	44
Total	53.25	47.06	30.65	24.46





Regional pattern

- There is substantial regional variation in the incidence of university industry interaction
- While in Bangalore, 94 percent of the firms reported having interaction with universities, and in Delhi it was 77 percent
- The centers like Bangalore and Delhi are characterized by relatively more vibrant regional innovation system with the presence a number of leading public funded research institutes, leading public sector units and universities
- The regional innovation system does matter





Other observations

- Interaction was the highest with north American universities indicating the bearing on the exports
- The relationship with foreign universities was found mostly formal while the literature talks about the multiple and flexible forms of benefits from informal relationships





Own R&D vs. university industry interaction

- There is a high degree of association between university industry interaction and the firm's R&D activity in case of MNC subsidiaries and MNC HQ.
- 60 percent MNC subsidiaries and 95% of MNC headquarters were found engaged in in-house R&D activity and also interacting with universities
- In case of stand alone firms there were no such complementarity





Behind the low level of interaction

- Depends on the firm strategy as was the operating conditions in the country concerned
- More than 73 percent of the firms stated that technology and process development was internal to the firm
- Delegation of functions seems to be among the subsidiaries of the same firm.
- Thus viewed the old model of global production networks still characterizes the GINS





Why global knowledge collaboration has not taken root among firms in India?

- Majority of the firms (55%) perceived that finding relevant knowledge across the globe was a serious or moderate barrier.
- Of which 23% reported this as a serious barrier
- Among the MNC subsidiaries in India 24 per cent reported finding knowledge of relevance as serious barrier.
- It was the MNCs head quartered in India that found knowledge collaboration for innovation very difficult. More than 42 percent of the firms felt that it was an extreme or serious barrier.





Why global knowledge collaboration has not taken root among firms in India?

- With respect to the institutional arrangements: 70 percent of the firms felt that public funded centers of innovation carried a negative attitude towards internationalization
- MNC from India (82 percent) felt that public support for innovation was very negative.
- Indicative of immature innovation system





Two case studies

- Case 1 : **Integration with universities as a conduit for ensuring skill supply**
- This firm represents the case typical of university industry interaction in an immature innovation system.
- The firm does not see universities as partners in research or innovation rather its internal sources are the core sources of innovation along with the feedback from customers and suppliers.
- While the firm interacts with the universities, the basic objective is to influence the teaching and training in such way that the products from the university system is industry ready





Case 2: Interaction with universities as a means of market creation

- Indian subsidiary of a MNC with headquarters in U.S
- Being a firm operating in a high tech industry with relatively shorter product cycle under highly competitive conditions, it has been providing top priority for innovation
- “Our innovation strategy requires a unique combination of internal development, partnerships, and acquisitions”
- While the firm believes in interactive learning and collaboration with universities no formal arrangements exist until now in India.
- At the same time there are various initiatives that are oriented more towards market creation and expansion as compared to promoting innovation.





Thanks for your attention/questions

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