

The effect of local and global linkages on the innovativeness among ICT SMEs:
Does location specific context matter?

Harirchi, Gouya

Motivation

- Ample amount of papers on how SMEs would benefit from external sources (an overview is given- Street and Cameron, 2007)
- Current interest in the subject of networked innovation” in SMEs (e.g. the special issue in Journal of Small Business Management: Colombo, Laursen et al., 2012)

Gap

- Recent literature has emphasized how the geographical scopes of networks (local and non local) held by firms impacts the innovation performance (e.g. Fitjar & Rodríguez-Pose. 2012)
- Recent work has emphasized the role played by location specific factors while analysing the likelihood of engagement in innovation network (Crescenzi, Rodríguez-Pose, and Storper 2012; Fernández-Serrano and Romero 2012; Doloreux and Shearmur 2012; Herstad and Ebersberger Forthcoming).

Gap

However few of these studies have addressed how embeddedness in **different country contexts can impact** the innovation effect of these linkages

Aim

- The objective of this paper is to extend the discussion on the effects of local and global innovation collaborations on degree of novelty of innovations by considering the context that the ICT SMEs are embedded in.

Research Questions

- What is the effect of local and global linkages on the likelihood of degree of novelty of innovation among SMEs in the ICT sector?
- Does embeddedness in the developed or emerging country context affect the likelihood of benefiting from local or global linkages for innovations with higher novelty?

Background

SMEs and Innovation – collaborative innovations

Liability of smallness:

1. Lack of financial resources e.g. limited R&D

2. Lack of complementary assets for commercialization (Colombo et al., 2012)

• Collaboration & networks (External relationships) source of competitive advantage

e.g. open innovation in SMEs (Lee, Park et al. 2010) ; (van de Vrande, de Jong et al. 2009)

Geographic location & innovation

Local resources (geographical proximity)

- Clusters studies originally for SMEs

E.g.. Almeida & Kogut (1997): small firms more in connection with regional networks

- Global-pipelines within clusters: why external global linkages would matter for clusters

Context and external linkages

- in order to understand the likelihood of engagement in local and non-local linkages there is a need for understanding of the context that firms are embedded (Huber, F. 2013)
- Differences on structural characteristics such as technology, capacity and demand (Fagerberg, Srholec, and Knell 2007) have been recognized as factors behind country level variations with regard to performance

Data

EU-funded INGINEUS project

SME firms in ICT- Indian, Norway and Sweden

Micro, small and medium firms (firms with less than 250 FTE)

Final sample of SMEs

Countries	ICT
Scandinavia	249 (65.70)
India	130 (34.30)
Total	379

Dependent variable

Dependent variable:

a question that asks firms about their most important innovation in the past three years (2006-2008)

a dummy variable is constructed taking value 1 for new to the industry or new to the world innovations

Takes value 0 if new to the firm (excluding non-innovative firms)

Explanatory variables

- *Global resources: dummy*
- *Regional resources: dummy*
- *globalresources_market*: Dummy variable takes value 1 if firms have indicated collaboration with clients, suppliers, competitors or consultancy companies
- *globalresources_institutes*: Dummy variable takes value 1 if firms have indicated collaboration with government or universities/ research institutes.

Explanatory variables

As we have only dummy variable, the interaction has been created through a categorical variables

- *region (Scandinavia or India)- regional resources: categorical*
- *region (Scandinavia or India)- global resources: categorical*

Control variables

- *R&D*
- *Export market*
- *FDI*
- size
- organisational form.

Model

- Dummy dependent variable → logit model

Endogeneity concern

- Are more innovative SMEs are also stronger firms that are more likely to engage in global collaborations?
- Ideal database: longitudinal data

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
(1)novel inovation	0.617	0.487	1.00																	
(2)globalresources	0.567	0.496	0.24	1.00																
(3)regional_resources	0.546	0.499	0.06	0.11	1.00															
(4)country_resources	0.697	0.460	-0.05	0.08	-	0.13	1.00													
(5)globalresources_market	0.551	0.498	0.25	0.97	0.09	0.07	1.00													
(6)globalresources_institutes	0.222	0.416	0.22	0.47	0.15	-0.01	0.40	1.00												
(7)India	0.343	0.475	0.25	0.25	0.23	-0.15	0.23	0.34	1.00											
(8)Developed	0.657	0.475	-0.25	-0.25	-	0.23	0.15	-0.23	-0.34	-1.00	1.00									
(9)Export market	0.314	0.465	0.25	0.46	0.11	-0.10	0.46	0.39	0.51	-	0.51	1.00								
(10)R&D	0.580	0.494	0.34	0.18	-	0.01	-0.01	0.17	0.22	0.26	-	0.26	0.29	1.00						
(11)FDI	0.280	0.450	0.18	0.35	0.04	0.04	0.32	0.38	0.31	-	0.31	0.31	0.22	1.00						
(12)micro	0.232	0.423	-0.20	-0.13	-	0.09	0.08	-0.12	-0.14	-0.32	-	0.32	0.25	-0.18	-0.23	1.00				
(13)small	0.433	0.496	-0.01	-0.11	-	0.09	-0.06	-0.10	-0.13	-0.34	-	0.34	0.10	-0.03	-0.04	-0.48	1.00			
(14)medium	0.309	0.463	0.15	0.24	0.16	-0.01	0.22	0.25	0.58	-	0.58	0.32	0.15	0.23	-0.37	-0.58	1.00			
(15)headq	0.074	0.262	0.12	0.08	0.10	-0.08	0.09	0.19	0.22	-	0.22	0.18	0.14	0.14	-0.13	-0.14	0.29	1.00		
(16)subsid	0.156	0.363	0.08	0.17	0.13	-0.06	0.17	0.16	0.33	-	0.33	0.27	0.17	0.12	-0.13	-0.14	0.20	-0.12	1.00	
(17)Standalone	0.770	0.421	-0.15	-0.20	-	0.17	0.10	-0.20	-0.25	-	0.43	0.35	-0.24	-0.19	0.20	0.21	-0.36	-0.52	-0.79	1.00

The descriptive results

Around 60% of firms have introduced a novel innovation either as new to the world or new to the industry.

	Model 1	Model 2	Model 3	Model 4	Model 5
	new to the world/industry	new to the world/industry	new to the world/industry	new to the world/industry	new to the world/industry
Global resources		0.705*** (0.269)		0.772*** (0.268)	
global_market			0.687** (0.292)		
global_inst			0.527 (0.366)		
regional_sources		-0.038 (0.257)	-0.067 (0.257)		-0.061 (0.258)
country_sources		-0.261 (0.284)	-0.262 (0.286)	-0.271 (0.286)	-0.202 (0.281)
Scan. not used regional resources				0.414 (0.287)	
Indian used regional resources				1.054** (0.448)	
Indian not used regional resources				0.026 (0.493)	
<i>Baseline= scan. used regional resources</i>					
Scan. not used global resources					-0.94*** (0.300)
Indian used global resources					-0.046 (0.444)
Indian not used global resources					0.279 (0.605)
<i>Baseline= scan. used global resources</i>					
India	0.437 (0.367)	0.450 (0.392)	0.442 (0.394)		
R&D	1.148*** (0.249)	1.169*** (0.254)	1.153*** (0.253)	1.134*** (0.255)	1.150*** (0.254)
Subs	-0.745 (0.580)	-0.777 (0.589)	-0.745 (0.602)	-0.772 (0.624)	-0.750 (0.584)
Standalone	-0.398 (0.554)	-0.392 (0.568)	-0.354 (0.576)	-0.339 (0.604)	-0.461 (0.568)
<i>baseline headquarter of MNC</i>					
Export market	0.574* (0.319)	0.253 (0.340)	0.154 (0.350)	0.217 (0.345)	0.447 (0.353)
R&D internationalization	0.297 (0.317)	0.135 (0.333)	0.058 (0.339)	0.157 (0.337)	0.189 (0.330)
Micro	-0.315 (0.386)	-0.301 (0.405)	-0.296 (0.411)	-0.255 (0.403)	-0.224 (0.413)
Small	0.141 (0.351)	0.193 (0.374)	0.218 (0.374)	0.238 (0.375)	0.245 (0.383)
<i>baseline medium</i>					
Constant	-0.067 (0.619)	-0.155 (0.689)	-0.199 (0.695)	0.574 (0.671)	-0.315 (0.704)
N	355	355	355	355	355
chi2	49.261***	55.283***	59.392***	57.072***	57.725***
ll	-207.27	-203.83	-202.11	-200.56	-201.74
pseudo R2	0.1227	0.1373	0.1446	0.1512	0.1461

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Conclusions

The different country context gives a nuanced picture of the effect of regional and global linkages of introducing innovations with higher degree of novelty

Indian firms benefit more from regional resources

- Heterogeneity of Indian market
- Absorptive capacity of Indian SMEs in benefiting from global collaboration
- Indian SMEs target the home market

Conclusions

- Scandinavian SME: competitive advantages, in the form of novel innovations, can be gained through idiosyncratic relations in global pipelines that can be harder for competitors to imitate (Fitjar et al., 2013).
- The focus of innovation policy in these countries has been mainly to strengthen regional networks, clusters and systems

Limitations

- Small sample → exploratory research
- Non-innovative firms

Future research

- Longitudinal data in order to study causality

Thank you!