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Internationalisation activities and geographic location: an empirical study of service firms

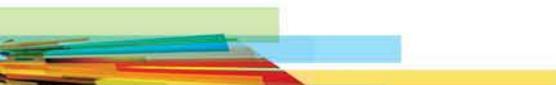
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Research Question

To what extent does the international orientation of KIBS, as captured by the extent and breath of their international activities and their time lag to internationalisation, differ across different regional contexts?





Measuring Internationalisation

- Internationalisation defined as “expanding (activities) across country borders into geographical locations that are new to the firm” (Hitt et al., 1994: 298)
 1. **Extent:** firm’s level of commitment to its internationalisation process
(Casillas & Acedo, 2013)
 2. **Breadth:** firm’s range of countries in which it develops its business
(Zahra & George, 2002)
 3. **Time lag:** lag between the firm’s creation and its first international activity
(Kuivalainen et al., 2012)



Knowledge-Intensive Business Service Firms and their Internationalisation

- KIBS combine highly specialised knowledge to develop and co-create solutions to respond to their clients' problems (Muller & Doloreux, 2009)
 - Proximity is critical to sharing tacit knowledge (Meliciani & Savona, 2014; Antonietti & Cainelli, 2011)
 - Need for co-location may be reduced due to the use of electronic communication technologies to foster intermittent face-to-face contact (Shearmur & Doloreux, 2014)
- Internationalisation of interest as it is viewed as a strategic choice (Sapienza et al., 2006)
 - Allows for greater exposure to knowledge diversity (Fletcher et al., 2013)
 - Impetus for rapid growth (Sapienza et al., 2006)
- Yet only a minority percentage of firms internationalise:
 - Internationalisation requires resource and capability endowments linked to both founder and firm that are heterogeneously distributed among firms (Freeman & Styles 2013; Sui & Baum, 2014)



Knowledge-Intensive Business Service Firms and their Internationalisation (Con't)

- Nature of KIBS and its relationship with clients has an effect on its internationalisation (Malhotra & Hinings, 2009; Ball et al., 2008)
 - Service production and delivery is dependent of intangible and highly mobile resources, and subject to the availability of human and relational resources (Hitt et al., 2006)
 - Firm's geographic location is an antecedent to firm resources and capabilities (Freeman & Styles, 2014; Freeman et al., 2012)
- Gives way to two important constraints on firm internationalisation
 - KIBS require a certain proximity to skilled and specialised talent pools in their domestic market which may vary by region
 - Firm's internationalisation depends primarily on the development of its network(s) and position within these structures
- Studies pertaining to internationalisation and networks assume that business and social networks do not differ by regional context
- **However, indicators exist to suggest the contrary**

Regional Context, Internationalisation, and KIBS

- Why would regions matter with respect to internationalisation?
 - A firm's local domestic market has an impact on its access to resources prior to its internationalisation (Becchetti, De Panizza, & Oropallo, 2007; Hervás-Oliver & Albors-Garrigós, 2007)
 - Certain locations are more conducive to knowledge spillovers than others (Cainelli et al., 2014)
 - Metropolitan regions are considered high-points of interaction and provide access to global markets (McCann, 2007; Shearmur, 2010)
 - Metropolitan regions also provide better access to markets and suppliers, to a qualified and diverse labour force, to specialised business services, and to a developed technological and transport infrastructure (Tödting & Trippel, 2005)
 - Proximity to various types of support from regional institutions which differ by region promotes exporting (Lejpras, 2015)
- How does this relate specifically to KIBS?
 - Resources that comprise each region affect growth potentials of KIBS establishments, such that KIBS are inherently dependant on their surrounding local conditions (Herstad and Ebersberger, 2013)

Regional Context, Internationalisation, and KIBS (Con't)

Relationship between domestic location and internationalisation remains unclear

1. Increased competition in urban regions (Porter, 2003) may hamper internationalisation by constraining a firm's ability to gather or access resources (Fernhaber et al., 2008; Shearmur & Doloreux, 2009)
2. Globalisation may be eroding the influence exerted by industrial districts on internationalisation activities (Pla-Barger & Puig, 2009), and KIBS may gravitate towards regions outside metropolitans (Romero et al., 2014)
3. ICTs are decreasing the need for physical proximity to clients (MacPherson, 2008; Doloreux & Shearmur, 2012), and knowledge is becoming 'ubiquitous' and 'geographically accessible' (Howells, 2012)

Can KIBS overcome constraints imposed by their region?

To what extent does the international orientation of KIBS differ by region?

Data Set

- Data collected via an original survey between Feb. and Sept. 2014
 - Part of a wider original survey on strategies adopted by KIBS firms in the province of Quebec, Canada

- Survey is divided into four sections:
 1. Innovations outputs (service, HR practice, management, marketing and commercialisation) and the use of other KIBS services in support of innovation
 2. Information and knowledge activities and inputs
 3. Internationalisation activities (extent, breadth, time lag)
 4. Characteristics of KIBS establishments

- Data collection strategy
 - Total population of 2511 firms identified from the business directory of the *Centre de Recherche Industrielle du Quebec*
 - Random sample of 502 establishments participated (response rate of 20.1%)
 - Sub-sample of KIBS with some international activities of 156 firms

Variables

1. Regions

Types of region	Size criteria	Distance criteria	Cities/regions
Metropolitan areas	Population over 500,000		Montreal, Quebec city
Central cities	Population 50 000 to 200 000	Located within or beyond an hour's drive of a metropolitan area	Drummondville, Granby Saint-Hyacinthe, Saint-Jean-sur-Richelieu, Victoriaville, Sherbrooke, Shawinigan, Trois-Rivières
Peripheral cities	Population 15 000 to 150 000	Located beyond an hour's drive of a metropolitan area	Amos, Rimouski, Rouyn-Noranda, Saguenay, Val d'Or

Variables (Con't)

2. Internationalisation

- **Extent**

- a) *% Sales abroad*: i) firms with no international sales (0%); ii) firms with ad hoc international sales (1-24%); and, iii) firms with established international sales (25%-100)

- b) *Entry mode commitment*: i) low commitment (intra-firm sales, export, licensing, contracts, franchises); and ii) high commitment (joint-ventures, partial acquisition, total acquisition, subsidiary)

- **Breadth**: i) limited international breadth (1 country); ii) moderate international breadth (2-4 countries); and, iii) high international breadth (5 and more countries)

- **Time lag**: i) 0-3 years; and ii) more than 3 years

Data Analysis

- Series of chi-square analyses are performed
- Exploratory methodology
- Objective: ascertain whether there are systematic differences between different types of region in the international orientation of KIBS firms
 - These differences are examined with respect to (a) extent, (b) breadth, and (c) time lag to internationalisation

Descriptive Statistics

	Location of the KIBS firms				Total (n=156)
	Montreal (n=79)	Quebec (n=36)	Central regions (n=21)	Peripheral regions (n=20)	
Number of internationalised KIBS (n=156)					
Architectural, engineering and related services	16	10	5	9	40
Management, scientific and technical consultants	17	8	3	5	33
Computer systems design and related services	29	8	9	4	50
Others professional KIBS	10	4	1	1	16
Others creative KIBS	7	6	3	1	17
As % of sampled KIBS (n=504)					
Architectural, engineering and related services	34.0	37.0	19.2	39.1	32.5
Management, scientific and technical consultants	31.4	26.6	21.4	35.7	29.4
Computer systems design and related services	40.8	25.8	42.8	50.0	38.1
Others professional KIBS	31.2	23.5	8.3	12.5	23.1
Others creative KIBS	20.0	28.5	37.5	33.3	25.3

Empirical Findings:

Extent of Internationalisation (% Foreign Sales)

- The percentage of domestic firms does not statistically differ between regions
- Of the firms that reported international sales, most have modest international sales: Ad hoc activity is quite evenly distributed across regions
- Although not statistically significant, Montreal and peripheral regions have a larger share of internationalised KIBS firms than Quebec City and central regions.
 - This result does provide partial support the idea that location in a metropolitan area, and thus proximity to dense networks, results in a greater likelihood of internationalisation
 - The higher percentage of internationalised firms in peripheral regions may reflect their inherent need to look for sales beyond their domestic market. It may also be the case that these firms have developed expertise related to resource extraction and transformation which can readily find international clients.

	Location of the KIBS firms				
	Montreal	Quebec	Central regions	Peripheral regions	Total
Numbers of KIBS	205	110	64	50	429
0% - Domestic	60.5	65.5	68.8	60.0	63.0
1-24% - Ad hoc international	22.9	23.6	20.3	24.0	22.8
≥ 25% - Internationalised	16.6	10.9	10.9	16.0	14.2

* Sig. ≤ 0.1.; ** Sig. ≤ 0.05.; *** Sig. ≤ 0.01.

Empirical Findings:

Extent of Internationalisation (Level of Commitment)

- Across all regions, we see a preponderance of low commitment, low control entry modes such as export, licensing, and contracts.
 - This supports the idea that KIBS firms encounter fewer barriers to internationalisation than more capital intensive services, and make do with low control entry modes
- Slight tendency for firms in peripheral and central region to favor high control modes. We question whether the firm's ease of access to its foreign partners influences whether it believes contractual modes of entry are sufficient

		Location of the KIBS firms				
		Montreal	Quebec	Central regions	Peripheral regions	Total
<i>Numbers of KIBS</i>		77	35	19	20	151
Low resource commitment, low control mode	Intra-firm sales	14.3	20.0	21.1	15.0	16.6
	Exportation	66.2	51.4	68.4	55.0	61.6
	Licencing	26.6	25.7	15.8	20.0	23.8
	Contracts	19.5	25.7	10.5	20.0	19.9
	Franchises	2.6	0.0	0.0	5.0	2.0
High resource commitment, high control mode	Joint-venture	10.4	8.6	10.5	5.0	9.3
	Partial acquisition	0.0	5.7	5.3	0.0	2.0
	Total acquisition	3.9	5.7	15.8	5.0	6.0
	Subsidiary	15.6	8.6	15.8	20.0	14.6

* Sig. ≤ 0.1 .; ** Sig. ≤ 0.05 .; *** Sig. ≤ 0.01 .

Empirical Findings:

Breadth of Internationalisation

- There are no significant differences across the regions, although a weak pattern emerges
- A greater proportion of firms in metropolitan regions have a small breadth of internationalisation. As we move away from these regions the share of firms with greater breadth of internationalisation increases
- This observation is counter-intuitive; we would have expected location in a metropolitan region to increase the breadth of internationalisation

	Location of the KIBS firms				
	Montreal	Quebec	Central regions	Peripheral regions	Total
<i>Numbers of KIBS</i>	79	36	21	20	156
1 country	26.6	19.4	14.3	10.0	21.2
2 to 4 countries	48.1	61.1	57.1	60.0	53.8
5 or more countries	25.3	19.4	28.6	30.0	25.0

* Sig. ≤ 0.1 .; ** Sig. ≤ 0.05 .; *** Sig. ≤ 0.01 .

Empirical Findings:

Time Lag to Internationalisation

- There are no systematic regional differences.
- Firms from all regions generally internationalised within three years of their creation.
- Although not statistically significant, it is noteworthy that firms located in central and peripheral regions internationalise slightly earlier than firms in metropolitan regions

	Location of the KIBS firms				
	Montreal	Quebec	Central regions	Peripheral regions	Total
<i>Numbers of KIBS</i>	47	28	16	17	108
Early international (0-3 years)	71.7	65.6	81.3	76.5	72.0
Traditional international (more than 3 years)	28.3	34.4	18.8	23.5	28.0

* Sig. ≤ 0.1 .; ** Sig. ≤ 0.05 .; *** Sig. ≤ 0.01 .

Empirical Findings:

Sources of Knowledge Used by KIBS

	Location of the KIBS firms				
	Montreal	Quebec	Central regions	Peripheral regions	Total
<i>Numbers of KIBS</i>	79	36	21	20	156
Internal staff	97.5	100.0	100.0	100.0	98.7
Client	93.7	100.0	100.0	95.0	96.2
Supplier	70.9	66.7	66.7	55.0	67.3
Consultant	60.8	55.6	61.9	40.0	57.1
Commercial laboratory	5.1	8.3	14.3	10.0	7.7
University	27.8	38.9	47.6	30.0	33.3
Technical institute	6.3	19.4	19.0	25.0	13.5
Government laboratory	10.1	11.1	23.8	20.0	13.5
Private research institute	6.3	5.6	9.5	5.0	6.4
Conference or tradeshow	50.6	69.4	52.4	70.0	57.7
Internet	92.4	86.1	95.2	100.0	92.3
Investor	15.2	19.4	28.6	30.0	19.9
Other firm within group	21.5	19.4	23.8	30.0	22.4

* Sig. ≤ 0.1 .; ** Sig. ≤ 0.05 .; *** Sig. ≤ 0.01 .

Empirical Findings:

Sources of Knowledge Used by KIBS

- Across all regions, use of several knowledge sources
- Greatest importance: internal staff, clients and the Internet
- No systematic differences across regions
- Fostering network relationships to overcome limits or barriers related to local knowledge providers
- Examples from our sample:
 - Greater use of conferences and tradeshow by KIBS in Quebec City and in peripheral regions
 - Investors as knowledge sources in central and peripheral firms
- These knowledge sources are not necessarily in the same geographic local as the firms, and may act as nodes connecting firms irrespective of their regional domestic market

Conclusion & Discussion

1. No statistically significant difference in the international activities of firms across different types of regions
 - Contrary to recent empirical findings
 - **A reasonable explanation may come from the interaction between firm-level and regional-level factors.**
 - KIBS must develop relational capabilities which allow them to create temporary proximity with their clients (Bettiol, Di Maria, & Grandinetti, 2011; Bettiol, De Marchi, Di Maria, & Grandinetti, 2013)
 - However, degree of service standardisation and client interaction is an important source of heterogeneity between KIBS firms (Tether, Hipp, & Miles, 2001). This may influence how firms support their activities within and beyond their regional markets
 - Rather than differing on the basis of location, firms may differ on the basis of these capabilities. *On this basis, differences may exist in how these capabilities are developed and used by firms between regions.*

Conclusion & Discussion

2. Since there are no systematic regional differences when examining international activities, other factors may explain how the local environment affects a firm's internationalisation
 - **There may be equifinality in how firms access resources and transform their capabilities to enact international opportunities**
 - Firms embedded in a specific type of local environment may develop firm-level capabilities that allow them to overcome regional barriers and resource deficiencies associated with their environment, and to capitalize on the unique resources endowments proper to their regional profile
 - Resources related to the regional endowment may influence the capabilities developed at the firm level
 - Region-specific resources, particularly with respect to knowledge, may influence the international orientation of firms embedded in them
 - Other determining factors of interest are those related to the (regional, national, or supra-national) innovation system within which the firm operates

Limitations & Directions for Future Research

1. Limitations associated with cross-sectional data
2. Sample is representative of the province of Quebec with respect to sector and geography, but does not represent all KIBS industries equally
3. External validity of this study needs to be examined in other industries and in other contexts, especially given the high heterogeneity in internationalisation activities and strategies
4. Study is necessarily exploratory