

KIBS Innovation: Space or Place?

Richard Shearmur

INRS-UCS, Université du Québec, Montréal

and

David Doloreux

Telfer School of Management, University of Ottawa

ISRN, 2nd May 2008

Introduction

- 1- KIBS and Innovation
- 2- Innovation and Geography
- 3- KIBS, Innovation and Geography
- 4- Research question
- 5- Data and method
- 6- Results
- 7- This is not just an accident
- 8- Conclusion

KIBS and innovation

- **Some discussion about whether innovation in services can be studied, like innovation in manufacturing, through Oslo manual type questionnaire (Sundbo, 1998; Drejer, 2004).**
- **Drejer (2004) and Camacho & Rodriguez (2005) conclude that there is probably no fundamental difference.**
- **Sundbo (1998) highlights the wider categories of innovation that should be considered (marketing, interaction with clients...).**
- **...but can standard approach apply to sectors that only make customised products?**

Innovation and geography

Geography as context

Geography plays a role because it provides:

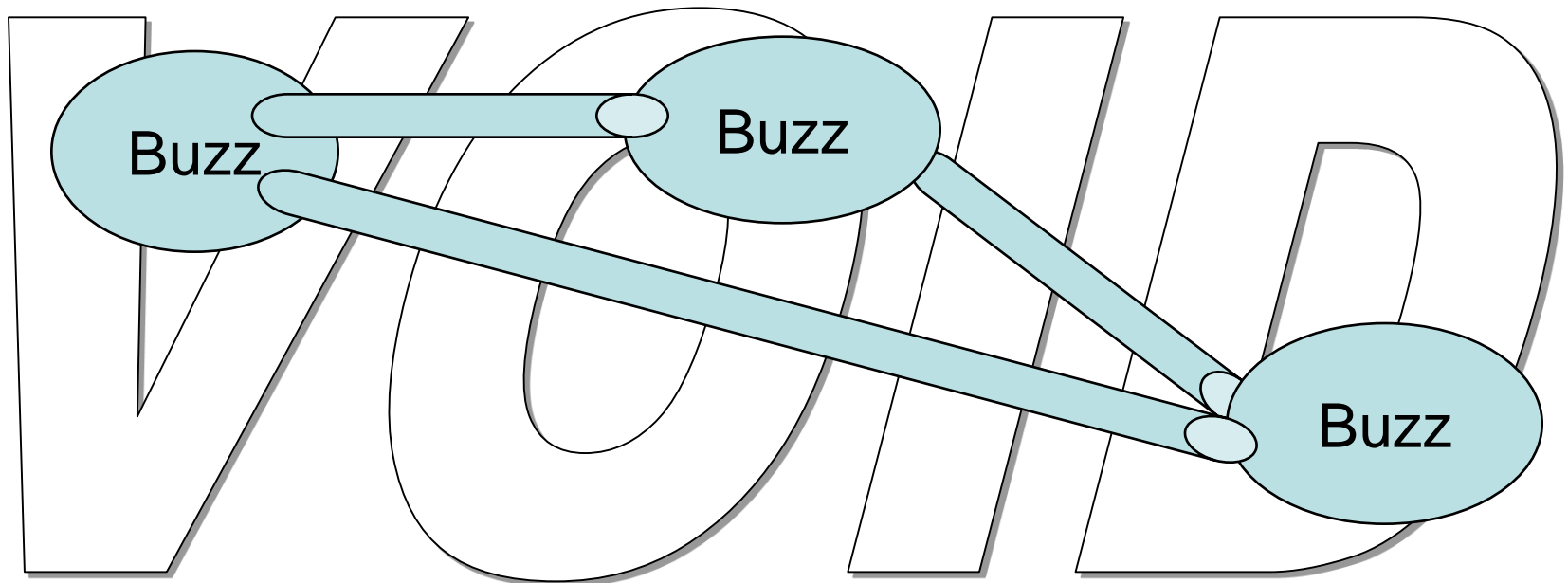
- Institutional context
- Cultural context
- Support for certain types of interaction and networks
- Political agency
- More classic factors such as human capital, infrastructure

In sum, geography is a physical and institutional support for clusters, innovation systems, milieux etc...

Geography as Buzz and Pipeline

The buzz is the context

The pipelines are connections over varying distances with other buzzing contexts.



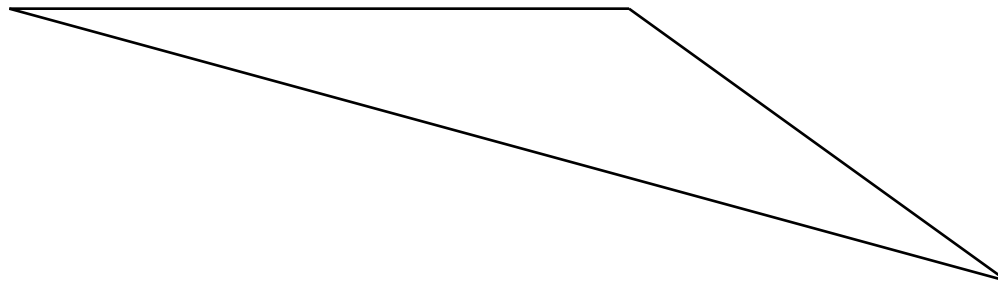
Geography as Points

In fact, from an analytical perspective, local contexts are points, or nodes, in a network.

Each node has a series of attributes

Institutions 1
Context 1
Politics 1
Etc.. = buzz 1

Institution 2
Context 2
Politics 2
Etc..=buzz 2



Institutions 3
Context 3
Politics 3
Etc..=buzz3

KIBS, Geography and Innovation

Two possible approaches:

1- KIBS as vectors of information and knowledge exchange.

KIBS may be an explanatory factor for innovation in other sectors (e.g. manufacturing, MacPherson, 1997; Cooke & Leydesdorff, 2006)

$\text{Innov}(\text{manuf}) = f(\text{local context, KIBS})$

2- KIBS as innovators in their own right

Connection between local context and KIBS innovation?

$\text{Innov} = f(\text{local context})$

Research Question

In Quebec are KIBS establishments more innovative in some local contexts than in others?

If so, this will be taken as *prima facie* evidence that there are local innovative clusters (future research can try to determine exactly how they function)

Data

Survey of 1122 KIBS establishments (NAICS 54: professional and technical services).

Cover most of Quebec, but predominantly in and around major metropolitan areas.

Table 3: Classification of KIBS in our sample

NAICS	Service name	n
5411	Legal services	30
5412	Accounting, preparation of income tax, book keeping	35
5413	Architecture, engineering and connected services	218
5414	Services specialised in design	84
5415	Conception of computer and software systems, and connected services	278
5416	Management, technical and scientific consultants	273
5417	R&D services	31
5418	Marketing and advertising services	76
5419	Other scientific, technical and professional services	99

Data

Innovation question:

Over last three years have you introduced new:

1. product (service)
2. production process
3. service delivery,
4. interaction with clients,
5. work practices internal to your establishment
6. business strategy,
7. management strategy
8. marketing strategy

For each:

Is it new to your establishment? New amongst your competitors?

Variable analysed

We want a simple measure of whether a KIBS establishment is innovative.

10 different (related) measures are explored:

Introduction of 2, 3, 4, 5 or 6 innovations. INNOV2 to INNOV6

Introduction of 2, 3, 4, 5 or 6 'radical' innovations. INNOVR2 to INNOVR6

If ANY of these vary significantly over localities we will take it as evidence that there may be local KIBS innovative systems in Quebec.

Geographic sub-divisions used for Quebec

72 labour market areas: it makes sense to talk of a local economic context

- 1. 34 urban agglomerations (by definition they are labour markets)**
- 2. 38 other areas (approximately MRCs or counties). These are not necessarily labour markets but we know (other research) that labour markets do not usually overlap county boundaries except close to metro areas. Thus our 38 other areas *contain* labour markets: people live and work within them.**

27 2-digit postal codes – arbitrary geographic sub-divisions

290 3-digit postal codes - arbitrary geographic sub-divisions

Method

Multilevel (2-level) logistic regression.

Response variable: has introduced 'x' innovations or more , yes (1) no (0)

Model: Level 1 model (basic logistic regression):

$$prob(innov_i = 1/\beta) = \varphi \tag{1}$$

$$\log(\varphi/(1 - \varphi)) = \eta \tag{2}$$

$$\eta = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k + u_0 \tag{3}$$

Is this random error term (which represent variability of response variable over the geographic units) statistically significant ?

$$\beta_0 = \gamma_{00} + u_0 \tag{4}$$


Results

- 1- There is no statistically significant (10% level) variation of KIBS innovation across the 72 labour market areas.
- 2- There *is* statistically significant variation of KIBS innovation across 27 2-digit postal codes and 290 3-digit postal codes.

We also note that :

- the significant variation is across postal codes *within* metropolitan areas. The principal differences are *intra-metropolitan*.
- **The variation across postal codes disappears if one controls for distance from the centre of a metropolitan area.**

Results

We now test a straightforward logistic regression:

$Innov = f(\text{sector, size, distance from closest metro area})$

For all KIBS establishments within 120km radius of their closest metro area
(991 of the 1122 observations)

Figure 1: Propensity for innovation, all KIBS

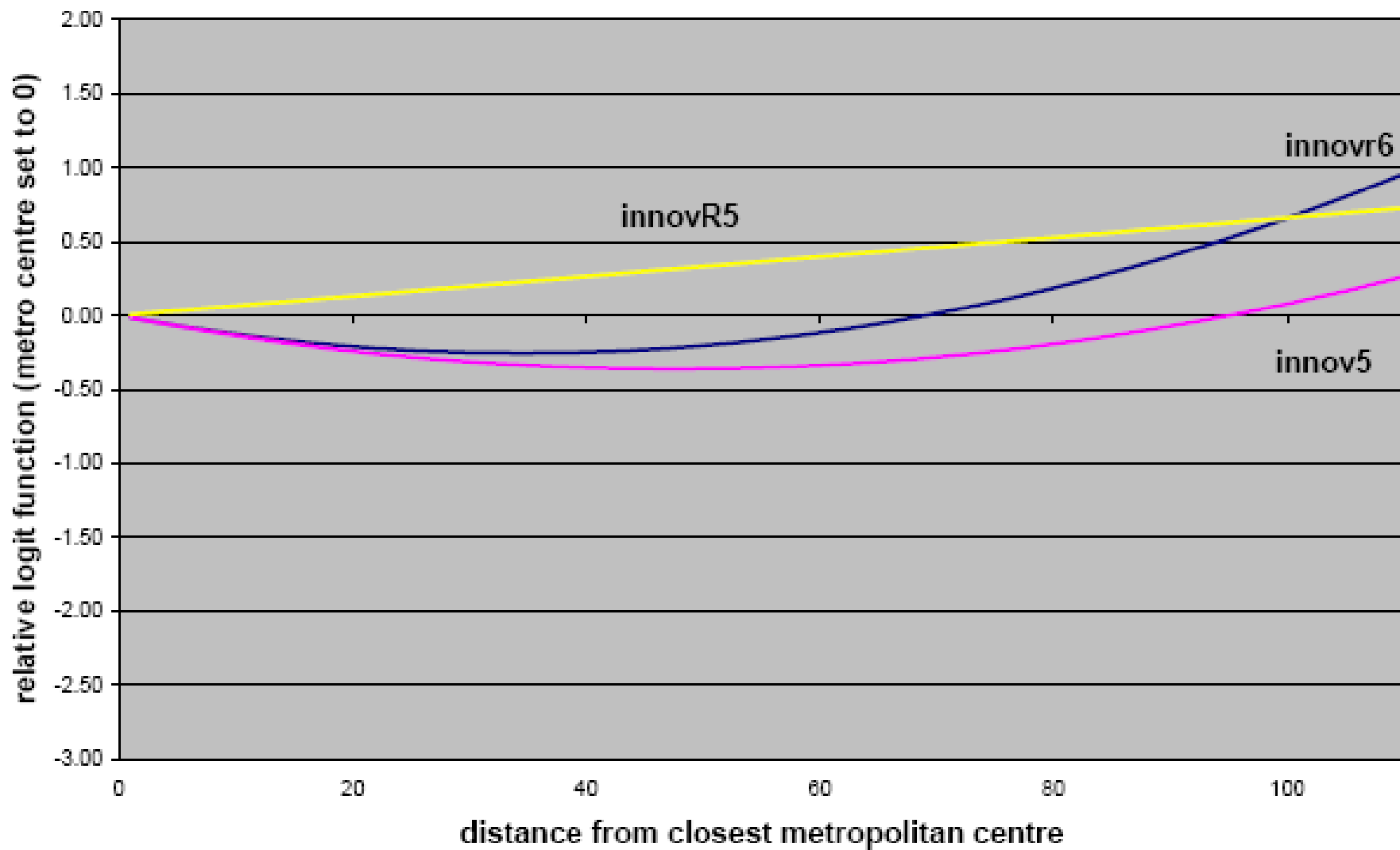


Figure 2: Management and engineering consultants

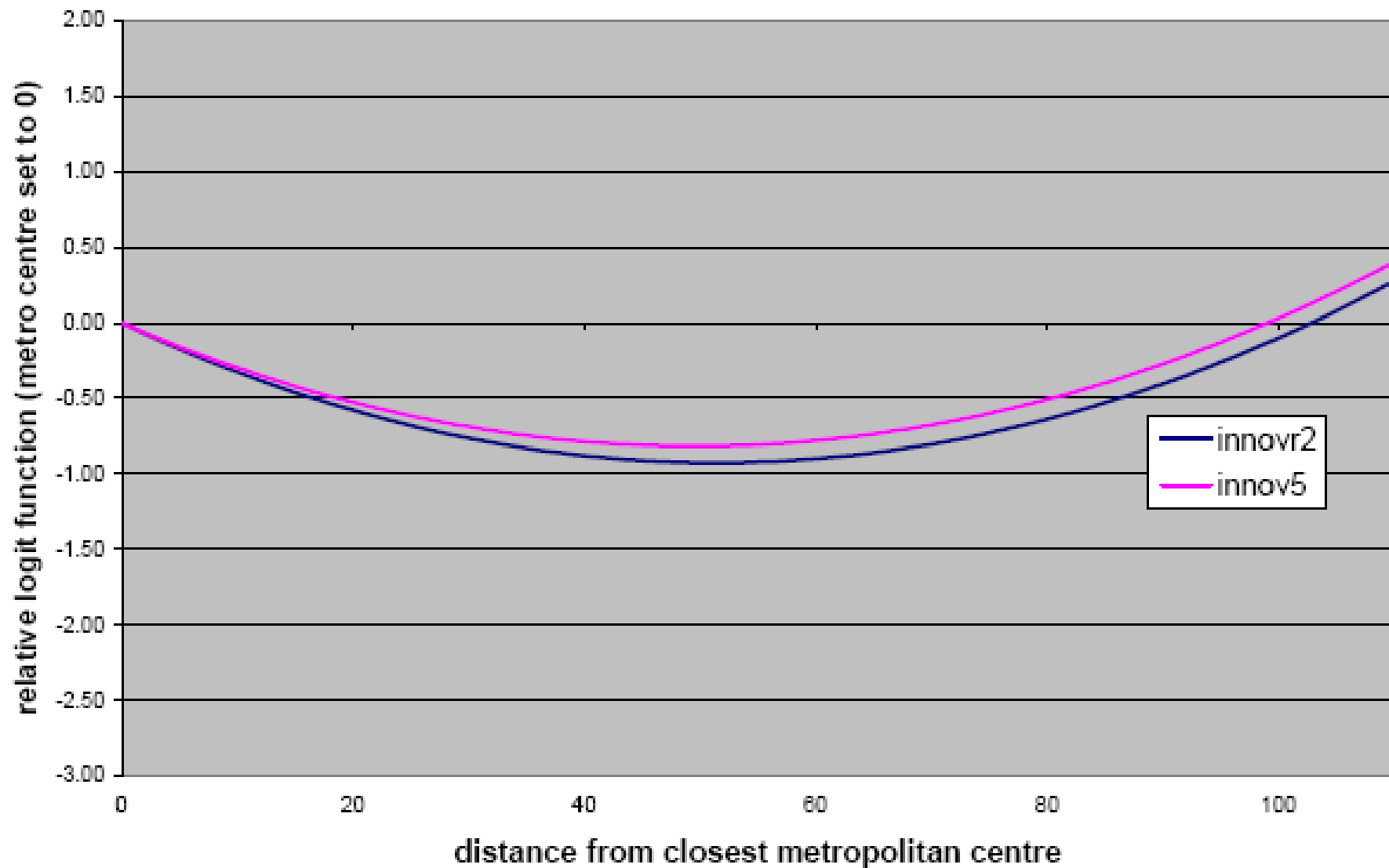


Figure 3: Computer systems

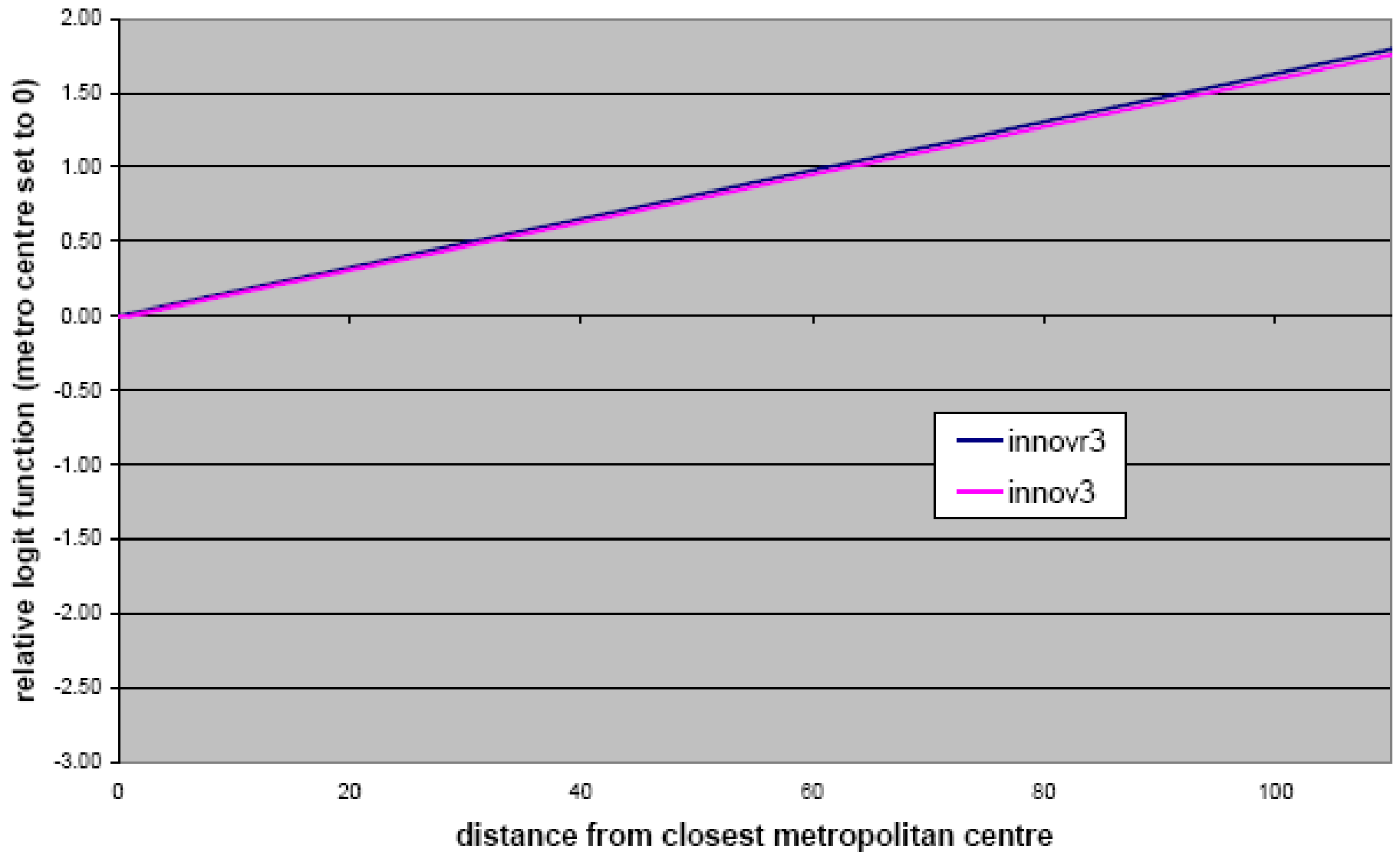
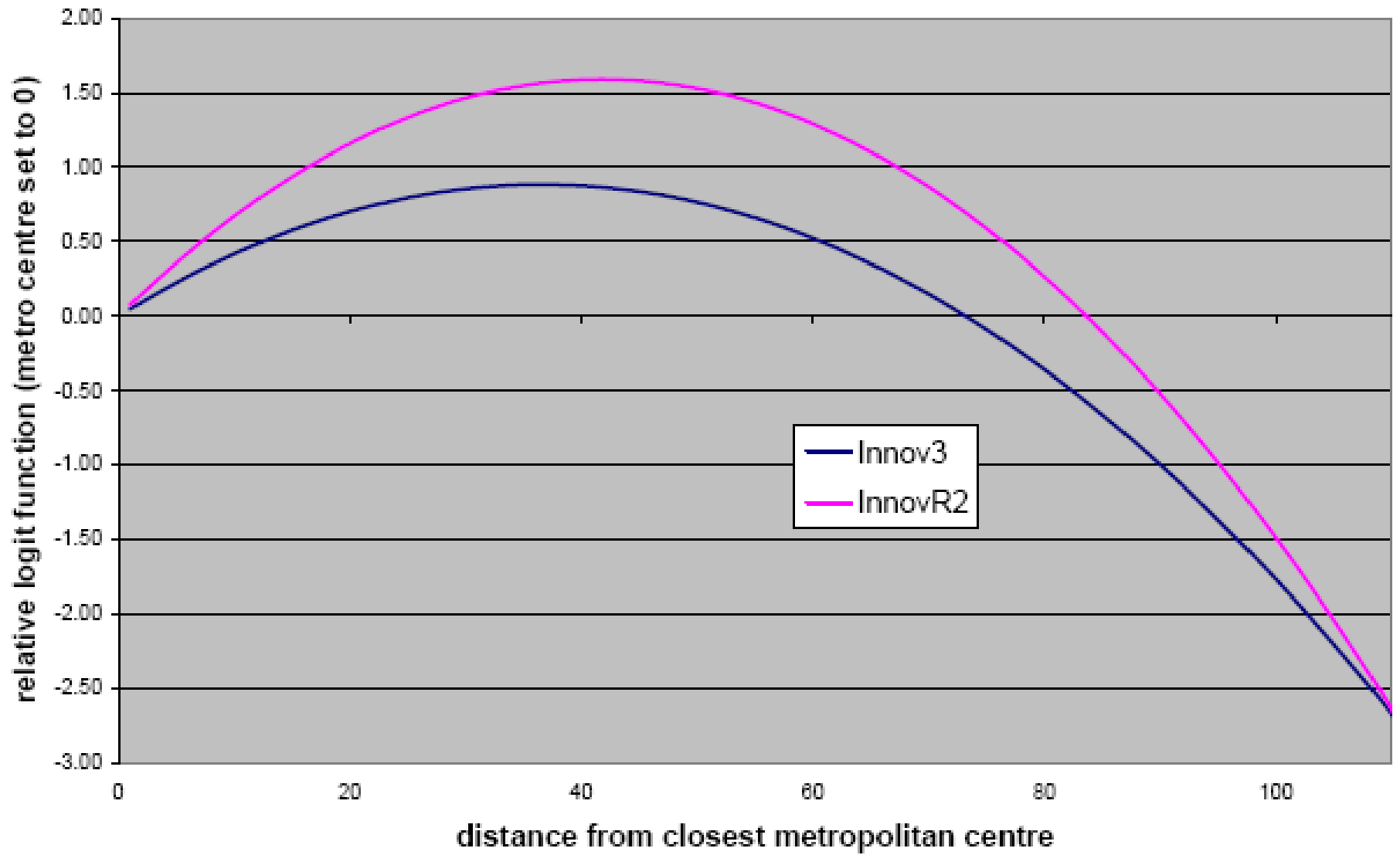


Figure 4: Design



Results

No spatial variation of innovation for:

1. Architectural and engineering consultants
2. Legal and accounting services (grouped because of low numbers)

Is this all an accident?

Sketching Out a Model of Innovation, Face-to-face Interaction and Economic Geography

Philip McCann 2007, Spatial Economic Analysis

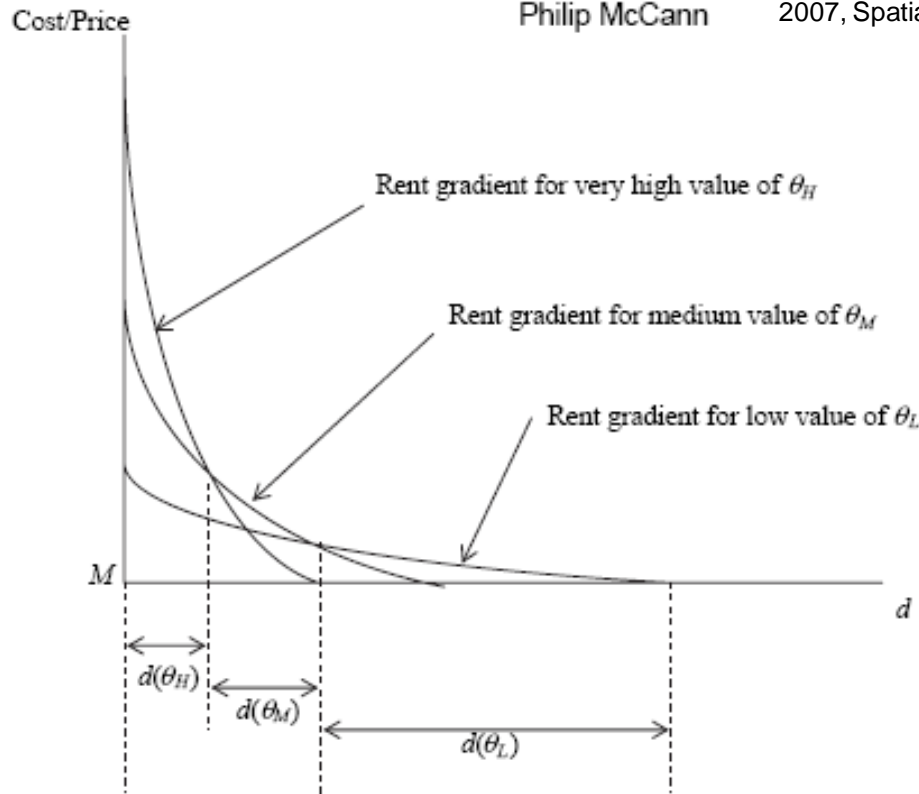


Figure 1. The economic geography and location costs of different types of innovative firms.

Is this all an accident?

A theoretical model has just been published which concludes, on the basis of differing requirements for face-to-face contact, that different types of innovation will be distributed concentrically around major urban centres.

Our paper has produced supporting evidence for this (so far) untested model.

Conclusion

Geography, of course, includes local context, local milieux and local systems.

But there has been a tendency, when innovation has been studied from a geographic perspective, to assume that geography ONLY includes places and abstract (spaceless) interactions with other places.

Geography is also SPACE.

Conclusion

From a policy perspective this is crucial.

Whatever the local context, whatever the institutions etc., it appears that innovation does not take place just anywhere in space.

There are particular *relative* locations (relative to the core of major agglomerations) where innovation policies will work better than others.

So far there has been almost no effort to identify the nature of these *relative* locations.

