

# Service Innovation, Embeddedness and Business Performance: UK Regional Evidence

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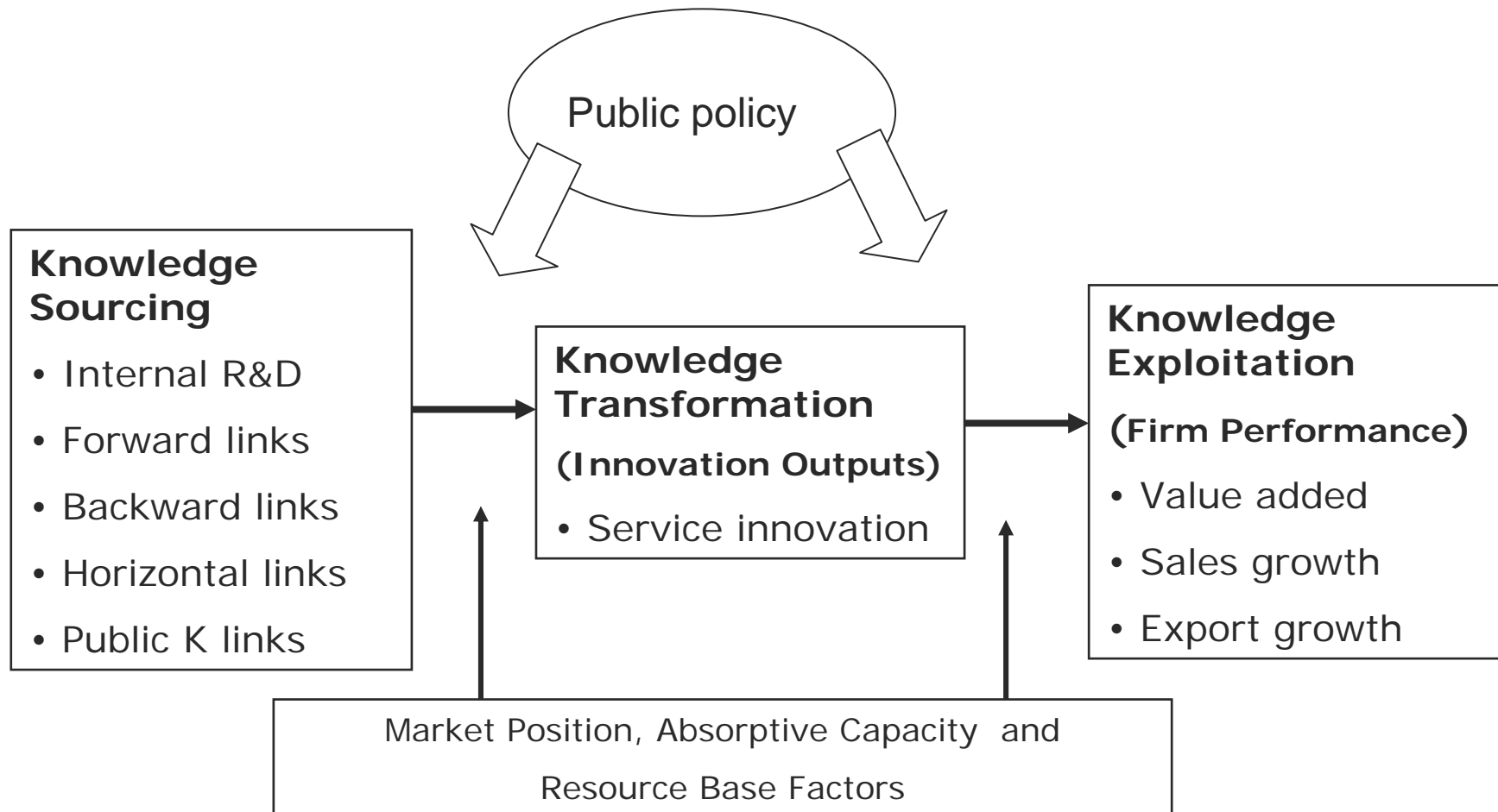
## Contextual Remarks

- ⌘ Regions' ability to sustain wealth creation depends on innovation, particularly where labour costs are high.
- ⌘ Service industries rather than manufacturing which are the source of new growth and have an enabling role in other sectors of the economy.
- ⌘ Service sector innovation very different to manufacturing – less R&D dominated, more process of 'collective problem solving' dependent on skills and knowledge sharing.
- ⌘ Poses network of questions:
  - ⌘ Does service innovation offer a way around the 'innovation paradox' for peripheral regions?
  - ⌘ What determines service innovation?
  - ⌘ How does government support service innovation?
  - ⌘ Does service innovation benefit regional growth and exporting?
- ⌘ Questions posed by government in Northern Ireland and talk here about results of study and policy implications

# Agenda

- ⌘ Conceptualising services innovation (in general!) – the innovation value chain
- ⌘ Northern Ireland and the UK compared
- ⌘ Empirical base
  - ⌘ What determines service innovation?
  - ⌘ How does service innovation influence growth and productivity?
  - ⌘ What can we do to support and develop these linkages?
- ⌘ Service innovation and development in peripheral regions. An effective development policy?

## Conceptual framework – the innovation value chain



# Data Sources

- ❏ UK version of Community Innovation Survey 4
- ❏ Covered firms' innovation activities over the period 2002 to 2004, targeting enterprises with more than 10 employees.
- ❏ Response rate around 58 per cent with around 760 observations across services in Northern Ireland
- ❏ Exports and productivity data from other UK government surveys (ABI) for 2005

# Econometric Approach

## ▣▣▣ What determines service innovation?

- ▣▣▣ Probit models for firms' involvement in 5 different types of innovative activity

- ▣▣▣ - service innovation

- ▣▣▣ - marketing innovation

- ▣▣▣ - strategic innovation

- ▣▣▣ - management innovation

- ▣▣▣ - organisational innovation

- ▣▣▣ And, tobit models of service innovation success

## ▣▣▣ How does innovation influence performance?

- ▣▣▣ Probit/Tobit or OLS models of exporting, value added

## Regional context

- ❑ Northern Ireland is the smallest UK region with a population of around 1.7m
- ❑ The economy has performed relatively well over recent years – playing catch-up – although manufacturing and declined and private services grown.
- ❑ Productivity remains around 80 per cent of the UK average or around the average for the EU25.
- ❑ The political and economic story of Northern Ireland has led to a strongly interventionist industrial policy regime spearheaded by regional development agency – Invest NI.

# Service innovation NI v UK: All Services

	NI	UK
<b>Service Innovation (% firms)</b>	<b>14.7</b>	<b>19.4</b>
<b>New to the market innovation (% firms)</b>	<b>53.2</b>	<b>55</b>
<b>Sales of innovative products:</b>		
% new to market	2.2	2.8
% new to enterprise	2.5	3.6
% improved	3.2	3.7
% unchanged	90.9	85.5
<b>Specific innovation activities (%)</b>		
Intramural R&D	19.8	23.6
Extramural R&D	5.2	9.4
Purchase of machinery, equipment	39.7	38.7
Purchase of external knowledge	8.4	12.2
Training	33.3	35.4
All forms of design	9.2	11.8
Market introduction of innovation	18.1	22.7
<b>Wider Innovation (%)</b>		
New corporate strategy	12.5	16.8
Advanced management techniques	12.7	13.3
Organisational structure changes	13.8	16.9
Marketing concepts or strategies	16.3	19.9



## What Determines Service Innovation – Connectivity?

	Type of Innovation				
	Services	Marketing	Strategy	AMT	Organisation
Local group members	+	(-)	(-)	(-)	-
Local suppliers	(-)	(-)	(+)	(+)	(-)
Local customers	(+)	(-)	-	(-)	(+)
Local competitors	(+)	(+)	(+)	(-)	(+)
Local laboratories, consultants	(-)	(+)	(+)	+	+
Local universities	(+)	(+)	(-)	(+)	(+)
External group members	(+)	(+)	(+)	(-)	(+)
External suppliers	(+)	(+)	(+)	(+)	(-)
External customers	+	+	+	+	+
External competitors	(-)	(+)	(+)	+	(+)
External labs, consultants	(-)	-	(-)	-	(+)
External universities	-	(+)	(+)	(+)	(-)

# What Determines Service Innovation – Firm Characteristics and Absorptive Capacity

	Services	Marketing	Strategy	AMT	Organisation
<b>Firm characteristics</b>					
Research and Development	+	+	(+)	(+)	(-)
Employment (2002, nos)	(+)	(+)	+	+	(+)
Employment squared	(+)	(-)	-	(-)	(-)
Firm established post 2000	(+)	(-)	+	(-)	(+)
Part of larger group	+	+	+	+	+
<b>Absorptive Capacity</b>					
Science and Eng graduates	-	(+)	(+)	(-)	(+)
Other graduates	(+)	(+)	(+)	+	+
Training for innovation	+	+	+	+	+
Investment for innovation	(+)	+	(+)	+	+

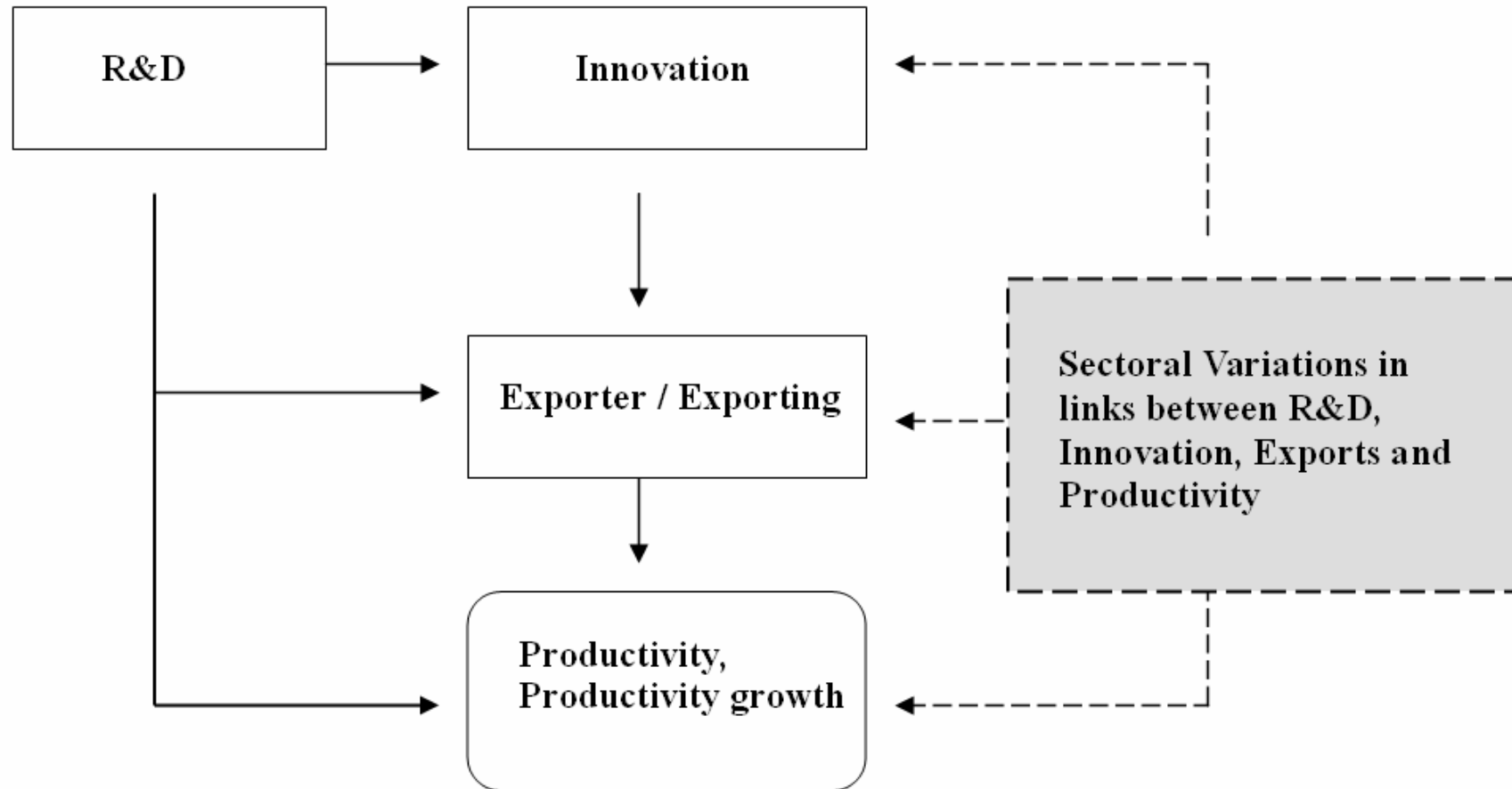
## What Determines Service Innovation – Public Support?

	Services	Marketing	Strategy	AMT	Organisation
Local or regional	(+)	+	(+)	(-)	(+)
UK national	(-)	(-)	(-)	(+)	(+)
EU assistance	+	(+)	+	+	(+)

## Innovation's impact on Productivity and Exporting

- ❏ Result 1 - Undertaking innovation is not sufficient to turn a non-exporting firm into an exporter, however, innovating does have a positive impact on the extent and growth of exporting.
- ❏ Result 2 - Innovation has no direct impact on productivity but does have a strong indirect effect on productivity through its impacts on the extent and growth of exports.
- ❏ Implication - by itself, innovation is not enough. To derive the greatest productivity benefits from innovating, service firms need to look beyond sales in Northern Ireland.
- ❏ Innovation PLUS exporting is required for sustained productivity growth in services.

# Summarising Relationships...



# Key Empirical Results

- ■ ■ Lagging but not everywhere
  - ■ ■ Northern Ireland service innovation does lag somewhat behind that in other UK regions but not in all sectors
  - ■ ■ In those sectors where innovation has been supported innovation performance has been notably stronger.
  
- ■ ■ Barriers are few but linkages are relatively weak
  - ■ ■ Factor shortages are not a significant barrier to innovation in Northern Ireland – yet.
  
- ■ ■ Innovation and Productivity
  - ■ ■ Innovation does not influence productivity directly but innovation does influence exporting and exporting does influence productivity
  - ■ ■ Innovation in services is insufficient to yield productivity improvement – innovation PLUS exporting is necessary

# Key conclusions

- ❖ Services innovation is really not that different to that in manufacturing – R&D, skills and effective knowledge sharing remain important
- ❖ Policy to strengthening local linkages (clustering) is not sufficient. Instead external links to lead customers seem crucial to promote innovation.
- ❖ But ... innovation on its own is not enough – also need to ensure that exporting to maximise wealth creation benefits.
- ❖ Policy message is straightforward – need to target both innovation and exporting together to maximise regional benefits of innovation
- ❖ In Northern Ireland current policy is patchy and non-systemic and overly focussed on technical innovation. Needs more specific focus and broader eligibility criteria.