

Innovation hotspots: the distribution of innovation in the UK

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University of Exeter. 15 October, 2010

Introduction

- Understanding of innovation in the UK
 - Techno-centric (motor sports, pharma, medical devices, robotics, telecoms...)
 - London/SE, science parks, clusters
- Previous studies of distribution
 - R&D activity, Patent counts, Bibliometrics
 - Under-report, quality control, aggregative but not dynamic
- Reflected in policy?
- Which are the highly innovative firms?
- Where are highly innovative firms located?
- 3 broad conclusions
 - Innovation in a diversity of areas, geographic and industrial
 - Dynamism

Identifying high innovators

- **7 innovativeness measures**

- Input x2

- Innovation expenditure per employee and innovation expenditure as proportion of t/o

- Output x2

- % t/o from innovation and % t/o from innovation per employee

- Activities engaged in (up to 12)

- Novelty x2

- new to the market/new to the firm

- **5 analytic categories**

- By industrial activity

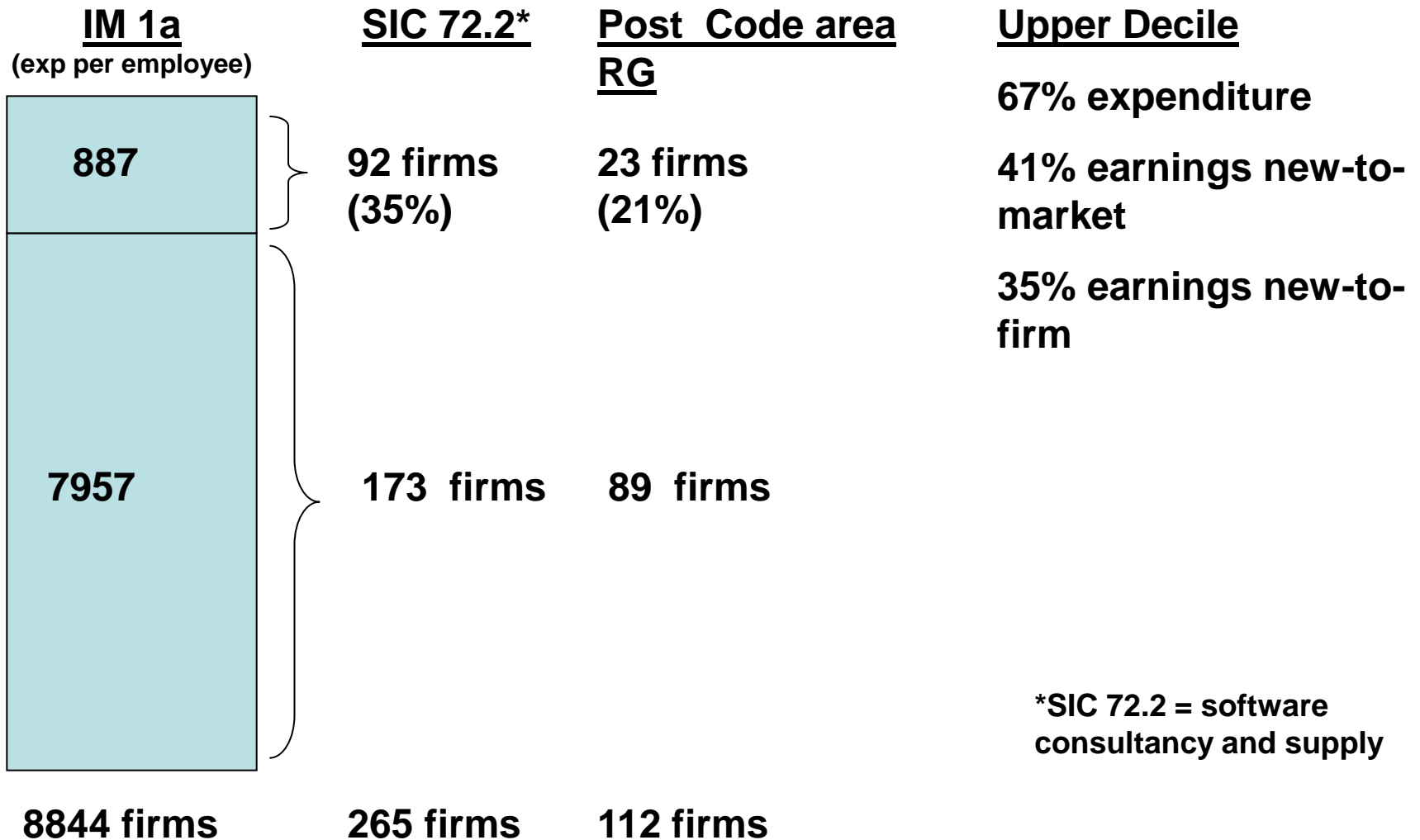
- 7 Industrial/Economic Sectors
 - 24 Industrial/Economic Divisions
 - SIC codes (3 digit, approx 180 in total)

- By geographical distribution

- 12 Government Office Regions
 - Postal areas (first or first two letters, 123 in total)

- **Proportions**

Ranking high innovators, an example from 2007 (CIS5)



*SIC 72.2 = software consultancy and supply

Industry results, by sector

2005		2007		2009	
Knowledge intensive services	7	Knowledge intensive services	7	Knowledge intensive services	7
Other services	5	Other manufacturing	6	Engineering based manufacturing	6
Primary sector	3	Engineering based manufacturing	4	Other services	6
Engineering based manufacturing	3	Other services	4	Other manufacturing	3
Construction	3				
Other manufacturing	1				

- KIS appear dominant
- Evidence of small fluctuations between periods
- Only retail and distribution absent

Industry results, by Division

2005		2007		2009	
18 - Computer and related activities	6	3 - Mfr of fuels, chemicals, plastic metals & minerals	7	19 - Research and experimental development on natural sciences and engineering	5
19 - Research and experimental development on natural sciences and engineering	6	18 - Computer and related activities	6	18 - Computer and related activities	5
11 - Hotels & restaurants	2	2 - Mfr of food, clothing, wood, paper, publish & print	4	4 - Mfr of electrical and optical equipments	4
21 - Architectural and engineering activities and related technical consultancy	2	23 - Other business activities	2	23 - Other business activities	3
23 - Other business activities	2	4 - Mfr of electrical and optical equipments	2	3 - Mfr of fuels, chemicals, plastic metals & minerals	1
1 - Mining and Quarrying	1			2 Mfr of food, clothing, wood, paper, publish & print	1
4 - Manufacture of electrical and optical equipments	1			16 - Real estate activities	1
14 - Telecommunications	1			11 - Hotels & restaurants	1
15 - Financial intermediation	1				

Disaggregated industry results, to 3 digit SIC code, 2005-2009

KIS		Bars	Specialised retail	Pharma	Construction		
SIC	Fr	SIC	Fr	SIC	Fr	SIC	Fr
72.2	15	33.2	3	14.1	1	36.5	1
73.1	12	52.4	3	15.9	1	37.1	1
74.2	10	55.4	3	19.2	1	45.2	1
72.6	8	22.2	2	24.4	1	45.4	1
74.5	6	33.1	2	24.6	1	45.5	1
32.3	4	34.2	2	28.4	1	55.3	1
60.2	4	55.1	2	28.5	1	64.2	1
74.1	4	64.1	2	30.0	1	67.1	1
25.2	3	73.2	2	36.1	1	74.8	1
32.2	3	74.7	2	36.2	1		

Hotels

Furniture manufacture

Geographic results by Government Office Region

GOR 2005		GOR 2007		GOR 2009		Sum	
London	6	Eastern England	7	London	5	Eastern England	13
Eastern England	4	South East England	6	Scotland	4	South East England	13
North East England	4	South West England	2	South East England	3	London	12
South East England	4	Wales	2	West Midlands	3	Scotland	6
Northern Ireland	2	North East England	1	Eastern England	2	North East England	5
Scotland	2	West Midlands	1	Northern Ireland	2	Northern Ireland	4
Yorks & the Humber	2	London	1	Wales	1	West Midlands	4
North West England	1	Yorks & the Humber	1	North West	1	Wales	4
Wales	1					Yorks & the Humber	3
						North West England	2
						South West England	2

- E England, SE England and London dominate
- Scotland 4th – would that have been expected?
- Internally dynamic
- GOR E Midlands absent, high innovators widely distributed

Disaggregated geographic results, postal areas, 2005-2009

South

dominates

Post Code	Fr	Post Code	Fr	Post Code	Fr	Post Code	Fr	Post Code	Fr
W	7	SN	3	WV	2	E	1	SK	1
CB	6	SP	3	YO	2	EH	1	TA	1
NW	6	SW	3	AL	1	HG	1	TF	1
HR	5	BB	2	BL	1	HP	1	TR	1
SL	4	DG	2	BN	1	HU	1	TS	1
BA	3	KY	2	CM	1	LA	1	TW	1
EN	3	PH	2	DA	1	LL	1	WA	1
GU	3	RG	2	DD	1	N	1	WC	1
IV	3	SY	2	DH	1	PL	1	WD	1
KT	3	TD	2	DT	1	SE	1	WF	1
PR	3	UB	2	DY	1	SG	1	WS	1

Scotland

Where does that leave us?

- Highly innovative firms appear more widely distributed across the UK than preconceptions might suggest
- Distributed widely across SIC code categories and post code areas
- Some surprises
 - Dominance of KIS, relative absence of high-tech
 - Geographic distribution of innovation
 - Innovation in unexpected places
- Raises a set of questions
 - How do high innovators connect to the science base?
 - Which activities do high innovators engage in?
 - What is the nature of innovation in unexpected areas?
 - The picture looks dynamic, are there persistent innovators?
 - Characteristics of HIs in relation to key indicators

Descriptive statistics

	Year	Qualifying firms (N=)	Upper decile (N=)	Range	Mean	S.D
1a	2005	8621	863	0.01-1150.00	6.20	34.13
	2007	8844	887	0.01-543.50	3.93	15.77
	2009	6503	651	0.01-13158.95	10.59	235.33
1b	2005	6399	676	0.01-269.05	0.26	4.40
	2007	6048	644	0.01-10.05	0.06	0.17
	2009	4246	425	0.01-534.94	0.35	9.35
2a	2005	4305	449	1-100	40.43	31.74
	2007	3376	405	1-100	37.69	30.77
	2009	3145	404	1-100	38.32	30.87
2b	2005	4013	402	0.01-100	1.60	4.23
	2007	3259	327	0.01-100	1.48	3.62
	2009	3138	313	0.01-100	21.83	24.18
3	2005	9777	1068	1-12	3.08	1.72
	2007	10089	1215	1-12	4.67	2.82
	2009	8162	1035	1-12	4.68	2.90
4a	2005	2374	248	1-100	18.59	22.49
	2007	1695	184	1-100	16.70	20.17
	2009	1548	159	1-100	17.43	21.17
4b	2005	3900	427	1-100	33.32	27.89
	2007	3088	310	1-100	32.04	27.34
	2009	2885	289	1-100	32.49	27.21

Survey respondents

2005: 16,445

2007: 14,872

2009: 14,281