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SHORT ARTICLE

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What role for knowledge-intensive business services (KIBS) in de-industrialized regions?

Maja Savic

ABSTRACT

This paper provides insights into the structural role that knowledge-intensive business service (KIBS) small and medium-sized enterprises (SMEs) play in de-industrialized regions in the UK at a critical time of change. It establishes what contribution KIBS make to their regional economies in terms of exports to other regions in the UK as well as abroad, but also what is their role in providing support to other sectors in their respective regions. The paper draws evidence from a survey of KIBS SMEs in the North East and West Midlands conducted during the recent recession. The results exhibit a degree of wider generalizability to other regions, which may be characterized as de-industrialized. Results from the West Midlands and North East survey show that although KIBS play an important role in the local economic base of de-industrialized regions, they are not as important as their elite, tradable counterparts in global cities such as London. However, KIBS SMEs in the North East and West Midlands provide important support to their regional clients, many of which are in the declining manufacturing and public service sectors.

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INTRODUCTION

It is evident that services now dominate most advanced economies worldwide. However, we still have relatively limited understanding of the spatial structure of the inter-regional trade in services and knowledge-intensive business services (KIBS)¹ in particular. Geographers and regional scientists emphasize that trade in services is largely defined by central place hierarchy position of metropolitan places (such as New York, London and Tokyo), while others have argued for the substituting role of services in place of primary sectors such as manufacturing (Beyers & Alvine, 1985). Nevertheless, there has been a dearth of research related to the structural role of KIBS activities in non-metropolitan regions (Wood, 2010) and in particular to the role of intermediate demand in KIBS localization (Meliciani & Savona, 2014).

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And while most KIBS research focuses on tradable and elite corporate functions located in core, metropolitan regions, this paper seeks to investigate the structural role that KIBS small and medium-sized enterprises (SMEs) play in de-industrialized regions. It is argued that the sectoral composition of regional economies and inter-sectoral linkages are important determinants of regional specialization in KIBS. In turn, KIBS regional specialization may differ across different types of regions and this is important for regional development policy. The main research question this paper aims to answer is: What is the structural role that KIBS SMEs play in de-industrialized regions? The two main themes the paper investigates and which are related to the main research question are: (1) the contribution of KIBS SMEs to their regional economies in terms of generating exports from other regions in the UK and abroad; and (2) specific sectors that KIBS SMEs support within their respective regions. While observations and the data are related to the UK and based on an author's own survey conducted in two case study regions, the results still exhibit a degree of wider generalizability to other regions that have experienced de-industrialization. The paper continues with a short review of KIBS-related literature and description of the case study regions. The main survey findings are next presented, followed by conclusions, policy recommendations and suggestions for future research.

CONCEPTUAL BACKGROUND AND METHODOLOGY

This paper is concerned with the contribution KIBS SMEs make to regional development. In order to assess this contribution, it is important to establish KIBS exporting potential outside the region and internationally as well as their local client profile. This is because KIBS' exports generate income which through multiplier effect contribute to regional growth. KIBS act also as facilitators of knowledge and innovation for their clients who may become more successful innovators and exporters. The conceptual contribution this paper makes is in joining the theoretical blocks related to KIBS tradability with the role of intermediate demand, but also in explicit consideration of the role of both geographical and sectoral proximity challenging the array of related concepts, namely 'the death of distance', 'footloose hypothesis' (Rodriguez-Pose & Crescenzi, 2008),² or the view that 'the world is flat'. These concepts imply that information and communication technologies (ICTs) allow KIBS to access distant markets, favouring their location away from the main concentrations of business activity. The implication is that KIBS are widely tradable and mostly independent from the local industrial base. In summary, these concepts suggest that local markets do not matter or rather that being geographically close to sources of demand is not necessary. This paper challenges this idea by recognizing that in some regions local markets may be more important than in others. Local markets may be more important for particular KIBS subsectors too (for a rejection of a 'footlooseness' hypothesis, see Wernerheim and Sharpe, 2003).

Previous empirical studies showed that a minority of KIBS SMEs located in more peripheral regions are active in national and international markets often reflecting long-established regional expertise, e.g., in engineering, design and logistics and more recently in information technology (IT) and software, often stimulated by the competitiveness of their clients (Beyers & Alvine, 1985; O'Farrell, Moffat, & Hitchens, 1993; O'Farrell, Zheng, & Wood, 1996). It can be assumed that engineering consultancy as a mature industry, compared with market research, will have penetrated wider UK and foreign markets. IT and software-related KIBS are also expected to have a geographically wide client base. Further, given the declining manufacturing base in these regions, KIBS firms will be highly dependent on demand from other regions for their survival.

More recent empirical studies assess KIBS relationships with manufacturing clients and report that their location near industrial belts creates specialization of KIBS. Some of these studies are related to the oil-extraction industry in Alberta, Canada (Shearmur & Doloreux, 2008) and the port industry in Rotterdam, Netherlands (Jacobs, Van Rietbergen, Atzema, Van Grunsven, & Van Dongen, 2016). Therefore, it is hypothesized that given the relatively high concentration of

manufacturing and public services in the West Midlands and the North East, these sources will comprise important local markets for KIBS in de-industrialized regions.

This paper adds to this literature by drawing on evidence from the author's own, independent survey of KIBS SMEs in the North East and the West Midlands. The OneSource database (a proprietary data source) was used to draw a stratified sample of KIBS SMEs in the North East and the West Midlands on the individual firm level. A total of 257 usable responses were collected using computer-aided telephone interviews (CATI) conducted by the independent market research firm, representing a 6.09 confidence interval CI (margin of error) at 95% confidence level.³ A confidence interval measures the probability that a population parameter will fall between an upper and lower bound of a probability distribution. The respondents in this survey were owners or managers of KIBS SMEs⁴ who provided information on their company's revenue classified by sector into manufacturing, services, public procurements, universities and households, and by location into regional, UK wide and international.

There are some limitations to this survey. First, it does not distinguish between different types of manufacturing clients nor the business history of the SMEs. Second, it uses cross-section data collected in 2010, whereas the time-series data would provide insights into the evolution and dynamics of KIBS SMEs. However, the survey provides unique empirical evidence with regards to KIBS' forward linkages in the two de-industrialized regions.

THE CASE STUDY REGIONS

The North East and the West Midlands were both characterized by heavy industrialization and concentration of coal mining, heavy engineering, steel production and shipbuilding (in the North East) from the late 18th century, but then a sharp decline in manufacturing occurred from the mid-20th century. The North East and the West Midlands exhibit some notable similarities in their respective industrial profiles (i.e., a heavy reliance on manufacturing of cars, machinery, metals and electrical equipment). However, some important differences between the two regions are related to their respective geographies and economic history. For example, the North East is more geographically remote, whereas the West Midlands is closer to London and the South East (Figure 1). Some areas in the West Midlands are much better connected to external big urban demand with the scope to create a large artificial exporting effect, e.g., Coventry to Oxford. In contrast, the North East is nowhere close to substantial urban demand. As the North East is more specialized in chemicals, pharmaceuticals and mining, the West Midlands specializes in the production of rubber and plastics and technical testing and analysis. Nevertheless, both regions have suffered rapid de-industrialization and more recent job losses in the automotive (in the West Midlands) and steel (in the North East) industries.

After 2008, the long-term decline in manufacturing employment intensified in all UK regions, but unexpectedly losses in financial services were comparatively low in Central London compared with the Midlands and the North (Lee, 2014). These two regions also experienced significant losses in the financial sector. Current UK government policies aimed at reducing the national deficit are likely to result in further reductions of public-sector jobs. These job losses negatively impact those places where the public sector provides a larger proportion of employment as in the case study regions.

Besides the declining industrial base and cuts in the financial and public sectors, prospects for regional development led by KIBS in de-industrialized regions have been limited given their high concentration in London and the South East. Figure 2 shows concentration of enterprises in KIBS subsectors as a percentage of all area enterprises in the UK in 2008. The data come from the IDBR, Office for National Statistics (ONS), and the classification scheme for the map is based on quintiles for former local authority areas. The next section presents the survey findings.



Figure 1. UK government office regions, 1994–2011.

MAIN FINDINGS

KIBS market extension

Table 1 shows the numbers and percentages of firms that reported extra-regional sales by the type of KIBS subsector. A chi-square test was performed which compares proportions between the subsectors. The null hypothesis that variables are independent was rejected as the statistical test shows that there are significant differences between the groups ($p = 0.012$). It can be seen that advertising and publishing firms (90%) as well as engineers, technical testing and analysis and research and development (R&D) firms (88%) have the highest propensity to export outside the region. Architects and urban planners have the smallest propensity to export outside of the region (60%). Remarkably, 79% of all firms export outside the region.

However, when exports abroad are considered, the results show that there are no statistically significant differences between KIBS subsectors. It should be noted, however, that 25% of all KIBS SMEs export abroad (Table 2). Advertising and publishing firms also have the highest propensity to export compared with other KIBS subsectors, whereas architects and urban planners have the lowest.⁵

Survey results also show that 39% of KIBS SMEs' reported revenue is generated by local or regional sales, whereas 53% of total revenue is generated from outside the home region but within the UK. A total of 56% of revenue is generated as extra-regional revenue either in the UK or

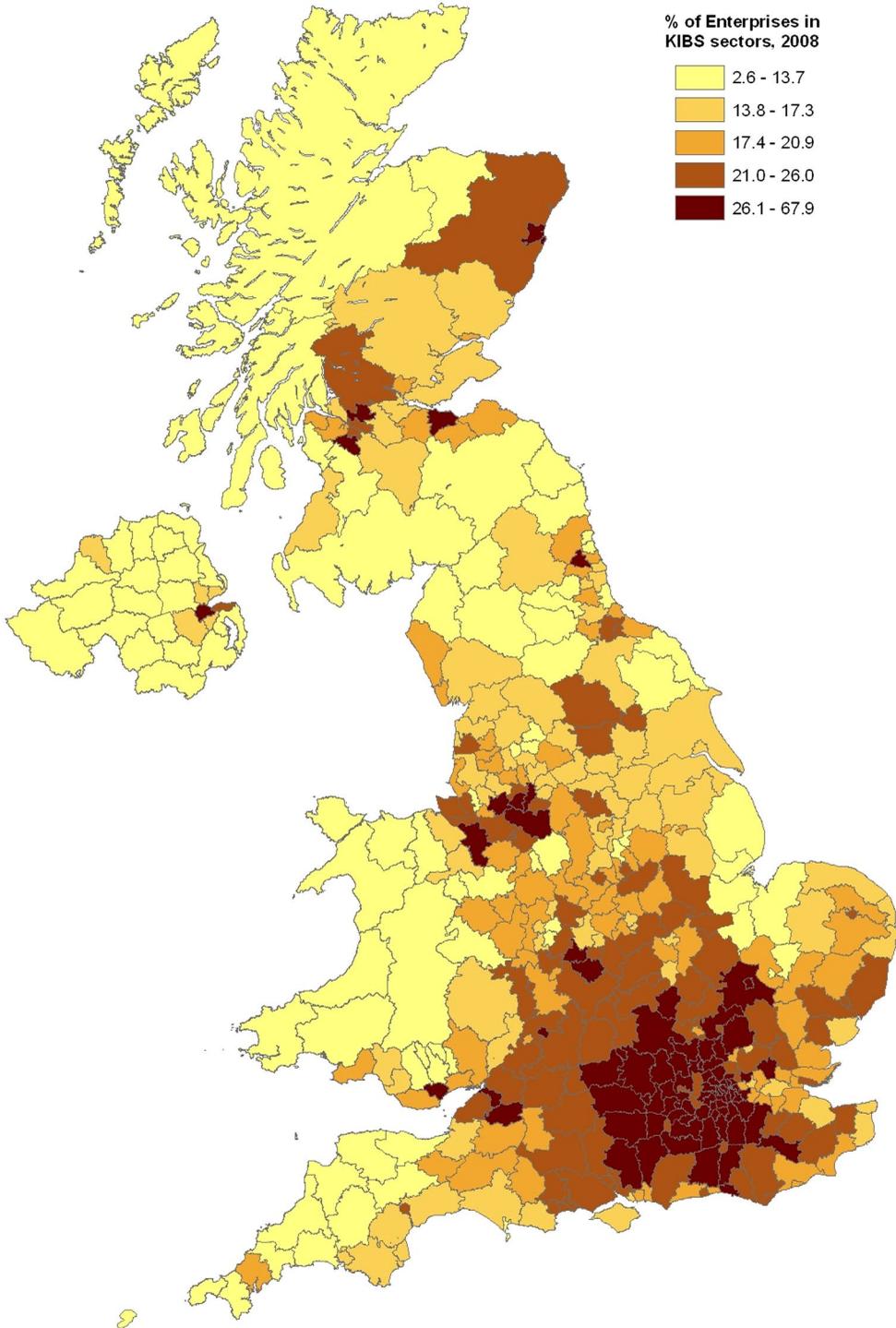


Figure 2. Knowledge-intensive business services (KIBS) as a proportion of all area enterprises. Source: Interdepartmental Business Register (IDBR) database, Office for National Statistics (ONS) (2008).

Table 1. Extra regional sales by subsector.

		Firm does not sell outside the region	Firm sells outside the region	Total
Computer and related	Count	13	60	73
	%	18%	82%	100%
Marketing research and management consult- ants	Count	18	68	86
	%	21%	79%	100%
Engineers, technical testing and analysis and research and develop- ment (R&D)	Count	4	30	34
	%	12%	88%	100%
Advertising and pub- lishing	Count	2	19	21
	%	10%	90%	100%
Architecture and urban planning	Count	17	26	43
	%	40%	60%	100%
Total	Count	54	203	257
	%	21%	79%	100%

Note: $\chi^2 = 12.76$; $df = 4$; $p = 0.012$.

Source: KIBS Survey, 2010.

Table 2. Exporters by subsector.

		If exporting abroad		Total
		Non-exporter	Exporter	
Computer and related	Count	54	19	73
	%	74%	26%	100%
Marketing research and management consultants	Count	64	22	86
	%	74%	26%	100%
Engineers, technical testing and analysis and research and development (R&D)	Count	25	9	34
	%	74%	26%	100%
Advertising and publishing	Count	12	8	20
	%	60%	40%	100%
Architecture and urban planning	Count	38	5	43
	%	88%	12%	100%
Total	Count	193	63	256
	%	75%	25%	100%

Note: $\chi^2 = 12.76$; $df = 4$; $p = 0.156$.

Source: KIBS Survey, 2010.

abroad. Exports abroad generate only a small proportion of the total revenue amounting to only 3%. Revenue from domestic public procurements, however, plays a relatively higher proportion (6%).

Who are the main KIBS' customers?

In order to analyse the main customer base, respondents were asked to allocate their revenue by location (regional, UK and abroad) and according to the type of customer, namely business establishments in the manufacturing sector; business establishments in the service sector; households/consumers; universities; and local and central government contracts. The data in Tables 3 and 4 provide aggregates from all three sources of demand (regional, UK and international). It should be noted that the number of usable responses is down to 225 firms due the fact that some firms refused to report this information. Results in Table 3 show that the main source of

Table 3. Total revenue by type of customer.

	Manufacturing	Services	Consumers	Universities	UK government	Total revenue
Number of observations	225	226	226	226	226	226
Total revenue by type of customer	1,962,400,0	240,038,000,	203,471,000,	27,900,00	3,040,200,0	496,325,000,
Percentage of total revenue	4	48	41	1	6	100

Note: Figures are rounded to the nearest thousand.
Source: KIBS Survey, 2010.

Table 4. Percentage distribution of sample establishments revenue by quartile by customer.

Percentage of total gross revenue	Manu- facturing	Services	Consumers	Universities	Government contracts
0	66.8	58.4	82.7	90.7	81.4
1–25	5.8	8.8	4.9	5.3	4
25–50	11.9	10.6	3.5	0.4	3.5
50–75	8.8	12.4	3.1	1.8	4.4
75–100	6.6	9.7	5.8	1.3	7.1

Source: KIBS Survey, 2010.

revenue for the West Midlands and the North East KIBS comes from services and consumers, whereas manufacturing demand plays a rather smaller role. However, more detailed analysis of the qualitative survey data (not reported) shows that engineering KIBS draw as much as 32% of their revenue from the manufacturing sector.

The results displayed in Table 4 show that 82.7% of firms who responded to this question reported that they earn no revenue at all from the direct sale of their services to households or consumers. However, 5.8% of KIBS SMEs are very tightly linked to households/consumers, selling between 75% and 100% of their total revenue to this group. Table 4 also shows that KIBS sales to the public sector earn no revenue for 81.4% of firms in the sample. Like the households/consumers, sales of services to universities are not important for the vast majority of KIBS.

Demand-side linkages to manufacturing sector firms should be interpreted with caution. Table 4 shows that 66.8% of KIBS SMEs do not sell any services to the manufacturing sector. However, those KIBS SMEs that do sell their services to this sector typically earn a substantial proportion of their revenue from this source. It is noted that 6.6% of KIBS SMEs are very tightly linked to manufacturing firms as they earn between 75% and 100% of their revenue from this source, whereas another 8.8% of firms earn between 50% and 75% of their revenue from this particular source.

Analysis by the type of market shows that the main market for the North East and the West Midlands KIBS SMEs is mostly other services and not manufacturing as initially hypothesized. However, results also show that manufacturing industry and government contracts represent important sources of demand for engineering KIBS and architects and urban planners as well as technical testing and analysis KIBS respectively. Though KIBS SMEs earn most of their revenue from other services, the concept of engineering KIBS as relatively closely tied to manufacturing is also supported by these data. This suggests that job growth in KIBS is supported by demand from both services and manufacturing sectors.

CONCLUSIONS AND IMPLICATIONS FOR REGIONAL DEVELOPMENT POLICY

The results from the West Midlands and the North East survey show that although KIBS play an important role in local economic base of de-industrialized regions, they are not as important as their elite, globally traded counterparts in metropolitan cities such as London. KIBS in de-industrialized regions provide mostly indirect support to their regional clients, but the vast majority have access to UK-wide markets. Some of these KIBS SMEs (engineering in particular) are associated with the underlying industrial specialization and declining manufacturing base. Many also depend on public procurement contracts. This implies that a further decline of manufacturing industry will also result in a decline of these KIBS and that in de-industrialized regions KIBS may not provide a substitute for the losses in manufacturing, financial and public sector. The danger is that many KIBS in de-industrialized regions may just become a part of a

value chain that dissolves locally. For policy-makers who seek to address regional disparities in Great Britain, these findings create a challenging problem, suggesting that recession (accompanied by ongoing de-industrialization and future public-sector job losses) is likely to worsen, rather than reduce regional disparities as prospects for KIBS-led growth will be hampered by declining demand for their services.

Survey results support the contention that KIBS potential in de-industrialized regions may be found in engineering and design activities based on established industrial, mining or maritime industries and associated trading traditions since, for example, engineering KIBS serve local manufacturers but also UK-wide and international manufacturing clients. ICT-related KIBS also have access mostly to UK-wide markets. It follows that support may consist of helping KIBS SMEs to access UK and international markets, but also building local demand for engineering KIBS services based on the upgrading of old industrial formations. Nevertheless, since most KIBS rely on other services, there is also scope for devising sector-specific, services-orientated policies. These may consist of supporting services innovation, exports and a regional skills base.

Limitations to this study are mostly related to secondary data-collection issues, some of which are listed in the methodology section. Further research should be directed at enhancing our understanding of the potential transformative structural role that KIBS SMEs may play in de-industrializing regions. Hence, more longitudinal evidence from other UK regions as well as internationally is needed.

NOTES

1. Most KIBS markets are dominated by national and international KIBS which offer and often combine expertise in management consulting, accountancy, finance, marketing and advertising, digital, information and communication technology (ICT) and software, and technical and engineering applications. The neologism 'KIBS' was first introduced by Miles et al. (1995).
2. The implication for KIBS in peripheral regions, however, is that they will be faced with the competition from their metropolitan counterparts.
3. According to the Interdepartmental Business Register (IDBR) database, total KIBS population as defined in this study in 2010 is 31,495 firms for both regions. If, for example, 50% of survey participants report exports outside the region, then the actual population which exports outside the region could vary by $\pm 6.09\%$
4. Firms with one to 250 employees.
5. The total number of respondents is down to 256 due to one firm which did not report its exports abroad

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