



Growing Apart? Structural Transformation and the Uneven Development of British Cities

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Acknowledgements

City Evolutions

HOW UK CITIES HAVE TRANSFORMED, ADAPTED AND EVOLVED OVER TIME

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Project objectives and main research questions



Aims of project

- **Overall objective** – to understand how city economies change, re-orientate and adapt over time, and to inform policy
- **Main hypothesis** – differences among cities in medium-long run growth are in part due to differences between cities in the process, nature, extent and success of **structural transformation** and **adaptation**, and how policy interventions have influenced such development
- Focus is on ***structural change*** and ***adaptive growth***

Main themes / Research questions

How has the industrial structure of the national economy changed and evolved over time?

- The changing employment, output, productivity, export and innovation rates of individual sectors at national level
- The shift from industrial to post industrial economy
- What have become the key growth sectors, new sectors, declining sectors, and sector which exhibited 'turn-around'?
- How should we measure 'structure' / 'structural change'?

Main themes / Research questions

How have these structural transformations been distributed across British cities? How have city economic structures changed over time?

- How have cities varied in their transition to post-industrial economy?
- Do city economic structures change incrementally, or more discontinuously?
- Have cities become more or less specialised, and if so in what ways?
- Is functional structure / specialisation now more important than sectoral structure?



Main themes / Research questions

How have British cities varied in their adaptability?

- What have been the growth paths of British cities – leaders, laggards, cities that have ‘turned around’?
- How does adaptability relate to city growth?
- How path dependent are city economic structures?
- Does a city’s inherited skill and sectoral base shape the pace and direction of structural change
- How have cities varied in their innovative capacity?



Main themes / Research questions

What is the role of economic structure and structural transformation in explaining city growth paths?

- How is city growth related to economic structure and structural change over time?
- Does diversity or alternatively some type of specialisation assist economic reorientation?
- How does structure influence the economic resilience of cities to shocks?
- How do shocks influence structural change ('creative destruction')?



Main themes / Research questions

How have urban and national policies impacted on the structures and growth paths of British cities?

- Identifying the changing national and city / regional policy environment over recent decades.
- Assessing the impact of major policies in case study cities.
- How have local governance and institutional structures influenced structural adaptability and economic growth in the case study cities?



Principal methods and sources of information

1. Data sets:

- Newly constructed dataset with data on GVA and employment (and by implication: productivity), with sectoral breakdown (82 sectors) for 85 cities in Great Britain (TTWAs > 200,000 population), for 1971-2014.
- Similar dataset with occupational breakdown (25 occupations (within 45 sectors)), for 1981-2014.
- Supplemented with existing datasets on patent applications; firm-dynamics; and historical employment patterns (going back to 1851).

2. Case studies:

- Case studies of Tees Valley (Middlesbrough-Stockton), Glasgow, Birmingham, Bristol, and Peterborough.
- Main focus: role of institutions and policy in structural transformation and adaptation.

Research question examined today

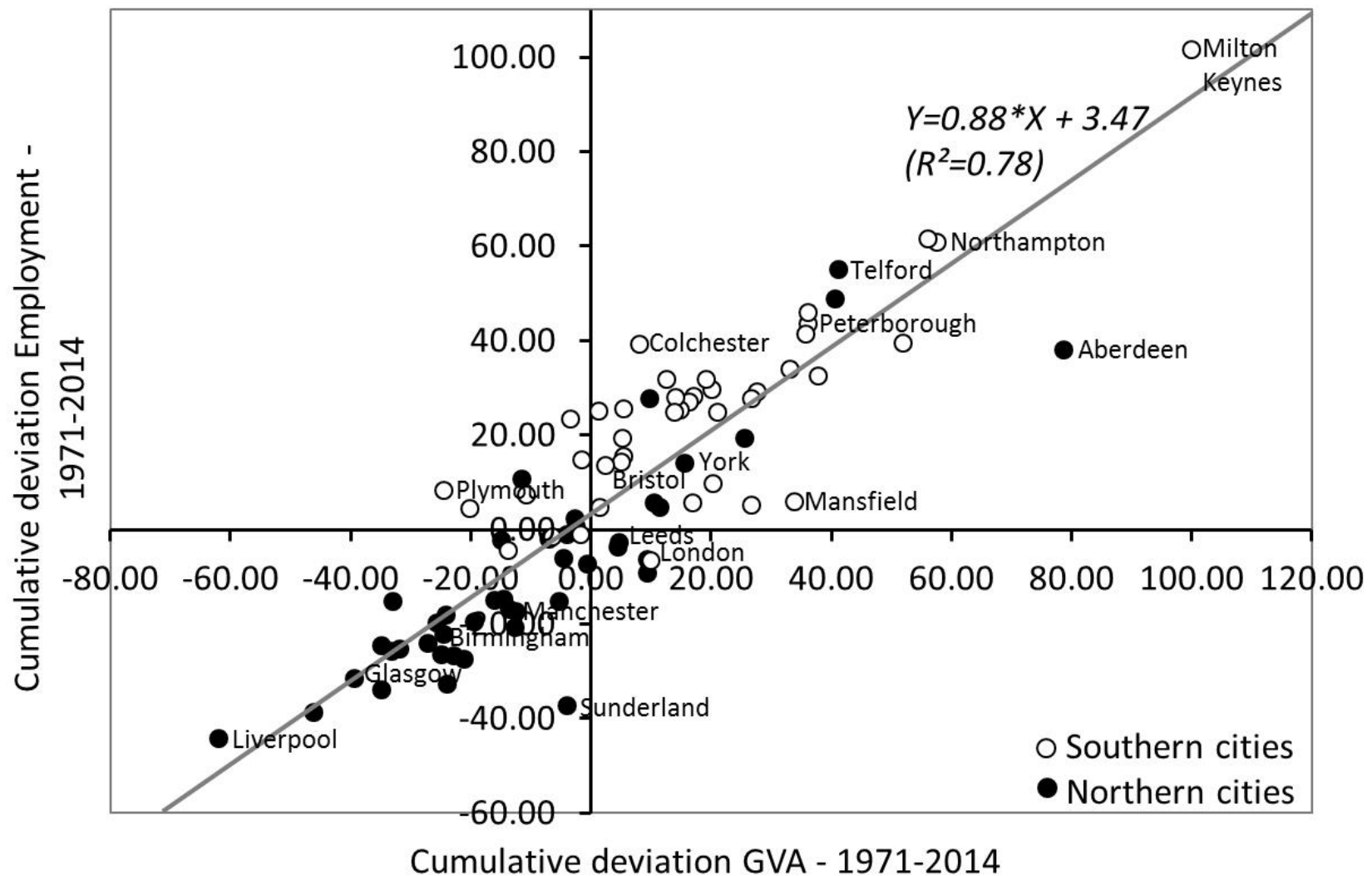
To what extent can differences among cities in Great Britain in medium- to long-run growth, be explained by differences in the process, nature and extent of structural transformation in these cities?



City Growth Evolutions



Output growth and Employment growth over 1971-2014



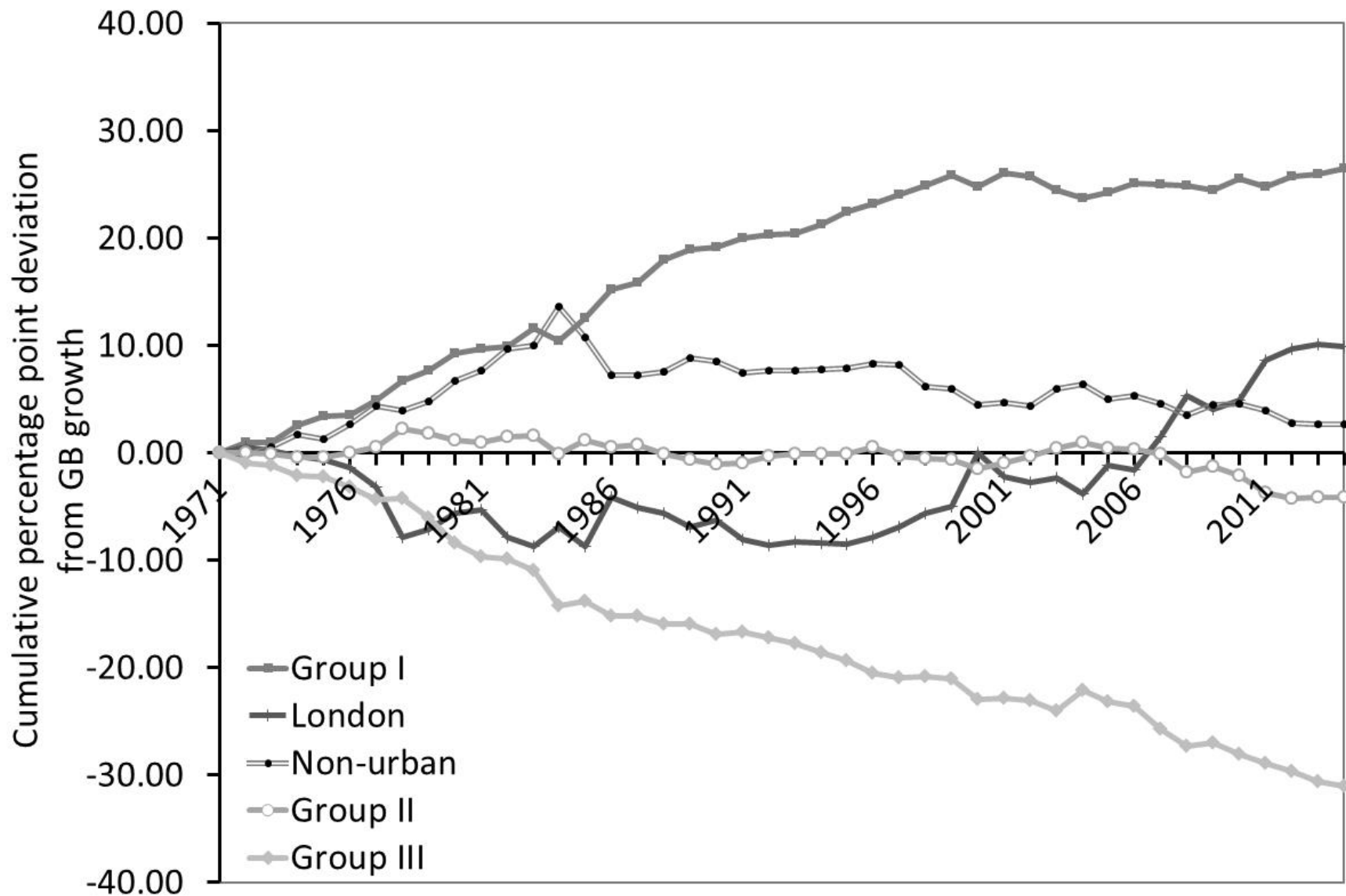
Note: Southern cities defined as those in the following regions: London, South East, East of England, South West and East Midlands. Northern cities defined as those in the West Midlands, Yorkshire-Humberside, North West, North East, Scotland and Wales.

Identifying ‘performance groups’

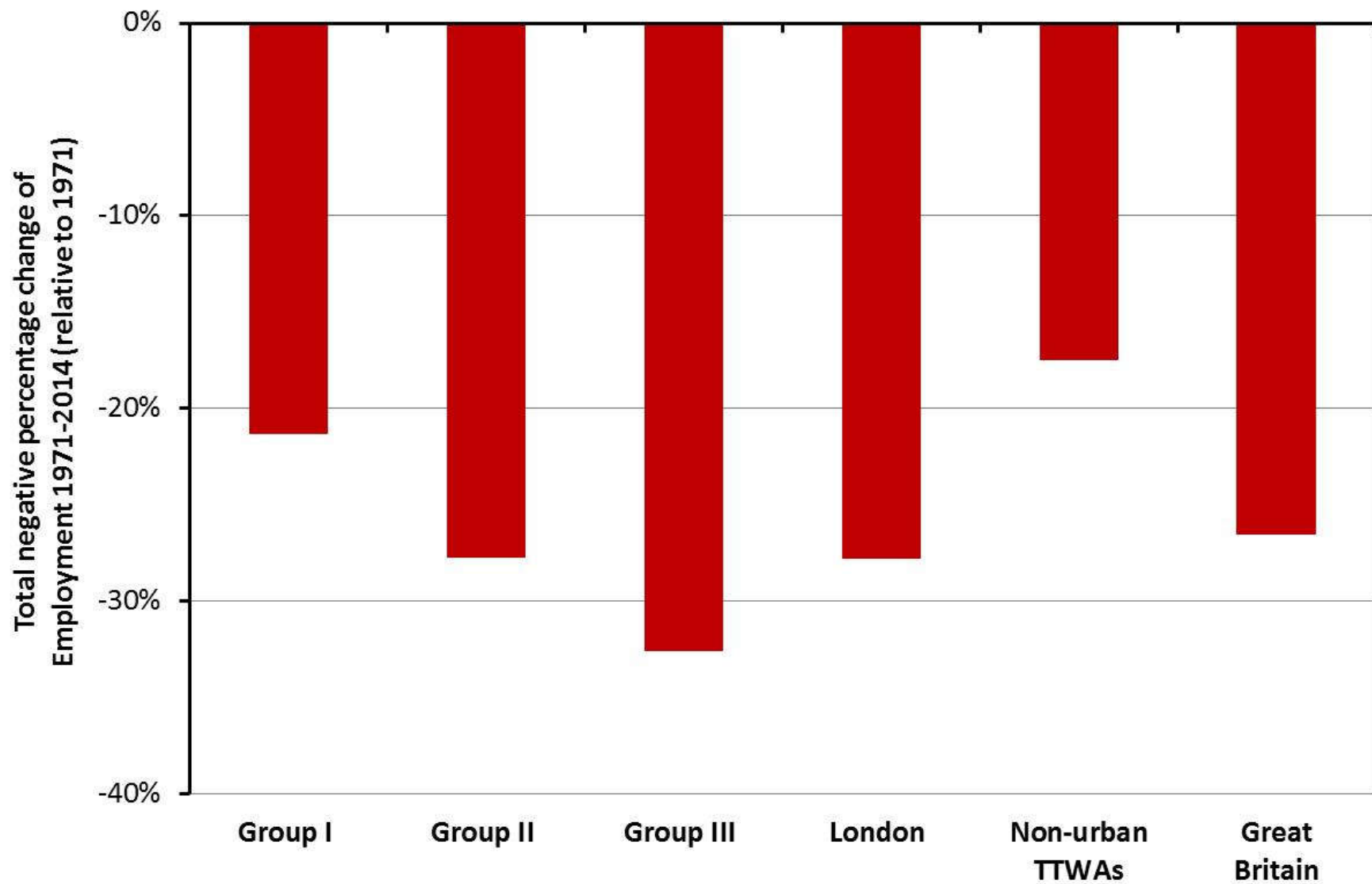
Group 1 ‘Pulling Ahead’	Substantially above average growth in GVA over 1971-2014	Milton Keynes, Northampton, Basingstoke, Swindon, Telford, Leamington Spa, Crawley, Peterborough, Chichester, Tunbridge Wells, Mansfield, Reading, Guildford, High Wycombe & Aylesbury, Derby, Crewe, Norwich, Chesterfield, Bournemouth, Exeter, Cambridge, Slough & Heathrow, Lincoln, York, Southampton, Eastbourne, Ipswich
Group 2 ‘Keeping Pace’	Around average growth in GVA over 1971-2014	Trowbridge, Dunfermline & Kirkcaldy, Wakefield, Shrewsbury, Halifax, Blyth & Ashington, Colchester, Kettering & Wellingborough, Oxford, Stevenage, Gloucester, Doncaster, Leeds, Bristol, Nottingham, Chelmsford, Falkirk & Stirling, Luton, Leicester, Worcester & Kidderminster, Chester, Southend, Sunderland, Barnsley, Warrington & Wigan, Huddersfield, Brighton, Edinburgh, Bedford, Preston, Durham & Bishop Auckland, Bradford, Manchester
Group 3 ‘Falling Behind’	Substantially below average growth in GVA over 1971-2014	Portsmouth, Coventry, Cardiff, Hull, Newport, Medway, Merthyr Tydfil, Motherwell & Airdrie, Middlesbrough & Stockton, Sheffield, Blackburn, Plymouth, Newcastle, Birmingham, Dudley, Birkenhead, Blackpool, Stoke-on-Trent, Dundee, Swansea, Glasgow, Wolverhampton, Liverpool
London		London
Aberdeen		Aberdeen
Non-urban TTWAs		TTWAs not classified as cities



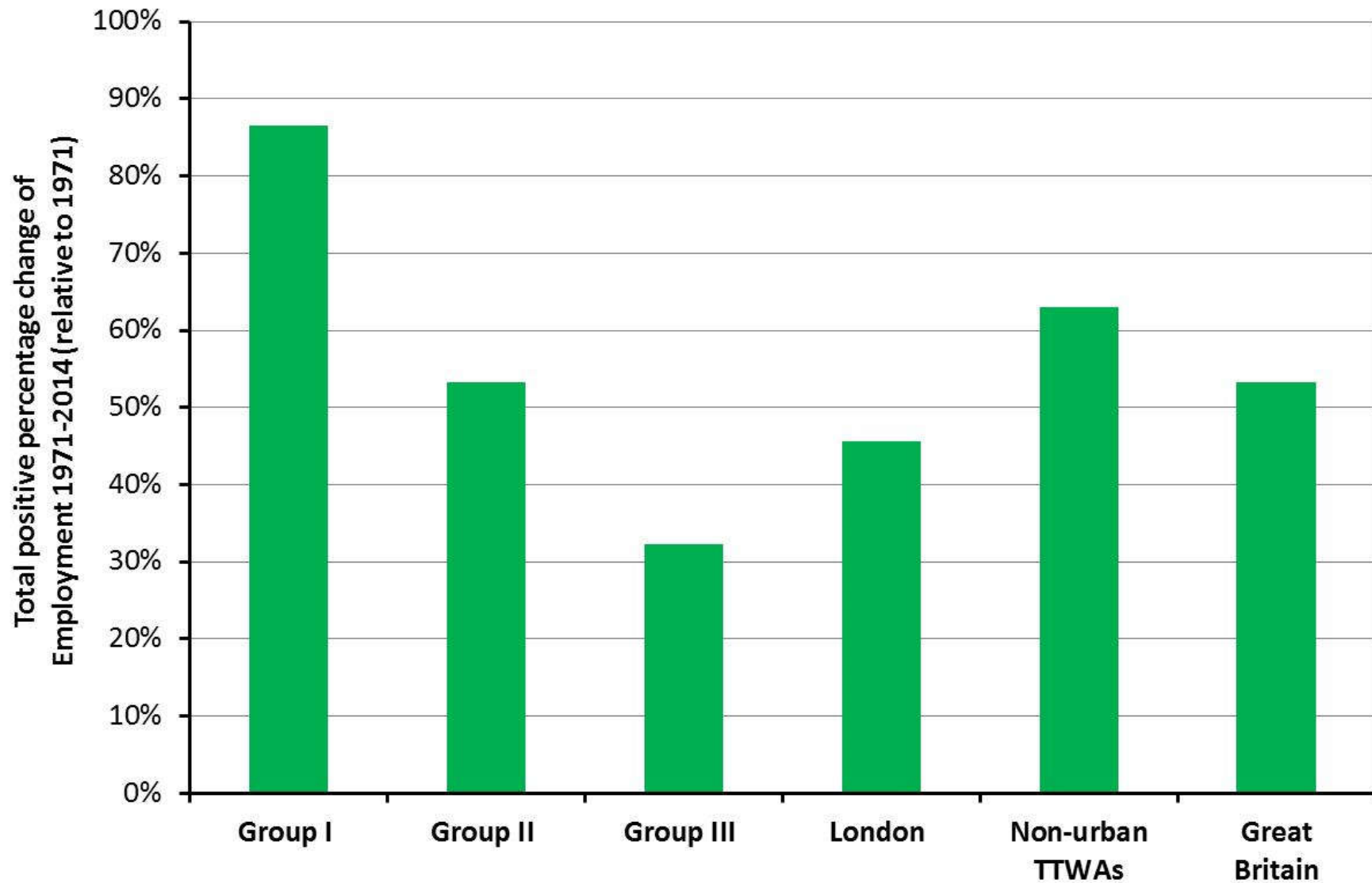
Cumulative differential percentage growth relative to GB of Output for Groups



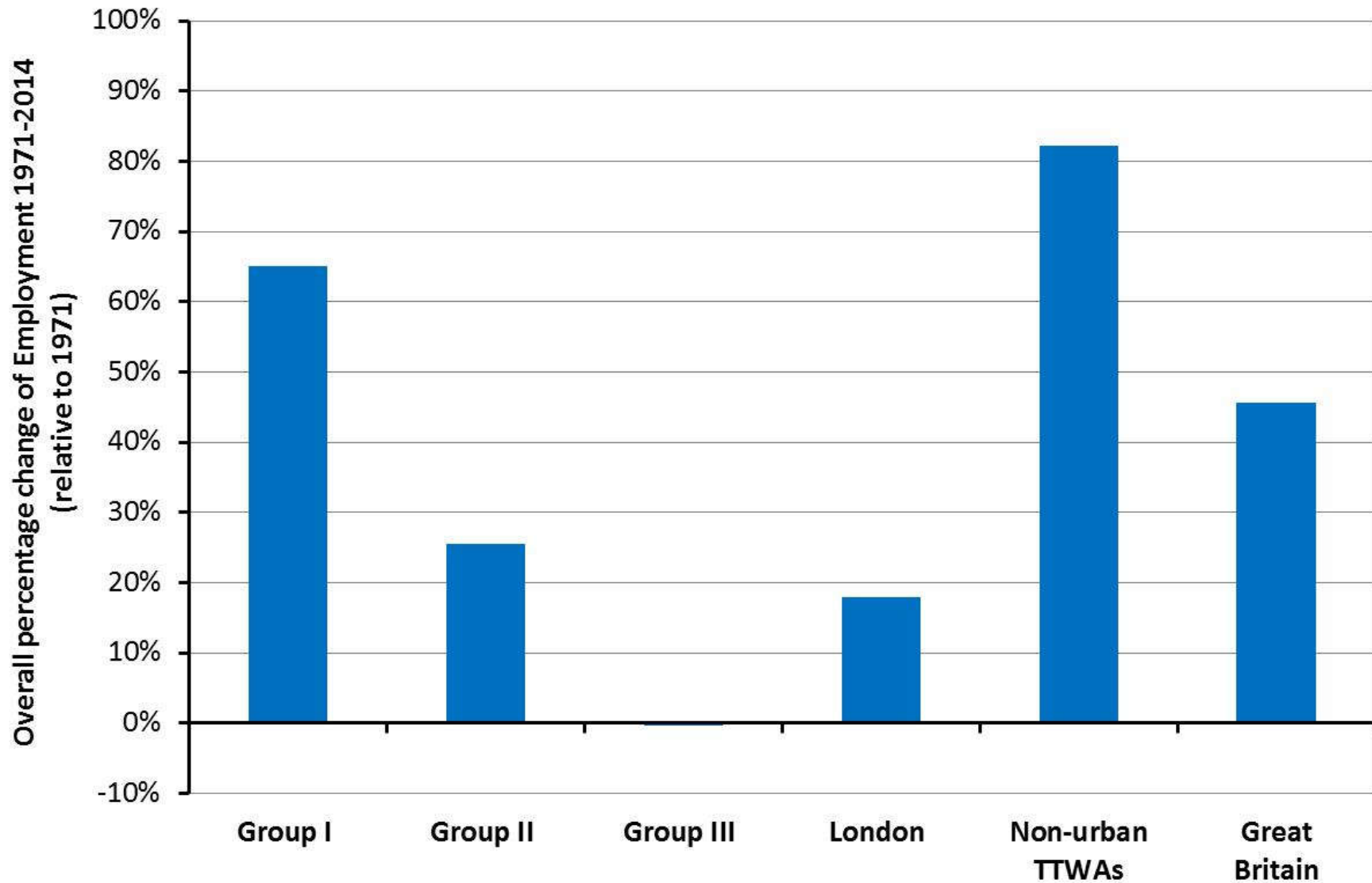
Total negative employment change over period



Total positive employment change over period



Overall employment change over period



Structural Transformation in the British Economy



Deindustrialisation and increasing polarisation in service sector

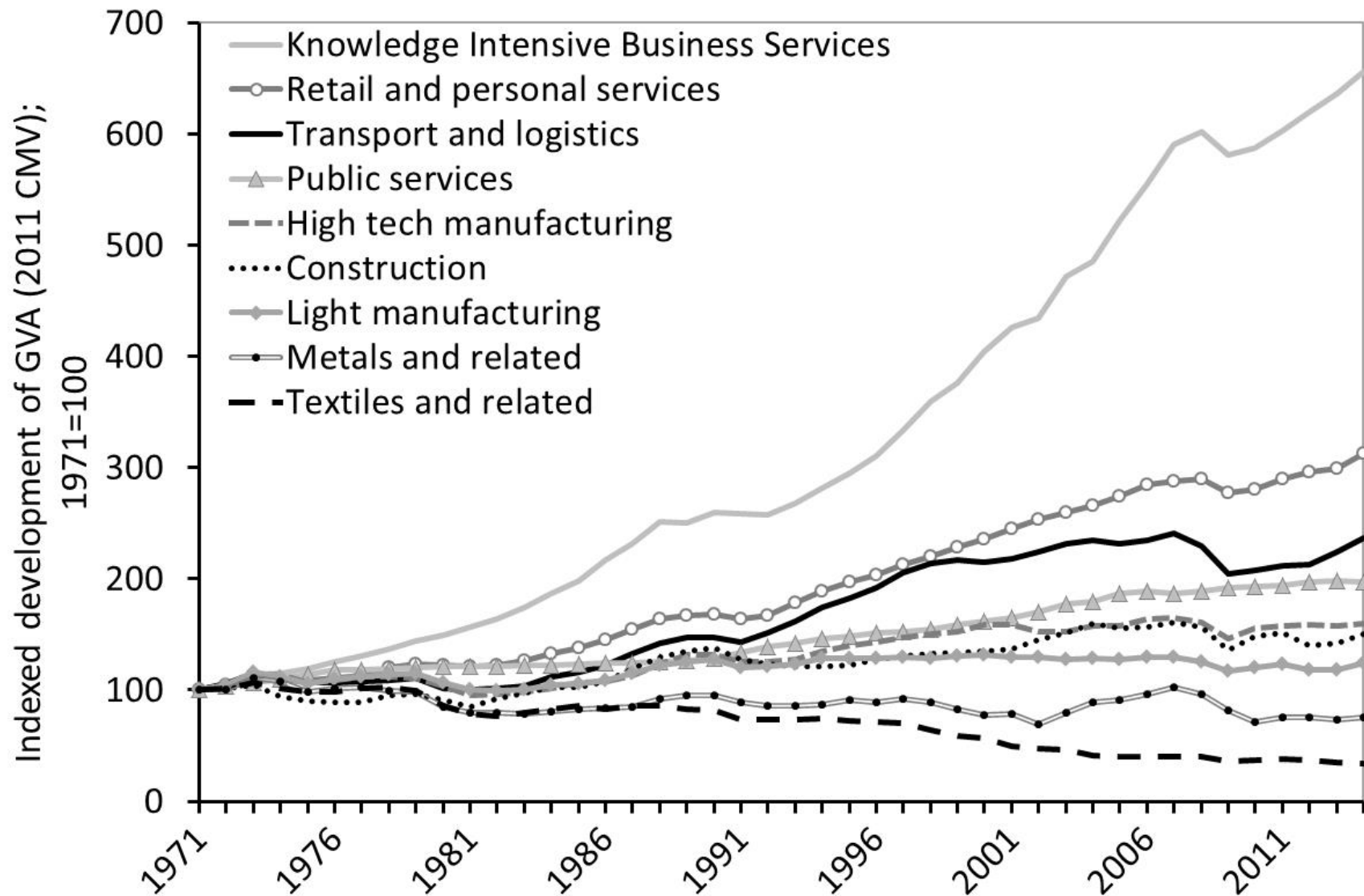
- Relative de-industrialisation since about 1960s in most advanced economies.
- Also absolute de-industrialisation in terms of employment, at accelerated pace in 1970s and 1980s.
- More lately, polarisation in the service sector, between:
 - Dynamic, high-productivity and tradeable activities (in IT, finance, design, life sciences, media, etc.).
 - More low-productivity – often also non-tradeable – segments (e.g. personal services, leisure, education, most public services).

Structural Transformation

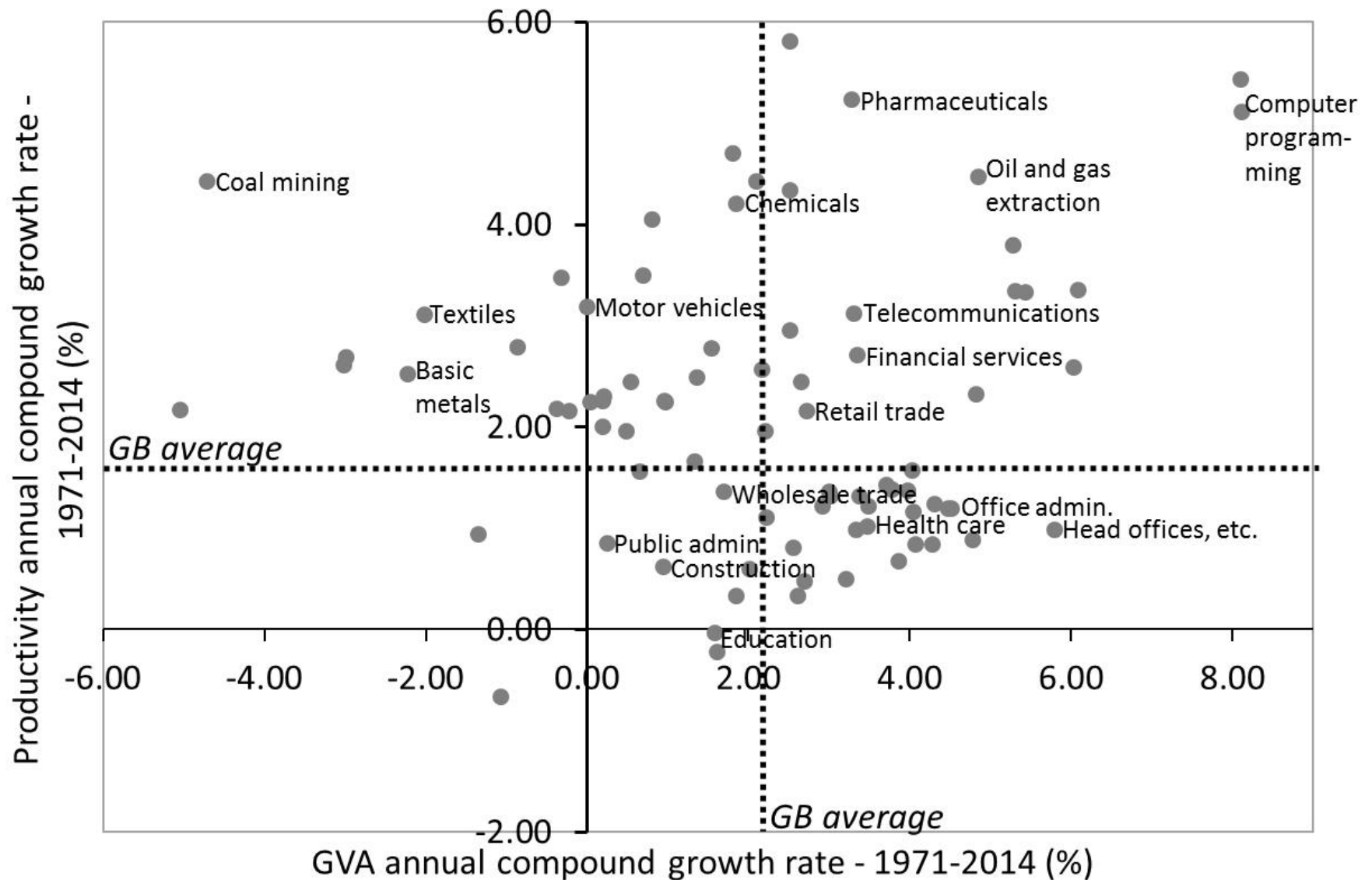
- Key drivers (based on work by e.g. Kaldor, Kuznets, and Pasinetti):
 - Productivity growth differences (because of differential impact of innovations, and different potential for returns of scale).
 - Differing income elasticity for different goods.
 - Emergence of new products and services, and thus new industries.
 - Shifting comparative advantages of economies in international trade, when they move to higher wages and higher-skill-levels.



Sectoral growth across the British economy 1971-2014



Sectoral growth in output and productivity (annual compound growth rates)



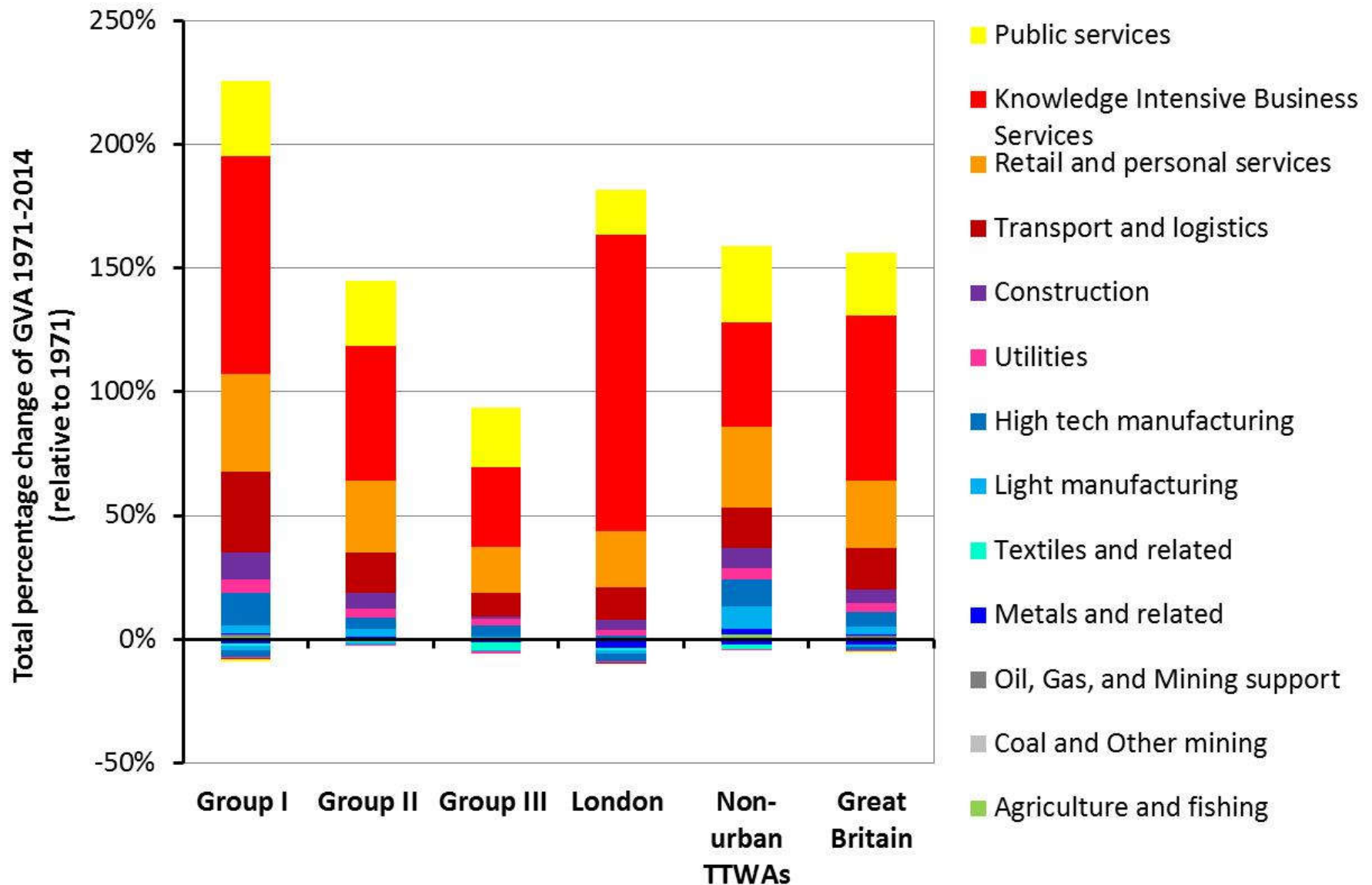
Sectors by performance type

	Main sectors	GVA change 1971-2014	Productivity change	Employment change
Total for Great Britain		2.15% on annual basis 149.5% over period	1.59% on annual basis 98.6% over period	0.55% on annual basis 26.8% over period
GVA below average, Productivity below average	<ul style="list-style-type: none"> Public administration and defence Education Construction Accommodation and other leisure services 	1.07% on annual basis 58.2% over period	0.41% on annual basis 19.4% over period	0.66% on annual basis 32.5% over period
GVA below average, Productivity above average	<ul style="list-style-type: none"> Most manufacturing Electricity and gas supply Water transport Insurance and pensions 	0.33% on annual basis 15.1% over period	2.85% on annual basis 235.0% over period	-2.45% on annual basis -65.6% over period
GVA above average, Productivity below average	<ul style="list-style-type: none"> Most personal services Health care, residential care, and social work Some KIBS 	3.74% on annual basis 384.4% over period	1.12% on annual basis 61.6% over period	2.59% on annual basis 199.7% over period
GVA above average, Productivity above average	<ul style="list-style-type: none"> Most KIBS Retail Pharmaceuticals Oil and gas extraction, and support activities 	3.69% on annual basis 374.5% over period	3.03% on annual basis 260.2% over period	0.64% on annual basis 31.7% over period

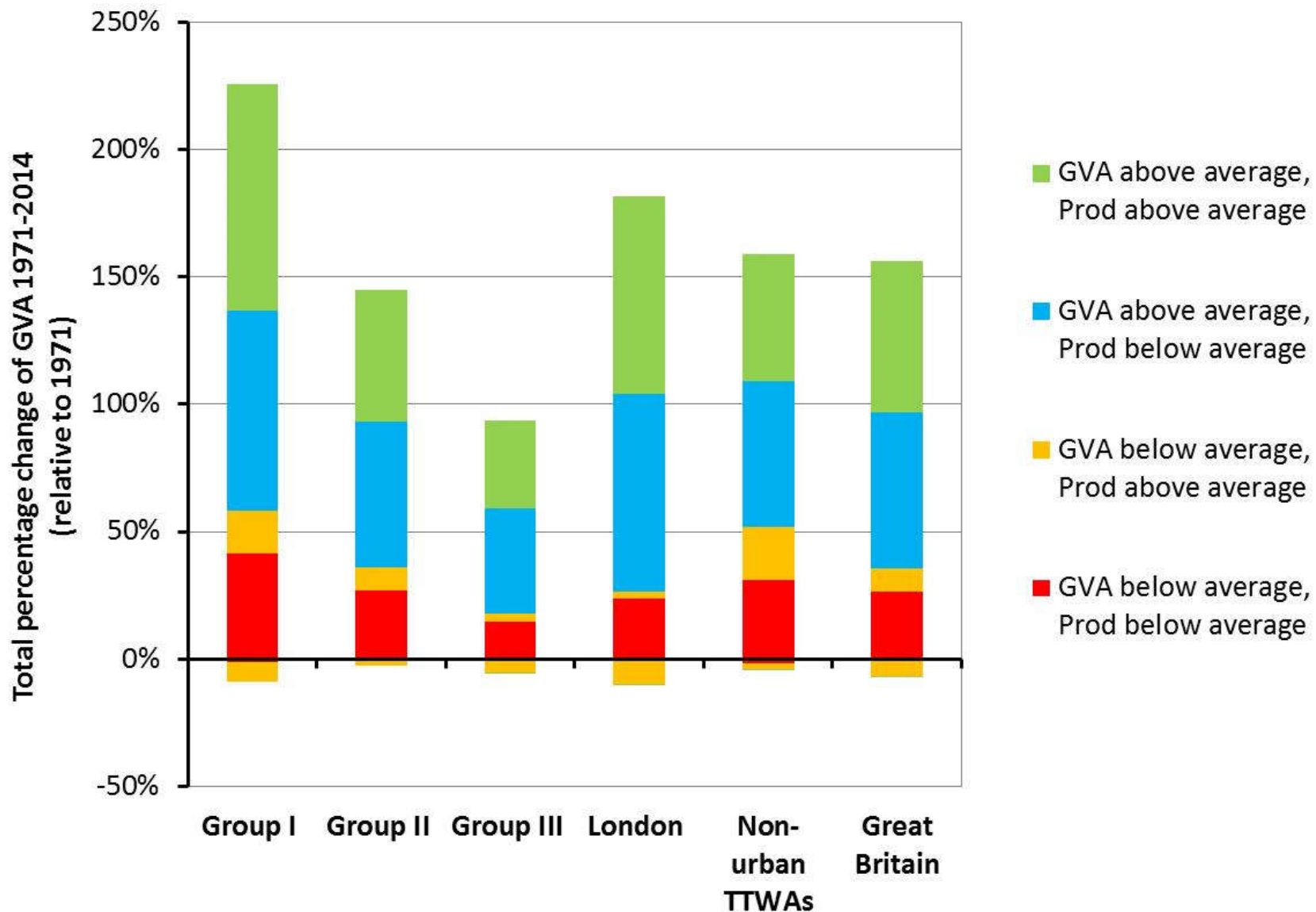
Contribution of Structural Factors to the Growth of British Cities



Analysis of overall output change over period – Large sector groups



Analysis of overall output change over period – Sector performance types



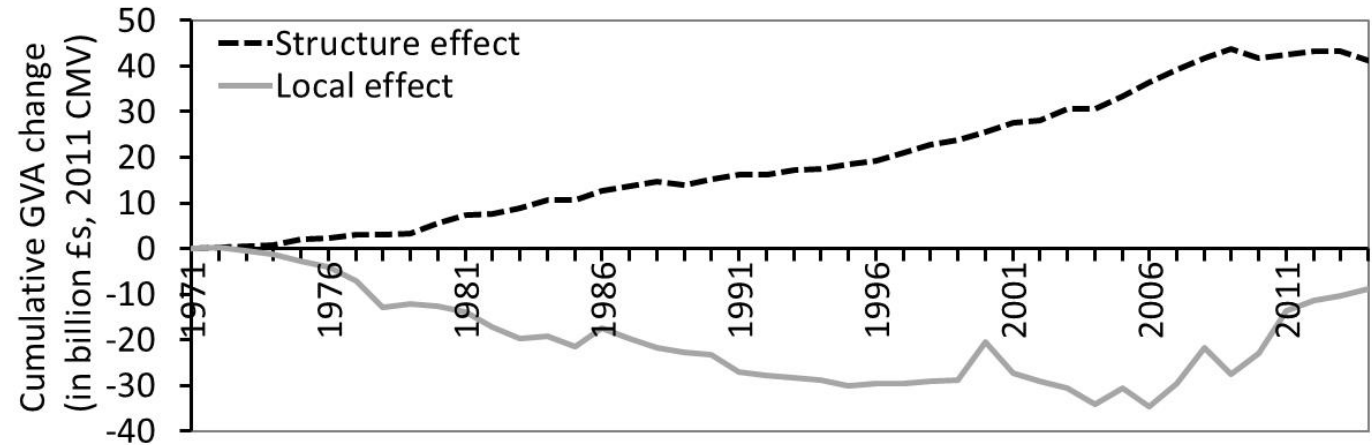
Using shift-share to assess role of industrial structure in city growth

- Shift-share decomposes city (or regional) growth into three main components
- **National effect** – a city's growth path had it grown at the same rate as the nation as a whole (a sort of 'counterfactual' growth)
- **Industrial structure effect** – that portion of a city's growth attributable to the degree to which its industrial structure differs from that of the national economy as a whole (ie its particular mix of faster and slower growing industries)
- **City-specific or 'competitiveness' effect** – that portion of a city's growth due to the differential performance of its industries compared to the same industries nationally
- We use dynamic version of Shift Share

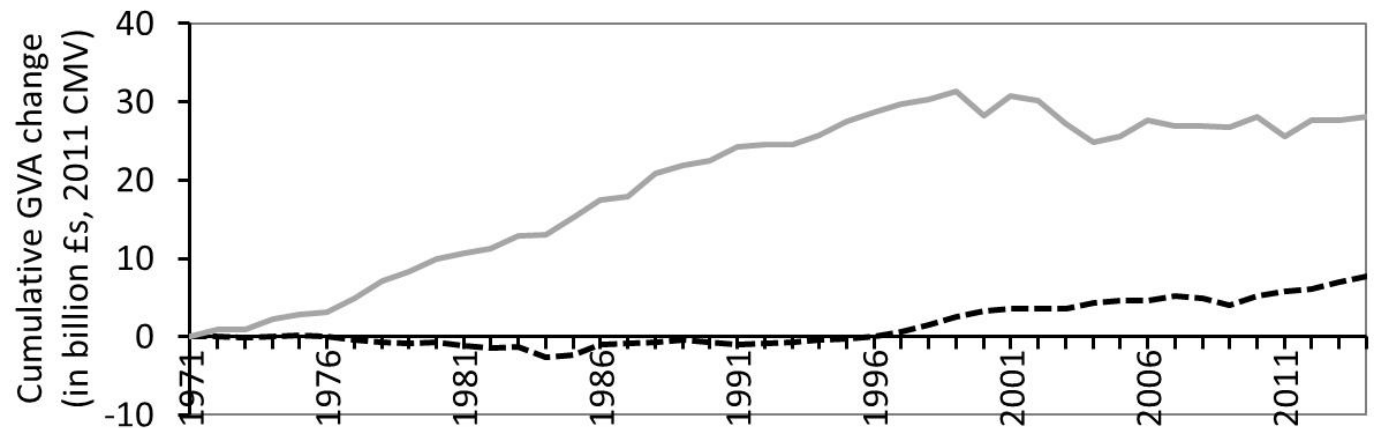


Dynamic shift share analysis for output change – London and Group I

London

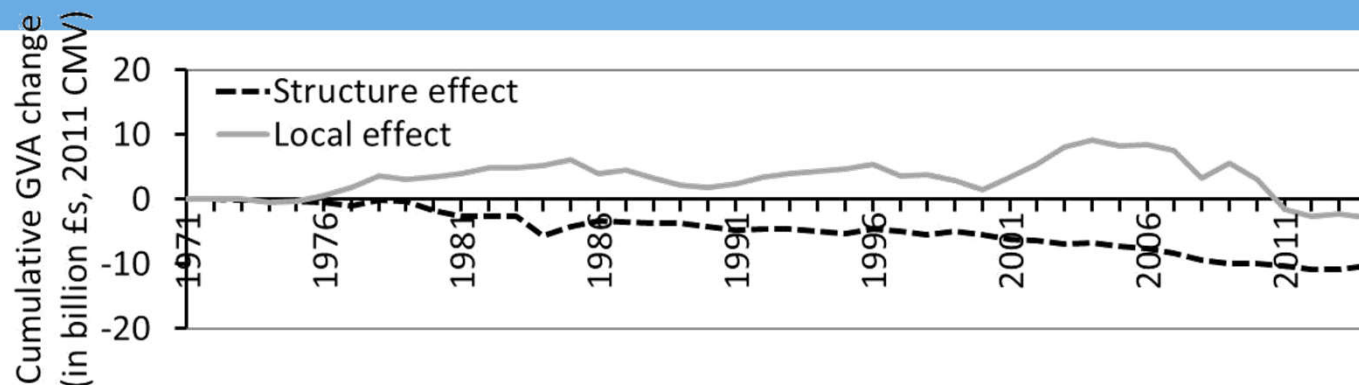


Pulling Ahead

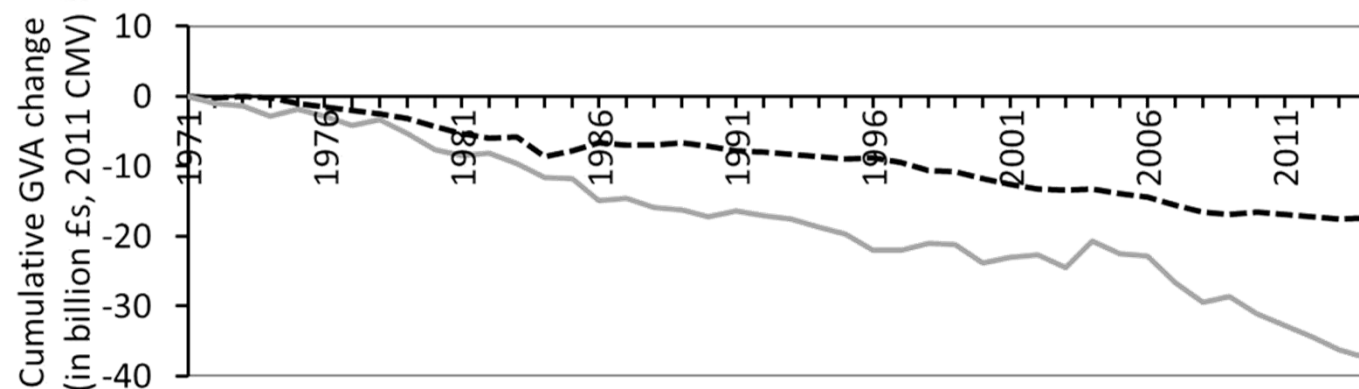


Dynamic shift share analysis for output change – Group II, Group III, and Non-urban TTWAs

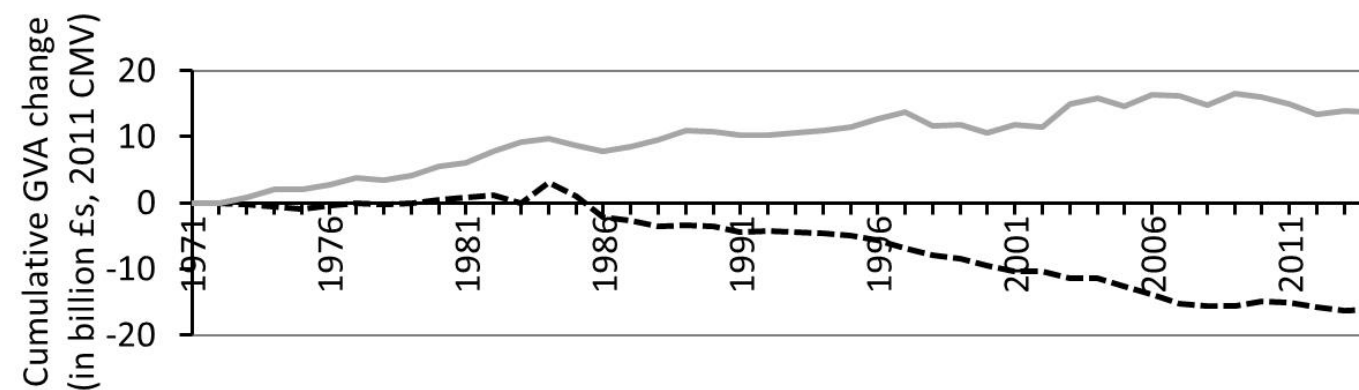
**Keeping
Pace**



**Falling
Behind**



**Non-urban
TTWAs**



Contribution of structure re local effects

- Throughout period London benefitted from its particular economic structure, However, structural effect offset by local effect until mid 1990s. In recent years local effect has been strongly positive;
- Structural effect also substantial in explaining slow growth of older industrial cities (Group III)-explaining about half of the gap between city and nation as a whole. However, negative effect has been at least as large and has increased overtime-various factors affecting a city's competitiveness have become increasingly unfavourable;
- Group II cities and other, less urban, TTWAs have also coped with a negative structural effect-but heavily compensated by a positive local effect;
- Strong growth in leading Group I cities has been almost entirely due to highly positive local effect reflecting a growing competitive advantage.



Conclusions



Key components relative to change

- ***Between-sector changes*** (effect of composition captured by shift share) account for some of the divergent development of British cities.

However, a full explanation has to explain the contribution of the factors contained in the ‘local effect’;

- ***Within-sector changes; Within-sector changes*** – due to different firm- demographics, different tasks and functions, different levels of entrepreneurship and innovation, etc. – seem to be dominant however
- ***Cities’ local supply factors.*** – labour market / skills; built environment / infrastructure; other legacies; and institutions and policy – will shape both these types of changes (and thus adaptability).

- In the course of the dynamic specialisation seen in city economies, the relationships between these three sets of processes are deeply recursive through time;
- While our dynamic shift-share analysis has allowed us to rigorously distinguish and pull out the direct effects of structural change on variations in city growth, it is not intended to identify more indirect and evolutionary path dependent effects that stem from structural change;
- These indirect effects may be important and may be closely integrated with both within-sector and local supply-side development in specific ensembles.



Within-sector changes

- ***Within-sector changes***; Cities host firms that are classified as belonging to the same industry but are actually quite different in their capabilities, employment, business models and strategies, and these ‘within-sector’ effects will also contribute to divergent economic performances. Faster growing cities and less urban areas may be characterised by a relatively higher proportion of businesses that are relatively enterprising;
- These businesses have favourable know-how and expertise and undertake a relatively higher proportion of product innovation and targeting new and emerging markets.



Cities' local supply factors

- ***Cities' local supply factors.*** – labour market / skills; built environment / infrastructure; other legacies; and institutions and policy – shape both these types of changes (and thus adaptability); Local areas start with an inherited pattern of land use and a resource base and institutions that were tailored to another era and the legacy of the past weighs heavily on their ability to adjust to new economic futures.



- The Group III cities tend to be amongst the oldest industrial cities with infrastructure, labour forces and a constrained land use pattern to match (See Fothergill and Gudgin, 1982);
- In contrast the fast growing Group I cities contain post second world war New Towns characterised by plentiful and planned land assembly, up to-date infrastructure and labour with skills more appropriate to the new age;
- While there is considerable scope for policy initiatives to modify and improve these local supply factors and characteristics, it is also the case that their development is primarily the outcome of a long-term cumulative and path dependent process in which industrial change plays a key role and accumulates different types of asset and institution (Storper, 2015).

