# Regional economic resilience: a Schumpeterain perspective

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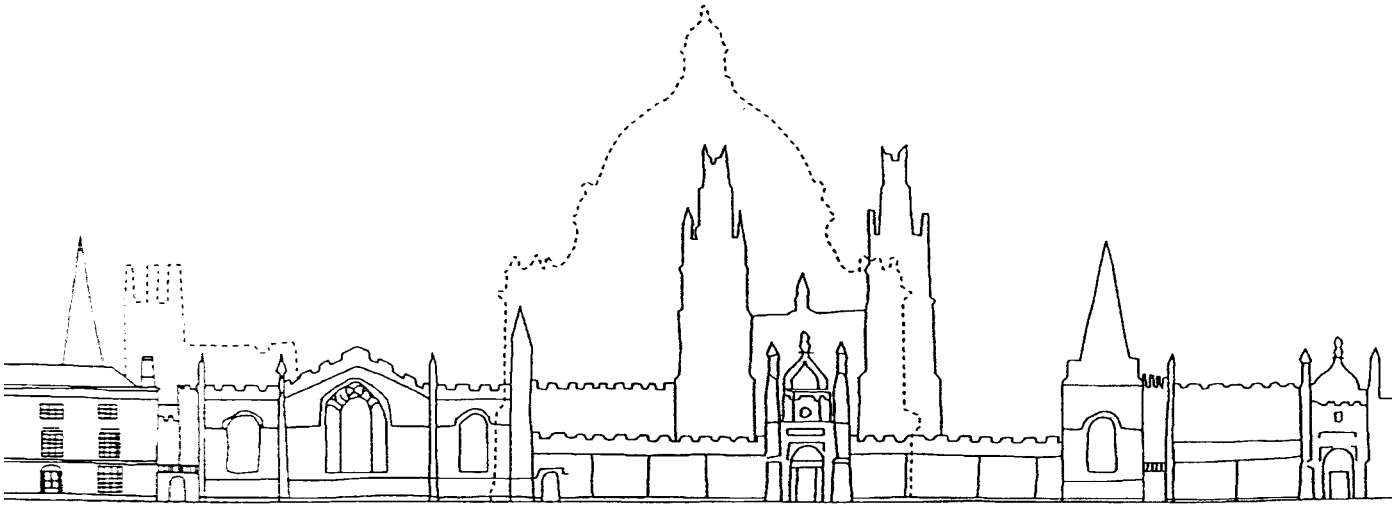


# “Resilience” a fuzzy concept

- “Resilience” is a classic example of what Ann Markusen (2003) described as a “fuzzy concept”.
- A concept lacking in conceptual clarity and therefore difficult to operationalise resulting in a lack of acceptable supporting empirical evidence.
- The meaning of fuzzy concepts tends to vary according to their context or conditions.
- Their definitions are not fixed or generally agreed.
- As a result, a concept like resilience, as currently employed, has multiple meanings.
- One recent review of the literature, for example, identified no less than 16 “understandings” of resilience in social, ecological and socio-ecological systems (Bahadur, Ibrahim and Tanner 2012).

# Conventional equilibrium based wisdom

- “Resilience is the capacity of a system to retain essentially the same function, structure and identity when subjected to disturbances and shocks” (Holling 1996).
- “Regional resilience is the ability of a region to anticipate, prepare for, respond to, and recover from disturbance” (Foster 2007).
- Regional resilience is the ability of a region … to recover successfully from shocks to its economy that either throw it off its growth path or have the potential to throw it off its growth path” (Hill et al 2008).

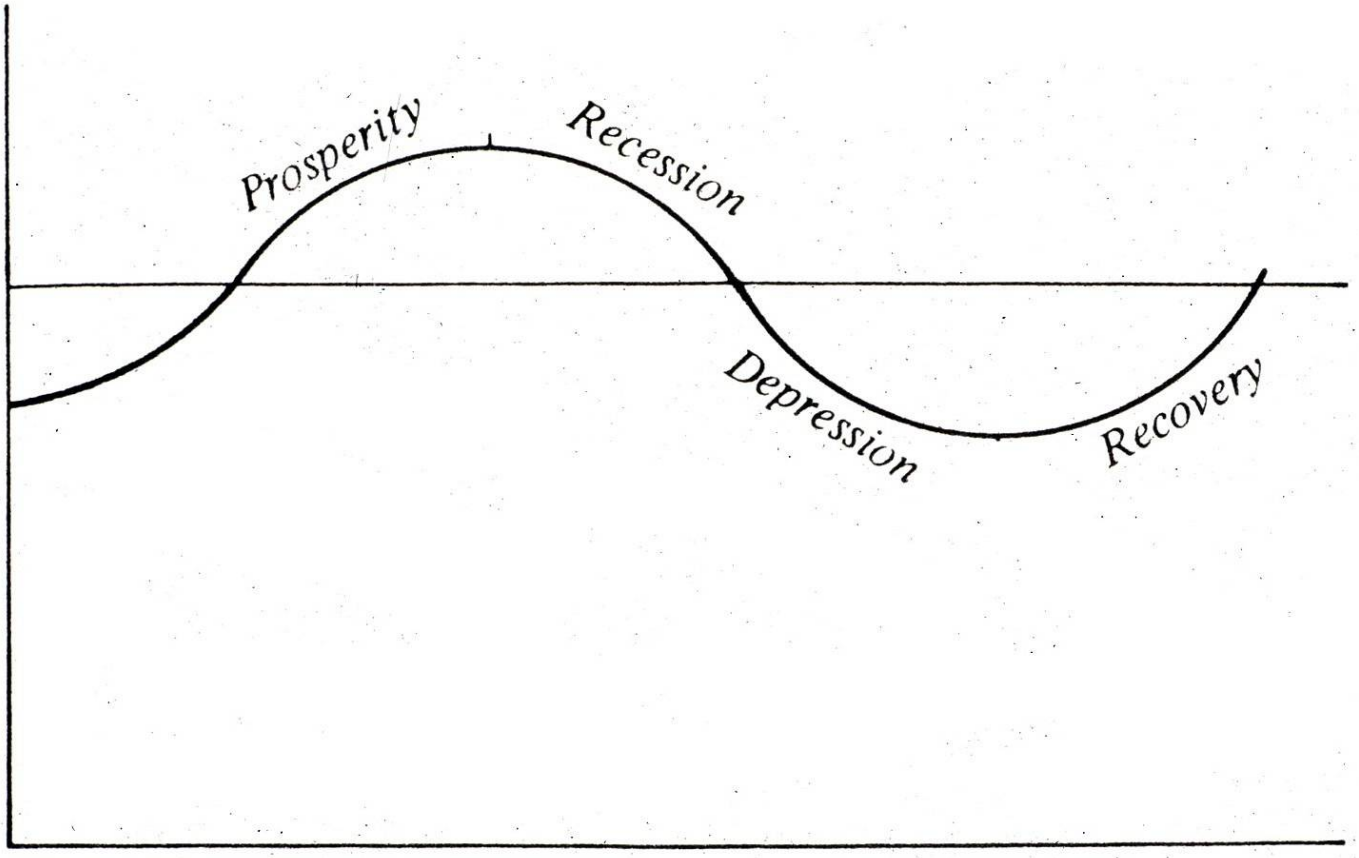
## Conventional equilibrium based wisdom

- The conventional wisdom is therefore essentially an equilibrium approach arguing that regional economic resilience is the capacity of a regional economy, that is subjected to a significant external shock, to return to its previous growth path/equilibrium after the initial impact of the shock has passed.

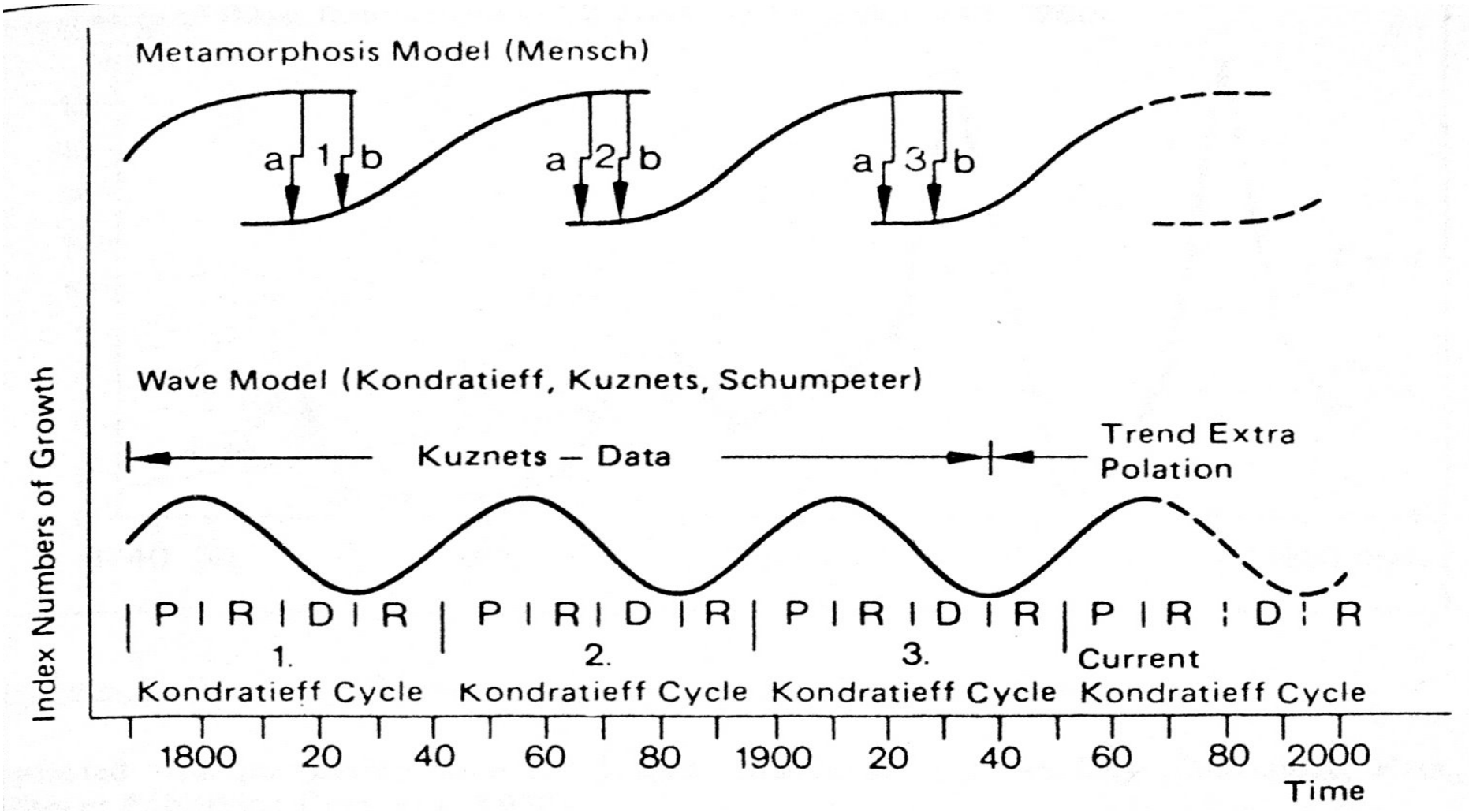
# An alternative evolutionary view: Joseph Schumpeter & creative destruction

- Joseph Schumpeter (1939) *Business Cycles.* Refined ideas of Nikolai Kondratieff on long-wave cycles arguing that they were driven by technological innovation.
- Joseph Schumpeter (1942) Capitalism, Socialism and Democracy introduced the term "*creative destruction*".
- Explicitly derived from Marxist thought and used to describe the disruptive process of transformation that accompanies major technological innovation.
- Distinctive theory arguing that the evolution of economies is driven by irregular bursts of technological innovation

# According to Schumpeter capitalist economies are subject to constant cycles of the destruction of previous forms of capital accumulation in order to make way for new ones



**Schumpeter argued that technological innovation is the driving force of recovery from recession/depression. This is an evolutionary theory as illustrated by Mench's metamorphosis model of industrial evolution**



# Significance of innovation & the renewal of urban economies is illustrated by American research

- One strand of research on American cities & industries emphasizes the role of product and profit cycles in regional growth; it suggests that regional economies can be renewed if their firms introduce new goods or services for export from the region or use new technologies to produce such goods and services.
- The key to such renewal & adaptation is product & process innovation.


- Desmet, K. and Rossi-Hansberg, E. (2009) “Spatial Growth and Industry Age”, Journal of Economic Theory, 144: 2477-502.
- Duranton, G. and Puga, D. (2001) “Nursery Cities: Urban Diversity, Process Innovation, and the Life Cycle of Products”, American Economic Review, 91: 1454-77.
- Markusen, A. (1985) Profit Cycles, Oligopoly, and Regional Development, Cambridge, MIT Press.
- Norton, R. D. and Rees, J. (1979) “The Product Cycle and the Spatial Decentralization of American Manufacturing”, Regional Studies, 13: 141-51.

# Schumpeterian evolutionary regional economic resilience theory

- Regional economic resilience is not illustrated by a return to equilibrium after an external shock.
- Instead it is characterised by a capacity to evolve, change & adapt so as to introduce new firms and industries to replace those that are destroyed by external shocks.
- Processes of “creative destruction” – post shock aggregate economies are composed of different combinations of firms & industries.
- Innovation is the key driver of such evolutionary change.

# Regional innovation systems (RIS) drive evolution, change & adaptation

- “The innovation system approach pictures innovation as a complex and uncertain process, has enterprise dynamics at its core, places a premium on interactions and learning between actors, and emphasizes the importance of institutions, formal and informal, for the generation, diffusion and use of knowledge. It incorporates the idea that firms do not innovate in isolation, but rather through interactions with other firms, with users and with their environment” (Nauwelaers 2011, p. 468).

# Regional innovation system (RIS)

- The key actors in a RIS are firms, universities and other educational institutions, innovation centres, financing organisations, standard-setting bodies, industry associations and government agencies.
- These are embedded in local institutions such as common habits, rules, norms and laws that regulate the interactions between local individuals, groups and organisations.
- These networked interactions both within and between regions are one of the key and regionally distinctive driving dynamics of the complex system as a whole and therefore of the emergence of the relative adaptability and resilience of regional economies.
- These are different in different regions giving rise to different degrees of regional economic resilience.

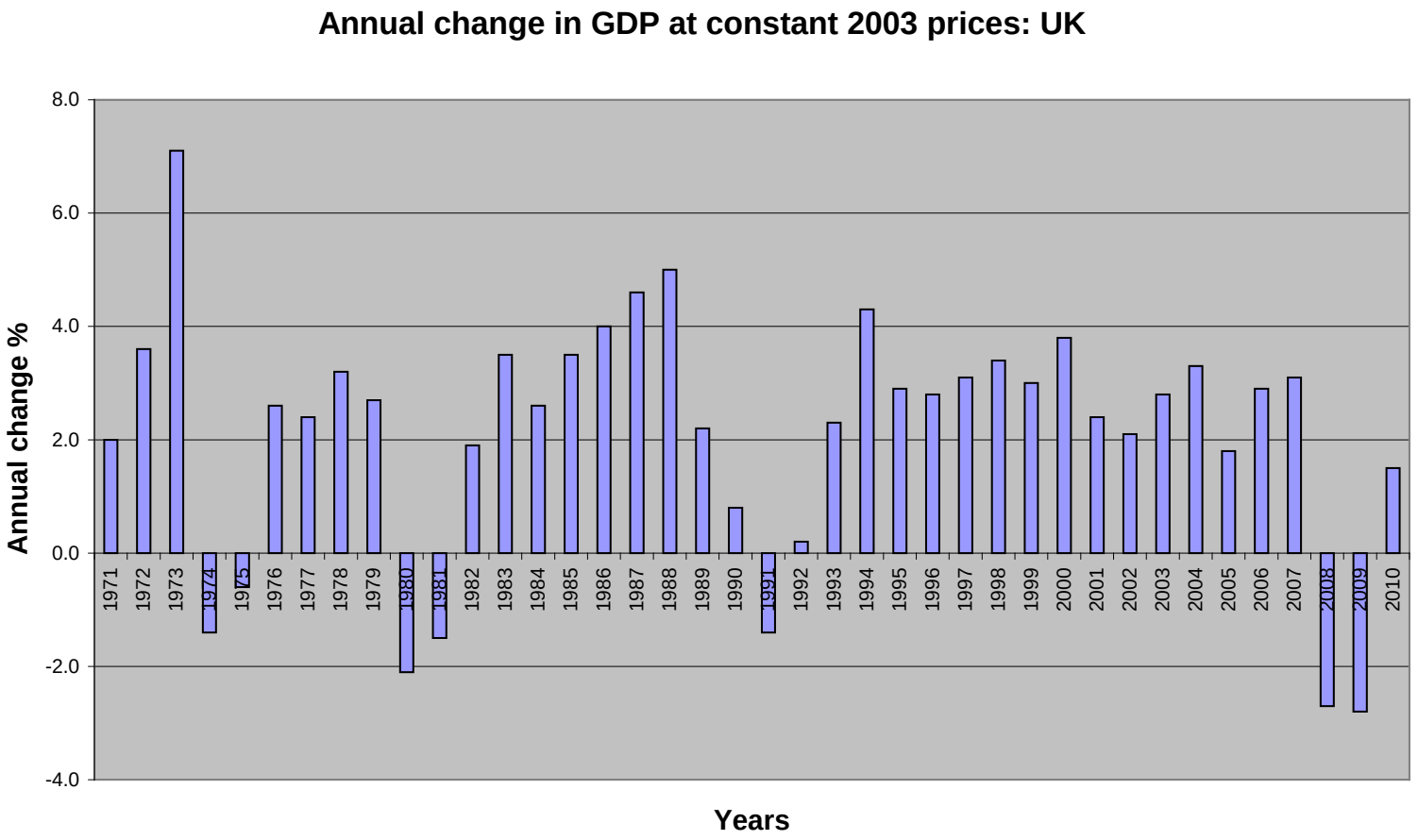
# Research methods: Empirical evidence required to analyse a regional innovation system (RIS)

- New knowledge production from public (including universities, military, and health R&D) or private sources (private R&D).
- Learning through networked interaction linkages.
- The co-evolution and mediation of institutions including norms, rules and regulations.
- The commercialisation of new knowledge combined with venture or risk capital in the form of innovation (including new products, processes and services).

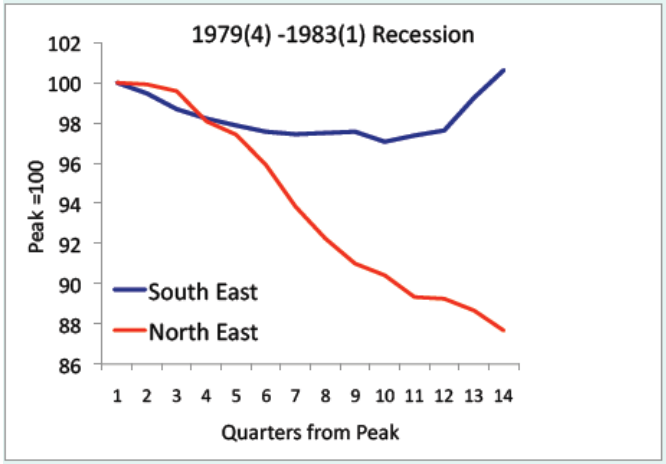
# Research methods

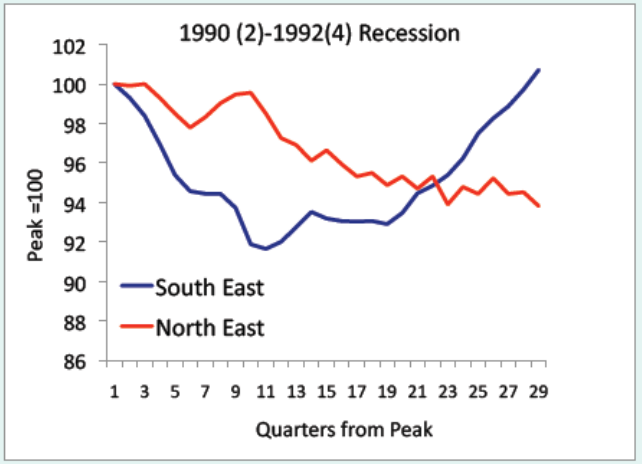
- Identify major external shocks to UK regional economies.
- Select two contrasting regional economies and track their reaction & adaptation to these shocks through time. North East & South East.
- Compare & contrast the performance of their respective RIS with respect to the long-term adaptation of the selected regional economies.

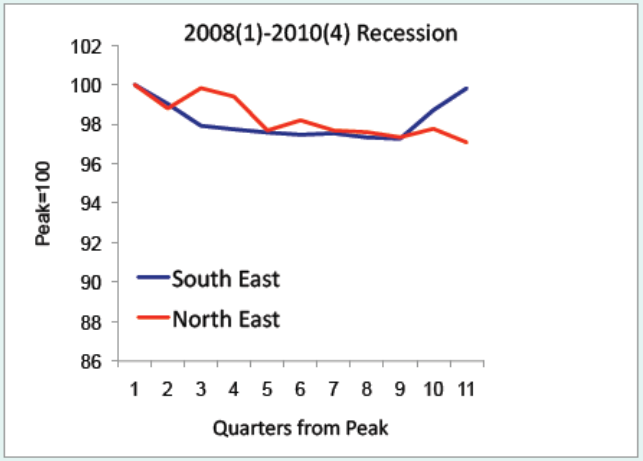
# Empirical evidence:
# External shocks, recession/depressions



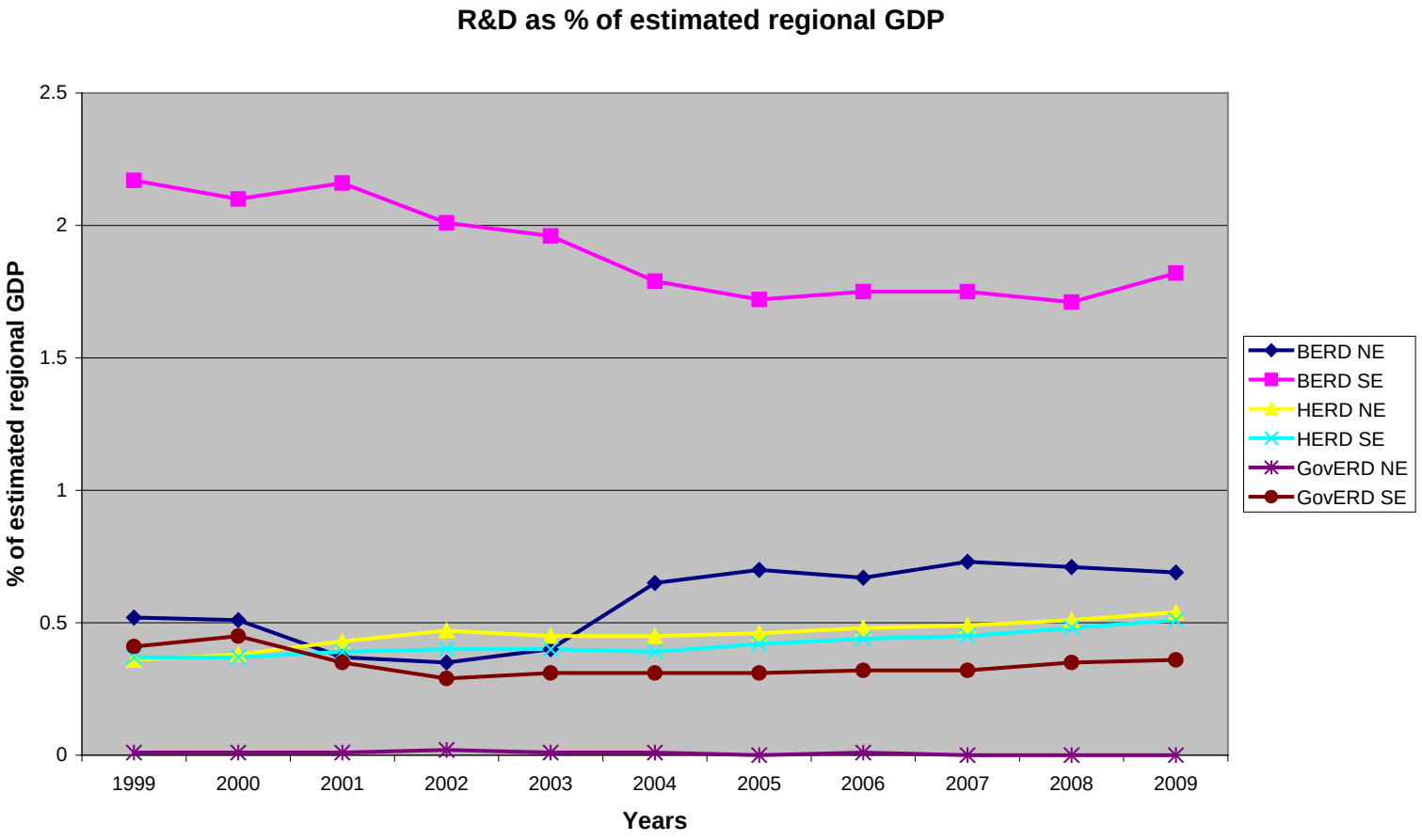
# As NE & SE economies have evolved they have reacted differently to successive external shocks (Ron Martin 2013)



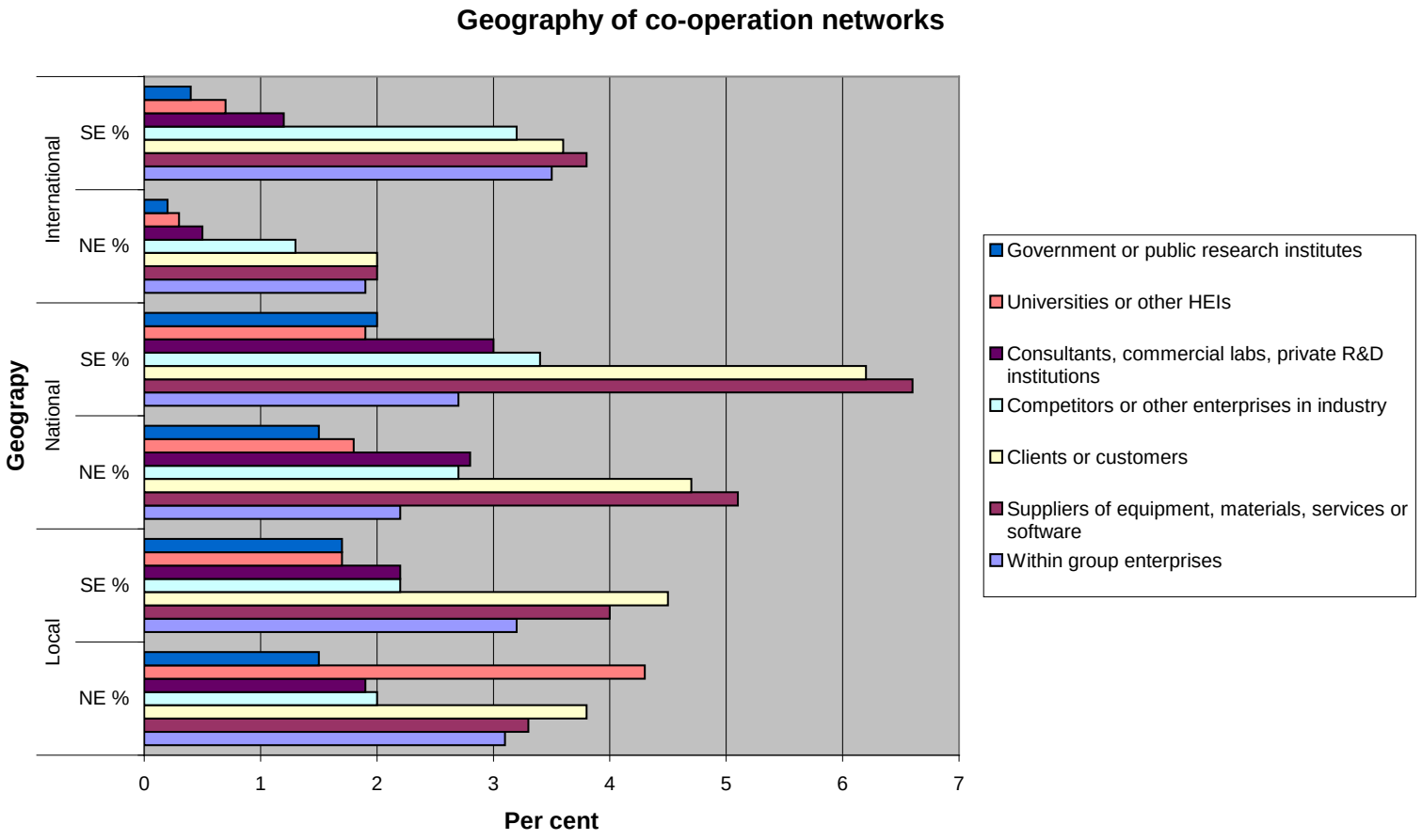



# RIS: New knowledge production



# RIS: Learning through networked interaction linkages



## RIS:
## Co-evolution and mediation of institutions including norms, rules and regulations

- A key insight of the innovation systems literature is that innovation is not only an economic activity conducted by collaborative networks of firms and other actors but also requires the co-evolution of complementary institutions.
- These may be informal norms and accepted rules of behaviour. They may also be formal regulations and government policies.

# RIS:
# Co-evolution and mediation of institutions including norms, rules and regulations

- The conditions pertaining to science and innovation by the late 2000s were described by one commentator as “a ‘minimalist’ system of multi-level governance in science policy in England, in which national actors continue to dominate, despite uneven yet parallel policy processes and considerable sub-national mobilization” (Perry 2007, p. 1052).
- Until 2000 science and innovation policies were decided almost entirely by central government. These decisions were technically “spatially blind”.
- But the results of this approach were to provide support to existing “centres of excellence” which led to the cumulative concentration of resources in the Greater South East.

# RIS:
# Co-evolution and mediation of institutions including norms, rules and regulations

- Issues around the spatial distribution of institutional support for science and innovation were brought to a head in 2000 when central government announced a decision to invest in a replacement for the "DIAMOND" synchrotron radiation source, located in the Daresbury Laboratory in the North West, at the Rutherford Appleton Laboratory located in Harwell in Oxfordshire.
- This galvanised regional consciousness around the importance of science and innovation as key drivers of economic development not only in the North West but in other regions as well.
- The debates surrounding this issue developed the legitimacy of Regional Development Agency (RDA) involvement in policy and eventually "led to the creation of new institutions for science and innovation in all of the English regions" (Perry 2007, p. 1057).

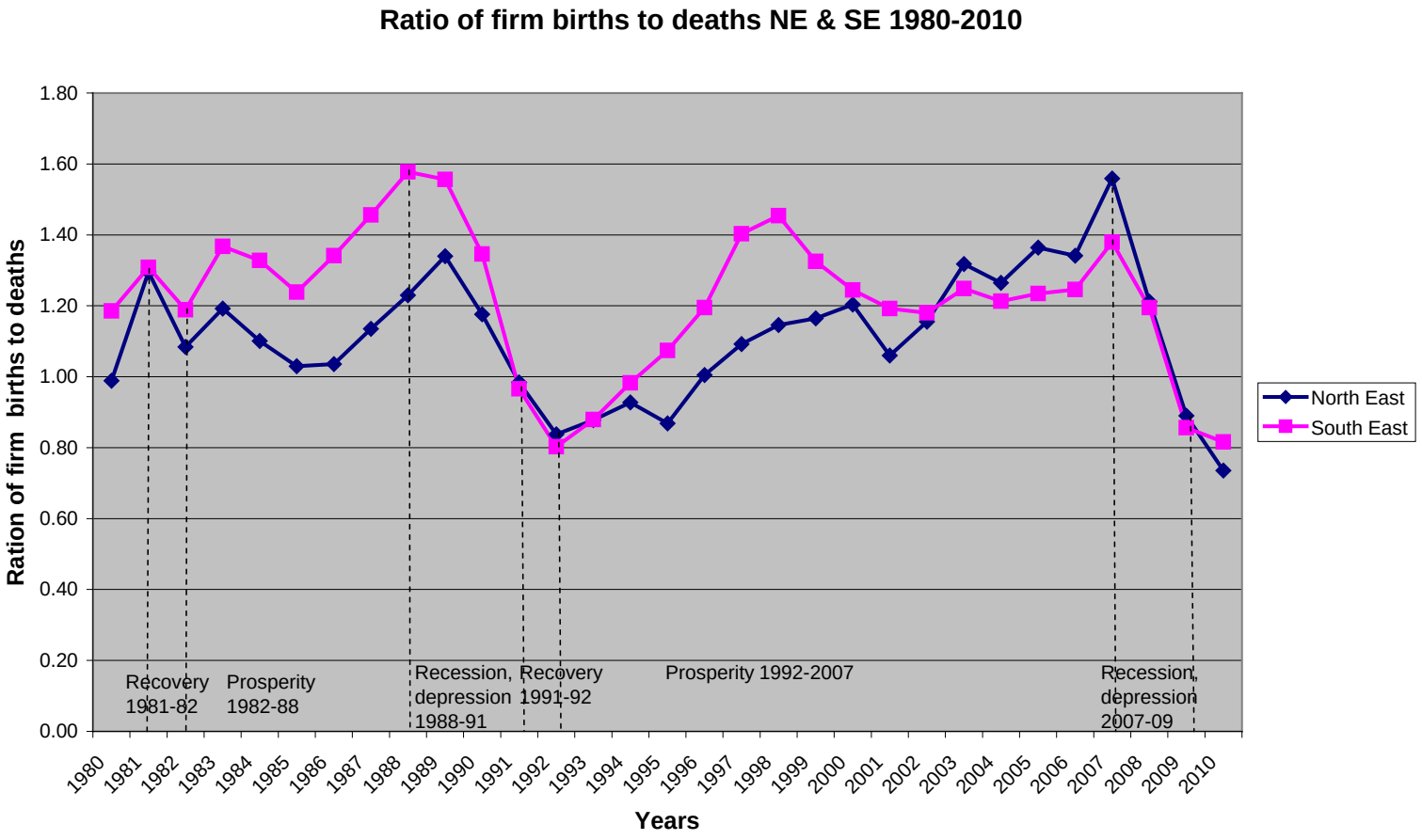
# RIS:
# Co-evolution and mediation of institutions including norms, rules and regulations

- The North East RDA developed a “Strategy for Success”. It invested £200 million over five years in the Science and Industry Council formed in 2001, and a series of Centres of Excellence in life sciences, nano-technologies, new and renewable energy, digital media and process innovation.
- The South East RDA established the South East Engineering and technology Advisory Council in 2003. By 2002/3 collectively the English RDAs were spending around 15% of their budgets on institutional support for science and innovation in their respective regions (Perry 2007, p. 1058).

## RIS:
## Co-evolution and mediation of institutions including norms, rules and regulations

- The traditionally centralised institutional support for science and innovation was re-asserted in 2012 when the RDAs were prematurely abolished as a result of the government decision taken in 2010.
- The result is a weakening of institutional support for the North East RIS combined with the continuation of spatially blind support for institutions in the Greater South East.

# RIS: Commercialisation of new knowledge: creation & destruction



## Conclusions:
## Why is the regional economy of the SE more resilient than that of the NE ?

- The SE has evolved, adapted & changed its firms & industries more rapidly & to a greater extent than the NE.
- The better performance of the SE RIS has been a key driver of this evolution.
- The SE RIS has benefitted from the continual generation of pre-market new knowledge generated by public sector R&D.
- The SE RIS learns more from non-local sources of knowledge than the NE.
- The NE has only had a serious regional innovation policy during the life of the RDA.
- The impact of this highly focused regional innovation policy & investment may be seen in the higher levels of new knowledge commercialisation in recent levels of new firm formation in the NE.