Rethinking sector-focussed industrial policy in the UK: foreign ideas and lessons, home-grown programmes and institutions

Geoff Mason and Max Nathan
NIESR

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Order of presentation

1. Definitions, concepts, arguments
2. ‘Developmental states’
3. Supporting collaborative research, knowledge transfer and network formation
4. Improving commercialisation of new products and technologies
5. Building up supply-chains: the regional dimension
6. Summary and assessment
Industrial policy: horizontal versus sector-focused approaches

- Overall aim of industrial policy to help improve innovation, growth and competitiveness at firm and sector level, seek to rectify different kinds of ‘market failure’
- ‘Horizontal’ approaches to industrial policy focus on framework conditions relevant to wide range of sectors (e.g., freeing up markets; increased support for university-based research and for skills development)
- ‘Sector-focused’ approaches explicitly seek to restructure production towards selected sectors – typically those believed to have more growth potential than other sectors
Industrial policy in the UK – changes in direction

• 1960s and 70s: government support largely focussed on efforts to shore up failing ‘lame duck’ firms in automotive, computer and other sectors

• 1980s-2000s: reaction against efforts to ‘pick winners’ – refocus on horizontal policies

• 2010s: renewed interest in sector-focussed approaches, attempting to ‘rebalance’ the economy towards high value added innovation-intensive activities
BIS policy announcements, 2012-13

• September 2012: Vince Cable speech and supporting BIS analytical paper announce plans to:
  – develop collaborative strategic partnerships with ‘key sectors’, eg, aerospace, automotive, pharmaceuticals, knowledge-intensive traded services and ‘enabling sectors’ which affect performance across wider economy (such as energy and construction)
  – support emerging new technologies with growth potential
  – boost workforce skills
  – introduce ‘more strategic’ approach to government procurement
  – improve access to finance for small and medium-sized enterprises (SMEs)

• January 2013: David Willetts announces increased capital investment spending for scientific research on ‘eight great technologies’, eg, robotics, advanced materials, energy storage, agri-science
Foreign examples to be followed?

- UK seen as having much to learn from foreign approaches to industrial policy, such as:
  - German, Dutch and Finnish organisations involved in bridging gaps between university-based research and business innovation
- US use of public procurement to stimulate innovation by SMEs (2.5% of federal agencies’ external research budgets reserved for SMEs under the Small Business Innovation Research, SBIR, programme)
- Huge US investments in science and technology via public spending on defence and health
Developmental states

• Rapid growth of formerly under-developed countries in East Asia ➔ concept of ‘developmental state’
• East Asian industrialisation achieved through import substitution and selective support for chosen firms and sectors but also making state support conditional on firms’ success in exporting
• ‘Developmental network state’ concept applied to countries like Ireland and Finland which have seen periods of rapid growth in high-tech industries
• US described as ‘hidden developmental state’ in wake of contribution made by heavy government spending to new product development in IT, biotech and other industries
Reasons for caution in policy borrowing

- Some perceived foreign strengths not as great or wide-ranging as they are sometimes portrayed.
- Even if particular industrial policies have worked well in different times and countries in the past, there is no guarantee that they will enjoy similar success in the future in those same countries, let alone in other places.
- As in other countries, product and labour markets and socioeconomic institutions in the UK have their own deeply rooted characteristics which need to be taken into consideration in the design and development of sector-based policies and programmes.
Challenges confronting UK industrial policy (1)

• For many years now, some government departments and publicly-funded agencies in the UK have pursued objectives similar to those of government departments and agencies in developmental network states.

• Successive White Papers by UK governments have shown an understanding of the importance of knowledge transmission as well as knowledge generation -- and the need for firms to develop ‘absorptive capacity’.

• Existing programmes and initiatives try to support innovation networks and encourage two-way knowledge transfer between universities and industry and between firms and their suppliers/customers.
Challenges confronting UK industrial policy (2)

- BUT: many of these efforts have been carried out on small scale by international standards
- UK government-funded spending on R&D (expressed as % of Gross Domestic Product) is low compared to many other European countries and also compared to the US (BIS, 2011)
- Business-funded R&D in the UK is also low by international standards
- ‘Innovative firms’ represent smaller share of all firms in UK than in many other European countries (Community Innovation Survey evidence)
Key questions for Evidence Review

• What does research and evaluation evidence show about the impact and cost-effectiveness of different UK industrial policy programmes and initiatives?
• Which programmes have worked well and might benefit from being scaled up? Which have not?
• How well coordinated have these programmes been with other elements of government policy?
• What problems, if any, have these programmes encountered in terms of employer willingness or capability to respond to them?
Supporting collaborative research, knowledge transfer and network formation

• Lambert Review of Business-University Collaboration (2003): Biggest challenge for the UK is weak demand on the industry side
• Evaluations of collaborative research programmes supported by Technology Strategy Board and Research Councils tend to emphasise positive outcomes for participating firms
• Need to assemble more evidence on extent of difficulties in finding firms worthy of support and the degree of success in stimulating previously non-innovative firms to engage in research and innovation
Targetting SMEs

• Positive evaluations for Grant for Research and Development (GRD) and SMART programmes which have funded innovative product development projects in SMEs – many projects would not have proceeded without this support

• Similar success for Knowledge Transfer Partnerships (KTPs - formerly Teaching Company Scheme) which have supported employment of science and engineering graduates and postgraduates in SMEs -- sometimes in firms which have never previously employed graduates

• Strong case for operating these programmes on much larger scale – BUT: may need special support programmes just to identify larger number of suitable candidate firms and prepare them for funding applications
Improving commercialisation of new products and technologies

• Several dozen Research and Technology Organisations (RTOs) in UK work with university-based researchers and with businesses to encourage and support commercial development of research discoveries

• Long understood that RTOs are at disadvantage because of lack of core funding compared to similar intermediary organisations in other countries (eg, Fraunhofer institutes in Germany)

• Many RTOs forced into consultancy activities to survive, at expense of research

• Hauser (2010) report advocating one-third core funding for selected RTOs was accepted by previous Labour government

• Welcome continuity in policy under Coalition government with recent establishment of Catapult network of technology and innovation centres, with assurance of one-third core funding
Efforts to stimulate innovation through public procurement

- 2.5% of US federal agencies’ external research budgets reserved for SMEs under the Small Business Innovation Research (SBIR) programme
- Disconcerting failure of two UK government efforts to emulate this programme through the Small Business Research Initiative (SBRI) set up in 2001 and relaunched in 2006
- Volume of contracts placed way below target
- Many SBRI-funded projects are hardly innovative in nature
- Again seems to reflect lack of innovative candidate firms available to participate as well as shortcomings in SBRI design and implementation
Foreign investment, supply-chain building and reconstruction

• Heavy reliance on foreign direct investment (FDI) in many innovation-intensive sectors, eg, automotive, electronics, electricity generation

• Hopes for UK-based firms to participate in supply-chains for lead contractors

• Expected that existing suppliers in aerospace and oil/gas supply chains may be able to diversify towards products and services needed in renewable energy supply-chains

• BUT: these developments are unlikely to proceed without clever and well-resourced government support policy
Regional supply-chain development: the case of offshore wind energy

- Regional growth potential in supply-chains for offshore wind farms (e.g., East Anglia, Humberside, Teesside)
- Plus clear opportunities for local provision of installation, operation and sea-going maintenance services
- Large-scale turbines and their components need to be assembled (if not designed and developed) near to wind farm locations
- But participation in offshore wind supply-chains requires that firms be able to innovate to meet customer-specific requirements
- Many local firms lack track record in innovation and need support from universities and/or regional agencies in order to get started in innovative activities
- Indeed, many firms need support even to become viable candidates for government support schemes such as SMART/KTP
Regional supply-chain development: support for firms without previous track record in innovation

- Scottish Enterprise continues to engage in well-planned industrial support activities, eg, systematic development of relationships between SMEs and university-based researchers through Engineering Technology Partnership Partnership (pooling resources of several Scottish universities)

- Contrast with cuts in resources for Local Economic Partnerships in England (following abolition of Regional Development Agencies)

- Nonetheless, some positive achievements in England which can be built on, eg, KTPs; plus some support from Higher Education Innovation Fund for university departments to work together with hitherto non-innovative firms

- New Catapult centres have potential to create collaborative environments where prospective supply-chain entrants can work with lead contractors and university-based researchers
Summary and assessment (1)

- Much to be learned from international comparisons (eg, core funding for Catapult centres) but industrial support programmes and institutions need to be specifically designed for UK context
- Some existing programmes (eg, KTP, SMART) appear to be well-designed but operate on relatively small scale
- Other programmes (eg, SBRI) face design issues as well as scale issues
- Common problem with scaling-up of industrial support programmes is scarcity of innovative enterprises in UK
- Need for well-designed cost-effective support policies to encourage innovation by firms with no previous track record as innovators
Summary and assessment (2)

- Links to policy-makers’ efforts to encourage more firms to engage in skill-intensive high value added production
- Shifts from low to high value added product strategies usually require investments in innovation
- But many non-innovative firms are surviving comfortably in low-skill low value added product areas – they are under no pressure to change
- Hence policies aiming to encourage higher levels of innovation need to target firms which do need to innovate and move up-market in order to survive
Summary and assessment (3)

• Examples include well-resourced regional agencies which are able to help broker new relationships between universities and firms, and between supply-chain candidates and lead contractors
• Additional funding streams needed to support these relationships, especially in their early stages
• At same time need new mechanisms to avoid previous lack of coordination between former RDAs
• Overall aim to increase proportion of UK firms which engage in innovation while continuing to support relationships between R&D-intensive firms and universities
• Main area for learning from foreign examples may be improving availability of finance on favourable terms for innovative SMEs, especially those with rapid growth potential