

Innovation and Economic Performance in the UK

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1

Two Perspectives

1. An overview of Innovation Policy in the round
2. The perspective from a large research-intensive University

2

Innovation Policy *for the UK*: Defining the Problem

- Comparative data suggest persistent lower innovative performance of UK. Traditional explanations include, for example:
 - Too **few UK** innovative actors (firms, entrepreneurs etc)?
 - Potential UK innovators may lack appropriate **skills or resources**
 - Potential UK innovators lack appropriate **incentives?** (including demanding customers; or stakeholder pressure to do R&D)
 - **Above factors combine with analysis of education, skills, govt policy etc, into a UK 'national system of innovation' analysis**
- Problem here is that innovativeness is seen as intrinsic property of which some nations possess 'more' and some 'less'
- Resulting policy focus too restricted to fixing 'British' innovation process to produce more 'British' innovations

3

Defining the Problem II:

The UK in a 'globally distributed innovation system'

- Returns to investment in technology and innovation depend on the scale of the market in which they are exploited
- Mechanisms through which profitable innovations are conceived and brought to market increasingly cross-national or even global
- Despite this, continuing possibility for sub-national 'hot-spots' of innovation in particular fields
 - invariably highly internationally networked,
- So, if innovation processes becoming more globally 'distributed', in particular networks of relationships between (national and international) firms and public organisations, **what should be key objective of any 'national' innovation policy?**

4

Key Objectives of National Innovation Policy?

- To facilitate the formation of, and participation in, world-class distributed innovation systems
- This requires creation of conditions **in the UK** which result in:
 - UK firms and knowledge organisations **participating more strongly** in these innovation systems
 - System members migrating to the UK or forming at a greater rate in the UK
 - Could be S&T focused (eg satellite lab of MNC); or market focused (business unit as European market 'innovation hub')
 - More of associated wealth creation of the systems being 'captured' in the UK"
 - requires complementary policies towards enterprise, IPR, competition etc

5

Policy Modalities

- Innovation policy is more than science and technology policy. Many areas of 'traditional economic policy' need to be aligned to promote innovation.
- **two major policy modalities** for influencing the degree of integration of the UK into global innovation systems:
 - **Innovation Framework Conditions**, which influence the relative attractiveness of the UK as a location for innovation-driven businesses in general
 - **Specific targeted** policies designed to address particular *market and/or 'system failures'* in the specific processes of innovation

6

Innovation Framework Conditions

- *'Supply side'*
 - Quality of science base and its level of **international** connectedness (universities and public labs, and big private corporate labs if there are any! *and knowledge-based smes*)
 - Human resources, at the right levels of training, in the right disciplines, with good mobility across boundaries,
- *Regulatory*
 - Intellectual Property regime (stable and pro-innovator)
 - Competition policy (accept periods of high market dominance for some firms as a consequence of dynamic innovative behaviour)
- *'Demand Side'*
 - Willingness of Government and other large customers to use policy measures to set 'stretch targets' for suppliers which demand high levels of radical innovation in order to meet product/service specifications

7

Stimulating the demand for innovation

- Present innovation policy over-emphasises supply
- Also need stimulation of **demand**
- Key UK and European deficit is lack of market incentives to invest in technological development
 - Draws R&D investment and innovative activity to USA and to emerging markets such as China
- Global markets consist of global customers, and innovators need intimate knowledge of their detailed requirements
- Smaller firms gain access through supply chain linkages

8

Elements of demand-side policy (1)

- **Public procurement** could be used far more extensively to reduce demand uncertainty and facilitate innovation experiments
- Two main elements
 - Procurement of R&D – analogous to US DARPA which spends \$2 billion annually to commission state-of-art science and technology in areas where a technical solution to a defence problem is sought
 - Procurement of goods and services which do not yet exist and therefore R&D & innovation have to take place before delivery.
 - Procurer specifies the functions of a product or system but not the product as such.

9

Elements of demand-side policy (2)

- Regulation and standards often structure the markets for innovative goods
 - Eg environmental regulations such as zero emissions legislation, end-of-life regulations
- Rarely coordinated with promotional measure
- Opportunity to focus effects of R&D support grants in combination with supply chain, clustering and development of regulation and standards through Technology Platform projects
- Government present from beginning in roles of sponsor, regulator, collaborator and customer.
- Requires strong inter-departmental coordination and mutual commitment to innovation

10

Conclusions on Innovation Policy in General

- Distributed nature of innovation requires a policy for UK in the global system
- Core is attraction of globally mobile innovation activities matched by measures to promote growth of indigenous innovative firms
- Market size & structure is key gap in UK attraction factors
- Demand-side promotion of lead markets is centrepiece of technology procurement policy
- Innovation must be coordinated across government

11

The University Perspective (1)

- Universities are a key part of the science base, and therefore a key 'framework condition' for innovation
- but the regulated markets for research and home/EU teaching mean that their core business runs at negative margins. Policy has begun to address this (fees and FEC) but more to be done.
- The need to achieve a stronger resource base, coupled with market opportunities in distance learning and CPD, could result in some Universities evolving towards a different balance of public and private revenue

12

The University Perspective (2)

- The 'indirect' economic impact of University research as the UK's entry ticket to world science is much greater than the 'direct' impact of specific (fundamental, strategic or 'applied') research programmes
- *Implication: don't get into the 'basic versus applied' trap as a resource allocation issue*
- Treat industrial engagement of Universities as an issue of improving innovation networks (rather than producing specific innovations)

13

Manchester initiatives

- Pick some fields in which you have a chance to be 'world-class'
- Strategic alliances with big industry partners
- Change promotion criteria to give knowledge transfer equal weight with research and teaching
- Give 85% of (net) IP revenues to academic staff
- Proof-of-concept fund, seed fund, and third stage fund to accelerate spin-outs
- Performance measure is 3rd party capital invested

14

Specific whinges

- R&D tax credits are limited to a 'Frascati definition' of R&D so they don't help service-based innovation
- A grace period in the patent law would help University IP creation
- SMEs: the problem is not connecting them to HEIs; it is getting them to see innovation as important at all