Regulation and Productivity Performance

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The UK Productivity Paradox

- Jean-Philippe Cotis (2006):

  - “Why on earth isn’t UK productivity catching up faster, given economic theory, good UK policies and comparatively low productivity levels to start with?”

  - “A country that has implemented far-reaching reforms over the last 2 decades and would like the expected pay-off in terms of productivity to finally materialize”
Questions

• In what ways can regulation affect productivity outcomes?

• Is there evidence that regulation actually has a major impact on labour productivity growth?

• What research needs can be identified?
Regulation and Productivity

- **Compliance costs** have direct productivity implication
- Additional adverse impacts if **disincentives** to investment and to innovation
- May create **barriers to entry** that reduce competition
- Impact has not been well quantified
Growth Accounting with Compliance Costs

• **True TFP growth:**
  \[ x = \frac{\Delta Y}{Y} - \sum \alpha_i \frac{\Delta M_i}{M_i} \]

• **Measured TFP growth**
  \[ x^* = \frac{\Delta Y}{Y} - \sum \alpha_i \frac{\Delta M^*_i}{M^*_i} \]

  where \( M^* = M + R \)

• **True – Measured TFP growth:**
  \[ x - x^* = -\sum \alpha_i \Theta_i \]

  where \( \Theta = \frac{R}{M^*} \)
Compliance Costs and TFP Growth
(Gray, 1987)

- **Measurement Effect** is equivalent to share of compliance costs in total costs

- **Real Effect** is any additional impact on TFP growth through incentive effects captured by $b > 1$ in the following regression estimated for a cross-section of industries

$$dx^*_j = a - b\Theta_j + \varepsilon_j$$
Regulation as a ‘Tax’

• **Investment and innovation** are key determinants of labour productivity growth

• **Appropriable returns** underpin incentives to investment and to innovate

• **Regulation** may reduce net present value of projects
Regulation as Barrier to Entry

• For example, costs of setting up new business, licensing rules, planning restrictions

• **Entry costs** have substantial **effect on TFP** levels across countries (Barseghyan, 2008)

• Empirical evidence of cross-country comparisons shows **tighter regulation reduces entry and raises price-cost mark-ups** (Cincera and Galgan, 2005; Griffith et al., 2006)

• **Retailing** productivity growth example of regulatory barriers having seriously adverse impact in Europe compared with US (McGuckin et al., 2005) in ICT era
## Retail Trade: Labour Productivity Growth (% per year)

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>US</td>
<td>2.2</td>
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<tr>
<td>EU</td>
<td>1.4</td>
<td>1.1</td>
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<tr>
<td>Germany</td>
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<td>0.9</td>
</tr>
<tr>
<td>UK</td>
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<td>France</td>
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</tr>
<tr>
<td>Italy</td>
<td>0.6</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Competition and Productivity Growth

- **Absence of competition** allows managers to be sleepy if ineffective control/monitoring by shareholders.

- **Competition** is strongly positive for productivity outcomes in UK firms without dominant shareholder (Nickell et al., 1997).

- **Competition** promotes better management practices (Bloom and van Reenen, 2007).

- Strengthening **competition policy** improves productivity performance (Symeonidis, 2008).
Regulation and the Growth Rate

- If regulation is a disincentive to investment and innovation, they will be lower as a result.

- Endogenous growth models predict that the rate of growth will be adversely affected.

- This would be the most serious consequence of excessive regulation rather than the diversion of resources through conventional compliance costs.

- *Doing Business* index has strong positive correlation with growth performance (Djankov et al., 2006).
Appropriate Growth Policy
(Aghion & Howitt, 2006)

• Should base policy insights on Schumpeterian (quality-improving innovations) growth model

• As catch-up becomes advanced, need to shift from facilitating diffusion to promoting innovation

• Implies close-to-frontier countries should encourage competition/entry and expand higher education
Schumpeterian Growth Model

\[ Y = A^{1-\alpha} k^\alpha \]

\[ \Delta A/A = \mu_N + \mu_O \]

Far-from-frontier countries need institutions and policies that raise \( \mu_O \) but close-to-frontier countries need (different?) institutions and policies that raise \( \mu_N \)

NB: change in technology that provides \( \mu_O \) may also imply need for reform
Policy experiments and endogenous growth: rise in savings; rise in productivity of R & D

Schumpeter relationship (high $\lambda$)

Schumpeter (low $\lambda$)

Solow (high $s$)

Solow steady-state relationship (low $s$)

$x$

$\hat{k}$
OECD Regulation Indices

• **Product Market Regulation** (Conway et al., 2005): index designed to reflect the extent to which the regulatory environment is conducive to competition including indicators of state control, barriers to entrepreneurship

• **Employment Protection** (OECD, 2004): index designed to reflect legislation as employer-borne tax on employment adjustment including difficulty of dismissal and extent of severance pay
Product Market Regulation and Productivity Growth

- **Regulation that creates barriers to entry** raises mark-ups and reduces innovation, investment and productivity growth (Griffith and Harrison, 2004; Griffith et al., 2006)

- At the macro level **de-regulation has been associated with better TFP growth** (Nicoletti and Scarpetta, 2003)

- Product market regulation is negatively correlated with the contribution of **ICT-using services** to aggregate productivity growth (Nicoletti & Scarpetta, 2005)

- **UK shows up well on OECD measures** compared with other European countries
Regulation and the contribution of ICT-using services to aggregate productivity growth

ICT using services, 1996-2001

Correlation coefficient: -0.62
t-statistic: -3.35

Product market regulation (inward-oriented), 1998

Source: Nicoletti & Scarpetta (2005)
Employment Protection and Productivity Growth

• Employment protection slows down creative destruction in countries where regulation is enforced; impact on France vs USA is 0.5 percentage points per year (Caballero et al., 2004)

• Employment protection has had negative effects on investment in ICT capital because productivity gains depend on substantial labour force adjustment (Gust & Marquez, 2004)

• Interaction of EPL*PMR has adverse effects on TFP growth for countries close to frontier (Aghion et al., 2009)
IT Expenditures and Employment Protection Legislation

Correlation = -0.72
Social Capability and ICT

- Standard American criticisms of Europe at least equally valid for 20 years before 1995
- Social capability depends on requirements of the technological epoch
- It is not that regulation is stricter now but rather that it has been more costly in the ICT era
The Cotis Paradox

Explanations? (Crafts, 2007)

- Less scope for catch-up than usually though
- Limited impact relative to other factors
- More PMR than OECD thinks

• **NB:** Nicoletti and Scarpetta results imply TFP growth advantage for UK over France and Germany of about 0.5% per year in 1990s
“Structural” Labour Productivity Estimates
(GDP/HW as % USA) (Crafts, 2007 based on Bourles and Cette, 2006)

<table>
<thead>
<tr>
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<th>Observed</th>
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<th>Structural</th>
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<td>111.8</td>
<td>107.2</td>
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<tr>
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<tr>
<td>Netherlands</td>
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<tr>
<td>UK</td>
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<td>84.7</td>
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</table>
# A Decomposition of UK Labour Productivity Gap

(percentage points)

<table>
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<tr>
<th>Year</th>
<th>France/UK</th>
<th>Germany/UK</th>
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<tbody>
<tr>
<td>1979</td>
<td></td>
<td></td>
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<tr>
<td>Labour Productivity Gap</td>
<td>31</td>
<td>30</td>
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<tr>
<td>Labour Quality</td>
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<td>5</td>
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<tr>
<td>Physical Capital</td>
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<tr>
<td>TFP</td>
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<td>2000</td>
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<tr>
<td>Labour Productivity Gap</td>
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<td>17</td>
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<tr>
<td>Labour Quality</td>
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<td>4</td>
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<tr>
<td>Physical Capital</td>
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<tr>
<td>TFP</td>
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<td>1</td>
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</tbody>
</table>

*Note:* In 1979 Germany is West Germany only.

Sources: Broadberry & O'Mahony (2006); Crafts & O'Mahony (2001)
Distortions From Planning Laws in UK

- **Restrictions** on building out-of-town stores introduced in 1996 reduced TFP growth in the sector by 0.4% per year.

- Planning **restrictions imply** massive distortions in land use: housing/agricultural land values 400/1 (Cheshire & Sheppard, 2005); office space more expensive in Manchester than in New York (Cheshire & Hilber, 2008).

- **Forgone agglomeration economies** from restrictions on city size probably considerable (Graham, 2007); Leunig & Overman, 2008).
Research Needs

• **Quantify** compliance costs in detail

• Construct suitable data set and test for **behavioral effects** (cf Gray, 1987)

• Revisit productivity implications of **planning laws** that work through land prices, agglomeration effects and entry barriers

• Examine effects of regulation on diffusion of new goods and services with regard to **consumer welfare losses** (cf. Hausman, 1997)