

# 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:**

$$x = \Delta Y/Y - \sum \alpha_i \Delta M_i / M_i$$

- **Measured TFP growth**

$$x^* = \Delta Y/Y - \sum \alpha_i \Delta M_i^* / M_i^*$$

where  $M^* = M + R$

- **True – Measured TFP growth:  $x - x^* = -\sum \alpha_i \Theta_i$**

where  $\Theta = R/M^*$

# 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)

	1980-95	1995-2002
US	2.2	5.4
EU	1.4	1.1
Germany	0.8	0.9
UK	2.0	4.3
France	3.6	0.4
Italy	0.6	0.7

# 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

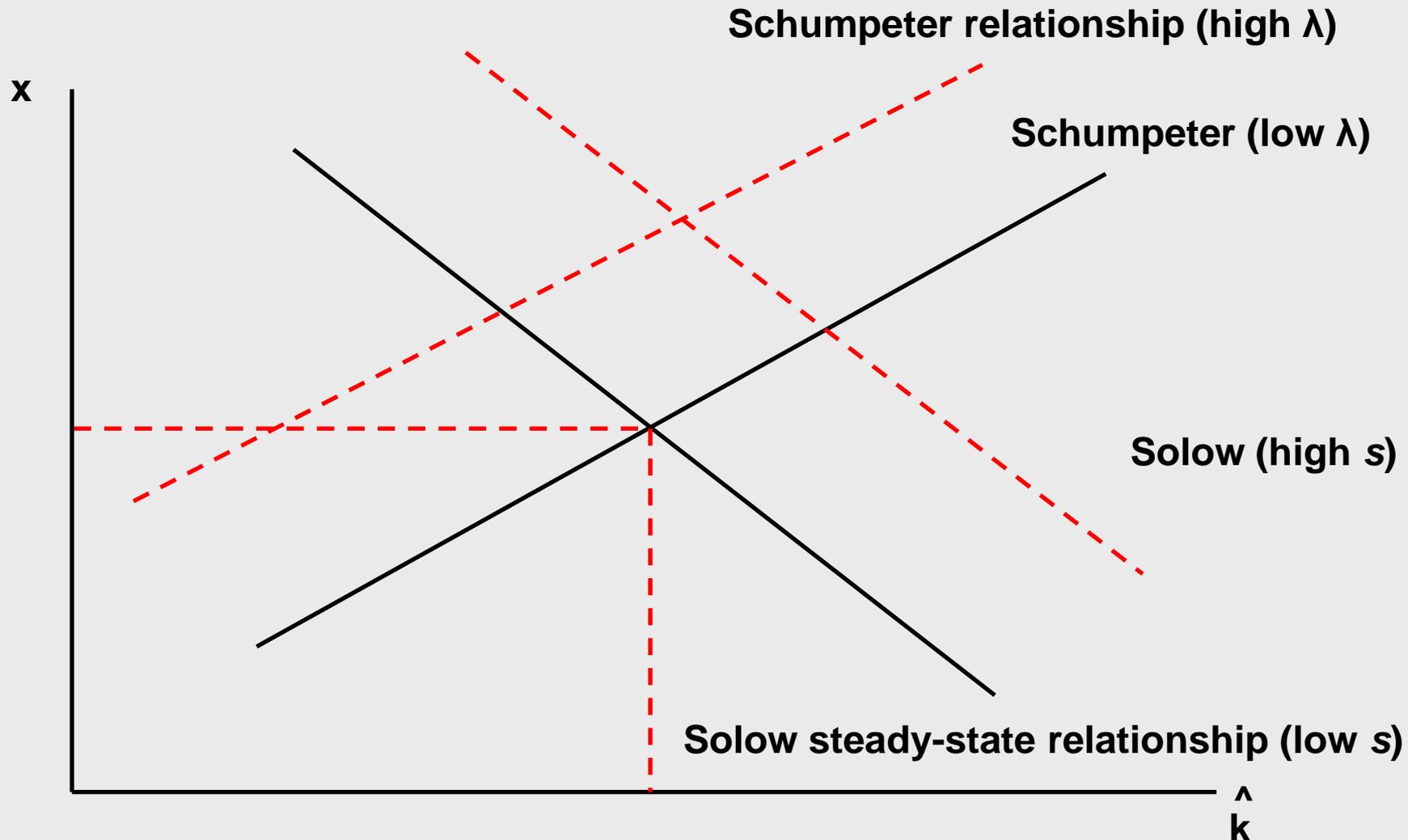
$$Y = A^{1-\alpha} k^\alpha$$

$$\Delta A/A = \mu_N + \mu_O$$

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



# OECD Regulation Indices

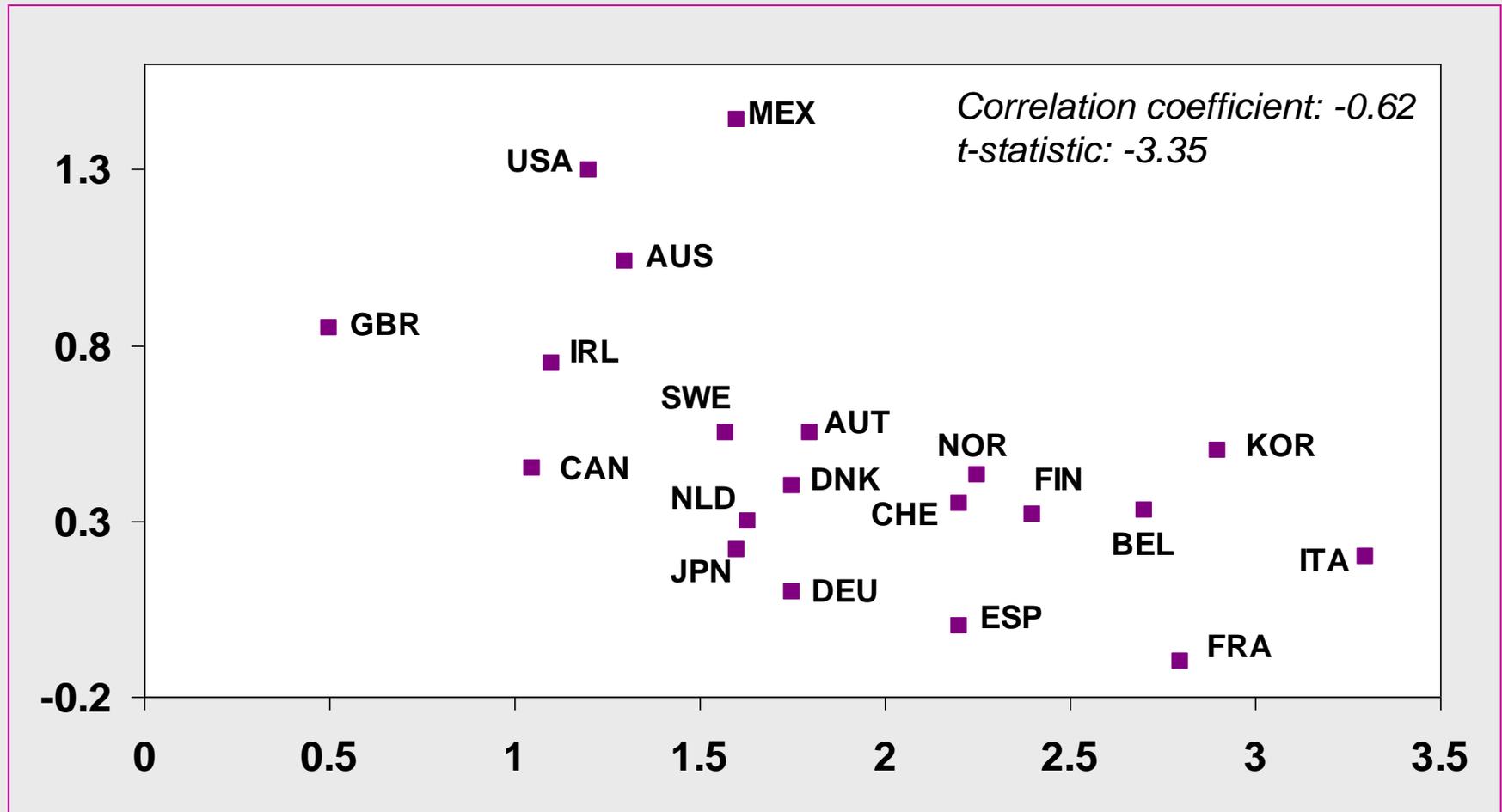
- **Product Market Regulation** (Conway et al., 2005): index designed to reflect the extent to which the regulatory environment is conducive to competition including indicators of state control, barriers to entrepreneurship
- **Employment Protection** (OECD, 2004): index designed to reflect legislation 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



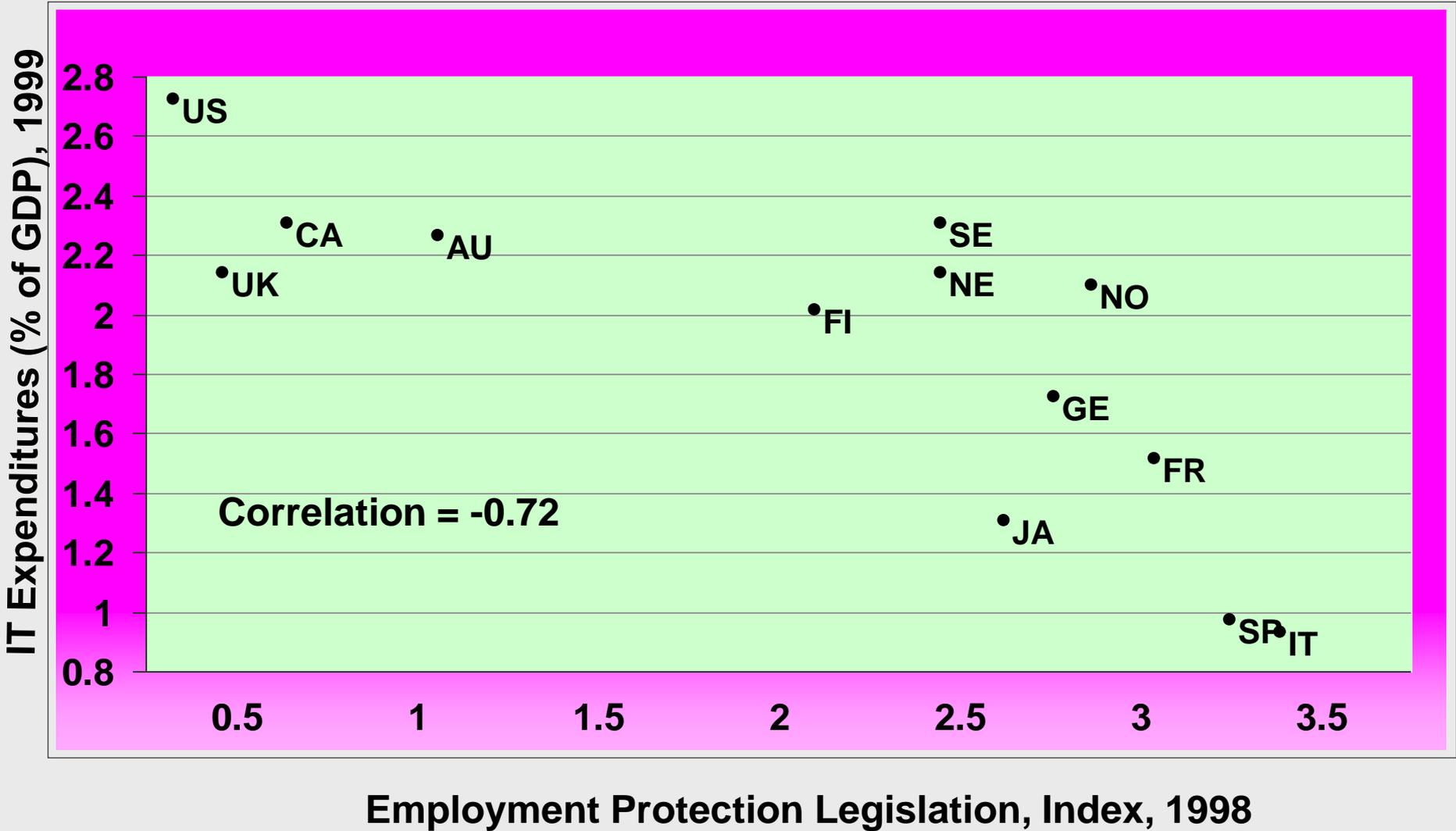
Product market regulation (inward-oriented), 1998

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



# 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 thought

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)

	Observed		Structural	
	1995	2004	1995	2004
<b>France</b>	111.8	107.2	100.9	96.4
<b>Germany</b>	87.7	82.2	76.2	71.2
<b>Italy</b>	98.8	83.4	83.8	71.9
<b>Netherlands</b>	98.6	91.8	83.5	81.3
<b>UK</b>	86.1	84.7	81.5	81.7

# A Decomposition of UK Labour Productivity Gap (percentage points)

	France/UK	Germany/UK
<b>1979</b>		
<b>Labour Productivity Gap</b>	<b>31</b>	<b>30</b>
<b>Labour Quality</b>	<b>6</b>	<b>5</b>
<b>Physical Capital</b>	<b>17</b>	<b>9</b>
<b>TFP</b>	<b>8</b>	<b>16</b>
<b>2000</b>		
<b>Labour Productivity Gap</b>	<b>21</b>	<b>17</b>
<b>Labour Quality</b>	<b>4</b>	<b>4</b>
<b>Physical Capital</b>	<b>17</b>	<b>12</b>
<b>TFP</b>	<b>0</b>	<b>1</b>

*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)