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Cabinet Office seminar “How can the UK achieve sustainable economic growth in the future?'

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Sources of growth

- Traditional view: sources of growth are
  - Tangible capital (e.g. computers), Labour
  - TFP
- Consistent if:
  - Knowledge is free (all in TFP)
  - Intangible investment is trivial
- Intangibles research program
  - With rise of “knowledge economy” economy is likely investing in intangibles
  - Incorporate into sources of growth
  - Helps account for residual TFP
  - If innovation = growth due to knowledge, describes innovation
  - Capitalising intangibles changes GDP so
    - Affects UK productivity record
    - Affects UK productivity gap
- Answer questions
  - How much does economy invest in intangibles?
  - What impact does this have on growth and the international gap?
  - What are the policy implications?

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Intangible or knowledge investment categories

- Themes
  - Broader than R&D
  - Much is own-account
- Software
- Innovative property
  - R&D
  - Design
  - Artistic creative activities
- Economic competencies
  - Branding/reputation capital
  - Company funded training
  - Organisational capital

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Intangible versus tangible investment (£bn)

Year	**1990**	**1995**	**2000**	**2007**
All tang	**67**	**62**	**87**	**95**
Intangible				
Software	6	10	16	20
R&D	8	8	11	15
Design	9	12	18	22
Artistic orig	3	3	2	4
Branding	5	7	12	14
Training	13	16	24	32
Organisational	9	12	17	26
All intangibles	**52**	**68**	**100**	**133**

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Contribution of intangibles to growth

	Lab Prod Growth	*Contribution of:*				
		Lab quality	Computers	Other tang	Intang	TFP growth
Without intangibles						
1990-95	2.85%	0.20%	0.47%	0.81%		1.37%
1995-00	3.32%	0.29%	1.06%	0.33%		1.63%
2000-07	2.81%	0.19%	0.45%	0.49%		1.69%
With intangibles						
1990-95	3.02%	0.18%	0.41%	0.71%	0.74%	0.98%
1995-00	3.69%	0.25%	0.90%	0.27%	0.84%	1.43%
2000-07	2.73%	0.17%	0.38%	0.37%	0.54%	1.27%

Summary

1. Outputs
    1. Revisions to data raise LPG in late 1990s (FISIM)
    2. Intangibles further raise, slight fall in 2000s
2. Inputs
    1. Intangible contribution as important as computers and other tangible investment
    2. Intangibles account for some TFP growth

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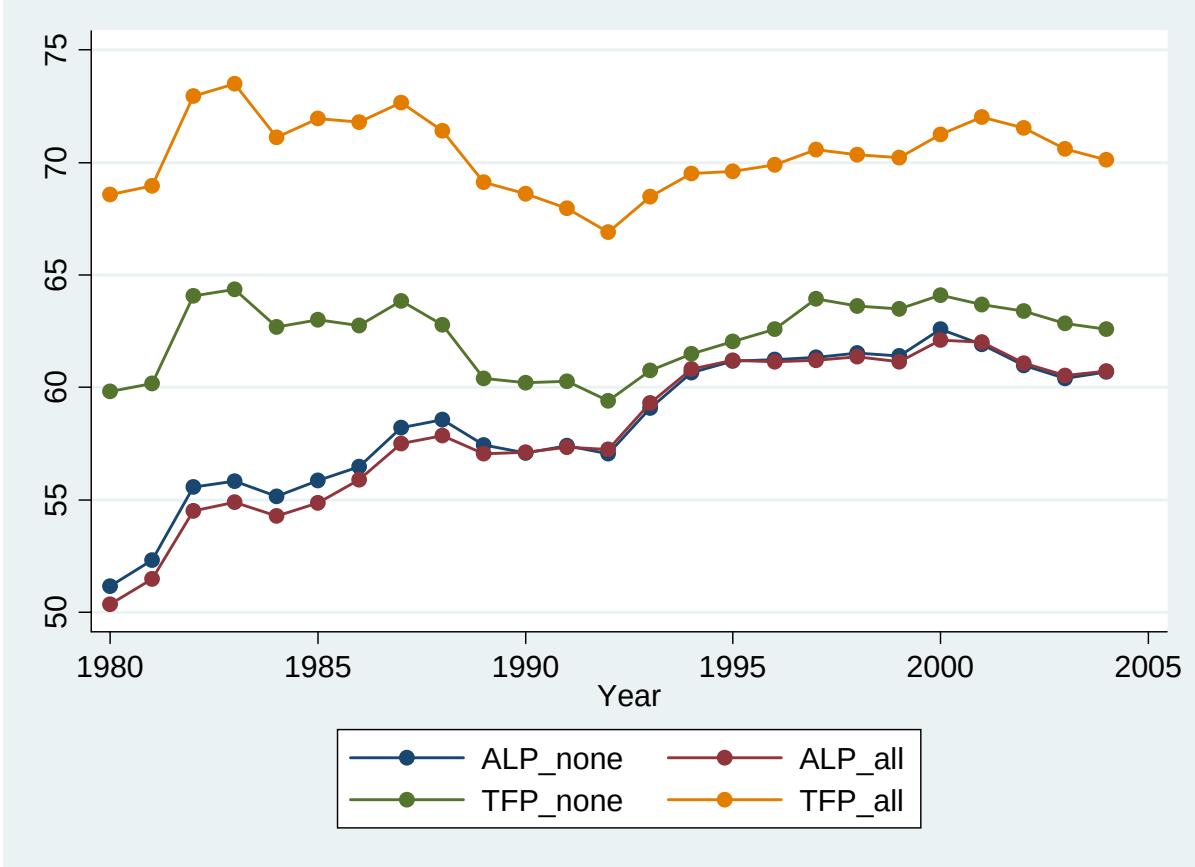
Accounting for intangibles shrinks the UK/US TFP gap (US=100)



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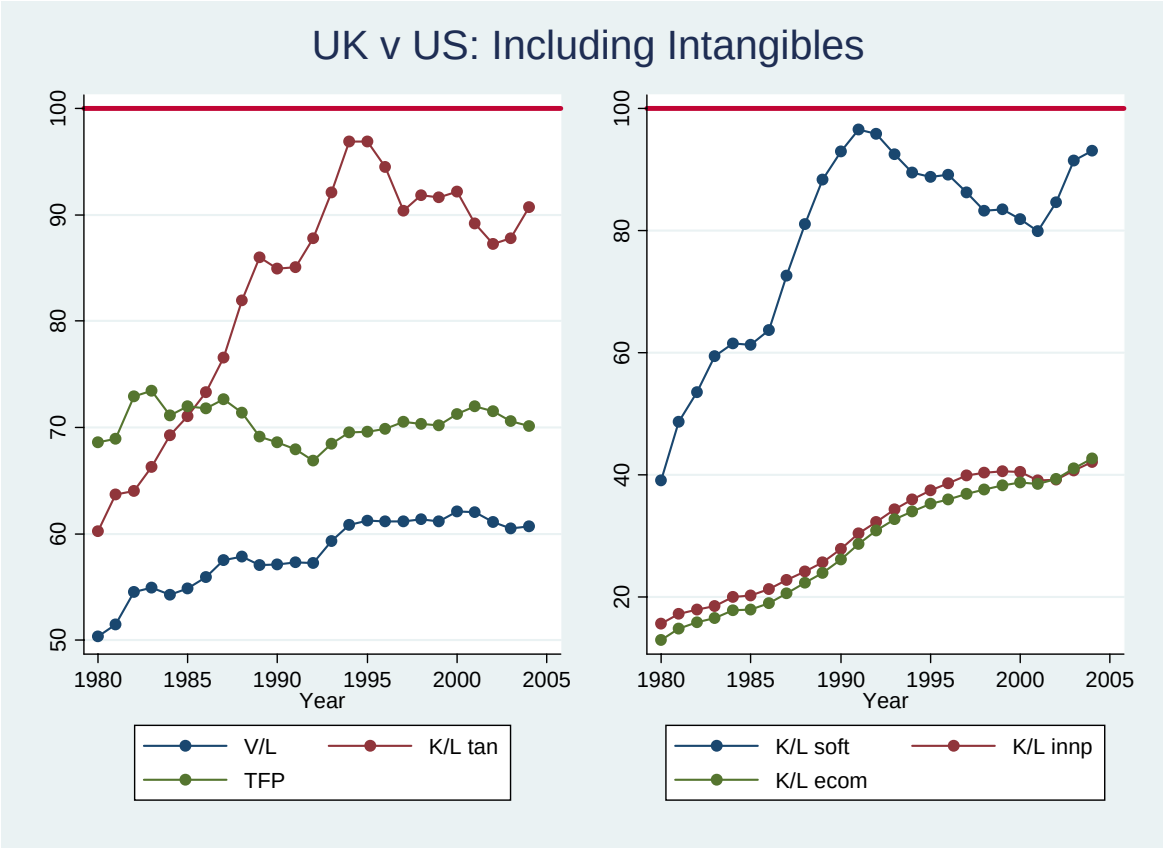
Small tang and software gap with US, but gap for other intangible



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Policy

- Externalities
  - from public/private R&D and basic education => increment R&D tax credit, support for public research, basic ed ☑
  - externalities from other intangible categories no evidence so far => Extend R&D tax credit to software, design ☒
- Creative destruction
  - Vital for productivity growth
    - Bailouts for (non-systematic) incumbents ☒
    - Privilege manufacturing? ☒
    - Distortions to employment from legislation ☒
    - Regional development?