Raising UK Productivity

IFS Productivity Conference,

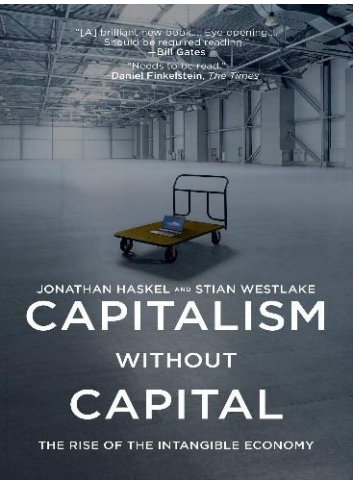
London, 25th March 2025

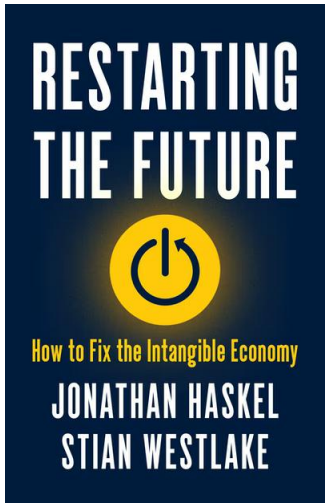
Jonathan Haskel

j.haskel@imperial.ac.uk

Imperial College Business School, Imperial College London

Data from: EUKLEMS & INTANProd – Release 2025





Business has changed…

Factories used to look like this …

…but now are this

…the shape of the world's top companies

	Company	Market capitalisation, $bn (31st March 2024)
1	Microsoft	3,126
2	Apple	2,648
3	NVIDIA	2,224
4	Saudi Aramco	1,991
5	Alphabet	1,884
6	Amazon	1,874
7	Meta	1,238

Aramco's assets

Microsoft's assets

```
        Function: CmdSpelling
*  Author:
*  Copyright: Microsoft 1986
*  Date: 8/31/87
*
*  Description: Menu level command fu
*
** ***/

/* %%Function:CmdSpelling %%Owner:bry
CMD CmdSpelling(pcmb)
CMB * pcmb;
{
        int cmd = cmdOK;
        CHAR szFileT [ichMaxFile];
        CHAR dlt[sizeof(dltSpeller)];
        struct SPV spv;
        struct SPL spl;
        struct SCD scd;
```

Source: PWC (2024)

Tangible and intangible investment

Tangible investments

Buildings

Computers

Plant & machinery

Vehicles

Intangible investments

R&D

Training

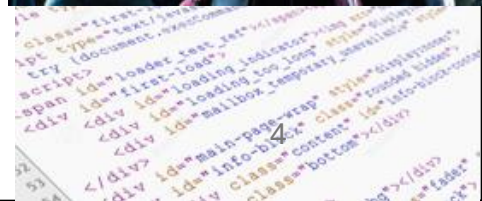
Design

Business process

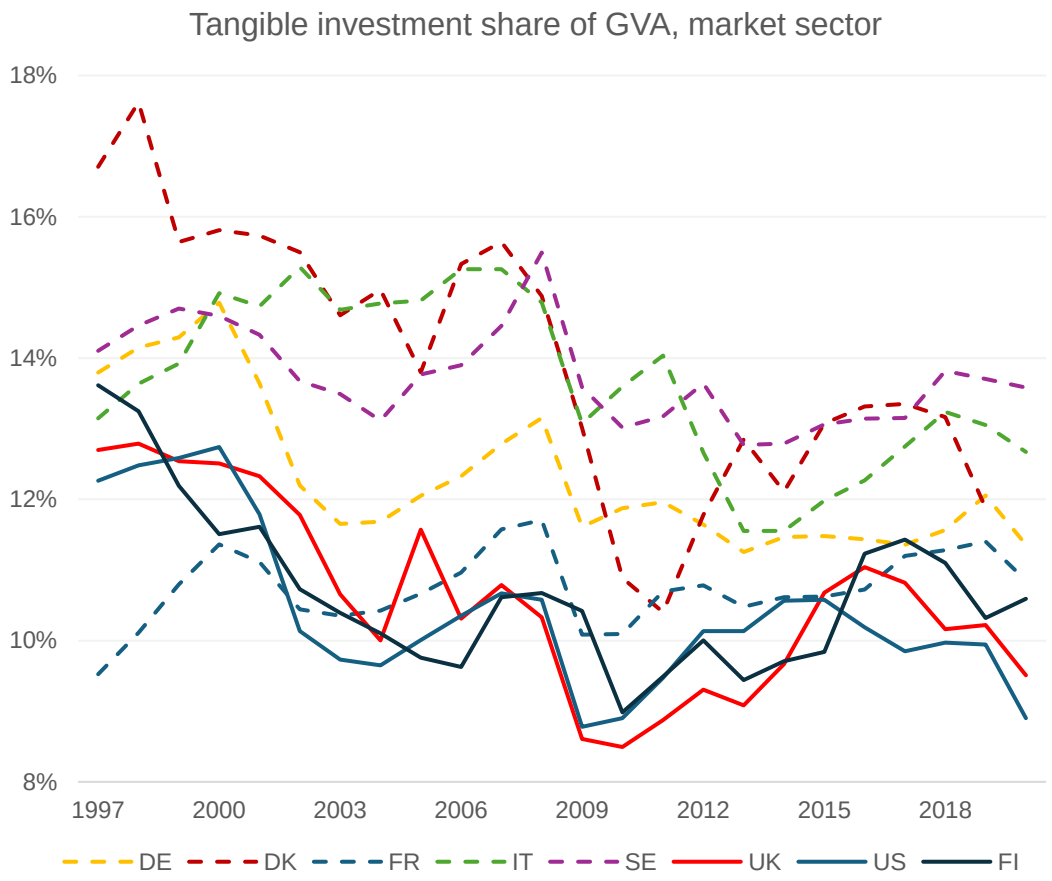
Brands & marketing

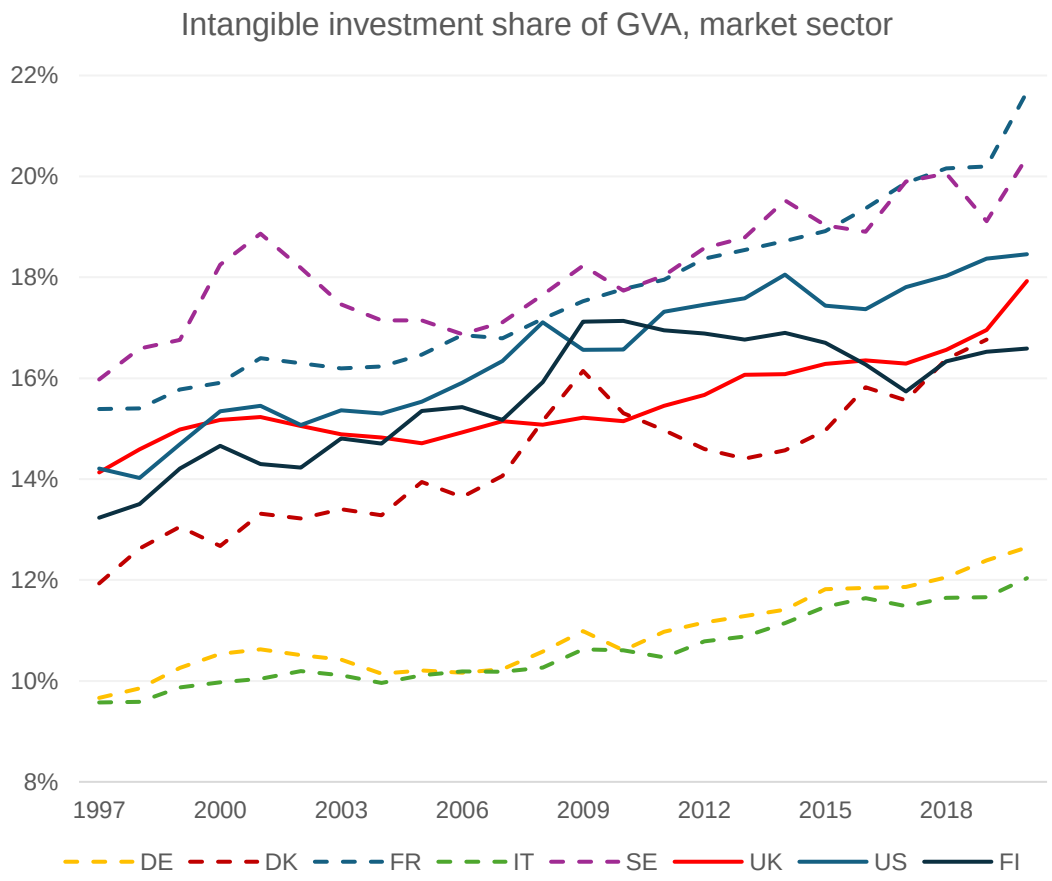
Artistic originals

Software & data



How capital investment has changed…





Source: author calculations from EUKLEMS/INTANProd.

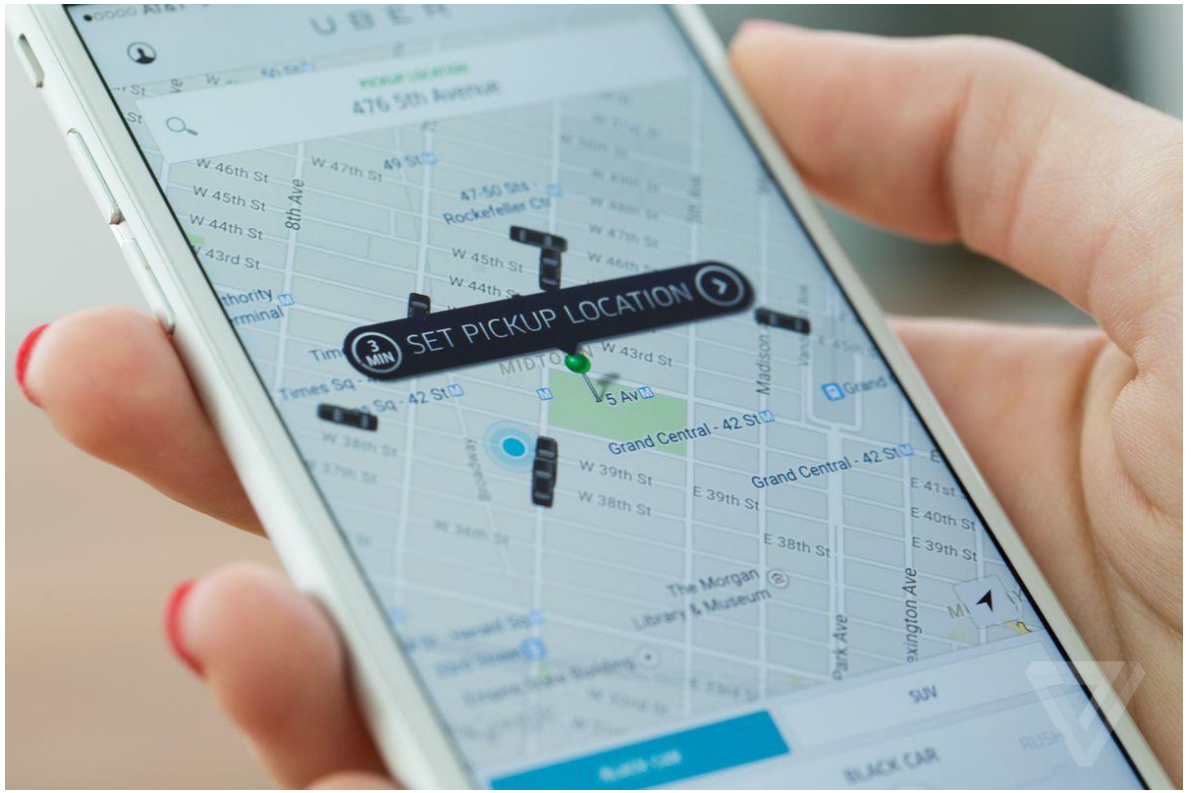
1. Economic properties of intangible capital

2. Policy

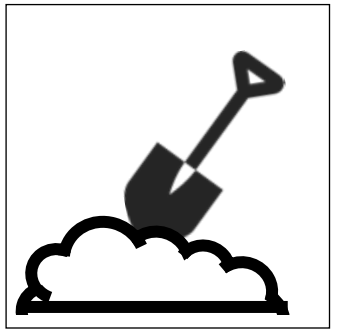
Property of intangibles 1: SCALABILITY

Taxicabs: not scalable

Uber algorithm: highly scalable



Property of intangibles 2: SUNKENNESS



Phone company goes bust? Sell your HQ.

But intangibles are harder to sell off.

NOKIA Microsoft

Windows Mobile 6.1 Today Screen

Property of intangibles 3: SPILLOVERS

Tangible assets: easy to protect

Designs and software: hard to protect

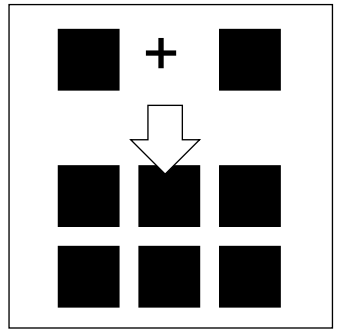
iPhone (2007)

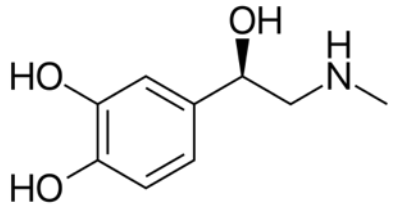
HTC Hero (2009)

Samsung i8000 (2009)

Android OS (2008)

Property of intangibles 4: SYNERGIES





Patents 730,196 - 730,198

R&D

Training

$1.2 bn profits in 2015

Design

Marketing/distribution

EPIPEN®
(Epinephrine) Auto-Injectors 0.3/0.15mg

Brand

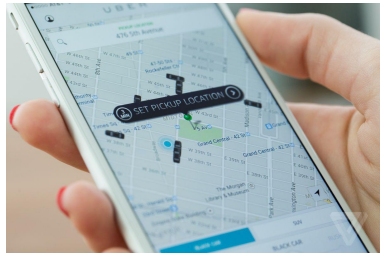
1. Economic properties of intangible capital

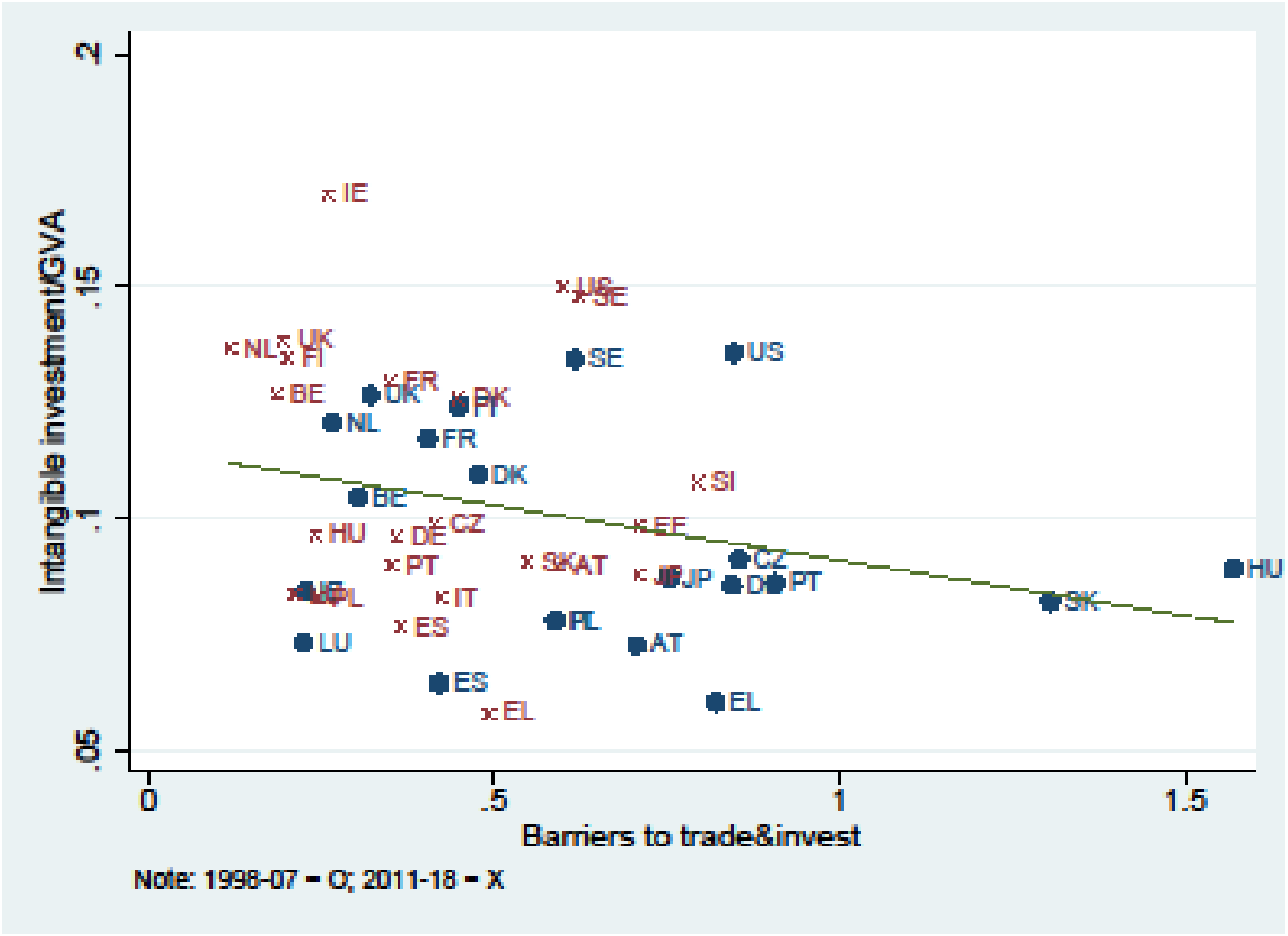
2. Policy

Scalability: open markets

Taxicabs: not scalable

Uber algorithm: highly scalable



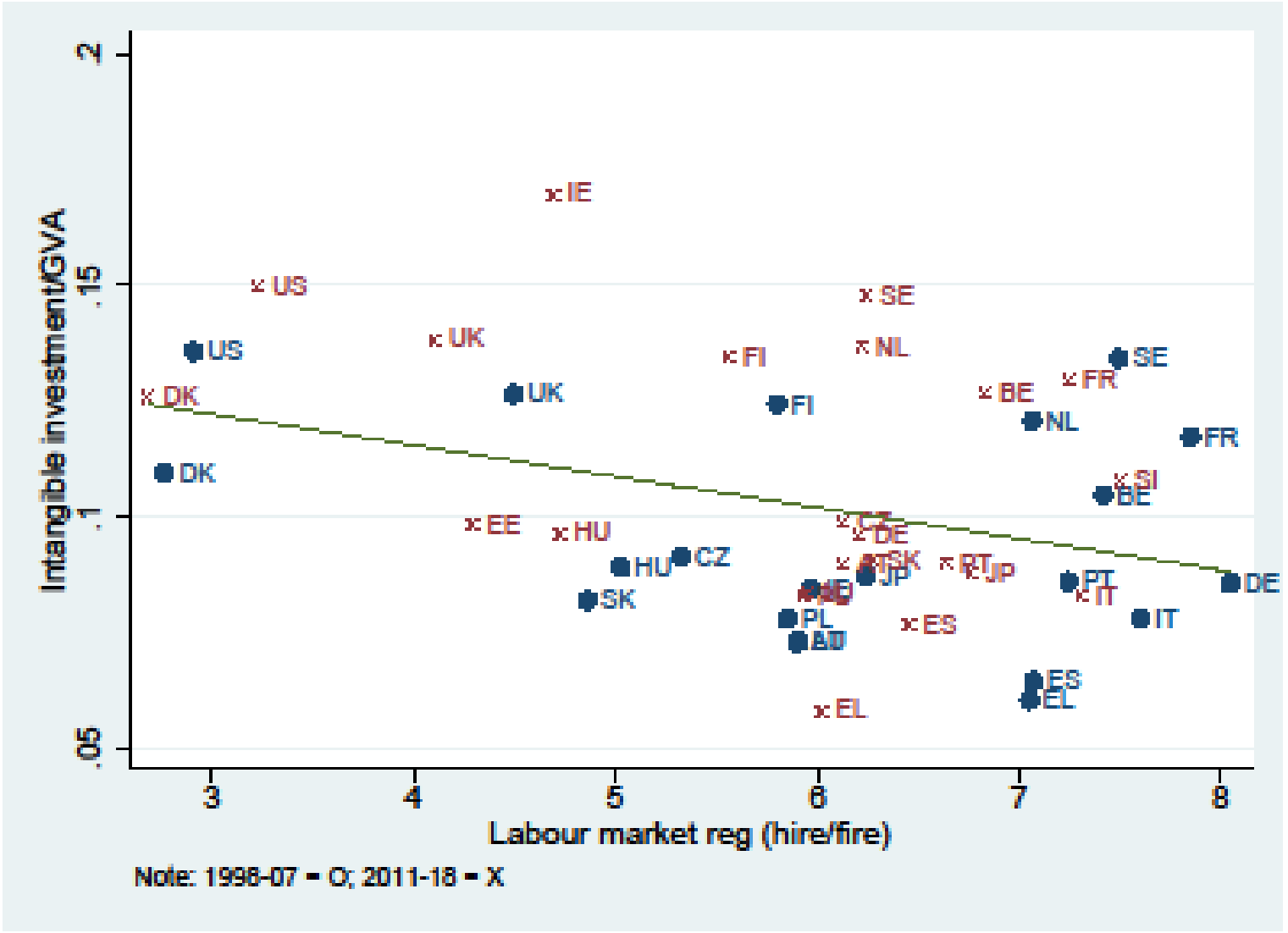


Sunkenness: flexible markets

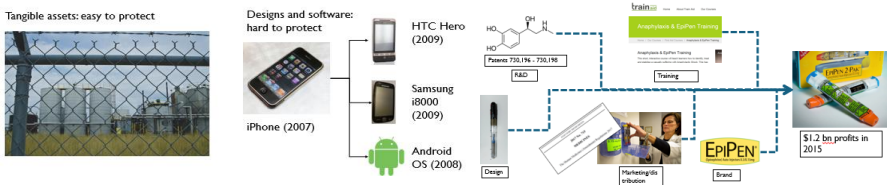
NOKIA

Sell tangible

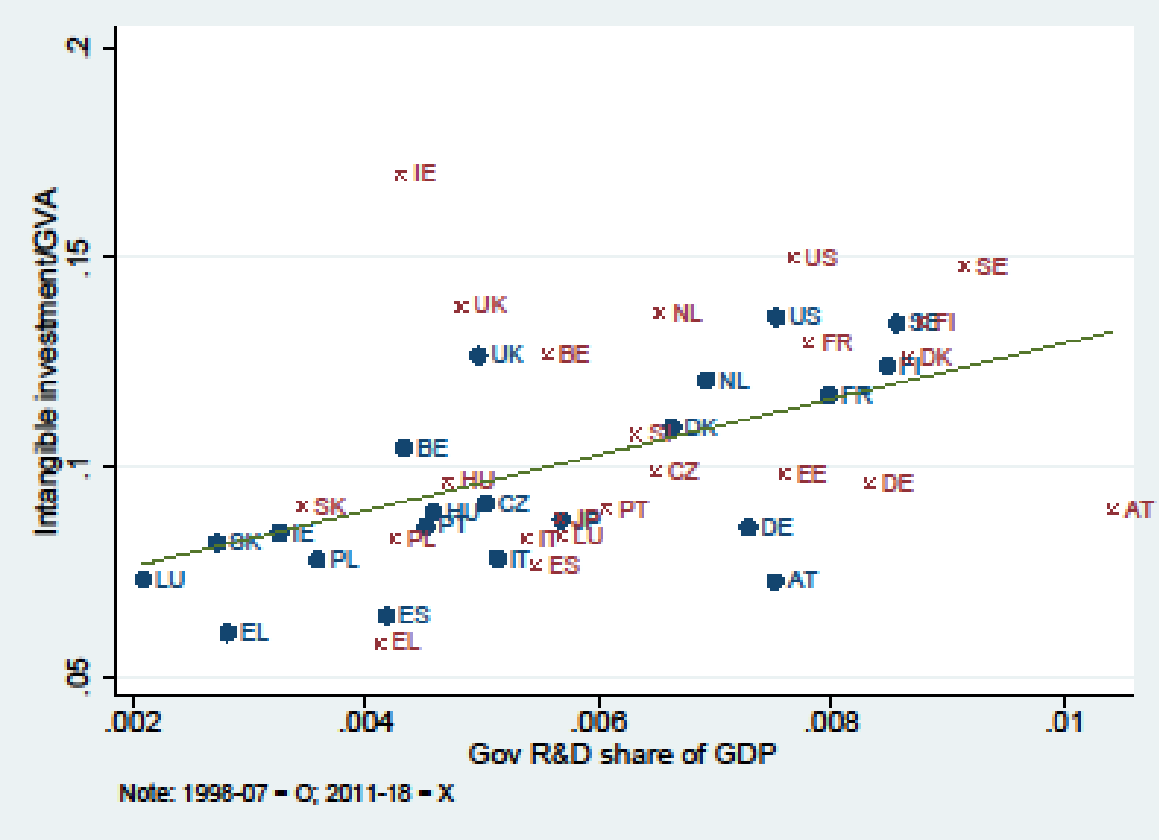
Cannot sell intangibles



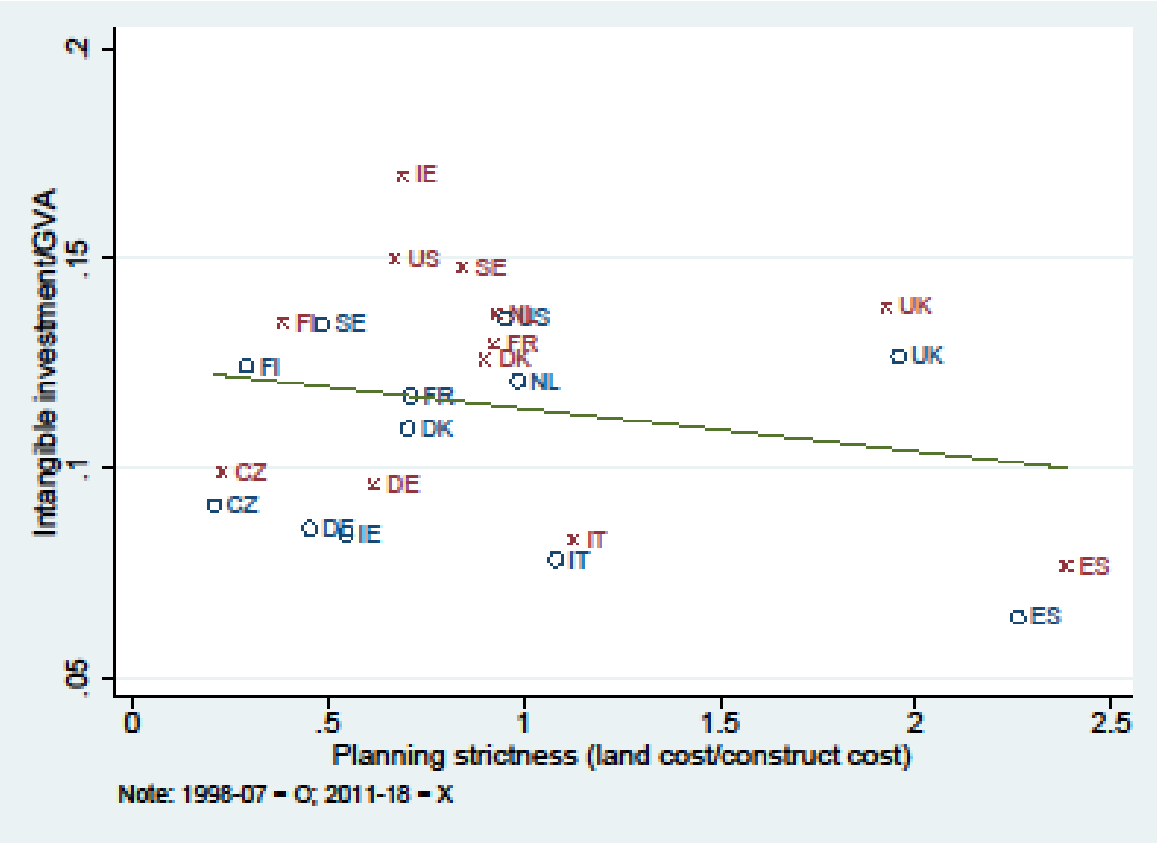
Spillovers/synergies



Public science



Clusters



The next technology wave…

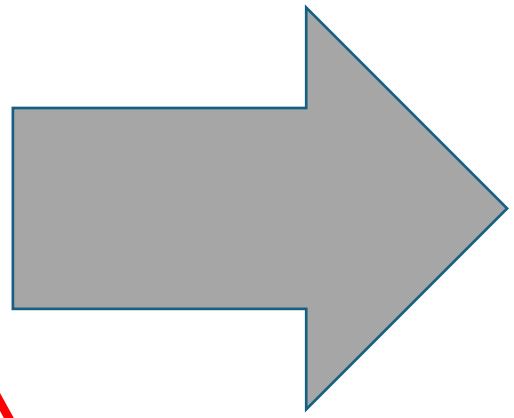
Tangible investments

Buildings

Computers

Plant & machinery

Vehicles



Intangible investments

R&D

Training

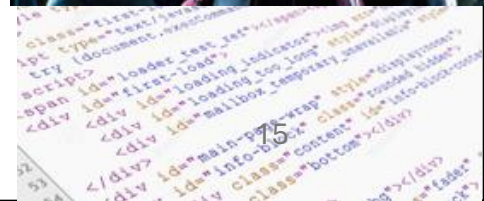
Design

Business process

Brands & marketing

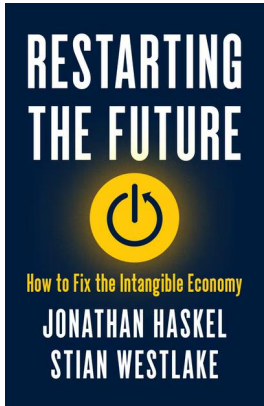
Artistic originals

Software & data



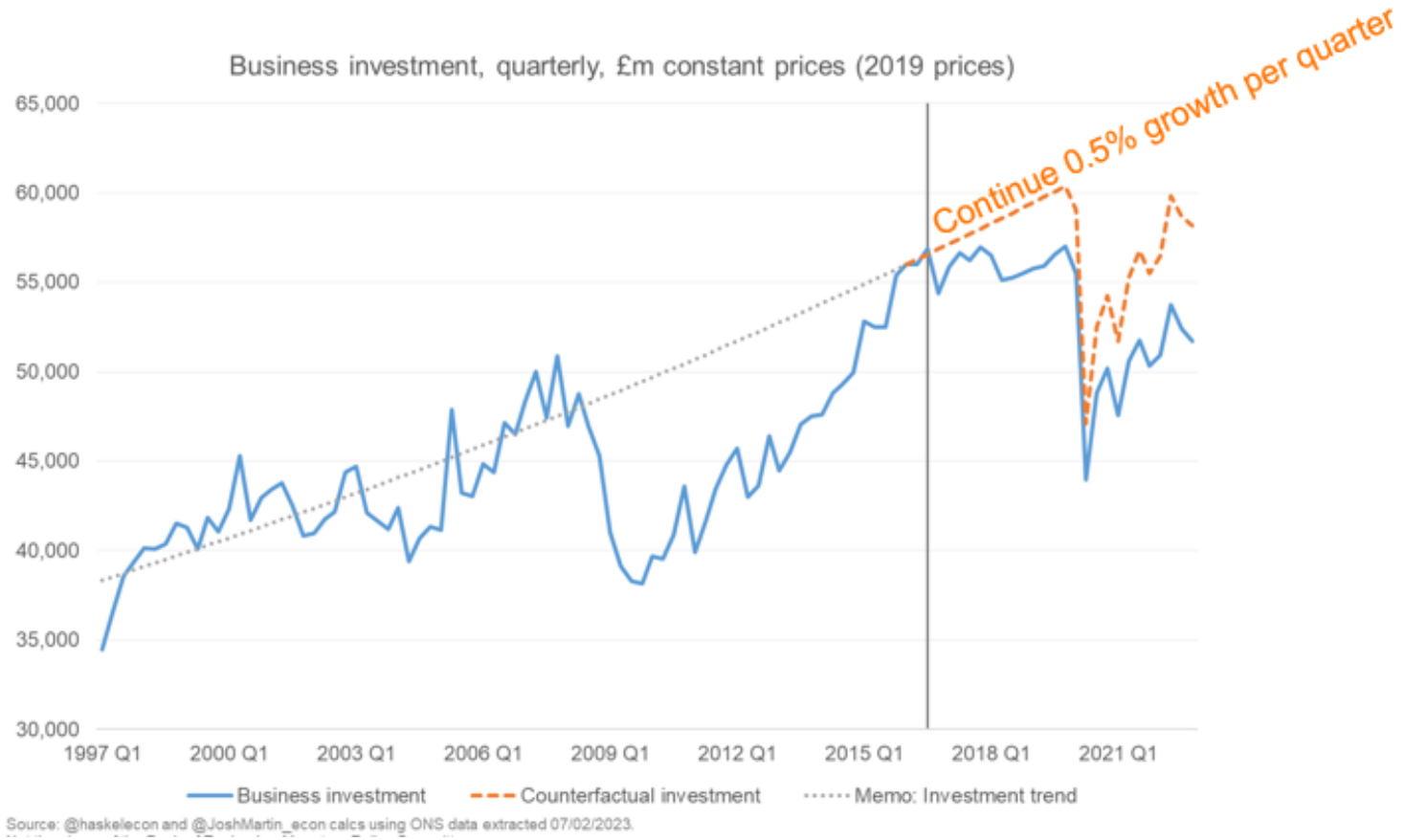
Economic properties of intangibles and policy

Asset feature	**Economic effect**	**Policy**
Scale	Superstar firms	Open markets, competition
Sunkenness	Underinvestment	Entry/exit costs, financial markets e.g. VC, pension funds, uncertainty
Spillovers	Underinvestment	IP, Science funding and mobility
Synergies	Agglomeration	Planning reform



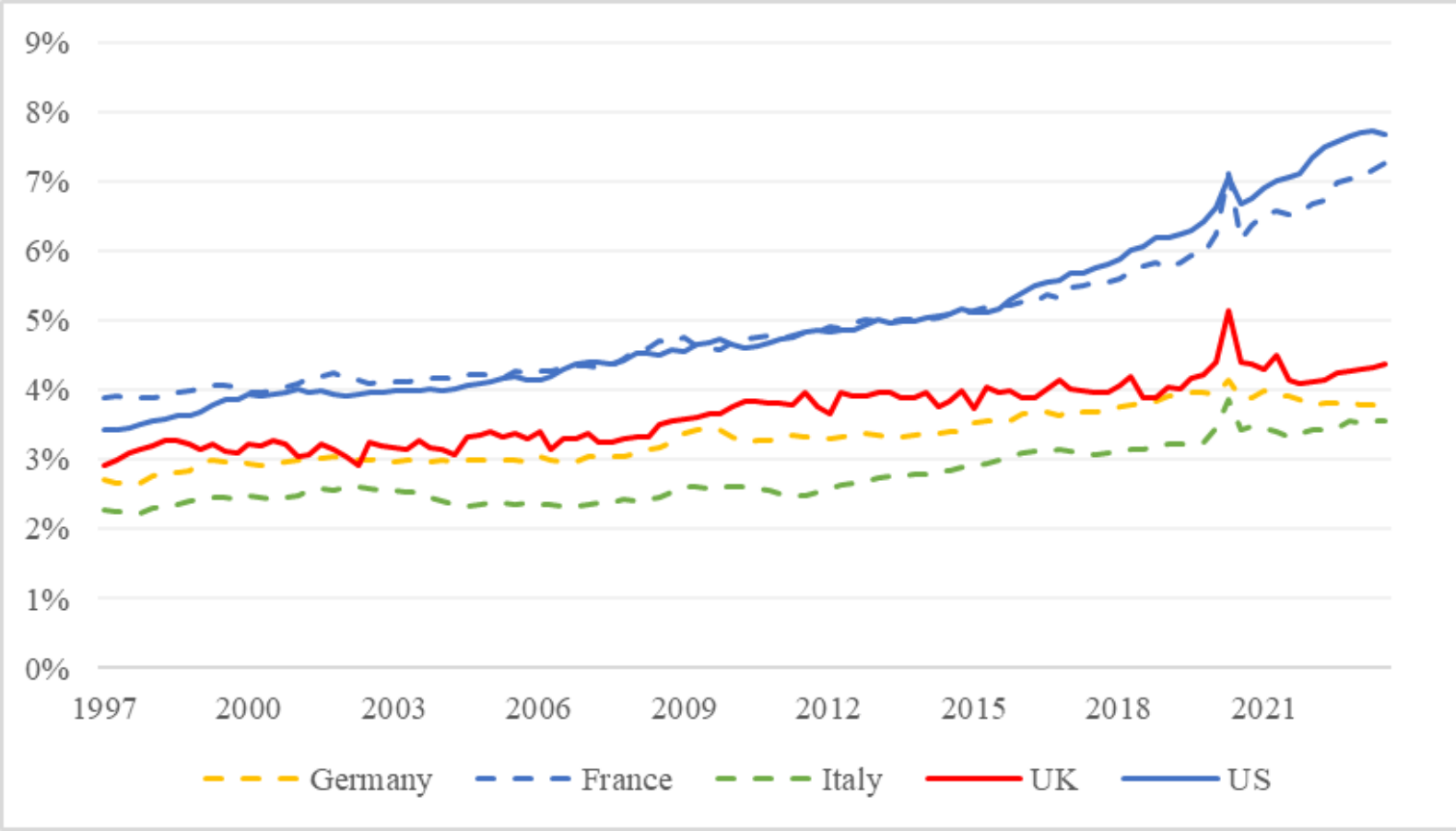
Spares

Brexit


Business investment, quarterly, £m constant prices (2019 prices)
Continue 0.5% growth per quarter
65,000
60,000
55,000
50,000
45,000
40,000
35,000
30,000
1997 Q1
2000 Q1
2003 Q1
2006 Q1
2009 Q1
2012 Q1
2015 Q1
2018 Q1
2021 Q1
Business investment
Counterfactual investment
Memo: Investment trend
Source: @haskelecon and @JoshMartin_econ calcs using ONS data extracted 07/02/2023.

US technology leadership

Investment/GDP for software, R&D, artistic originals



Source: OECD.