

The Intellectual Revolution

- changing nature of value creation

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Intellectual Revolution

Definition

- Third great value shift in human history: land – capital – intellect
- *Pace of change is accelerating* as far more people than ever before to become active in the future economy
- *Reach of change has only started* the incorporation and application of technology and data into the broader fabric of our society

Critical Attributes

- Agility – opportunities need to be grasped and exploited
- Entrepreneurialism – people have to be open and encouraged to trying new ventures
- Demos – change has to be supported within wider society

Economic Backdrop

- Demographics; developed economy working age pop declining by $\sim 1/2\%$ p.a. through 2030, lowering trend rate of GDP growth
- Scope for developed Govt action limited by high debt burden
- How many people can cope with significant change?

Historic economic development

Agrarian



- Small elite – aristocratic or quasi-aristocratic
- Economic advancement was slow
- Periodic famine
- Key: land
- Income ~\$600 per annum

Industrial

From
1830's



- Expanding elite, rapidly growing middle class
- Time to double GDP fell from 76 years (UK) to 52 years (Germany)
- Energy is critical to economic advancement
- Key: capital
- Income ~\$2500 per annum

Intellectual

From
1970's



- Open, but self selecting, elite
- Economic advancement can be rapid, but not guaranteed
- Technology allows rapid diffusion of info
- Key: intellectual ability
- Income ~\$7500+ per annum

Fostering Economic Development

GDP/Head of ~\$7500

Entrepreneurial Development

- Local value added goods and services are brought to market
- Tech development in domestic market
- Fading dependence on FDI, domestic demand is increasingly sophisticated

GDP/Head of ~\$2500

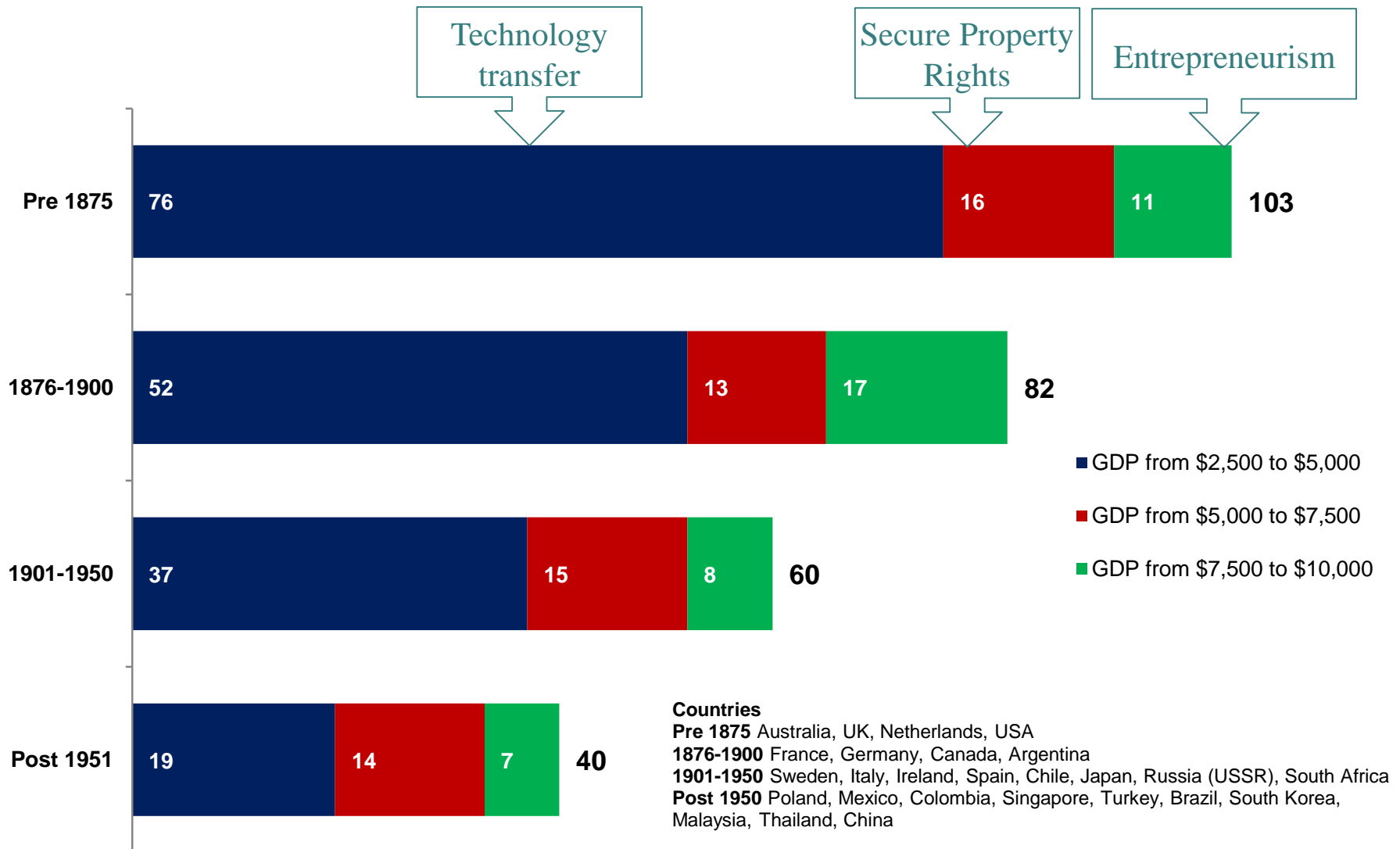
Secure Property Rights

- Politicians are brought fully under the law
- Secure property rights allow for development of domestic business base
- Basic components & services supplied locally

Low Cost Labour

- Business friendly government encourages Multi National Corp (MNC) investment
- MNC's seeks to lower costs of commoditised products and services
- Intellectual capital transfer is low
- MNC's can cope with uncertainty/SME can not

Development dynamics: *Time to Increase GDP*

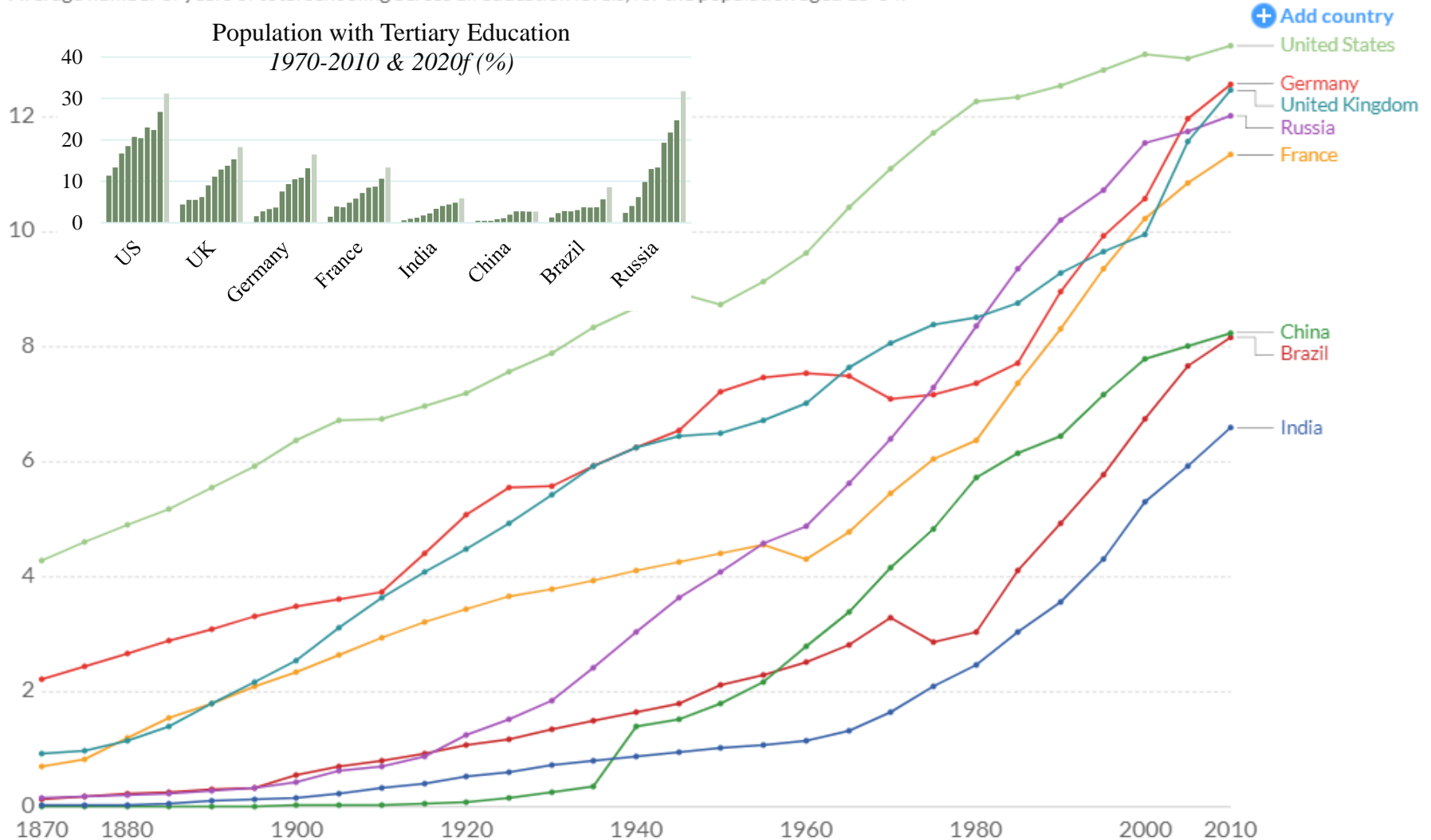


Rise of Intellectualism

Mean years of schooling

Average number of years of total schooling across all education levels, for the population aged 15-64.

Our World in Data

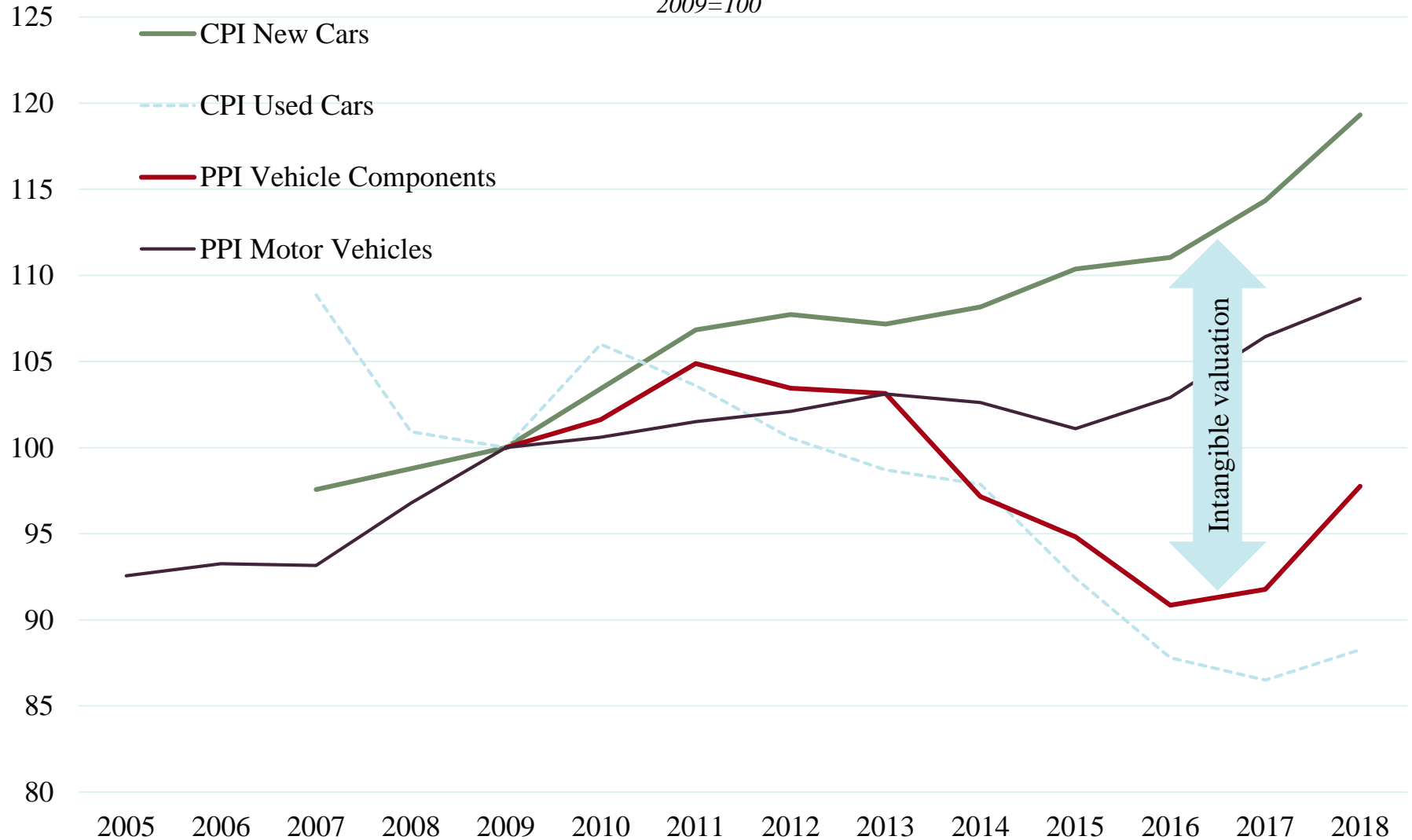


Source: Lee and Lee (2016)

OurWorldInData.org/global-rise-of-education • CC BY

Perceptions of value creation

UK Car Price Index 2009=100



Source: UK ONS

Entrepreneurism

Historic Context

- Static economic times diminish the importance of entrepreneurship, limit development
- Last decades have seen advances in entrepreneurship and what development can deliver

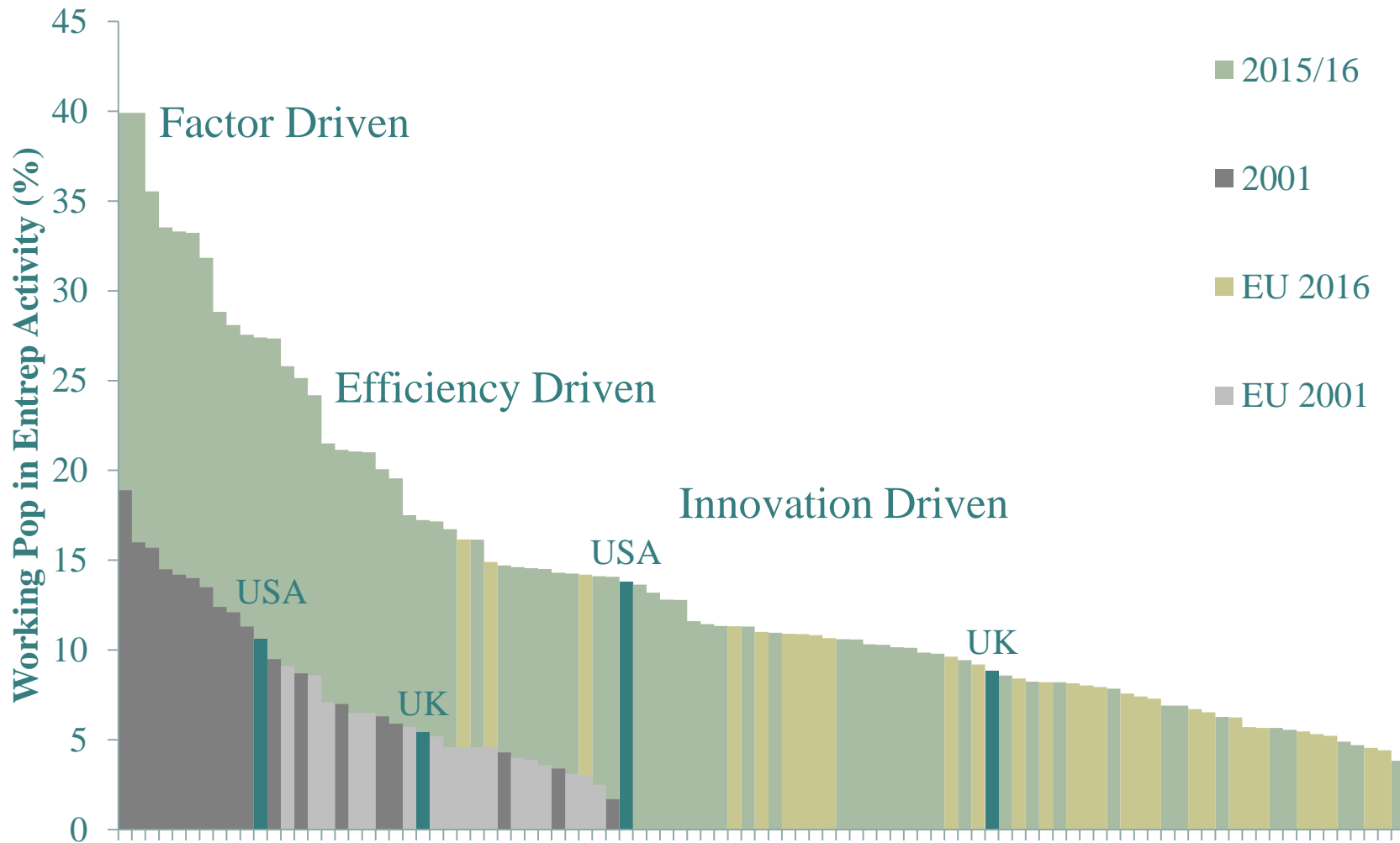
Impact

- Entrepreneurism drivers vary widely by geography: factor driven, efficiency, innovation
- Second order effects of technology and development are only beginning to be felt

Implications

- Importance of agility can not be underestimated
- Entrepreneurism can be fostered in range of organisations

Explosion of Entrepreneurship



Rapid Tech(nology)

Historic

- Previous tech change took decades to spread through industries and geographically
- New investment was the catalyst for new approaches to operations
- Scale of tech change is unprecedented

Impact

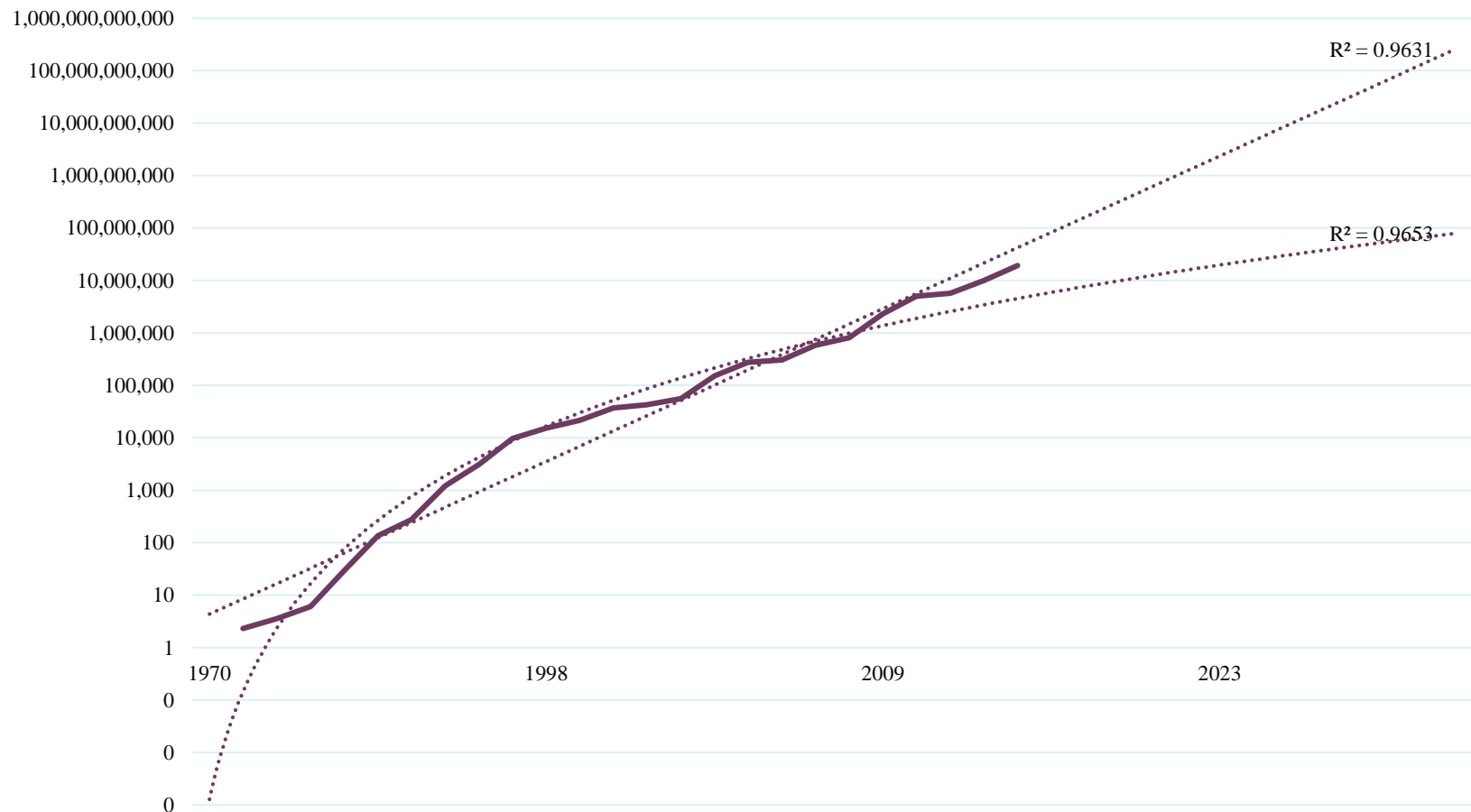
- Effect of technology will increasingly be its impact on existing business
- Disruptors abound, placing premium on agility
- Business revenues are volatile, limiting investors long term appetite?

Implications

- Potential for substantial returns + wave a savings = rapid tech adoption
- What degree of inclusivity is necessary for long term success?

Technological advances

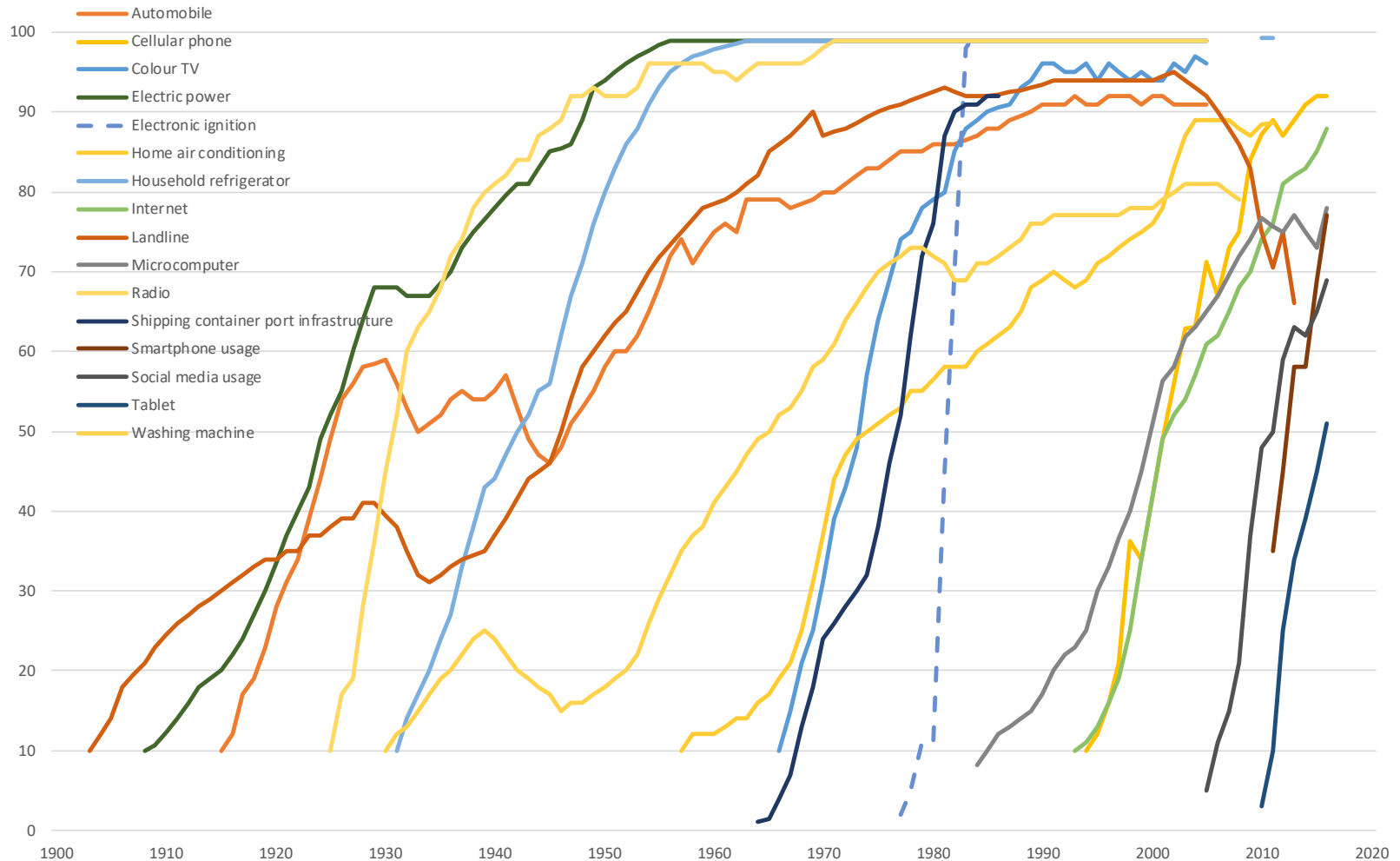
Moore's Law: Transistors per microprocessor
(1000 transistors per chip)



Source: Our World in Data

Technology adoption

US Technology Adoption % of households



Source: Our World in Data

James Sproule: European Resource Bank Meeting 2019

Demands of the Intellectual Revolution



More Informed

Number of books published has risen from 100k p.a. in 1945 to 700k p.a. in 2000

More Educated

Number of Europeans with tertiary education doubled from 18% to 38% between 1995 and 2012.

Over Whelmed?

Capacity to store information has grown by over 10X since 1986 and ability to communicate it has grown by over 250X

Future Worlds

