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The Fall in Productivity Growth: Causes and Implications

The 2018 Peston Lecture

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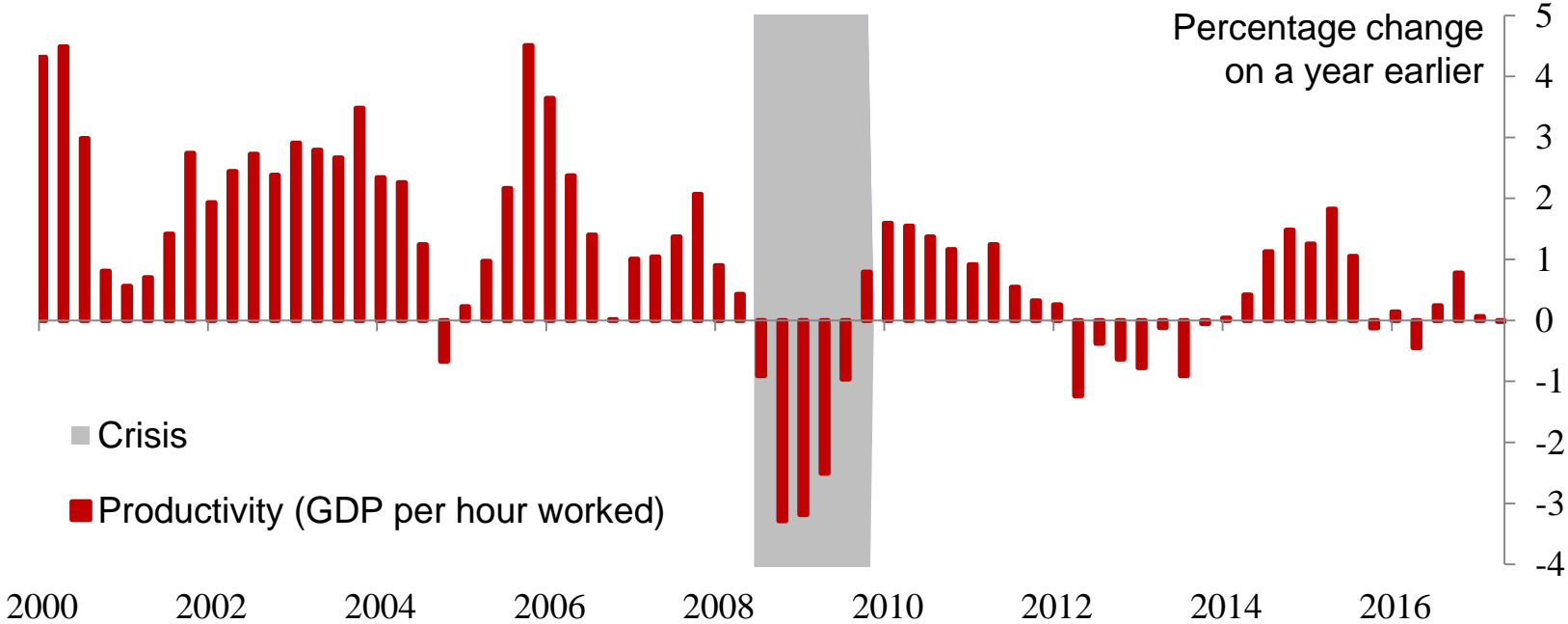
15 January 2018

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Preview of main points

- **Finance** and **manufacturing** account for most of the fall in UK productivity growth.

- Post-crisis **drag from finance** should disappear as deleveraging ends.

- Slower **manufacturing** productivity growth may relate to a **reduced impact of cheap imported inputs** from emerging markets.

- **Weak investment** has been **increasingly important** for manufacturing and aggregate productivity.
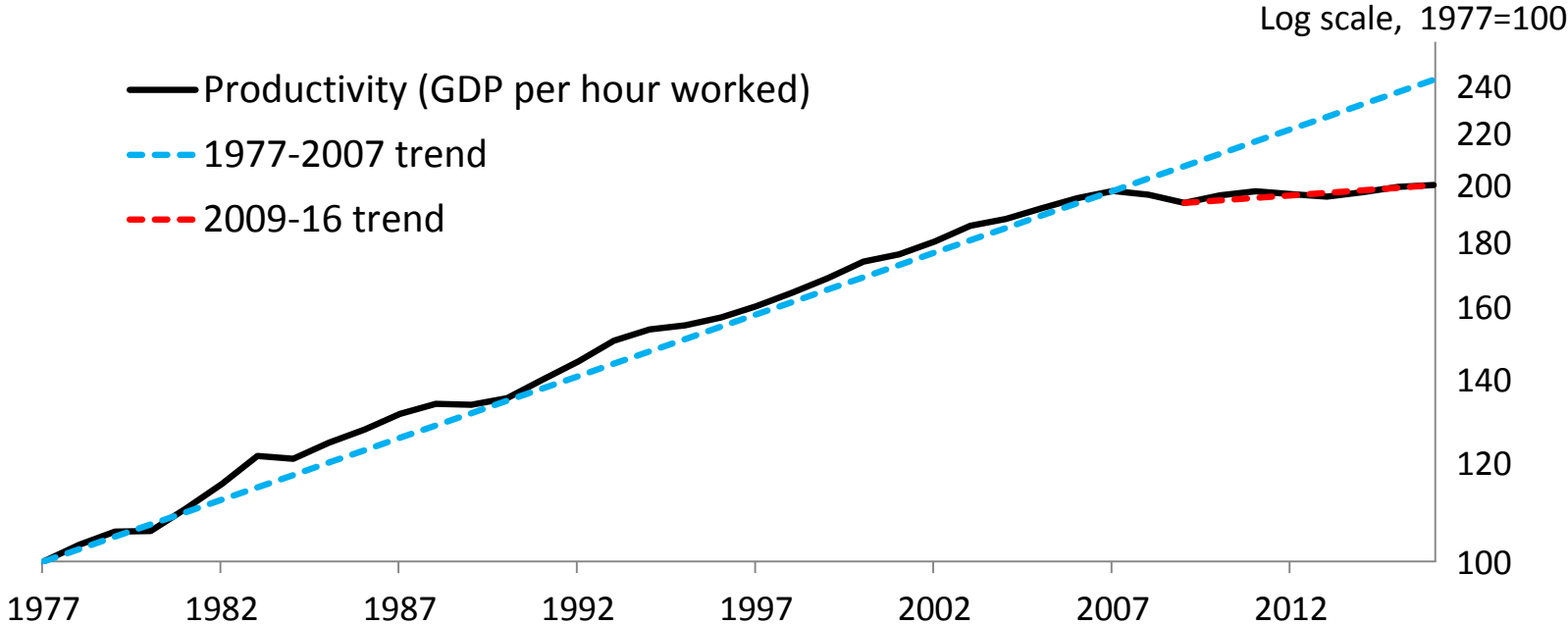
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Productivity growth has fallen

Percentage change on a year earlier

Legend:
- Crisis
- Productivity (GDP per hour worked)

X-axis: 2000, 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016

Y-axis: -4, -3, -2, -1, 0, 1, 2, 3, 4, 5

Productivity fell below trend

Log scale, 1977=100

- Productivity (GDP per hour worked)
- 1977-2007 trend
- 2009-16 trend

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5

Historical productivity growth
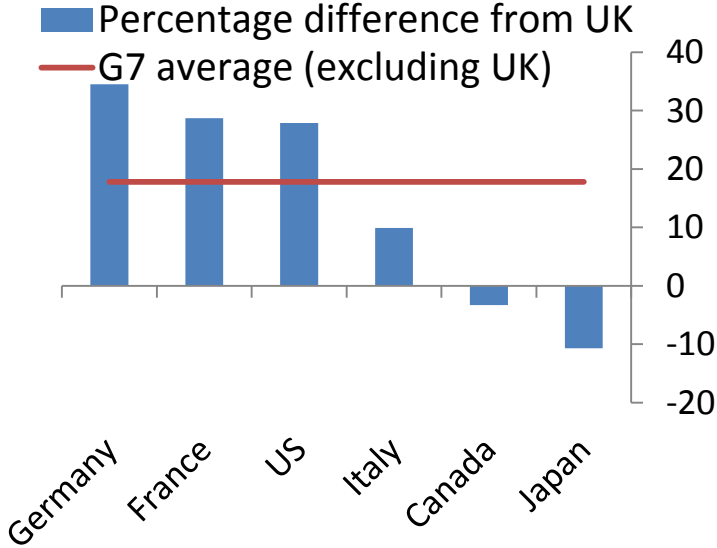
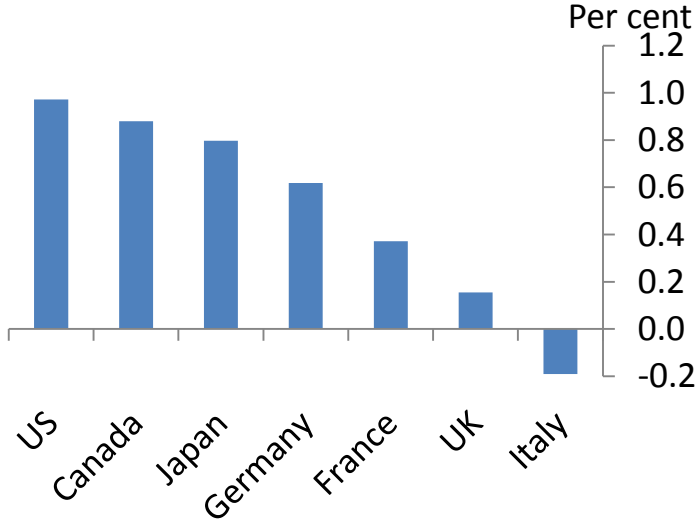

Annual growth, 10 year moving average
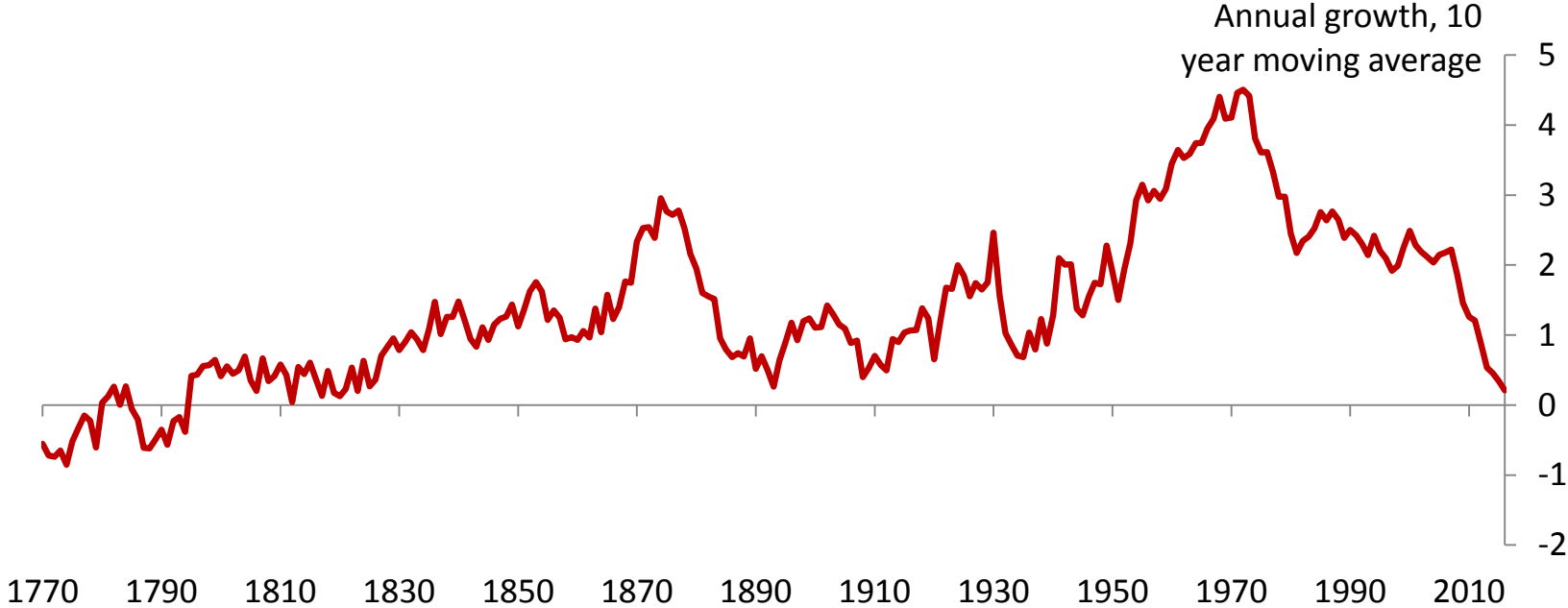
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International productivity comparisons

Current price GDP per hour worked, 2016

■ Percentage difference from UK
— G7 average (excluding UK)

Constant price GDP per hour worked, average annual growth rates, 2007-16
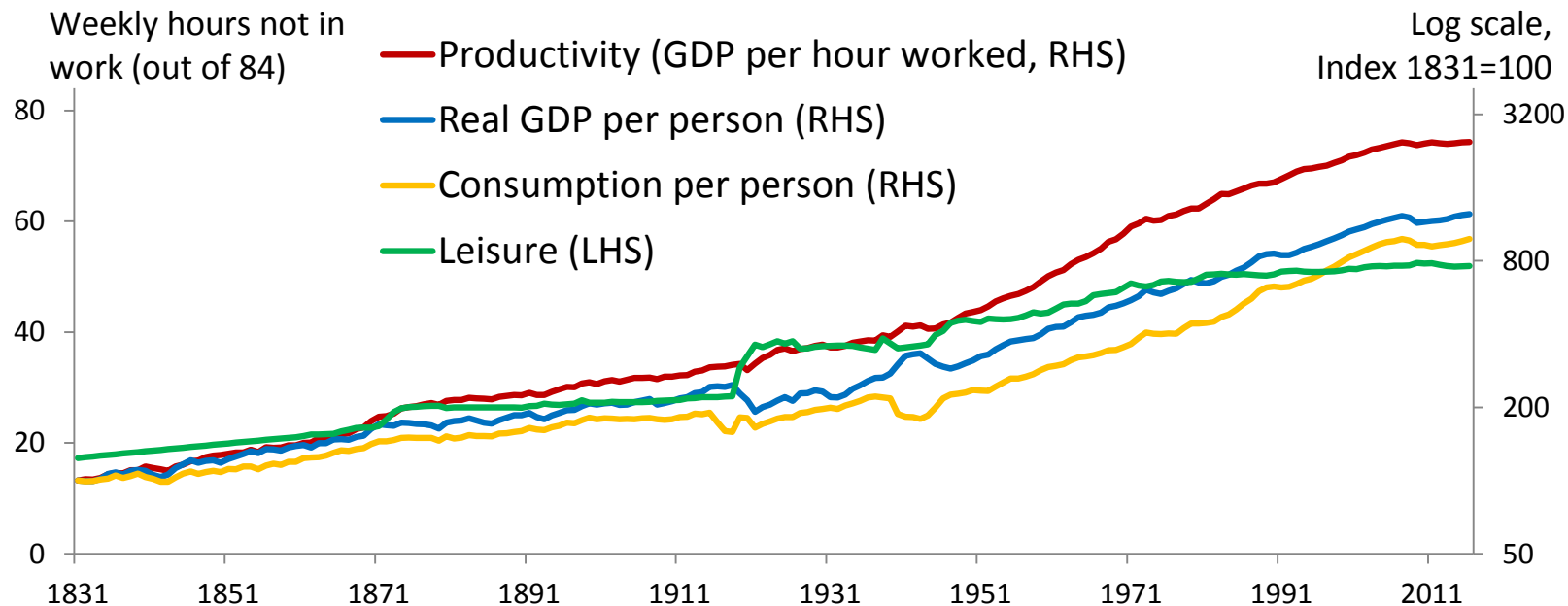

Per cent

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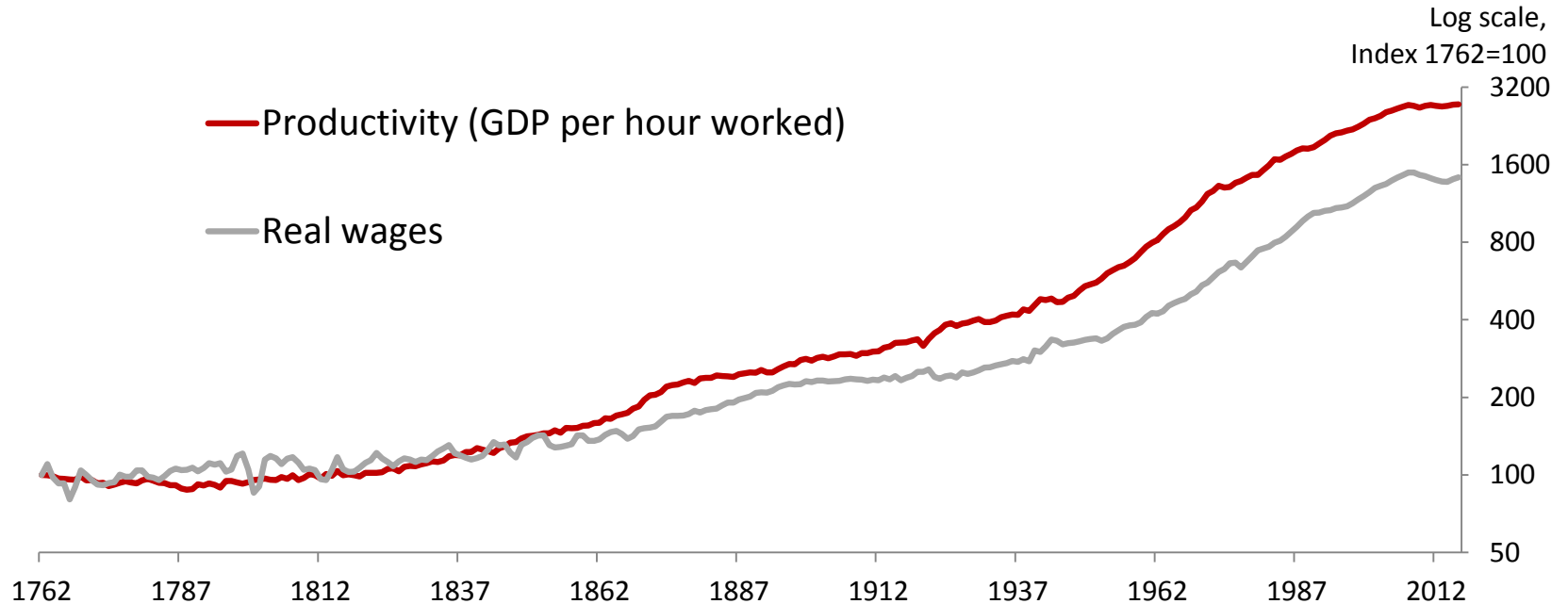**2018 Peston Lecture, Queen Mary, University of London**

Why we care about productivity
It matters for welfare: consumption, leisure

Why we care about productivity
It matters for welfare: real wages

Log scale, Index 1762=100

Productivity (GDP per hour worked)

Real wages

Why we care about productivity: It matters for monetary policy

Productivity — Index: Quarter 0=100
- Baseline
- High productivity (no policy response)
- High productivity (optimal policy)
- Low productivity (no policy response)
- Low productivity (optimal policy)

Output gap — Per cent

Annual inflation — Percentage change on a year earlier

Bank Rate — Percentage points
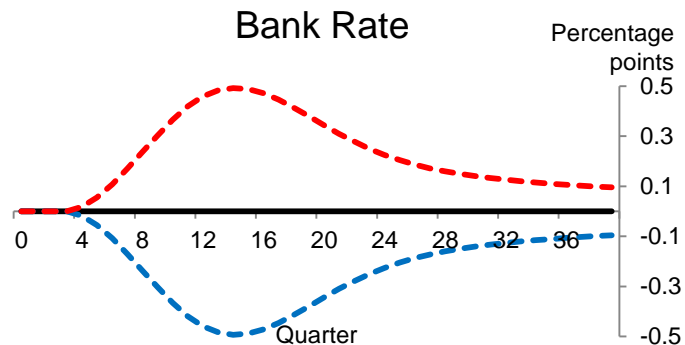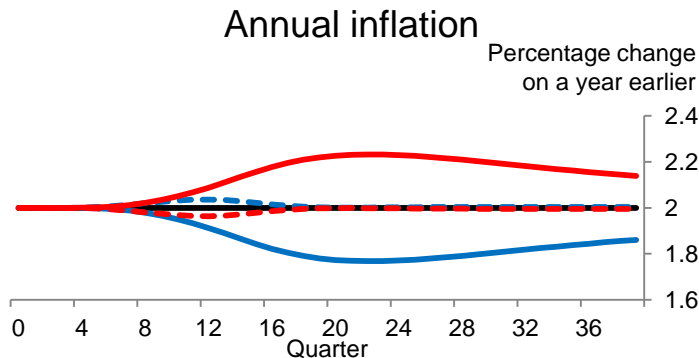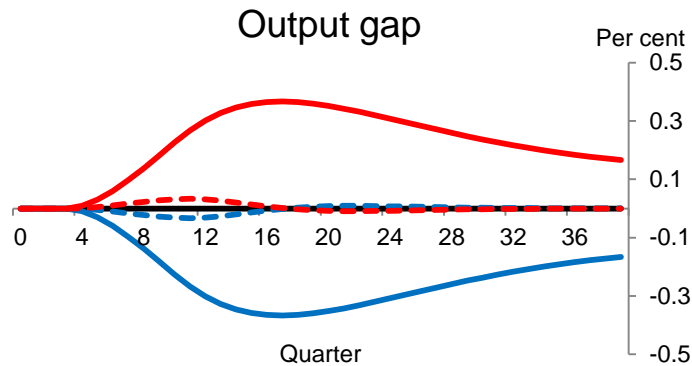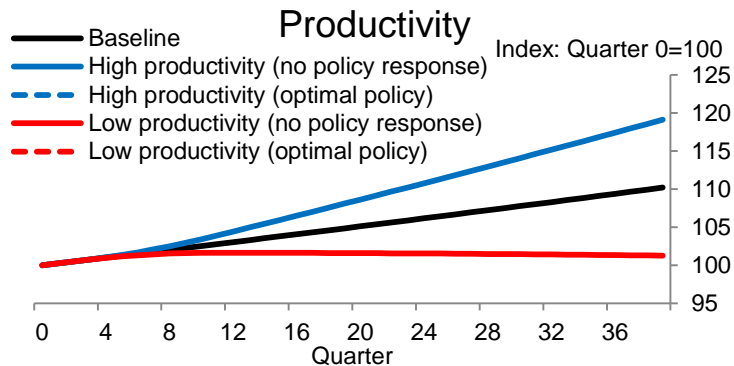
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Full growth accounting decomposition

| Sector	Pre-crisis (2000-07) average, pp	Crisis (2007-09) average, pp	Post-crisis (2009-15) average, pp	Change in contribution, pp	(% of total)	of which, change in capital deepening contribution, pp	of which, change in labour quality contribution, pp	of which, change in TFP contribution, pp	of which labour reallocation/other, pp	Share of Sector in nominal GVA, 2007, %	Actual change in quantity productivity growth, pp	Actual change in revenue productivity growth, pp
A: Agriculture, forestry and fishing	0.0	-0.1	0.1	0.0	(-2)	0.0	0.0	0.0	0.0	1	3.2	6.2
B: Mining and quarrying	-0.1	-0.2	-0.1	0.0	(1)	-0.2	0.0	0.0	0.2	3	-6.2	-13.5
C: Manufacturing	**0.5**	**-0.1**	**0.1**	**-0.5**	**(31)**	**-0.1**	**0.0**	**-0.3**	**0.0**	**12**	**-3.5**	**1.3**
D: Electricity, gas, steam and air conditioning	0.0	0.0	0.0	-0.1	(4)	0.0	0.0	-0.1	0.0	1	-4.9	-0.8
E: Water supply, sewerage and waste	0.0	0.0	0.0	0.0	(1)	0.0	0.0	0.0	0.0	1	-2.1	-6.1
F: Construction	0.0	-0.3	0.2	0.1	(-10)	-0.1	0.0	0.2	0.0	8	1.8	0.6
G: Wholesale and retail trade; repair of vehicles	0.4	-0.4	0.3	-0.2	(12)	-0.1	0.0	-0.1	0.0	13	-1.1	-1.0
H: Transportation and storage	0.1	-0.3	0.1	0.0	(3)	0.0	0.0	0.0	0.0	5	-0.7	2.6
I: Accomodation and food service	0.0	0.0	0.0	0.0	(3)	0.0	0.0	0.0	0.0	3	-1.3	2.1
J: Information and communication (ICT)	**0.3**	**0.1**	**0.1**	**-0.2**	**(13)**	**-0.1**	**0.0**	**-0.1**	**0.0**	**7**	**-3.0**	**-1.0**
K: Financial and insurance	**0.4**	**0.2**	**-0.3**	**-0.6**	**(43)**	**-0.1**	**0.0**	**-0.5**	**-0.1**	**9**	**-7.1**	**-11.7**
L: Real estate (excluded)												
M: Professional, scientific and technical	**0.3**	**-0.1**	**0.1**	**-0.2**	**(14)**	**-0.1**	**0.0**	**-0.1**	**0.0**	**8**	**-2.7**	**-1.2**
N: Administrative and support service	0.0	-0.1	0.2	0.1	(-8)	-0.1	0.0	0.2	0.0	5	2.4	0.0
O: Public administration and defence	0.0	0.1	0.0	0.0	(0)	0.0	0.0	0.0	0.0	6	0.3	0.6
P: Education	-0.1	-0.2	-0.1	0.0	(-2)	0.0	0.0	0.0	0.0	7	0.7	-3.3
Q: Human health and social work	0.1	-0.1	0.0	0.0	(1)	0.0	0.0	0.0	0.0	8	-0.4	-3.1
R: Arts, entertainment and recreation	0.0	0.0	0.0	0.0	(1)	-0.1	0.0	0.0	0.0	2	-1.0	-0.1
S: Other service activities	0.0	0.0	0.0	0.0	(-3)	0.0	0.0	0.1	0.0	2	1.7	0.1
Total	**2.0**	**-1.6**	**0.4**	**-1.5**	**(100)**	**-1.0**	**0.1**	**-0.8**	**0.2**	**100**		
Manufacturing, finance, prof. and ICT only	1.5	0.0	-0.1	-1.5	(103)	-0.4	0.0	-1.1	-0.1	36		
Other sectors	0.5	-1.7	0.5	0.0	(-3)	-0.6	0.1	0.2	0.3	64		

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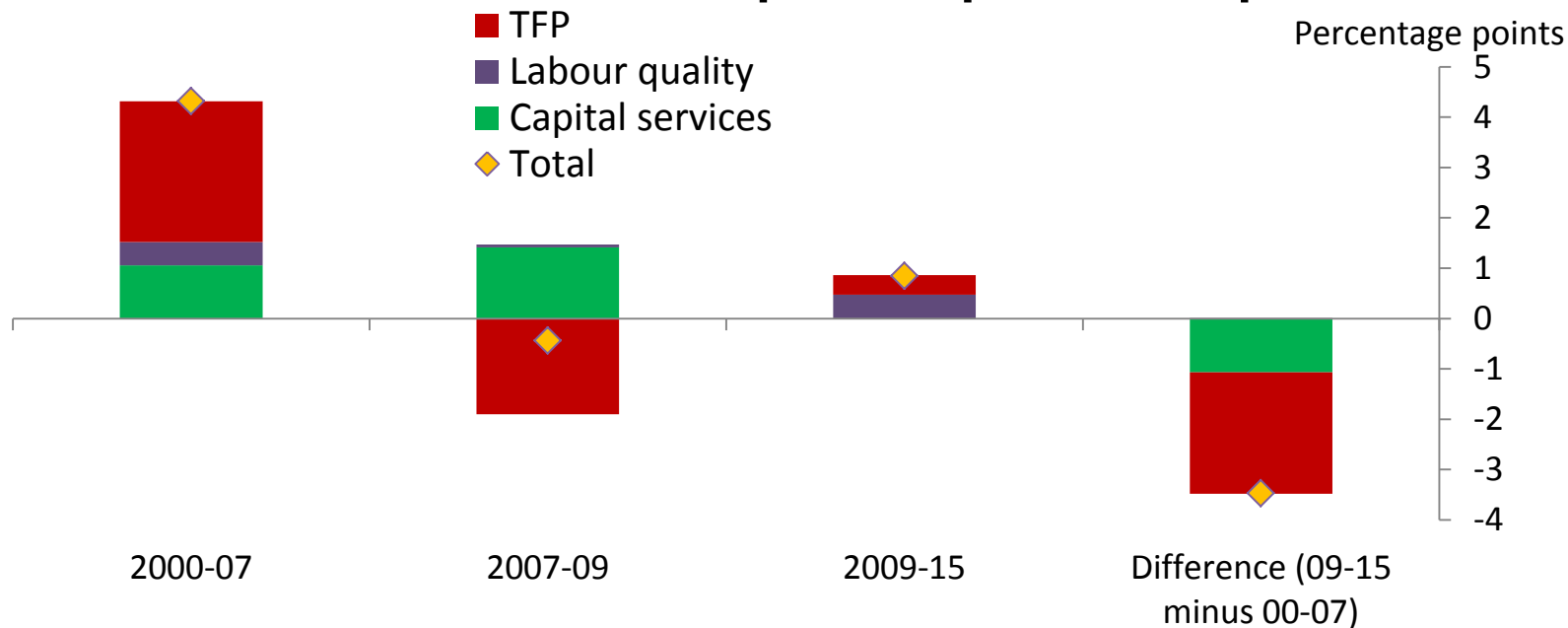2018 Peston Lecture, Queen Mary, University of London

11

Sectoral decomposition of productivity growth
Slowdown: difference between pre and post crisis periods
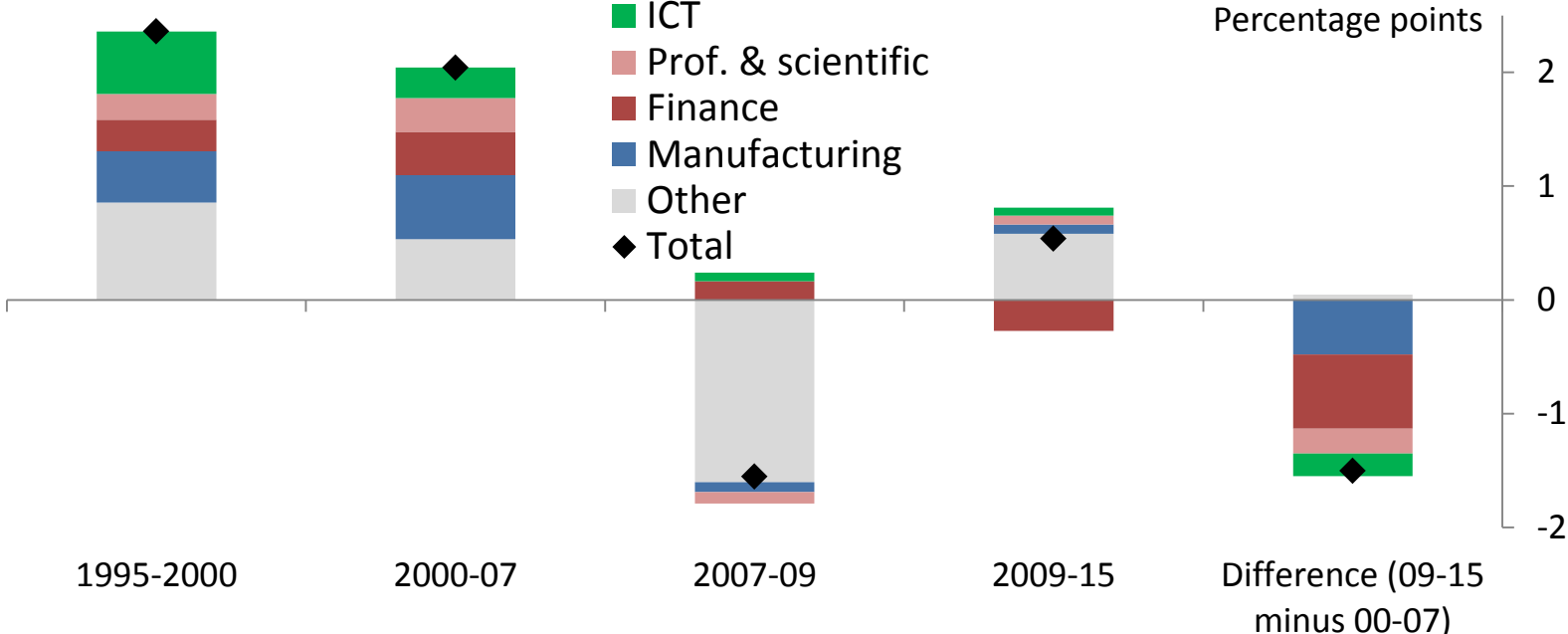
Decomposition of manufacturing productivity growth
Slowdown: difference between pre and post crisis periods

Legend:
- TFP (red)
- Labour quality (purple)
- Capital services (green)
- Total (yellow diamond)

Percentage points

Y-axis: 5, 4, 3, 2, 1, 0, -1, -2, -3, -4

Categories: 2000-07, 2007-09, 2009-15, Difference (09-15 minus 00-07)

13

Measurement of value added

- Statistical offices aim at capturing:

$$q_t - p^m{}_0 \times m_t$$

- In practice, they deflate nominal value added,

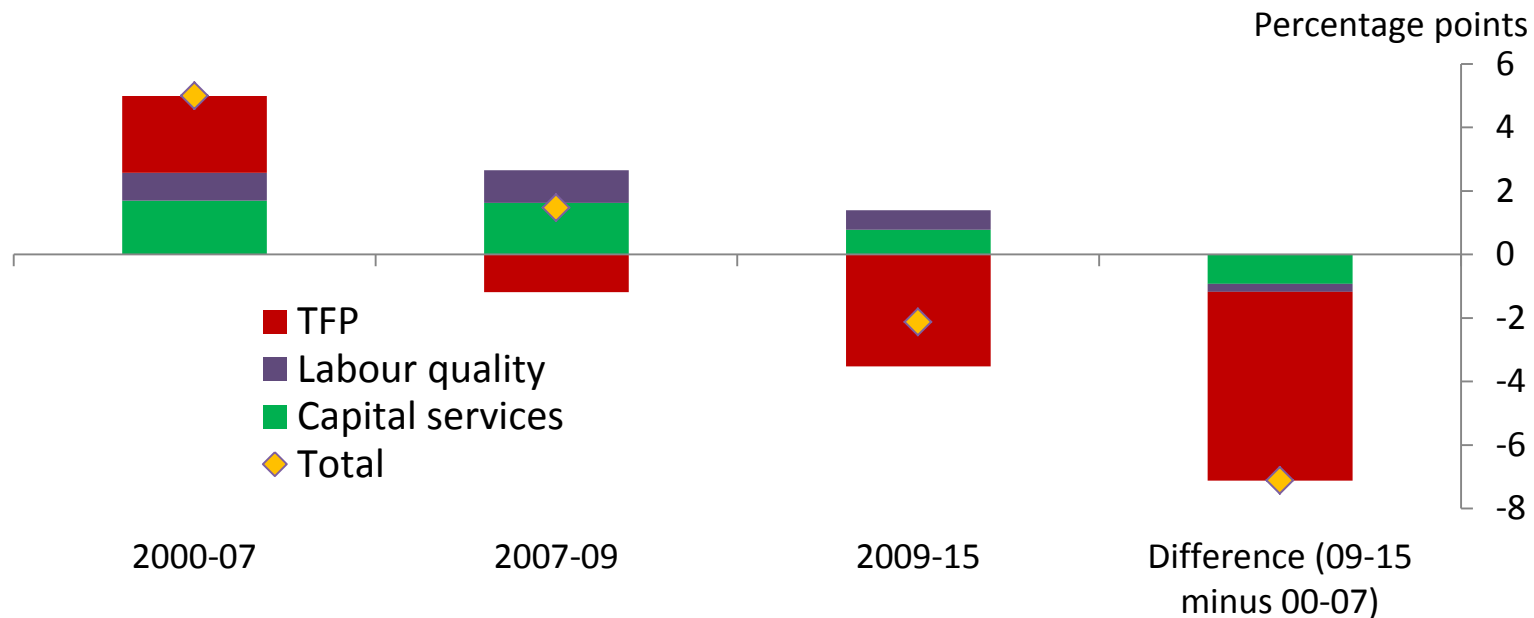$$p^y{}_t \times q_t - p^m{}_t \times m_t,$$

And obtain:

SD: $\frac{1}{\pi_{t\to0}^y}(p^y{}_t \times q_t - p^m{}_t \times m_t)$ DD: $\frac{1}{\pi_{t\to0}^y} p^y{}_t \times q_t - \frac{1}{\pi_{t\to0}^m} p^m{}_t \times m_t$

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Decomposition of finance productivity growth
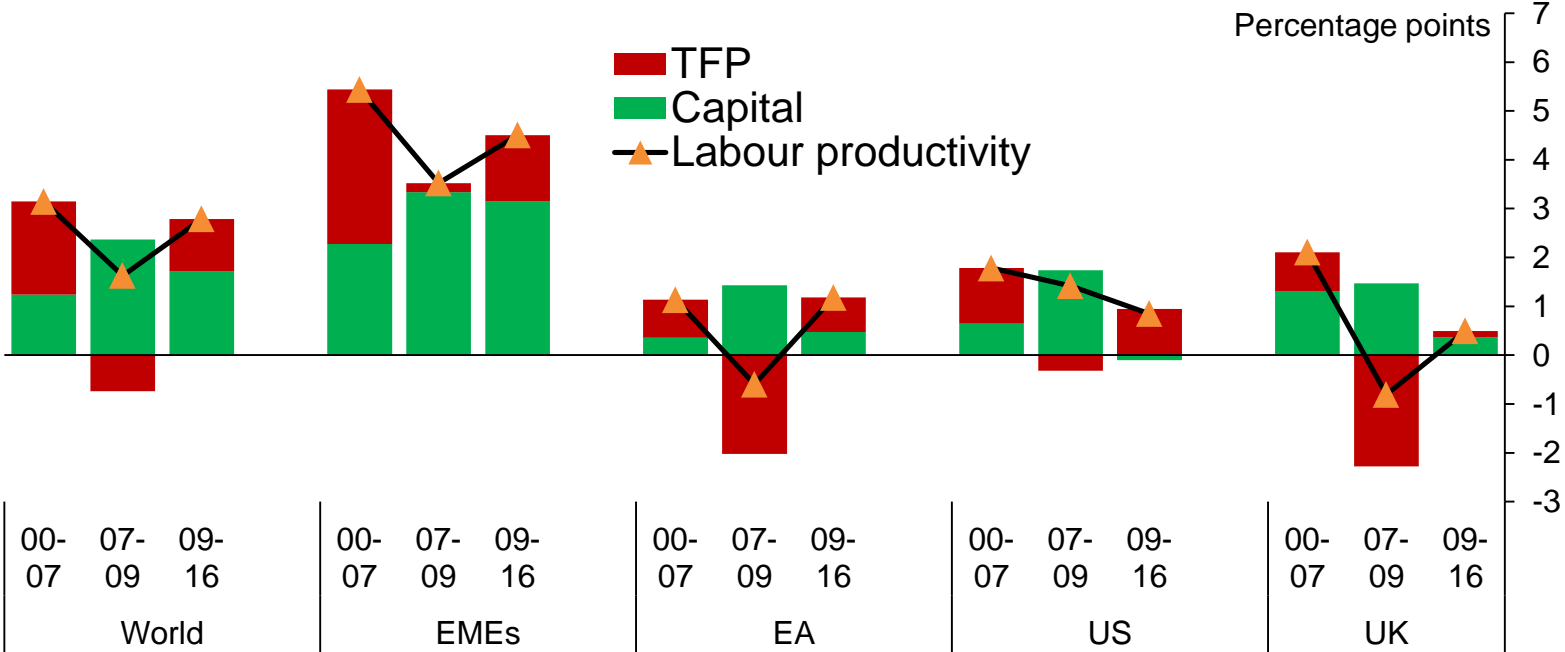## Slowdown: difference between pre and post crisis periods

Slowdown: factor decomposition

Factor	Pre-crisis (2000-07)	Crisis (2007-09)	Post-crisis (2009-15)	Post-crisis difference	(% of total)
TFP	0.6%	-3.3%	-0.2%	**-0.8%**	*(54%)*
Capital services	1.1%	1.0%	0.1%	**-1.0%**	*(66%)*
Labour services	0.4%	0.6%	0.5%	**0.1%**	*(-7%)*
Labour reallocation	-0.2%	0.0%	0.0%	**0.2%**	*(-13%)*
Other	0.1%	0.1%	0.1%	**0.0%**	*(0%)*
Total	2.0%	-1.6%	0.4%	**-1.5%**	

Slowdown: international comparison

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Take away

- Manufacturing and finance account for most of the UK productivity slowdown.

- The Finance boom and bust can be traced to the pre-crisis growth in leverage and the subsequent deleveraging post-crisis.

  – As deleveraging runs its course, finance should stop detracting from average productivity.

- Pre-crisis productivity growth in manufacturing may be related to offshoring and rapidly falling prices of imported inputs.

  – Going forward, global growth momentum should give a boost to UK manufacturing.

- In aggregate weak investment has been the main drag on labour productivity growth.

  – As uncertainty is removed, investment could help recover lost ground.

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