

# Have Productivity and Pay Decoupled in the UK?

**John Van Reenen and Andreas Teichgraeber**  
Programme on Innovation and Diffusion, LSE

# Outline

**1 Decoupling: Concern that worker pay no longer follows productivity growth (e.g. US)**

2 Have productivity and employee pay decoupled in the UK?

3 What about the self-employed?

4 Conclusions

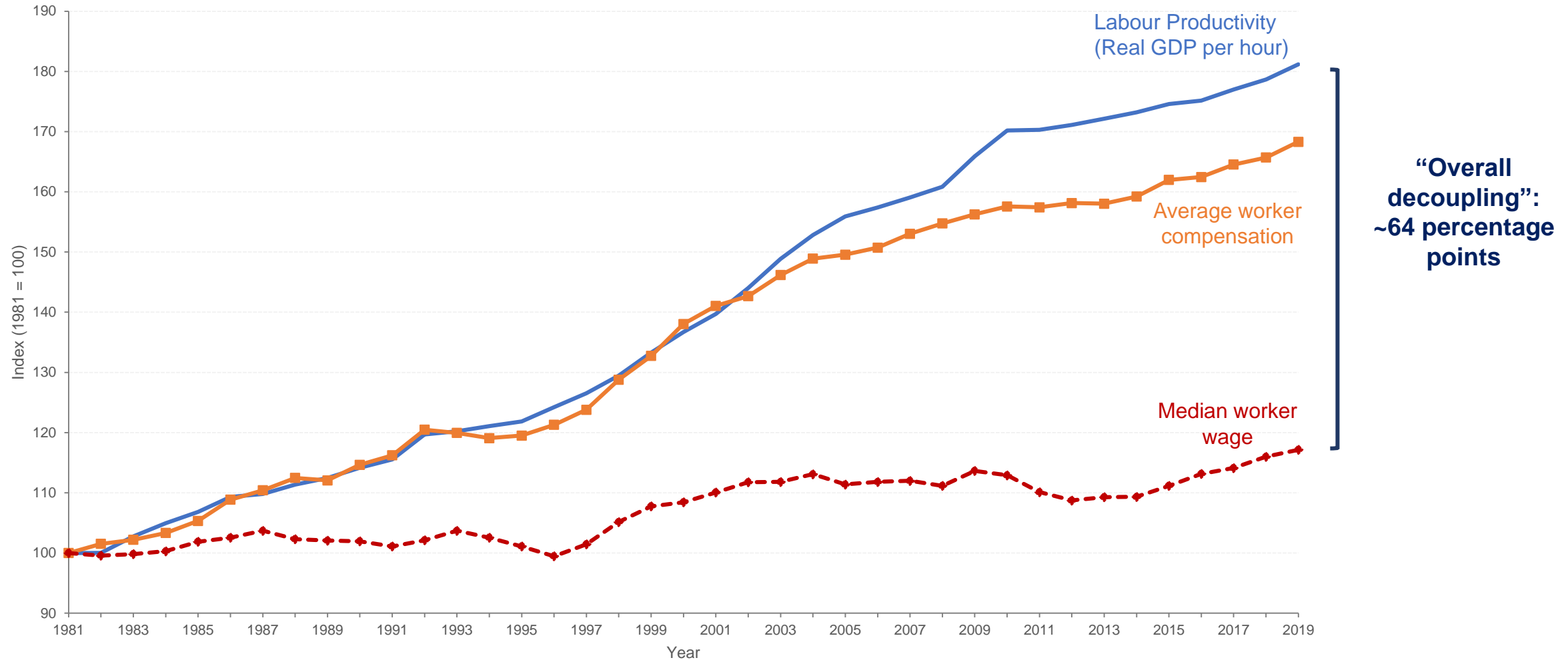
# Why does decoupling of productivity and pay matter?

- Labour productivity: **Output per hour worked**

$$\frac{\text{GDP}}{\text{Total Annual Hours worked}}$$

- Ideally: if the economy becomes **more productive**, workers should see their **pay increase**
- To measure this, we can look at growth of:
  - **Wages**
  - **Compensation** (wages + employers' NICs/pension contributions etc, health insurance...)

# In the US, average and median compensation have decoupled from labour productivity growth.



**Data Source:** Bivens and Mishel (2021), with data from BEA and BLS.

**Notes:** “Worker” includes both employees and self-employed. GDP and average compensation are deflated by the GDP deflator, median compensation by the CPI-U-RS.



# Outline

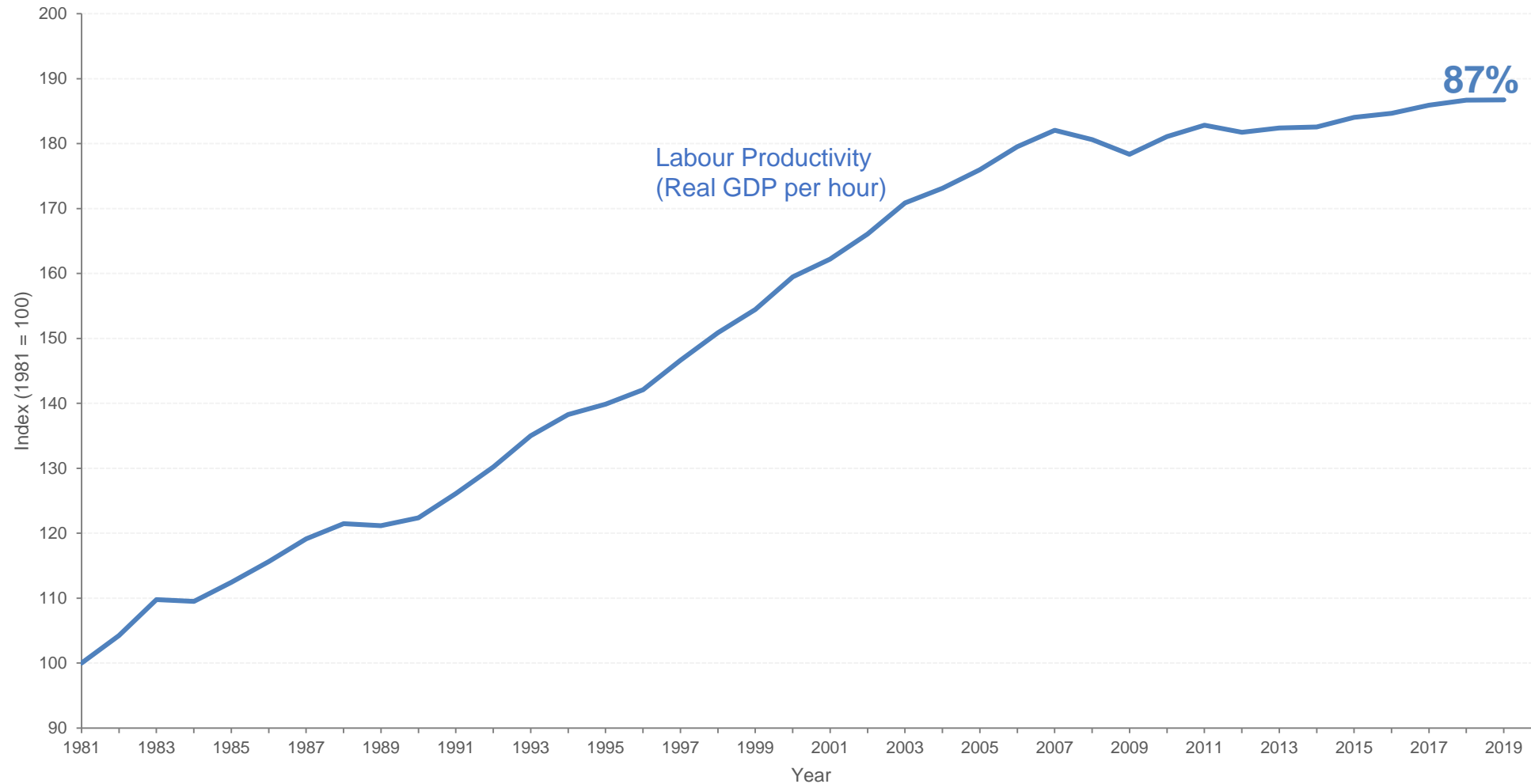
1 Motivation: Why does decoupling matter?

**2 Have productivity and employee pay decoupled in the UK?**

3 What about the self-employed?

4 Conclusions

# Labour productivity in UK increased by about 87% over last four decades (1981-2019)

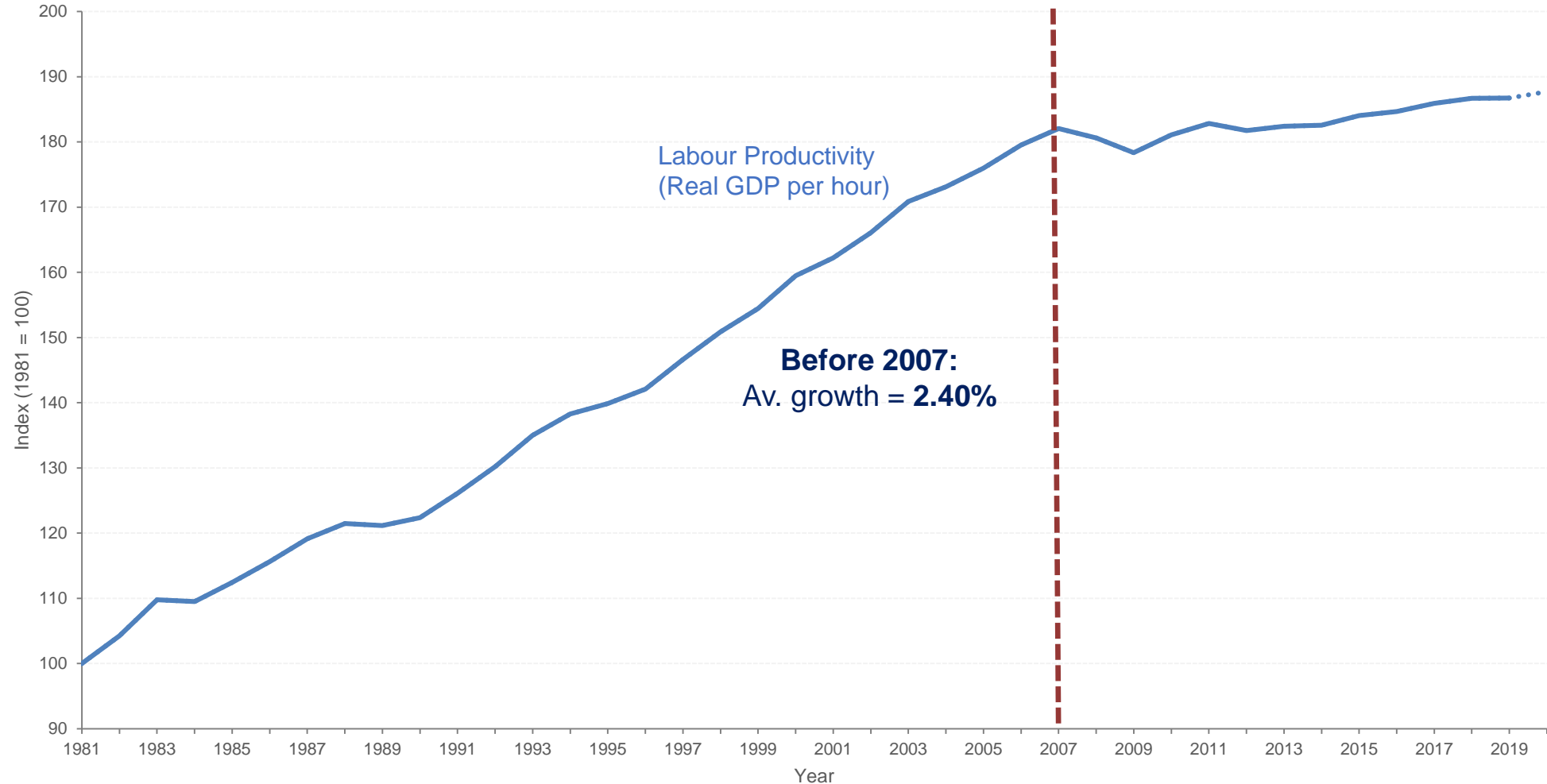


**Source:** ONS

**Notes:** Labour productivity is defined as real GDP (using the GDP deflator) divided by total hours worked.



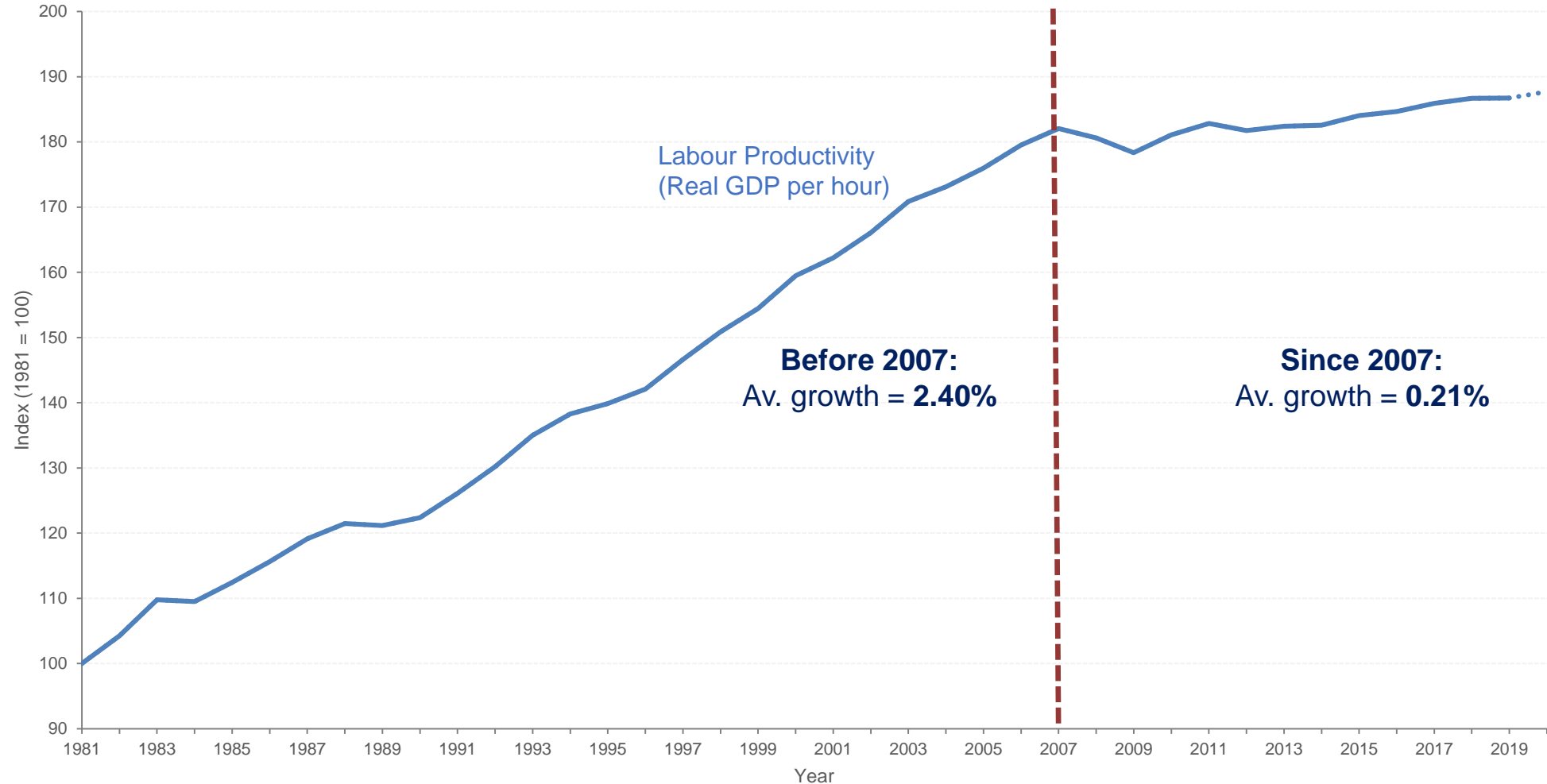
# ...But productivity growth has slowed down a lot after the Global Financial Crisis in 2007



Source: ONS

Notes: The dotted line extends the blue line to include 2020 COVID period.

# ...But productivity growth has slowed down a lot after the Global Financial Crisis in 2007

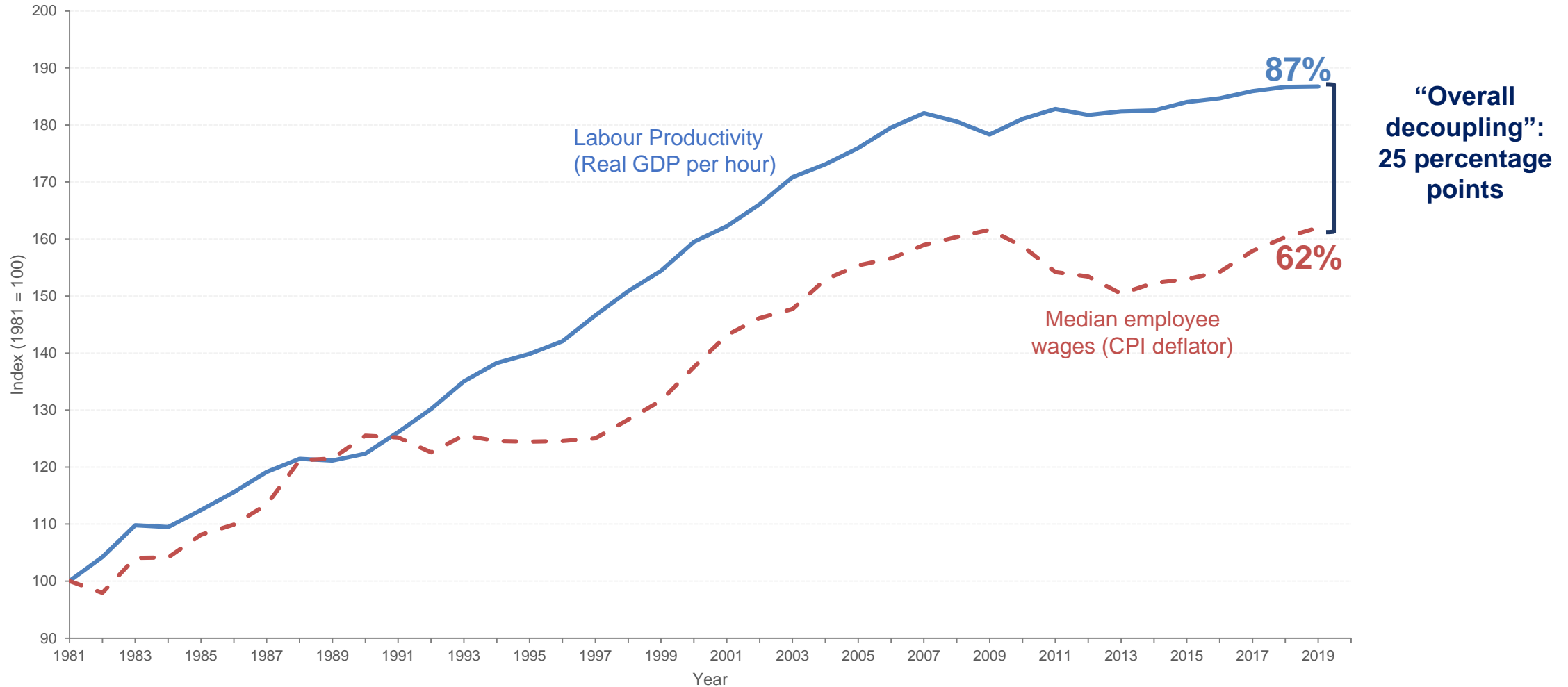


Source: ONS

Notes: The dotted line extends the blue line to include 2020 COVID period.



# Median employee wage growth grew by only 62%, so has decoupled from productivity growth

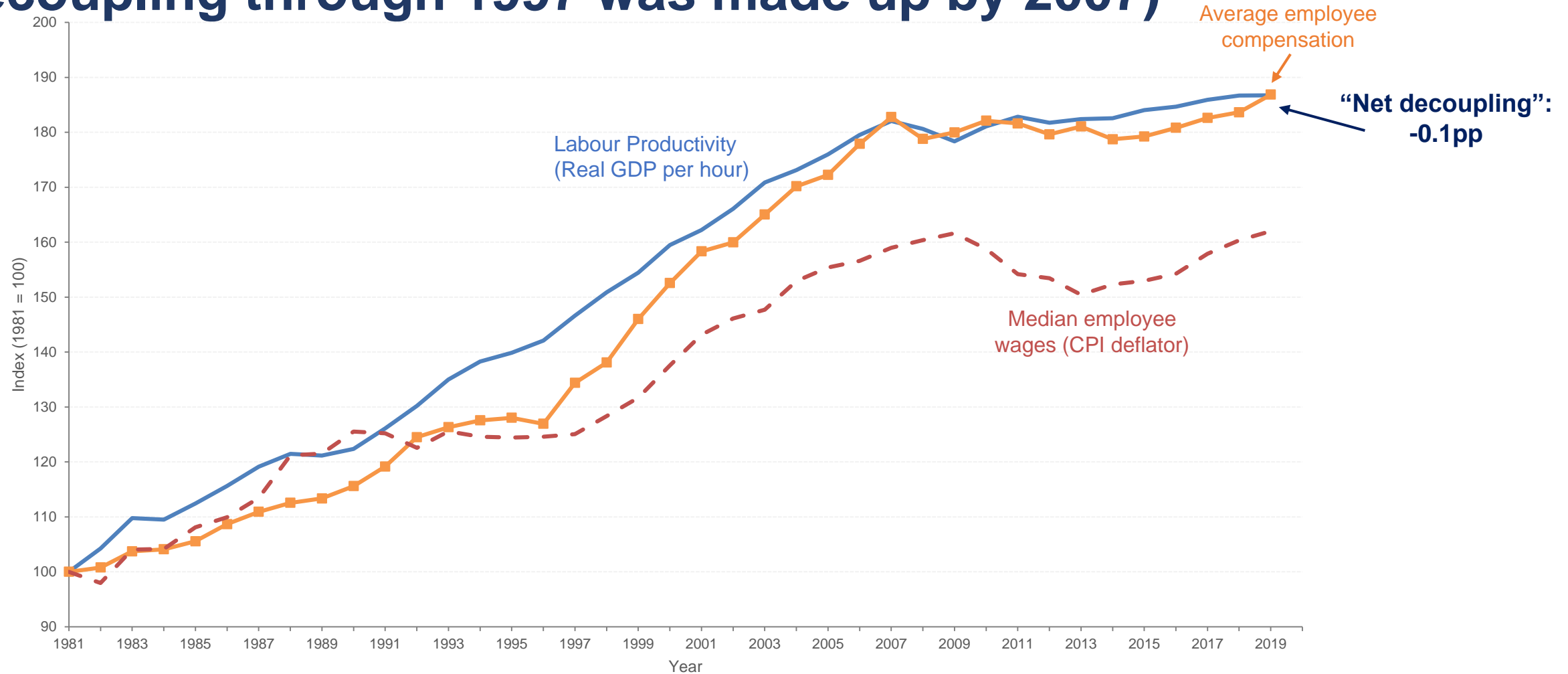


**Source:** ONS, LFS, and OECD

**Notes:** Median hourly employee wages are sourced from the UK Labour Force Survey (LFS). Median wages are deflated with the CPI deflator, labour productivity with the GDP deflator.



# But mean employee compensation *has* kept up with productivity growth. No “net decoupling” over whole period (decoupling through 1997 was made up by 2007)

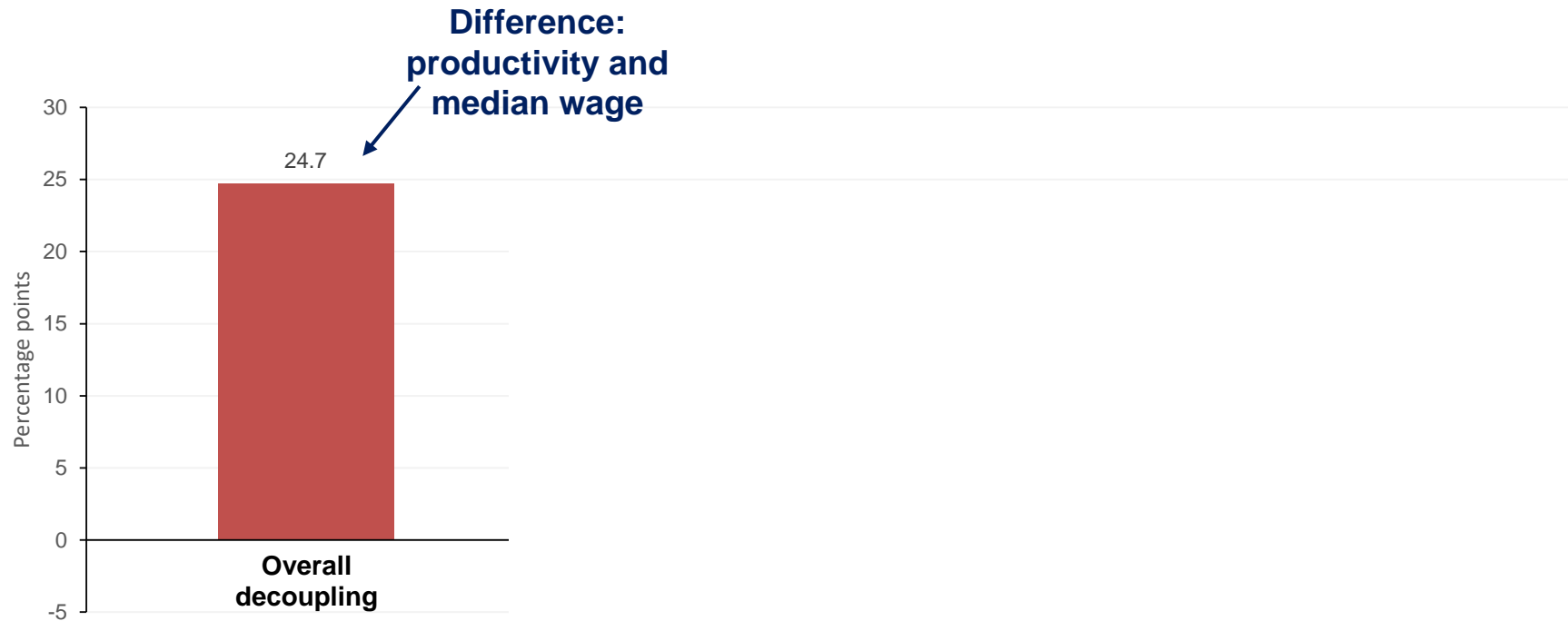


**Source:** ONS, LFS, and OECD

**Notes:** Employee compensation = Employee wages + non-wage compensation (employers’ NI contributions, employers’ pension contributions...). Median wages are deflated with the CPI deflator, all other series with the GDP deflator.



# What explains Overall Decoupling?



Source: ONS, LFS, and OECD, 1981-2019

**Notes: *Inequality*:** Difference between LFS mean hourly earnings (GDP deflator) and LFS median hourly earnings (GDP deflator)

***Non-wage comp.:*** Difference between employee comp. per hour (GDP deflator) and ONS mean hourly wage (GDP deflator)

***ONS/LFS divergence:*** Difference between ONS mean hourly wage (GDP deflator) and LFS mean hourly earnings (GDP deflator)

***Deflators:*** Difference between LFS median hourly earnings (GDP deflator) and LFS mean hourly earnings (CPI deflator)

***Net decoupling:*** Difference between GDP per hour (GDP deflator) and Employee compensation per hour (GDP deflator)



# Decomposing Decoupling: Mostly due to increase in Wage Inequality



Source: ONS, LFS, and OECD, 1981-2019

**Notes: *Inequality*:** Difference between LFS mean hourly earnings (GDP deflator) and LFS median hourly earnings (GDP deflator)

***Non-wage comp.:*** Difference between employee comp. per hour (GDP deflator) and ONS mean hourly wage (GDP deflator)

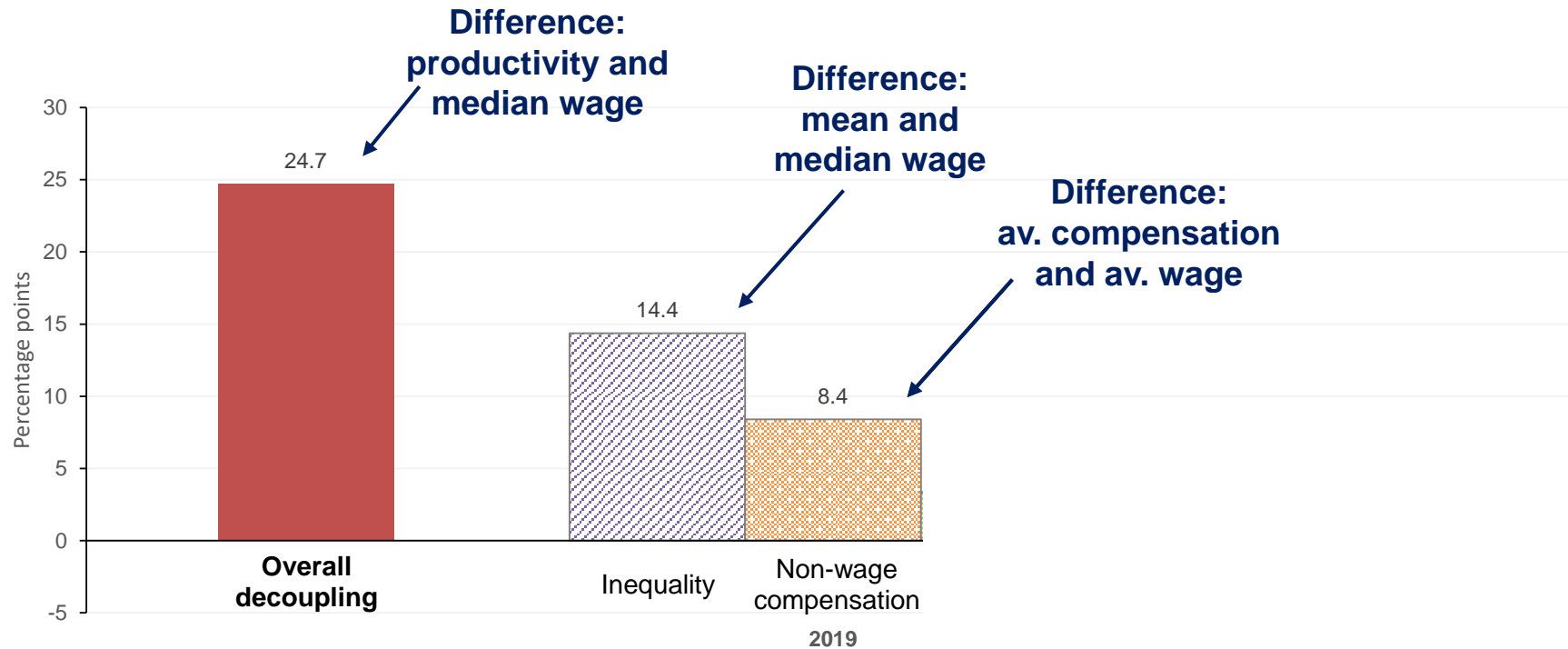
***ONS/LFS divergence:*** Difference between ONS mean hourly wage (GDP deflator) and LFS mean hourly earnings (GDP deflator)

***Deflators:*** Difference between LFS median hourly earnings (GDP deflator) and LFS mean hourly earnings (CPI deflator)

***Net decoupling:*** Difference between GDP per hour (GDP deflator) and Employee compensation per hour (GDP deflator)



# The increasing fraction of labour costs going to non-wage compensation (mainly pensions) explains most of the rest



Source: ONS, LFS, and OECD, 1981-2019

**Notes: Inequality:** Difference between LFS mean hourly earnings (GDP deflator) and LFS median hourly earnings (GDP deflator)

**Non-wage comp.:** Difference between employee comp. per hour (GDP deflator) and ONS mean hourly wage (GDP deflator)

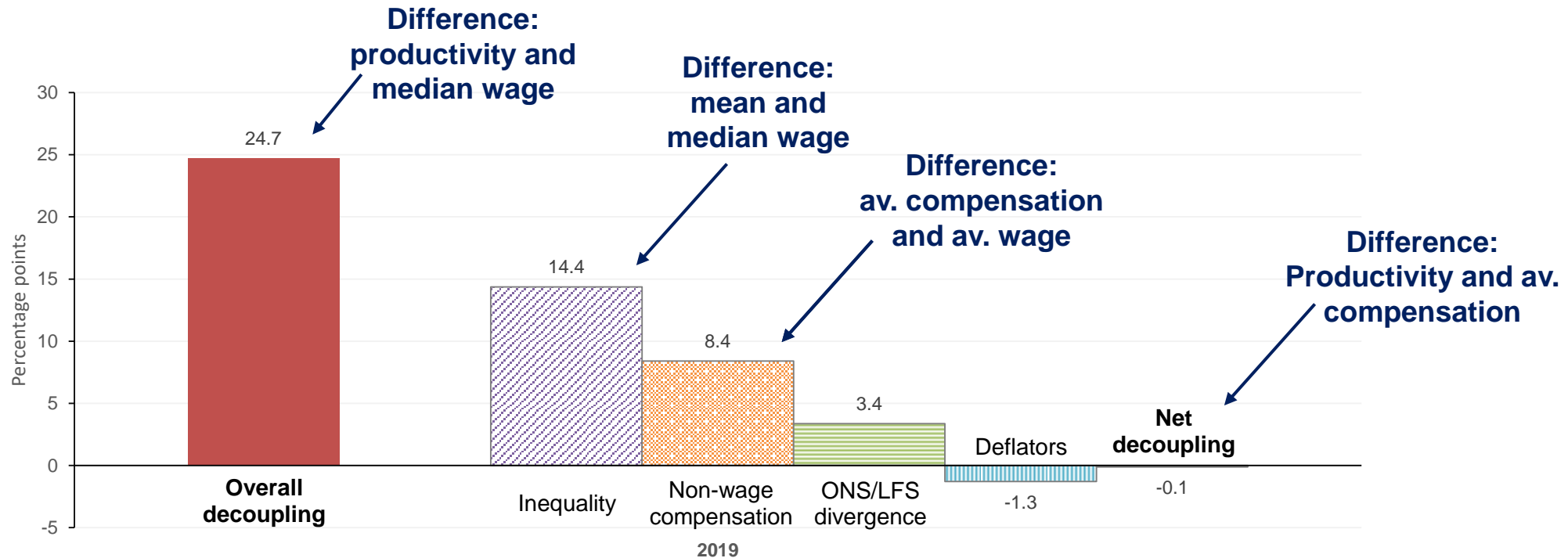
**ONS/LFS divergence:** Difference between ONS mean hourly wage (GDP deflator) and LFS mean hourly earnings (GDP deflator)

**Deflators:** Difference between LFS median hourly earnings (GDP deflator) and LFS mean hourly earnings (CPI deflator)

**Net decoupling:** Difference between GDP per hour (GDP deflator) and Employee compensation per hour (GDP deflator)



# After accounting for differences in data sources and deflators, we see no net decoupling



Source: ONS, LFS, and OECD, 1981-2019

**Notes: Inequality:** Difference between LFS mean hourly earnings (GDP deflator) and LFS median hourly earnings (GDP deflator)

**Non-wage comp.:** Difference between employee comp. per hour (GDP deflator) and ONS mean hourly wage (GDP deflator)

**ONS/LFS divergence:** Difference between ONS mean hourly wage (GDP deflator) and LFS mean hourly earnings (GDP deflator)

**Deflators:** Difference between LFS median hourly earnings (GDP deflator) and LFS mean hourly earnings (CPI deflator)

**Net decoupling:** Difference between GDP per hour (GDP deflator) and Employee compensation per hour (GDP deflator)



# Outline

- 1 Motivation: Why does decoupling matter?
- 2 Have productivity and employee pay decoupled in the UK?
- 3 What about the self-employed?**
- 4 Conclusions

**Net decoupling is flip side of the labour share of GDP (the fraction of the economic “pie” going to workers)**





# Net decoupling is flip side of the labour share of GDP (the fraction of the economic “pie” going to workers)

- Previous employee-based analysis suggested no fall in the **UK’s labour share of GDP**

$$\text{Labour share of GDP} = \frac{\text{Total Compensation}}{\text{GDP}}$$

Share of total income in the economy that goes to **workers**

# Net decoupling is flip side of the labour share of GDP (the fraction of the economic “pie” going to workers)

- Previous employee-based analysis suggested no fall in the **UK’s labour share of GDP**

$$\text{Labour share of GDP} = \frac{\text{Total Compensation}}{\text{GDP}}$$

Share of total income in the economy that goes to **workers**

- But:

Total compensation = Compensation of employees + **Compensation of self-employed**

# Self-employed share of jobs has increased a lot (~4pp), especially since 2001

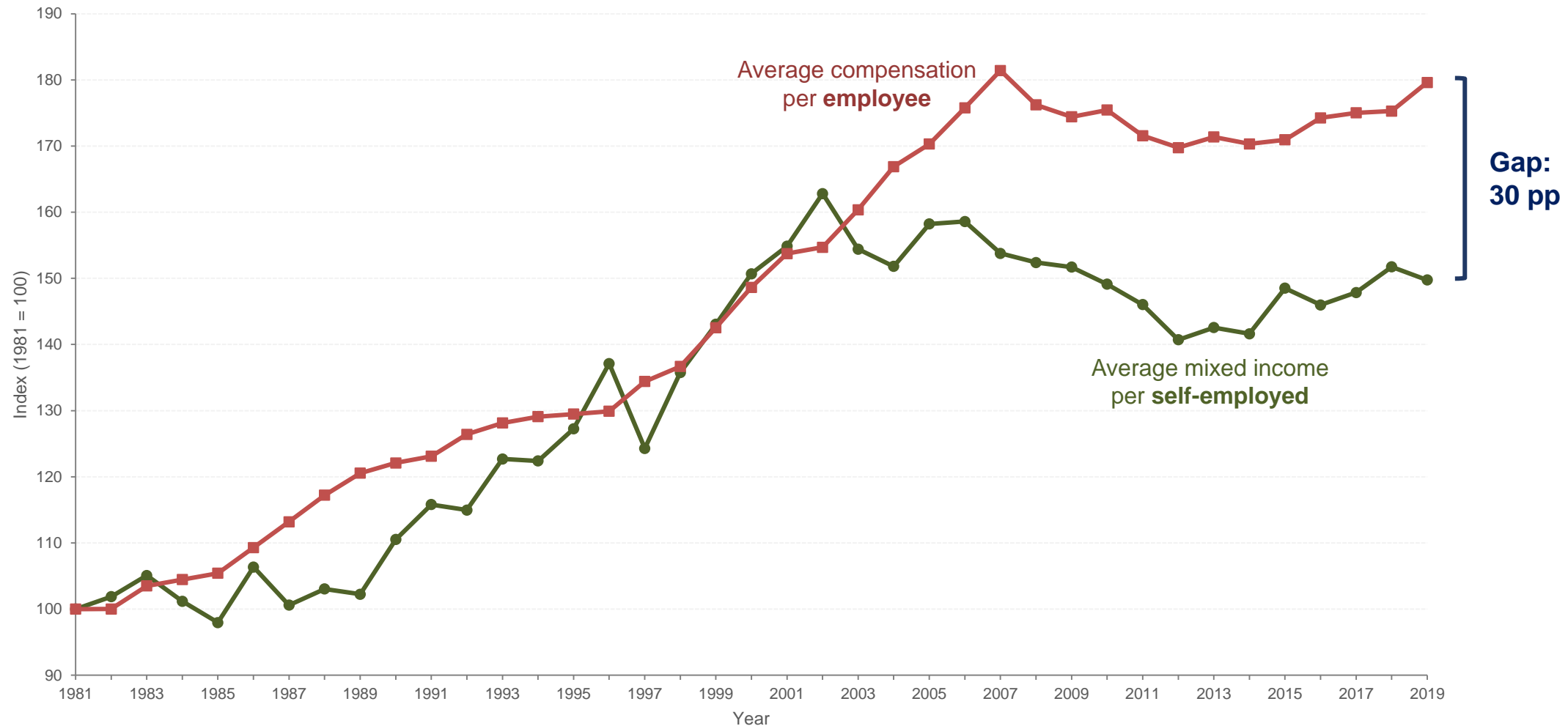


Source: ONS/LFS

Notes: Shown is the share of self-employed in total UK employment.



# But Self-Employed income has grown much slower than that of employees



**Source:** ONS and OECD

**Notes:** Average compensation is total employee compensation divided by number of employees.

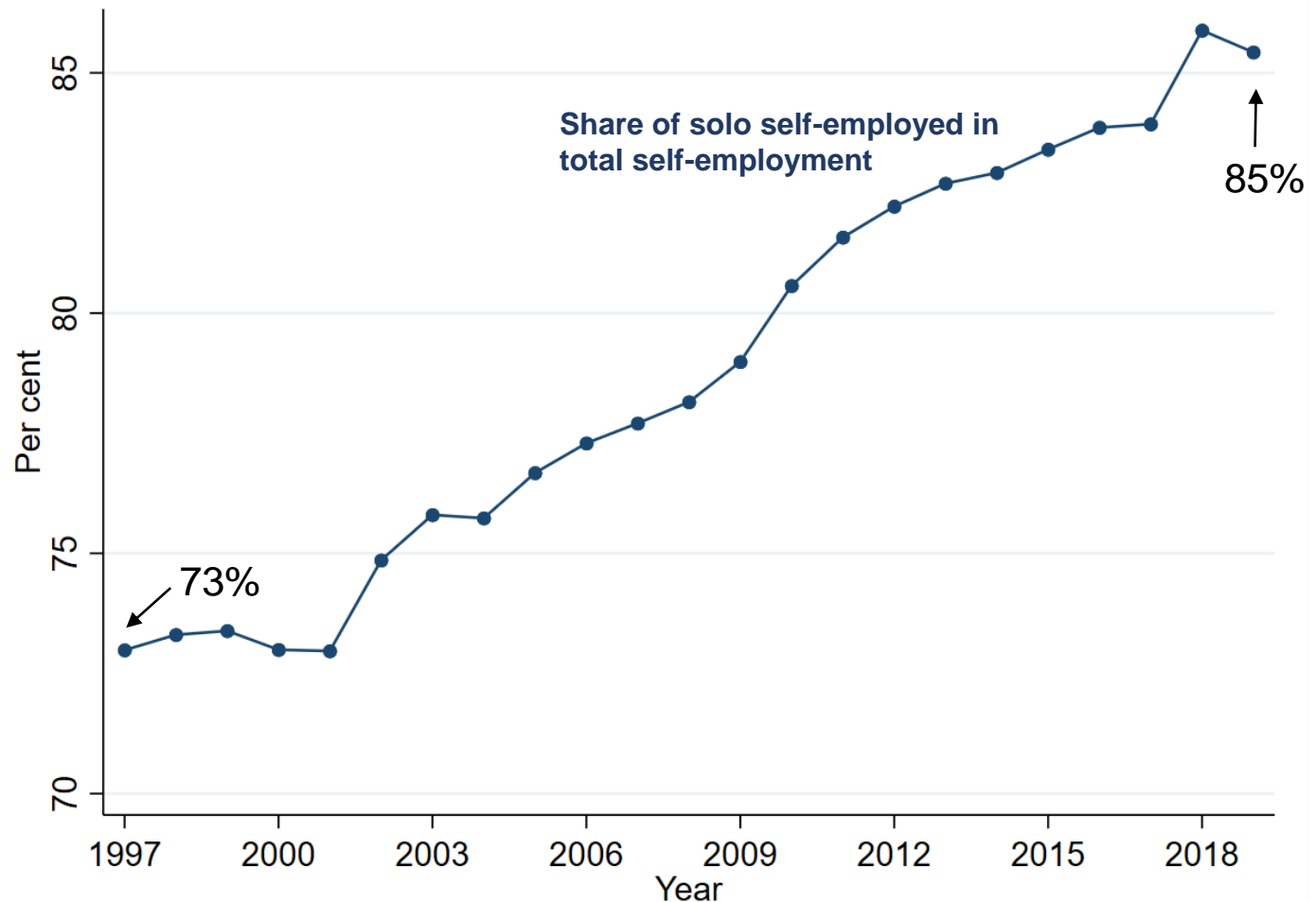
Average mixed income is total mixed income divided by number of self-employed.

Both series are deflated with the CPI.

# The share of Solo Self-Employed among all Self-Employed has increased a lot, 1997-2019

Self-employed (SE) composed of:

- Non-solo Self-employed
- **Solo self-employed** (do not employ other workers)



**Source:** Labour Force Survey (LFS)

**Notes:** Shown is the share of solo self-employed in total self-employment.



# Average hourly income of Solo Self Employed is lower and has grown much more slowly than non-Solo Self Employed



**Source:** Family Resources Survey (FRS)

**Notes:** Average weekly hours refer to all hours worked per week excl. unpaid overtime. Hourly income is calculated as total weekly income divided by weekly hours worked. Data are shown as three-year moving averages.

# Outline

- 1 Motivation: Why does decoupling matter?
- 2 Have productivity and employee pay decoupled in the UK?
- 3 What about the self-employed?
- 4 Conclusions**

# Conclusions

- 1 Overall decoupling of **labour productivity & median employee wages** mainly due to:
  - Increase in Wage **Inequality**
  - Rise in Non-wage compensation – mainly employer **pension costs**



# Conclusions

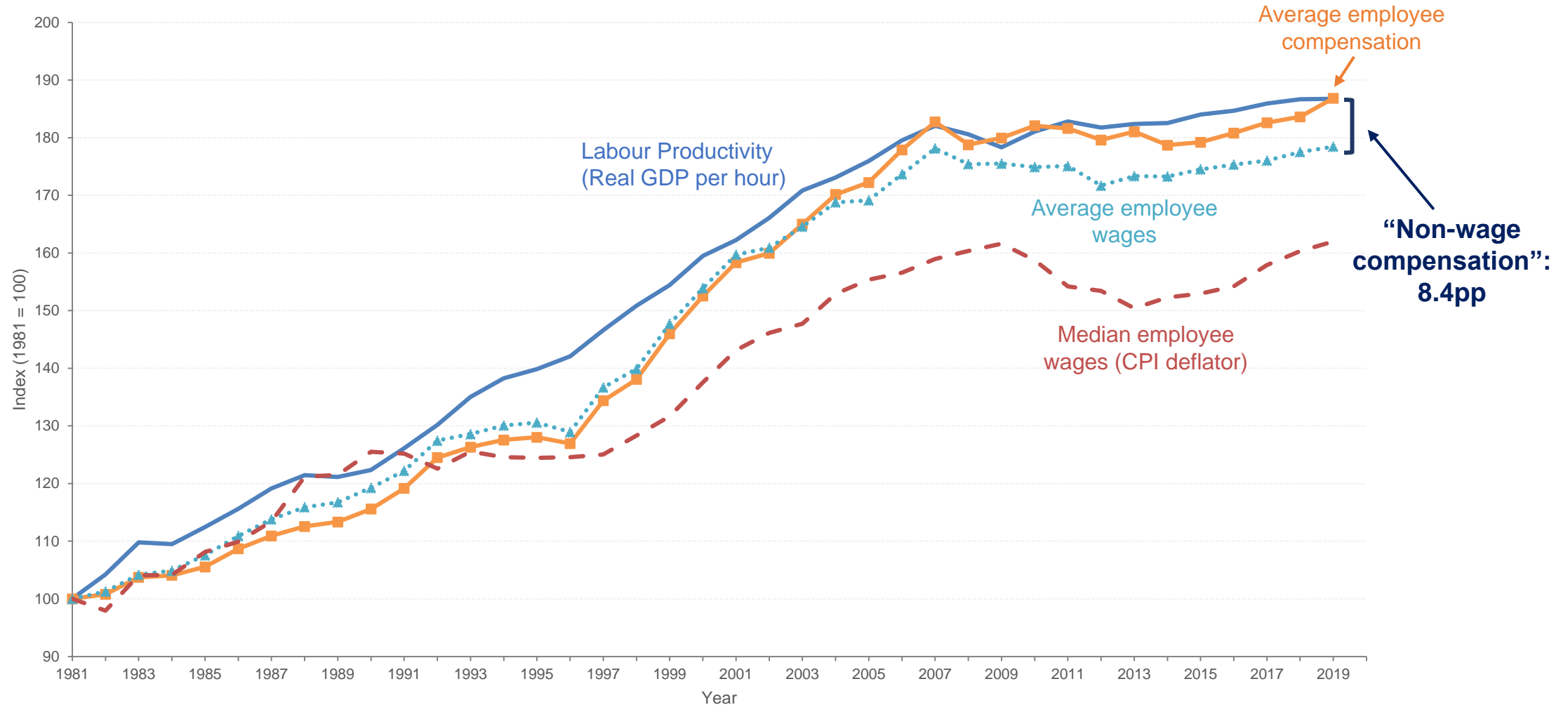
- 1 Overall decoupling of **labour productivity & median employee wages** mainly due to:
  - Increase in Wage **Inequality**
  - Rise in Non-wage compensation – mainly employer **pension costs**
- 2 **Self-employed** did *much* worse than employees. Driven by rise of **Solo SE** who have:
  - Lower **levels** of income than both employees & other Self-Employed
  - Slower **growth** of income

# Conclusions

- 1 Overall decoupling of **labour productivity & median employee wages** mainly due to:
  - Increase in Wage **Inequality**
  - Rise in Non-wage compensation – mainly employer **pension costs**
- 2 **Self-employed** did *much* worse than employees. Driven by rise of **Solo SE** who have:
  - Lower **levels** of income than both employees & other Self-Employed
  - Slower **growth** of income
- 3 **Policy Implications:** Our analysis highlights importance of
  - Raising dismal **productivity growth** since the financial crisis
  - Strengthening link between growth & median worker income (employed & self-employed)

# Back Up Slides

# In UK Average wages have grown substantially less than average compensation.

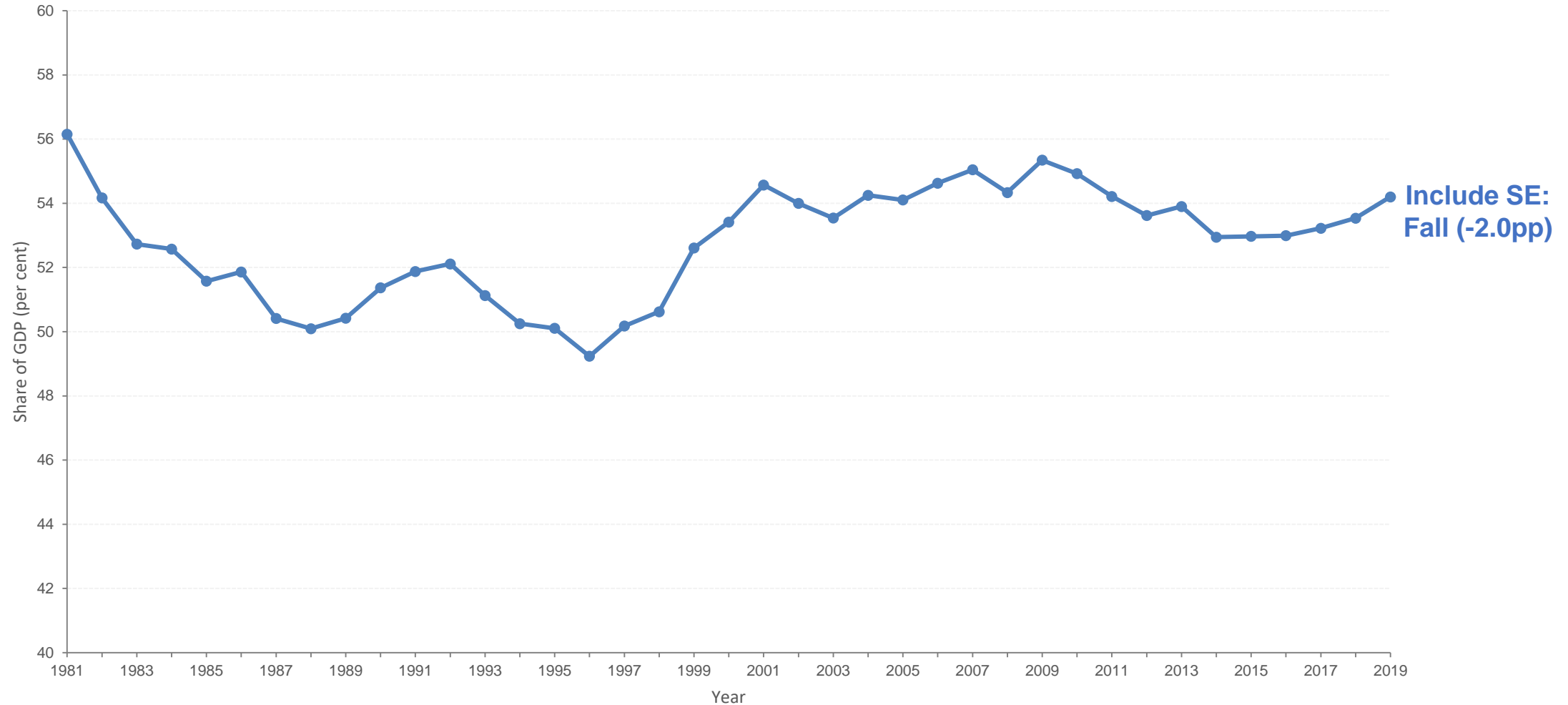


**Data Source:** ONS, LFS, and OECD

**Notes:** Employee compensation = Employee wages + non-wage compensation (employers' NI contributions, employers' pension contributions...). Median wages are deflated with the CPI deflator, all other series with the GDP deflator.



# If we include the self-employed: We observe a fall in the UK labour share of GDP (2pp)., especially in pre-1997 period

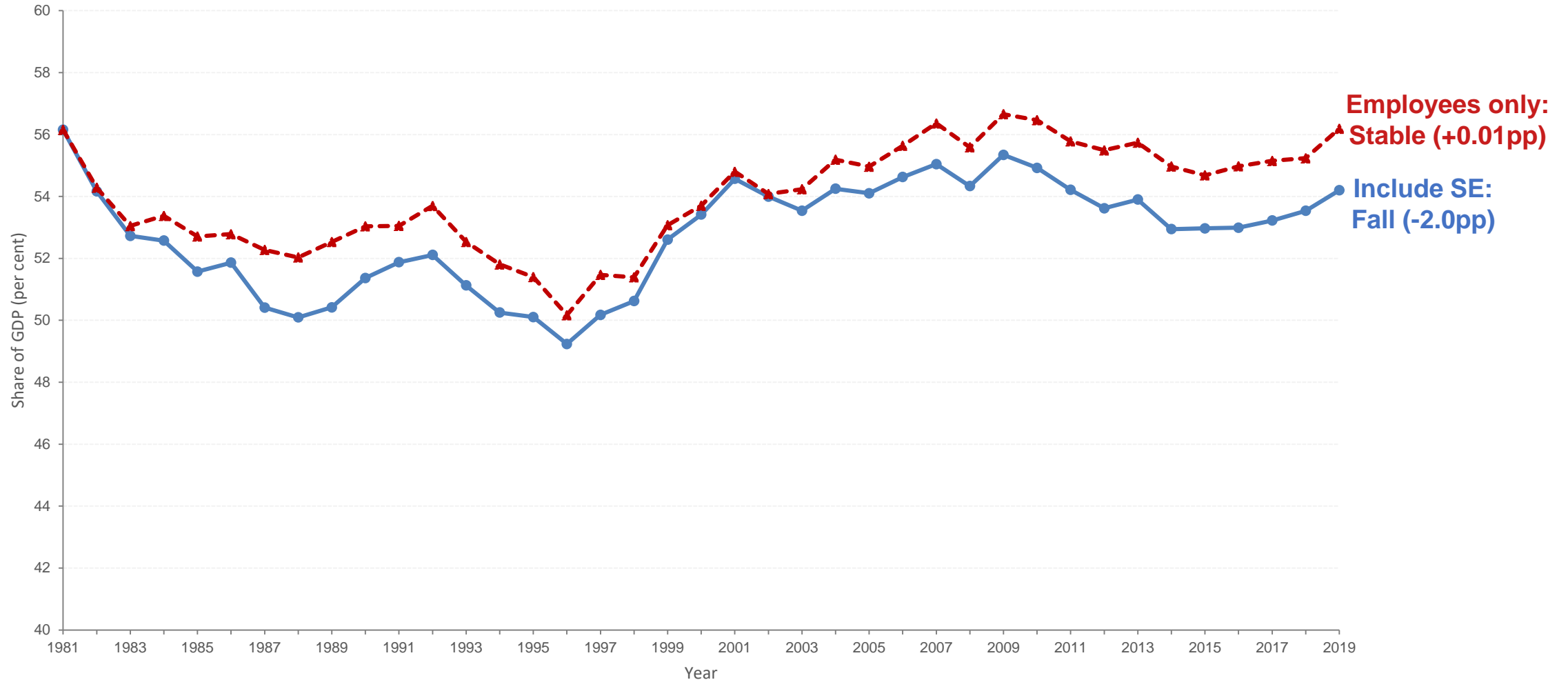


**Data Source:** ONS and OECD

**Notes:** “Include SE” is ONS official approach which includes self-employed (SE) on “mixed income” and attributes a year specific fraction of this income to labour.



# If the self-employed had done as well as employees: Labour share would have stayed flat.

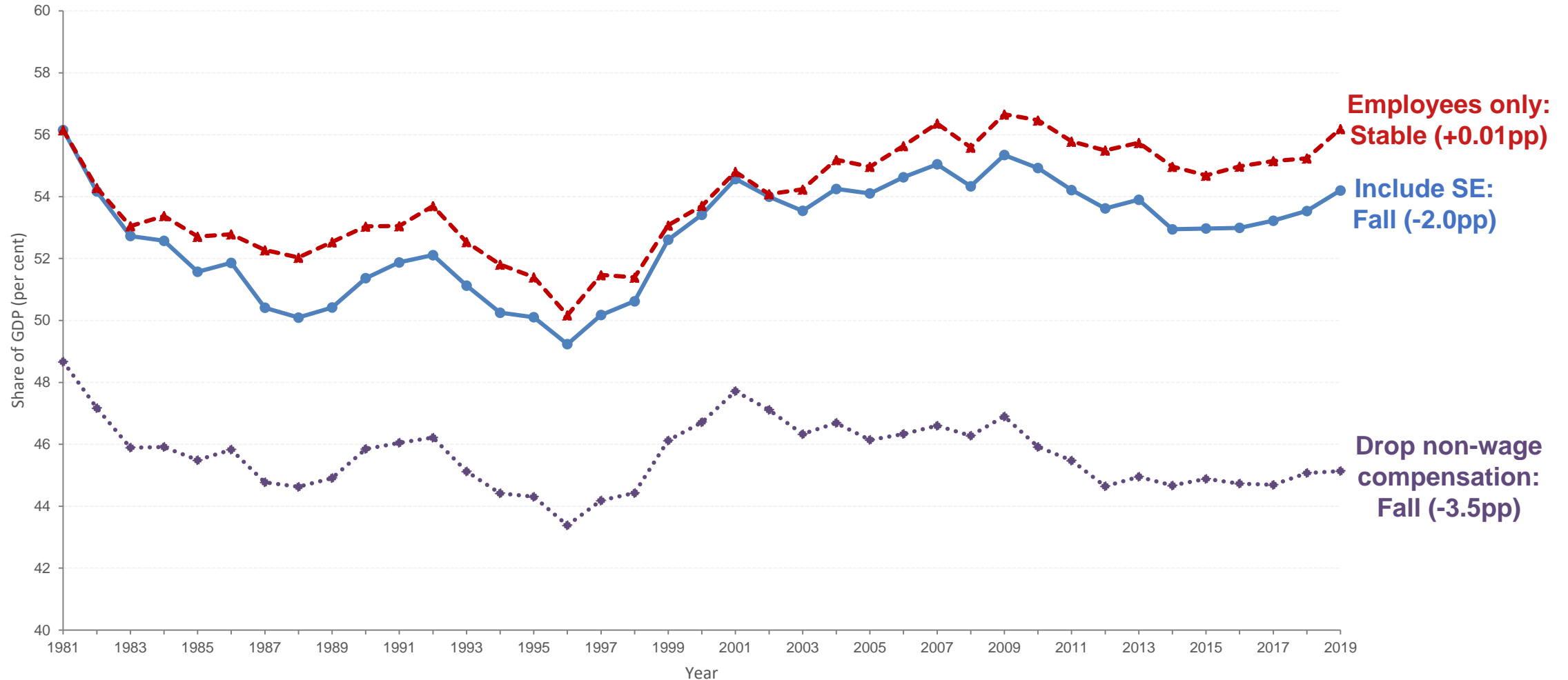


**Data Source:** ONS and OECD

**Notes:** “Include SE” is ONS official approach which includes self-employed (SE) on “mixed income” and attributes a year specific fraction of this income to labour. “Employees only” assumes that SE income grew as fast as employee compensation per hour.



# If we drop non-wage compensation: Fall in the labour share even higher (-3.5pp).



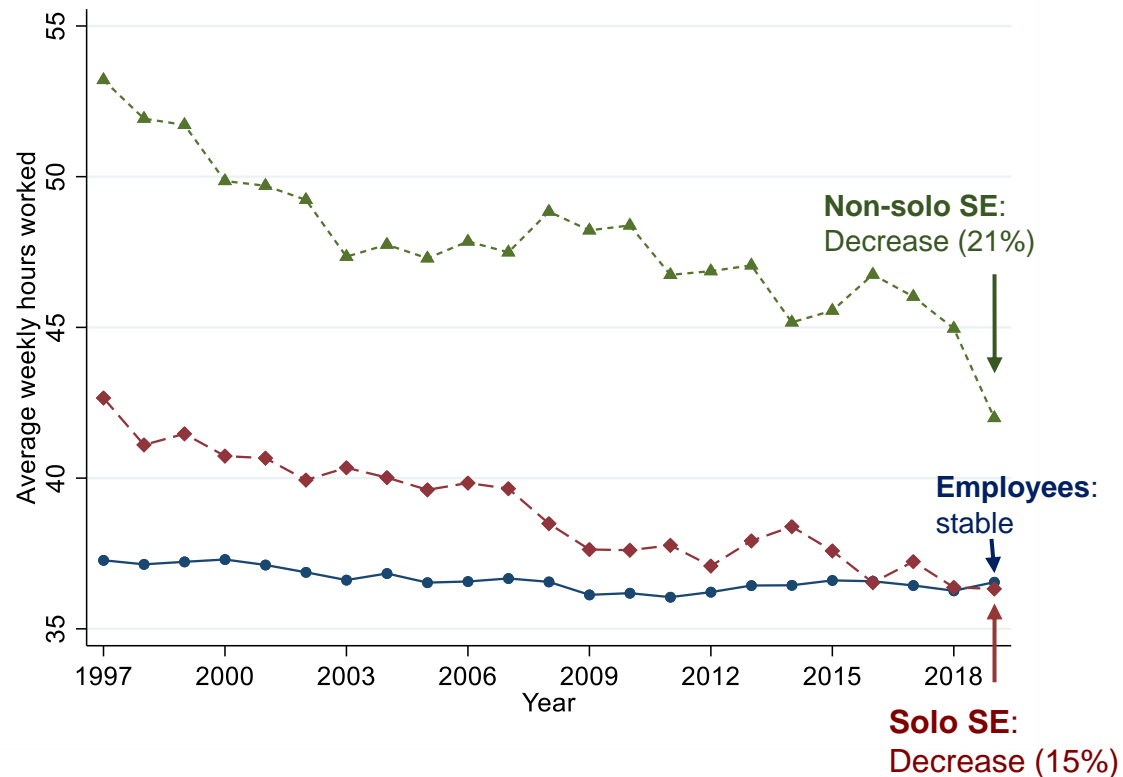
**Data Source:** ONS and OECD

**Notes:** "Include SE" is ONS official approach which includes self-employed (SE) on "mixed income" and attributes a year specific fraction of this income to labour. "Employees only" assumes that SE income grew as fast as employee compensation per hour. "Drop non-wage compensation" is same as "Include SE" except we drop non-wage element of employee compensation.

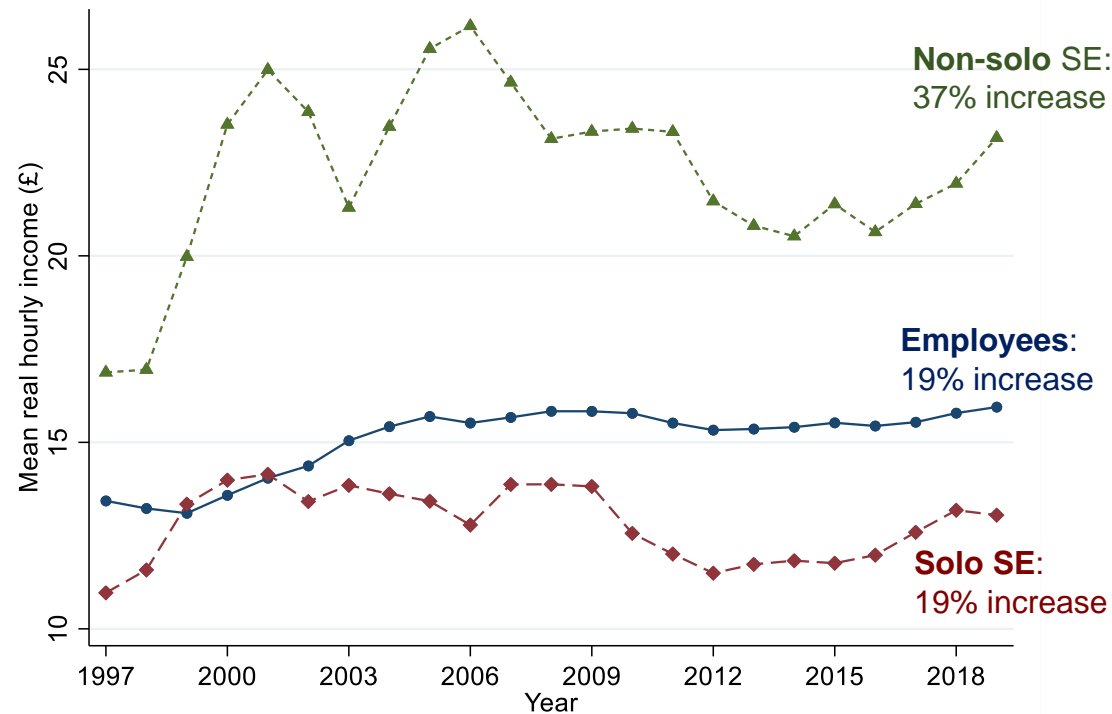


# Across worker groups: Substantial differences in hours worked and hourly income (growth).

Panel A: Average weekly hours worked



Panel B: Average hourly income



**Data Source:** Family Resources Survey (FRS)

**Notes:** Average weekly hours refer to all hours worked per week excl. unpaid overtime. Hourly income is calculated as total weekly income divided by weekly hours worked.