Inflation Now and Then

Speech at the University of Glasgow
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Full text of speech available on Bank of England Website
Views are my own.

Outline

- Inflation on average is on target
  - Since BoE independence in 1997, inflation has averaged 2%
- But inflation varies around the target
  - Of every deviation from target
    - 24% food & energy
    - 13% taxes
    - 25% imported goods and exchange rates
- Inflation then : what went wrong in the 1970s?
  - Inflation 26%!
  - Transient commodity price rises, but …
  - wages ran ahead of slowing productivity
- Inflation now: the 2020s
  - High commodity price rises, should be transient
  - What about wages and productivity?
    - High wages are good!
    - But high wages need high productivity too…
  - *If the labour market stays tight, Bank Rate will have to rise.*
- Some perspective
  - This is the worst shock to hit the economy for 100 years
  - *The prospective rise in Bank Rate from its emergency level is not a bug, but a feature.*
  - *It reflects the success of the policies, mostly fiscal, health and science, that have supported the economy over the pandemic.*

Modelling inflation, 1/2

- Firms target prices p*
  - Costly for firms to adjust prices instantly. So firms adjusting p towards target p*
  - Prices and target depends on marginal costs mc now and in future, and react to expected inflation
  - Costs are capital and labour costs, energy and import prices, taxes; also adjustment costs (e.g. Covid)

- Central banks target inflation $\pi *$
  - Credibility needed to anchor people's long-run inflation expectations to the target (π^*)
  - Manage demand in the economy by changing interest rates to hit the target

$$\pi_t = (1-\beta)\pi^* + \beta E[\pi_{t+1}] + \alpha(p^* - p) + \gamma(\Delta x_t, \Delta x_{t+1})$$

Inflation

Bank target

Expected inflation

Firms getting to target p*

Adjustment costs

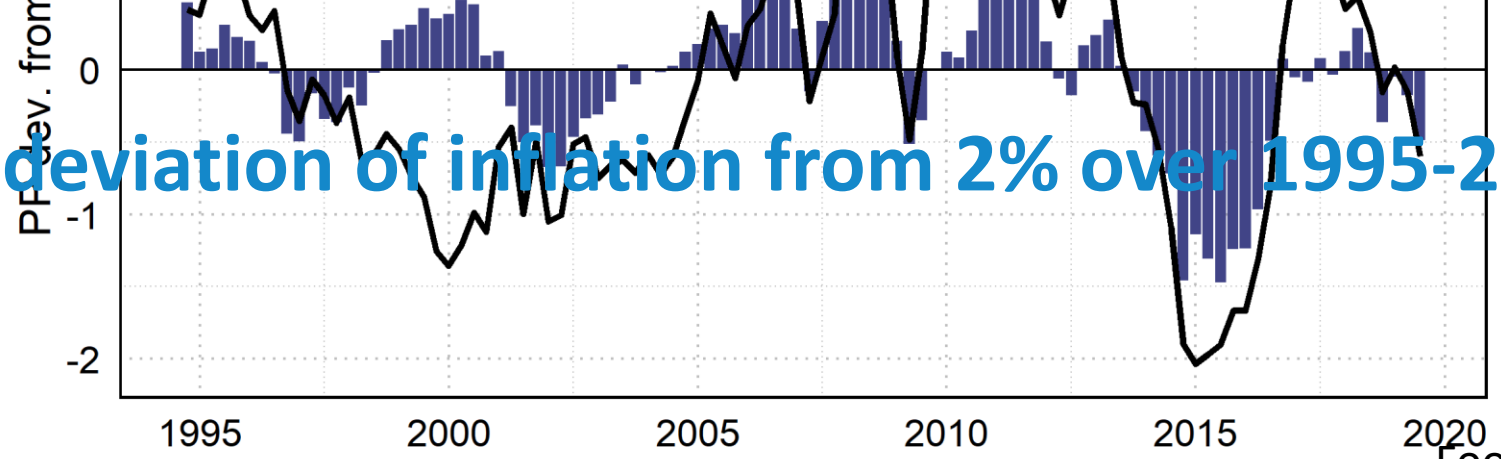
Modelling inflation, 2/2

- Gap between target and actual prices depends on
  - Costs of goods such as
    - Food
    - Energy
    - (non-food, non-fuel) imports of final goods
  - Taxes
  - Adjustment costs
  - Wages and capital, which in turn depend on tightness of labour and (real) asset markets
  - Expectations

- An (inflation - 2%) decomposition:

$$\pi_t - 2\% = \alpha_1(Food + energy) + \alpha_2(Taxes) + \alpha_3(Imports) + \alpha_4(output\ gap) + \cdots$$

Decomposing the deviation of inflation from 2% over 1995-2019



Food and energy

= 24% of deviation

Source: ONS, Bank of England and author calculations.

Note: The chart decomposes deviations of year over year CPI inflation from 2 percent. The food and energy contributions are calculated directly from their CPI weights. The output gap contribution is based on a reduced form Philips curve embedded in an output gap filter (see Melolinna & Toth, 2016) and the Bank of England's estimate of the output gap. The tax contributions use ONS calculations of the effect of indirect tax changes on CPI. Other import and exchange rate contributions are determined by a regression of the CPI residual deviation on 8 lags of de-trended non-fuel import prices, de-trended imported fuel prices, Bank of England measure of the multi-lateral effective exchange rate and changes to trend supply growth. The yellow bars are determined as a residual and assumed to constitute other supply effects, adjustment costs and misspecification.

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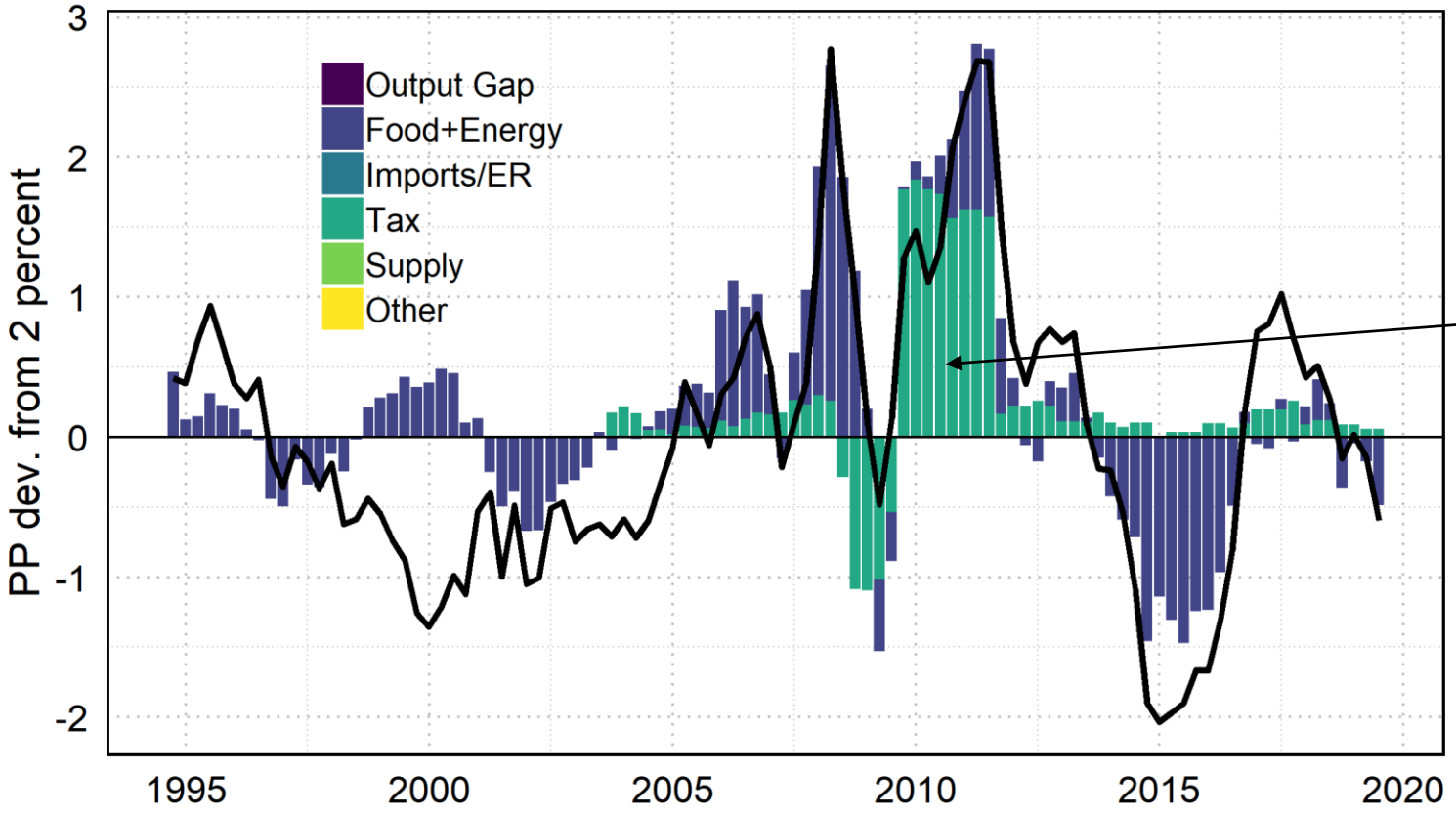

Tax

= 13% of deviation

Source: ONS, Bank of England and author calculations.

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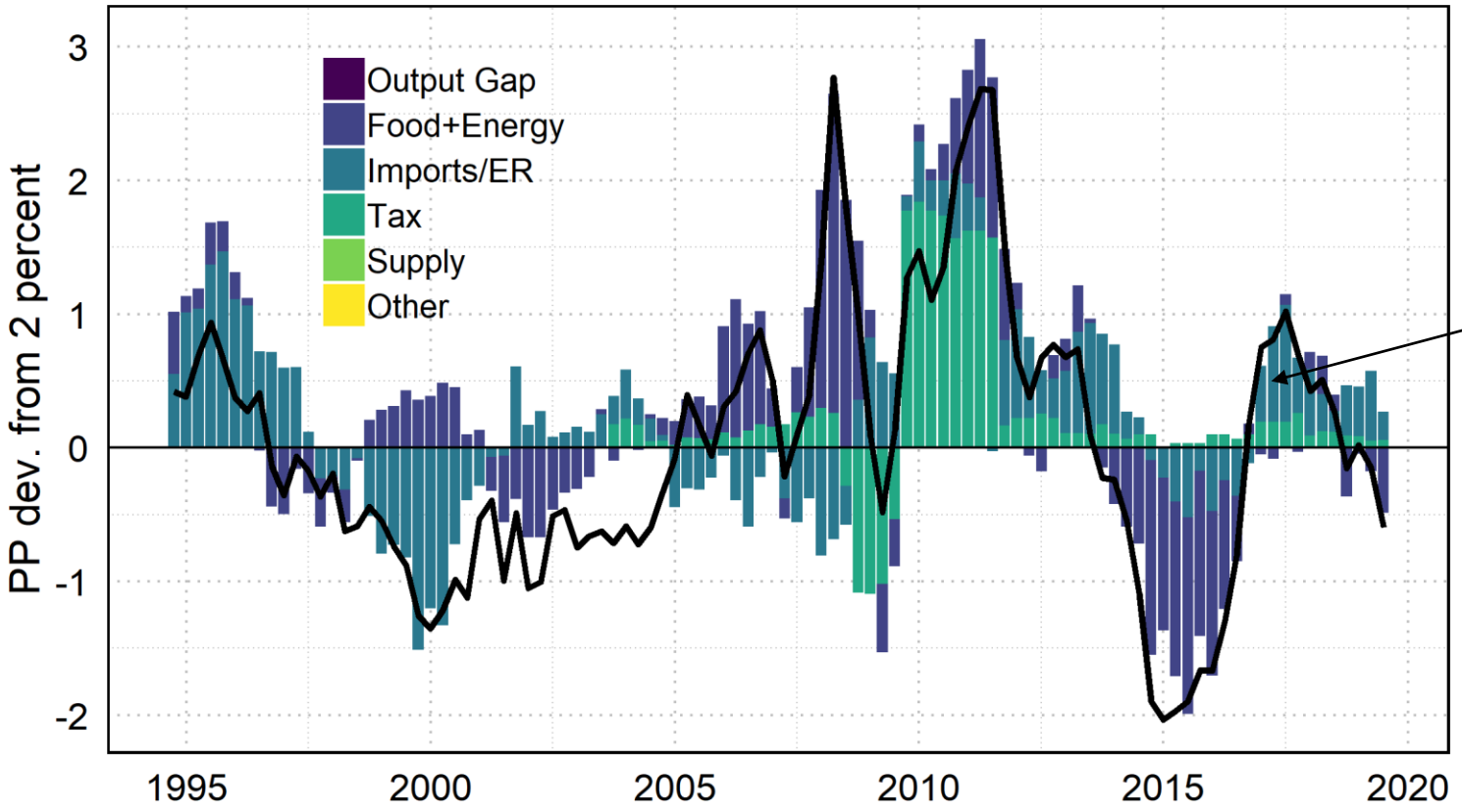

Imports/ER

=25% of the deviation

Source: ONS, Bank of England and author calculations.

Note: The chart decomposes deviations of year over year CPI inflation from 2 percent. The food and energy contributions are calculated directly from their CPI weights. The output gap contribution is based on a reduced form Philips curve embedded in an output gap filter (see Melolinna & Toth, 2016) and the Bank of England's estimate of the output gap. The tax contributions use ONS calculations of the effect of indirect tax changes on CPI. Other import and exchange rate contributions are determined by a regression of the CPI residual deviation on 8 lags of de-trended non-fuel import prices, de-trended imported fuel prices, Bank of England measure of the multi-lateral effective exchange rate and changes to trend supply growth. The yellow bars are determined as a residual and assumed to constitute other supply effects, adjustment costs and misspecification.

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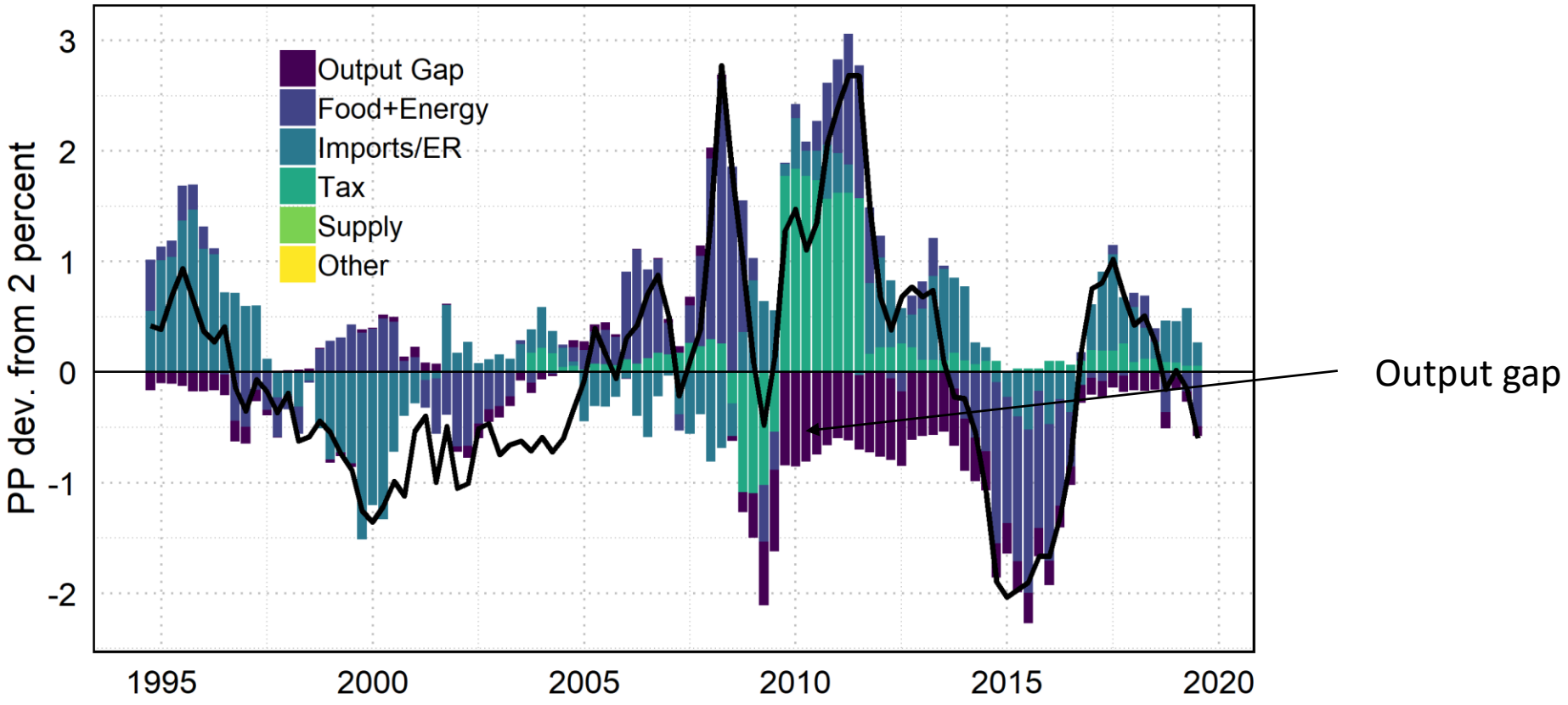

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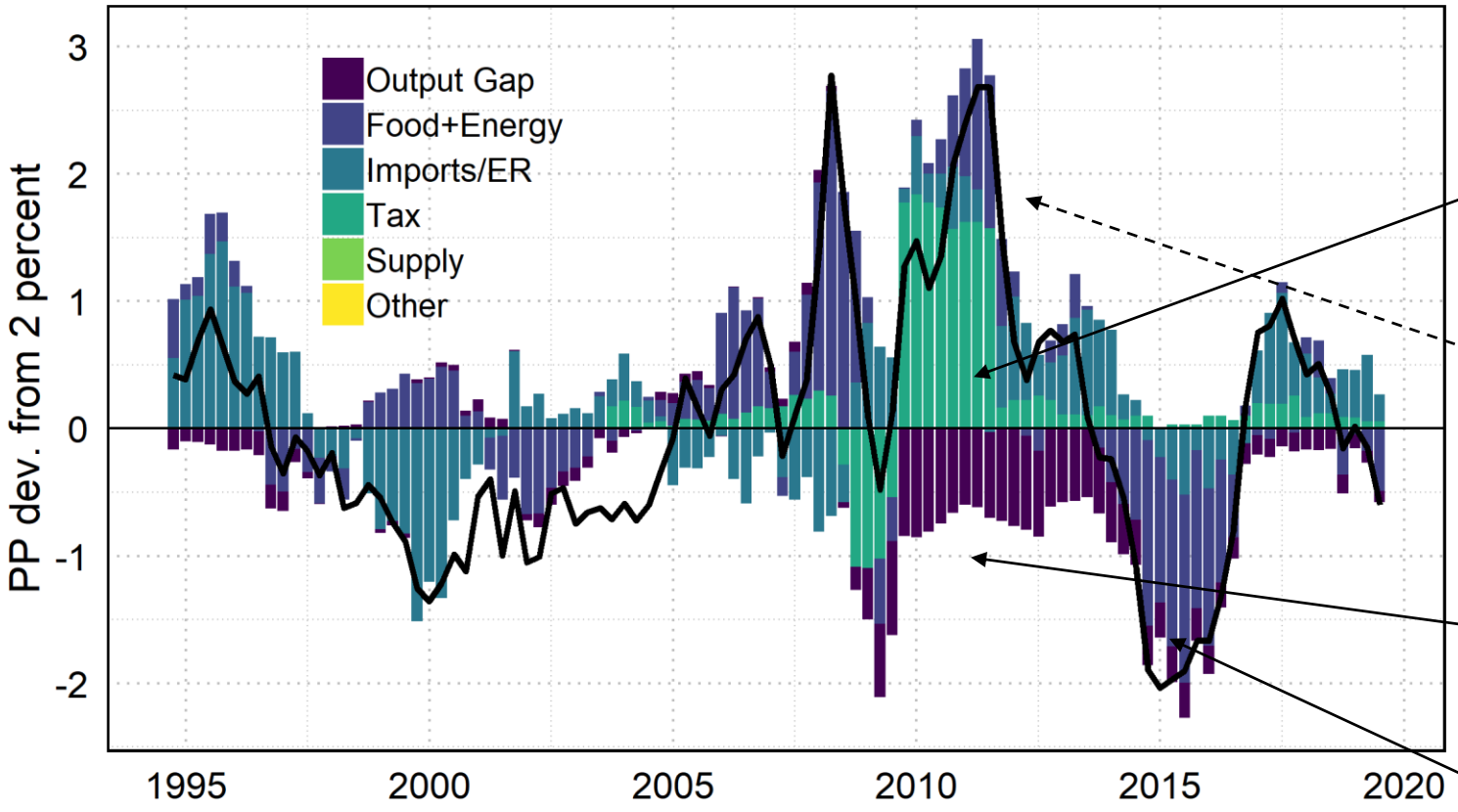
Case study: inflation peak in 2011



Mostly due to tax…

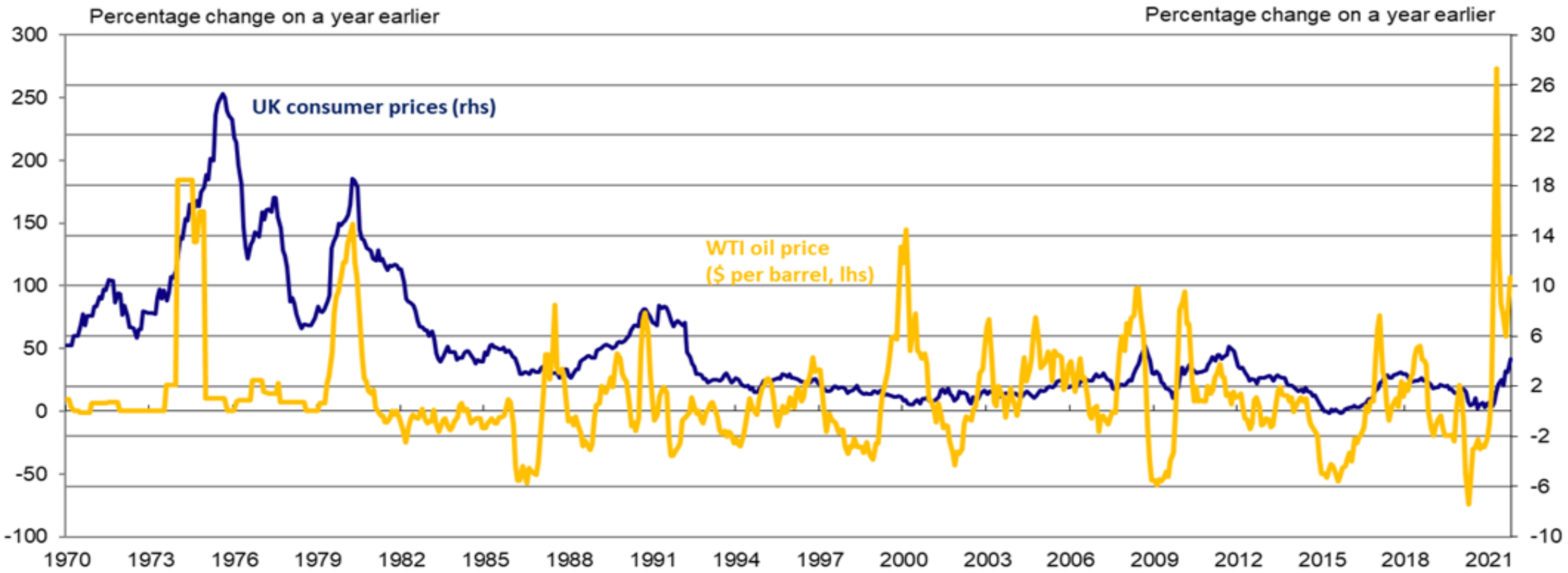
…with a bit of food+energy, imports…

…with a very weak economy…

…and an undershoot soon after…

Policy messages: inflation can be transitory
It can be right to "look through" transitory changes in inflation

Inflation then: the 1970s



Source: ONS for UK CPI and Federal Reserve Bank of St. Louis for the West Texas Intermediate spot crude oil price.

- Oil shocks of 1973/74 and 1979
- UK CPI inflation: 25%+ in Aug 1975; 18%+ in May 1980 vs 4.2% in Oct 2021

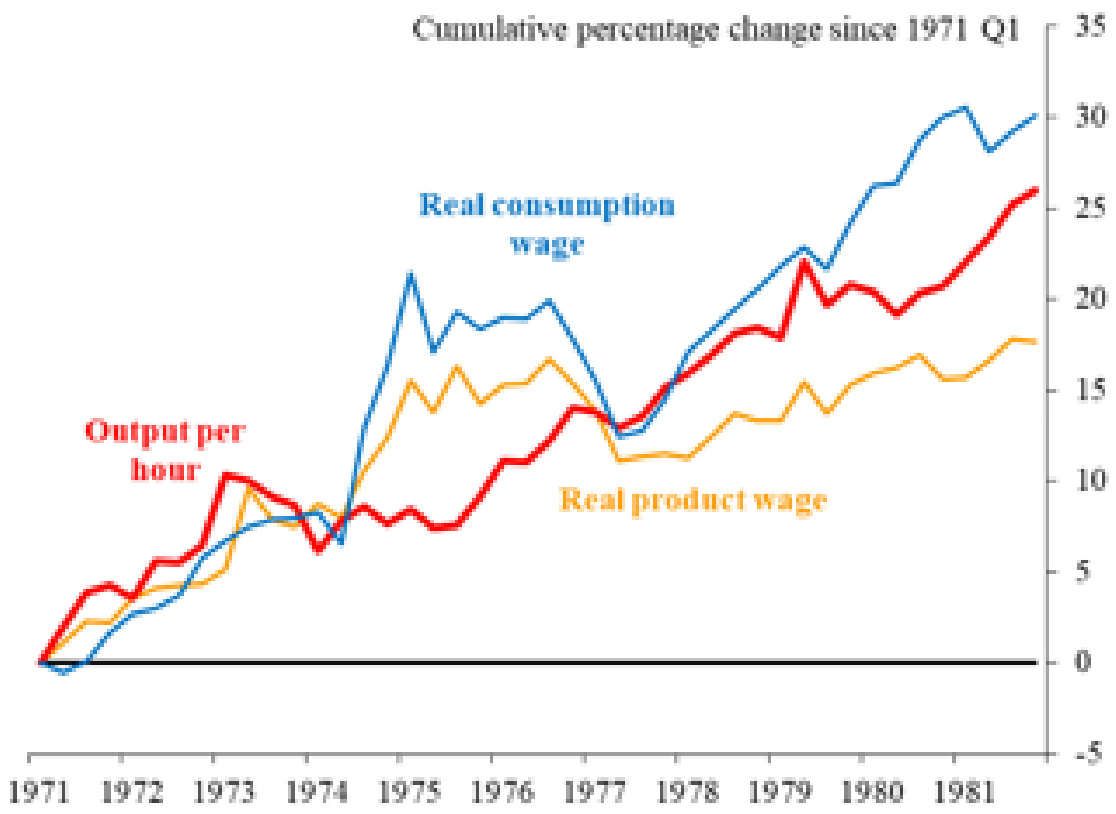
What's the link between energy, labour and capital prices?

- The Factor Price Frontier
  - If energy prices rise
    - First round effects: Output prices rise: inflation in proportion to share of energy
    - Second round effects: if wages and capital returns stay the same, no further rise in inflation.
  - What can give second round effects?
    - If wages rise
    - If productivity falls
    - If capital returns rise
- But if wages stay the same, "purchasing power" (wages/consumption prices) of workers falls

- Diagnostics:
  - Firms care about the real product wage (w/p_v) relative to productivity V/L
  - Workers care about the real consumption wage (w/p_c)
  - "Real wage resistance" is when workers resist falls in (w/p_c) (at given productivity)

Real wage resistance: RPW vs productivity in the 1970s

Panel A: 1970s



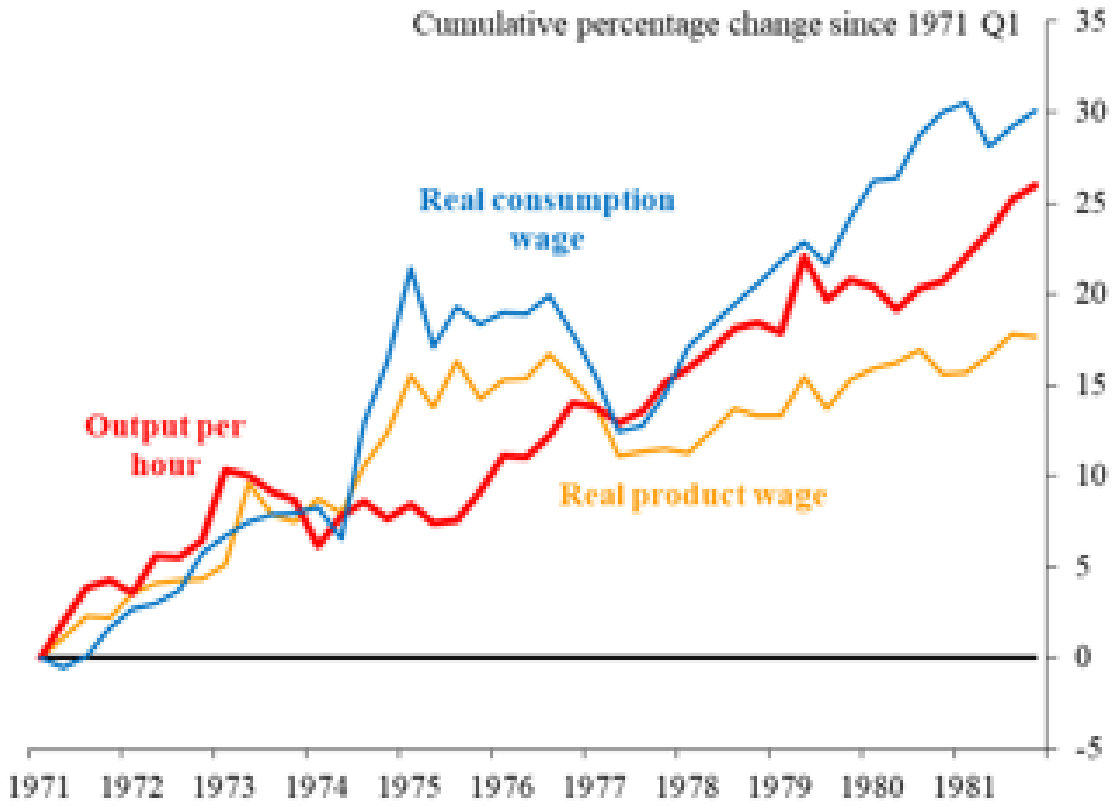
1973

- Rises in oil prices meant falls in w/p_c
- Attempt to maintain w/p_c
- At the same time productivity slowed down
- w/p_c and w/p_v exceeded productivity => inflation

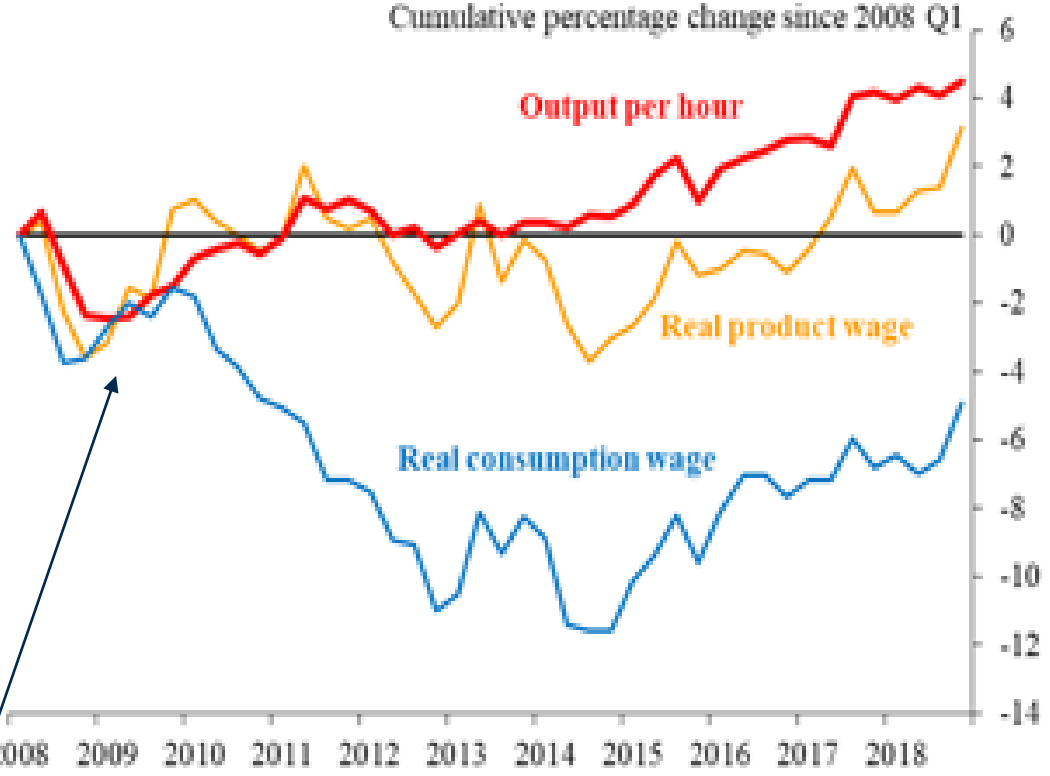
Source: ONS and author's calculations. The real product and consumption wages are calculated as hourly labour compensation less employment subsidies, deflated by the GVA deflator at basic prices and the consumer price index respectively. Productivity is calculated as GVA at basic prices divided by total hours worked. Labour compensation is pre-tax wages plus non-wage labour costs such as pensions, employer national insurance.

Real wage resistance: RPW vs productivity in the 2010s

Panel A: 1970s

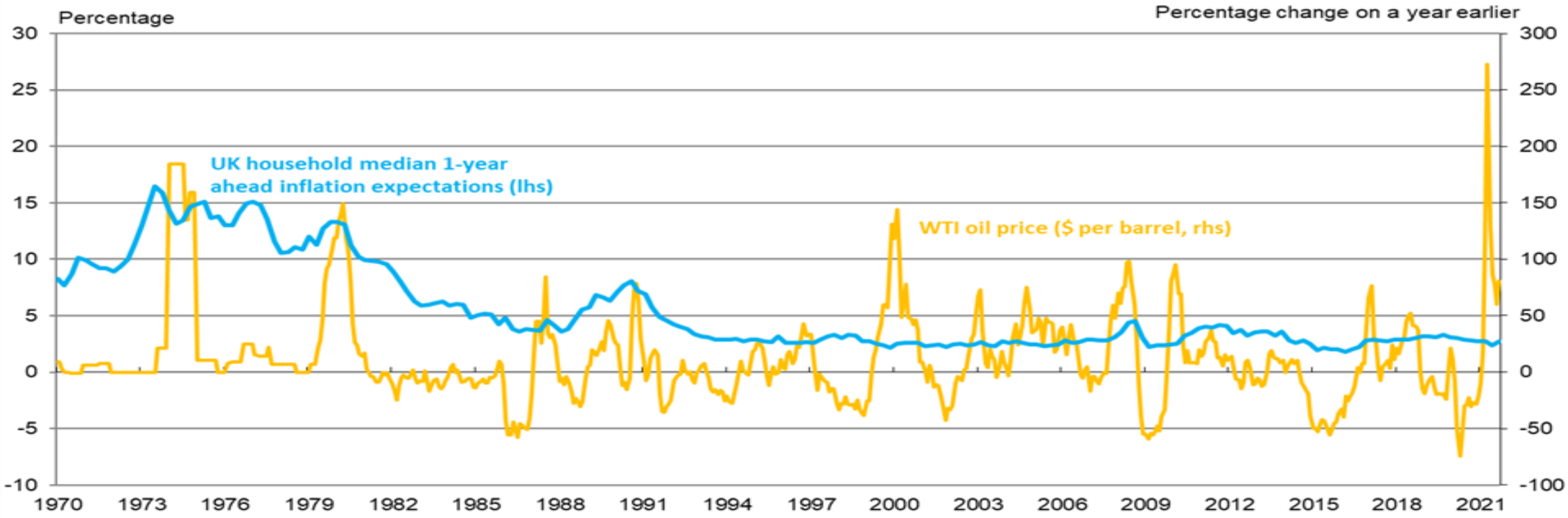


Panel B: 2010s



Post financial crisis, collapse in productivity but in real wages too

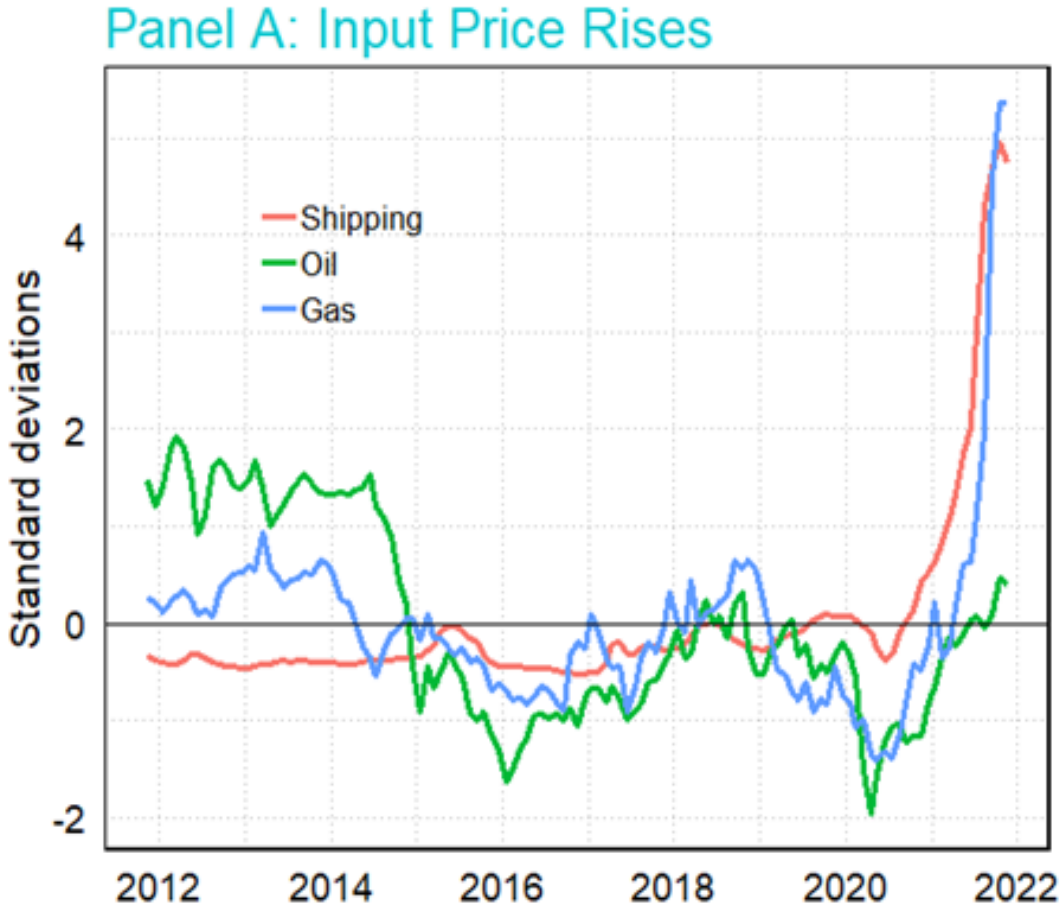
Expectations: what inflation were households expecting?



Source: Federal Reserve Bank of St. Louis for the West Texas Intermediate spot crude oil price; for households' inflation expectations, from 1970 Q1 to 1986 Q4, Gallup and EC surveys based on Batchelor and Orr (1988); from 1987 Q1 to 1996 Q2, average of Barclays Basix median one-year ahead and extended Batchelor and Orr measure; from 1996 Q3 to 1999 Q3, Barclays Basix adjusted for average difference with the 50:50 measure over the 2001-5 period; from 1999 Q4 to 2009 Q4, average of Barclays Basix median one-year ahead and Bank/GFK median one-year ahead; from 2010 Q1, Bank/Kantar median one-year ahead.

- Why the fall in expected inflation? Policy intention: inflation targeting in 1992; BoE independence in 1997

Inflation now: big energy and shipping price rises…



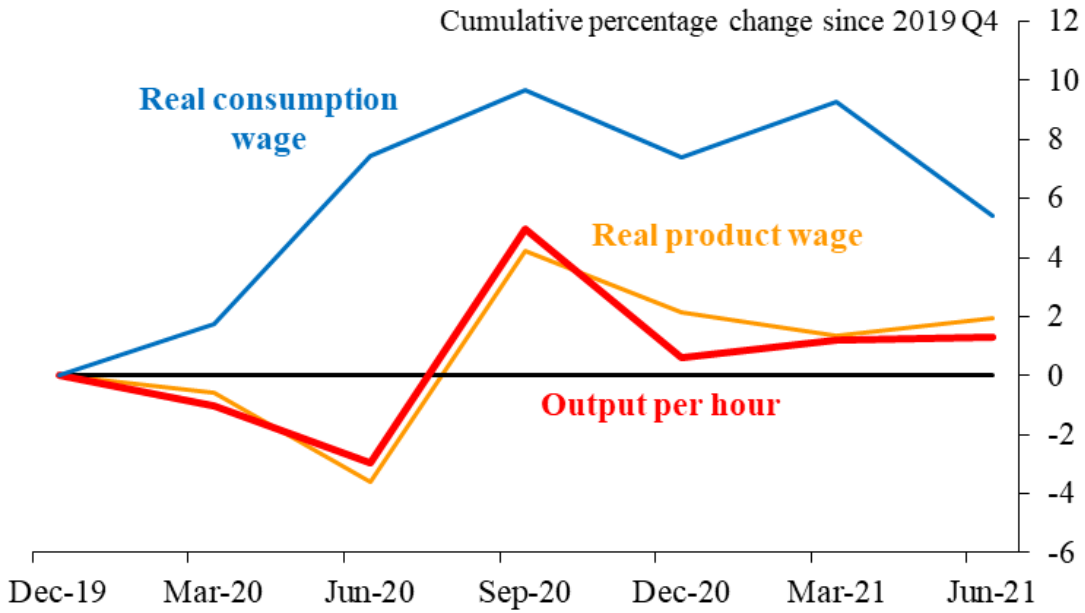
The big questions:

- how will wages react?
- Is the labour market loose or tight?

Source: ONS, Eikon by Refinitiv, Bank of England & Author calculations

Note: Panel A shows three series normalised by their mean and standard deviation for the period 2011-2021. Shipping is the HARPEX shipping price index. Oil is the spot price for Brent crude oil. Gas is the UK national balancing point price for next day delivery. All series plotted as monthly averages with the last data point in November 2021. Panel B shows the contributions and forecasted contributions from the Bank of England November 2021 MPR of different components of the CPI basked to CPI inflation. Each contribution is expressed as deviations from its average contributions from 2010-2021. The forecast ends in March 2022.

So far product wages in line with productivity…

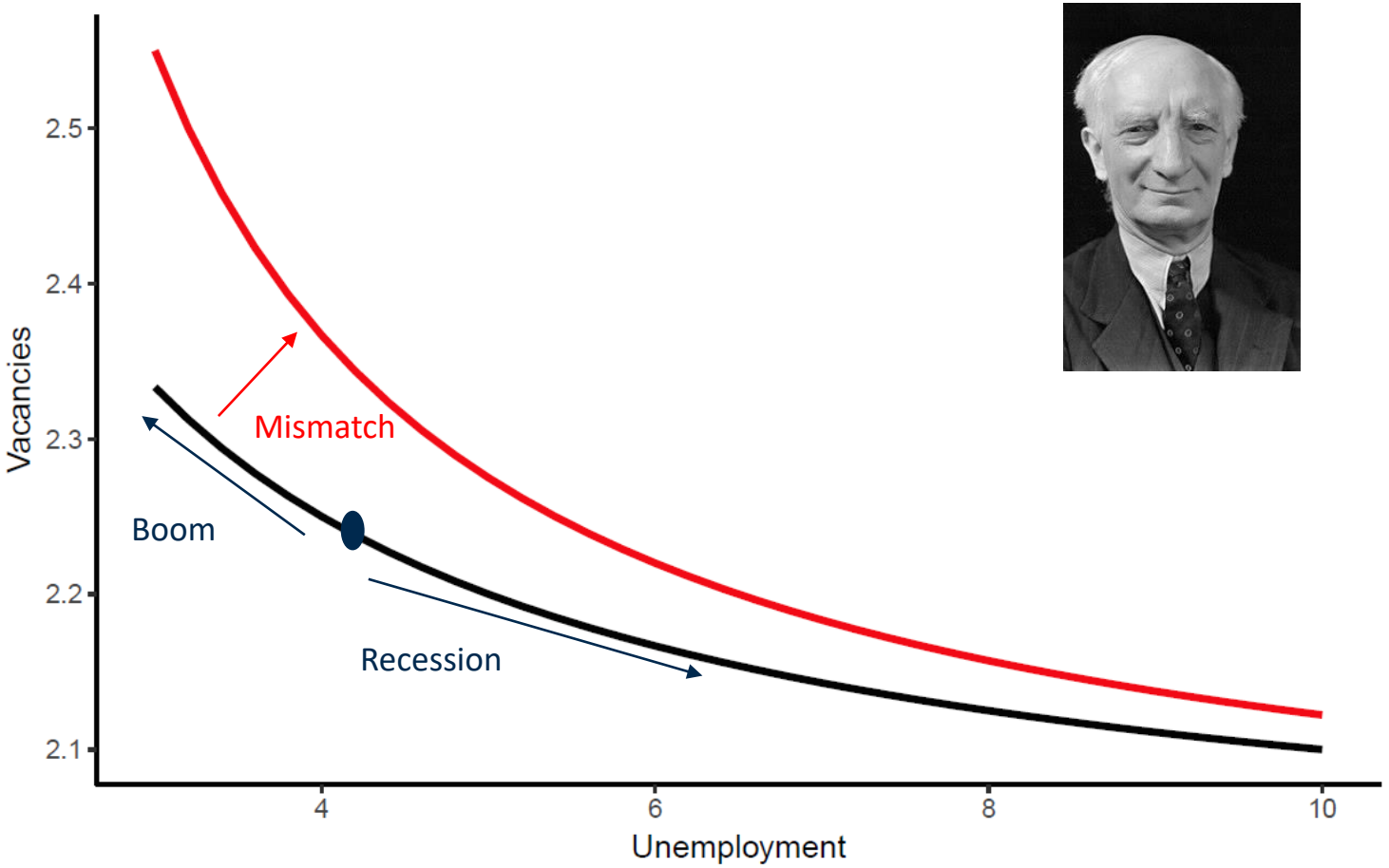


What have the MPC said?

"The Committee judges that, provided the incoming data, particularly on the labour market, are broadly in line with the central projections in the November Monetary Policy Report, it will be necessary over coming months to increase Bank Rate in order to return CPI inflation sustainably to the 2% target. "

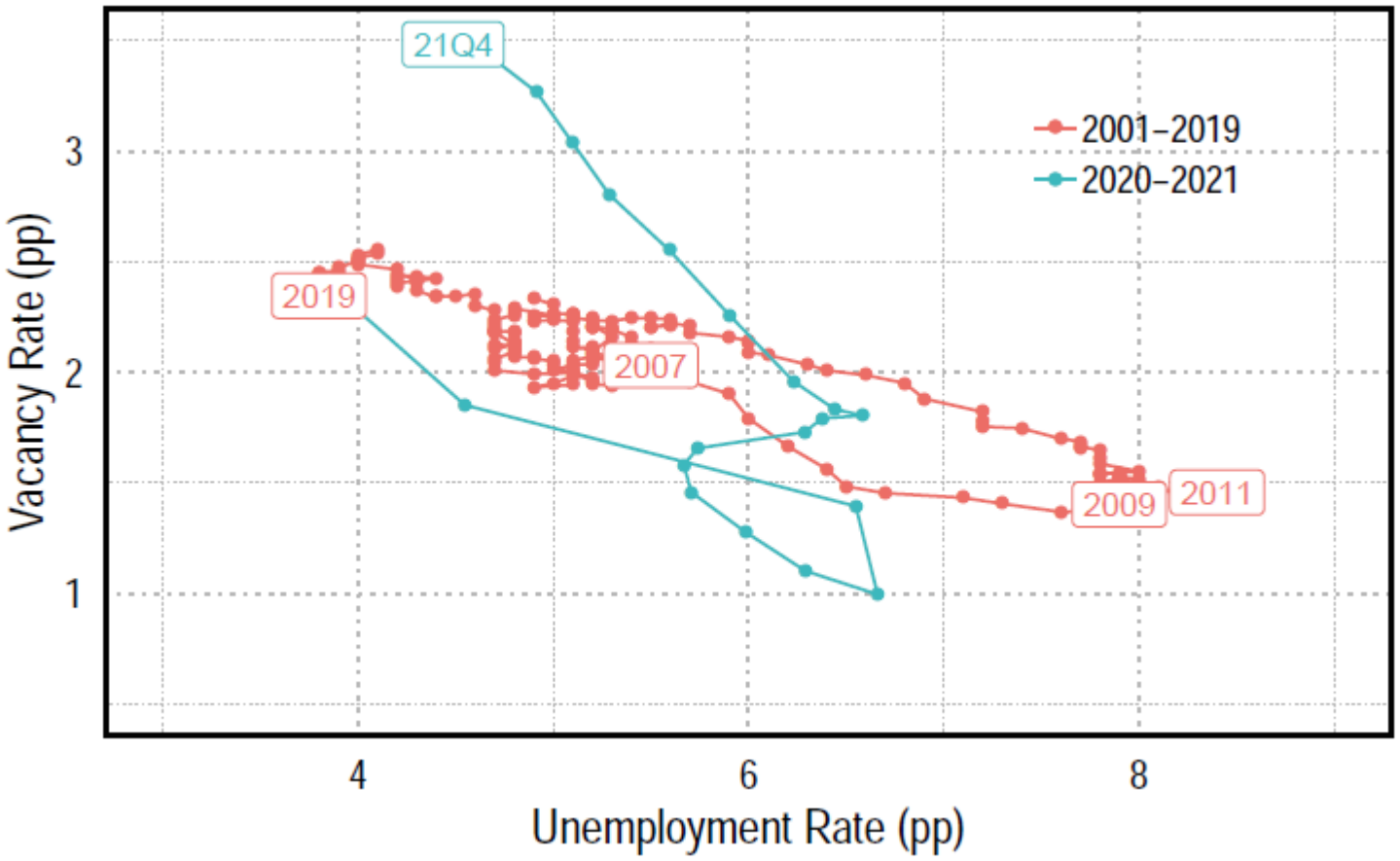
Bank of England, November 2021, Summary

The Beveridge curve as a guide to labour market "tightness"



- Unemployment and vacancies co-exist as workers try to find vacancies
- Business cycles
  - Recessions: V falls and U rises
    - down the curve, loose labour market
  - Recoveries: V rises and U falls
    - up the curve: tight labour market
- Labour market problems
  - Mismatch: firms post V, but if U less suitable, curve shifts out
- Questions
  - What happened over the pandemic?
  - Where are we now?

Beveridge (VU) curve with UK data 2001- 2021

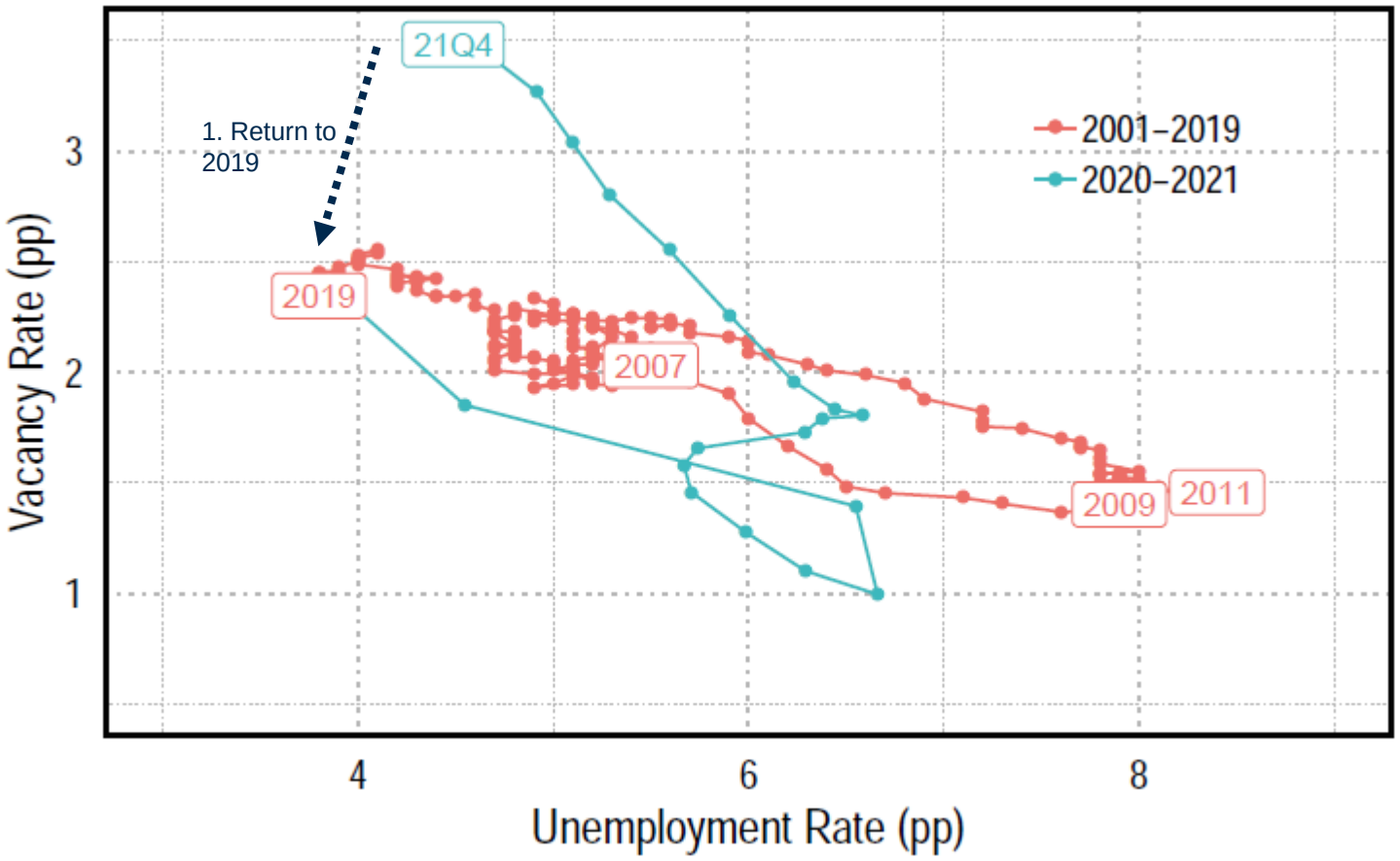


- 2007 recession: moved down and then recovered
- Start in 2019
  - V fell but furlough prevented proportional rise in U
  - Now (2021 Q4): high V and low U
- What will happen?

Source: ONS, Bank and author calculations.

Note: The 2020-2021 period has been adjusted by assuming that 10 percent of furloughed workers were in effect unemployed. This was calibrated using the Labour Force Survey microdata and is based on an estimate of the proportion of workers who report to be on furlough and state that they are searching for an additional or different job. The estimate comes from the LFS microdata. 21Q4 is a forecast based on the Bank of England MPR and extrapolation of the latest Adzuna vacancy data made available through ONS. Rates are expressed relative to the active labour force.

The UK Beveridge curve



- Case 1: Recovery: less V, less U
  - Return to 2019
  - Interest rates likely to rise

Source: ONS, Bank and author calculations.

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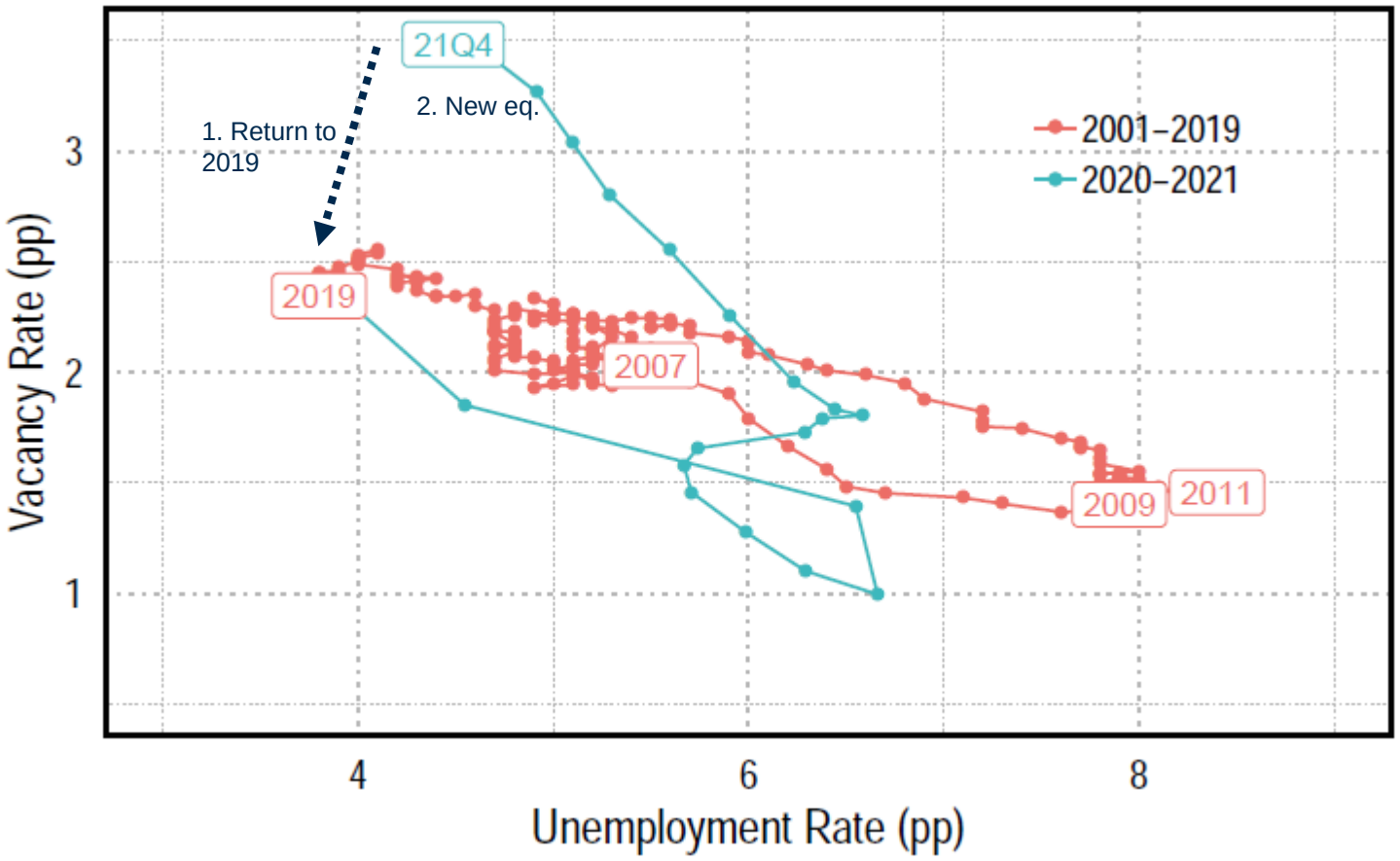

- Case 1: Recovery: less V, less U
  - Return to 2019
  - Interest rates likely to rise
- Case 2: Mismatch: more V, more U
  - Return to 2019
  - Interest rates likely to rise

Source: ONS, Bank and author calculations.

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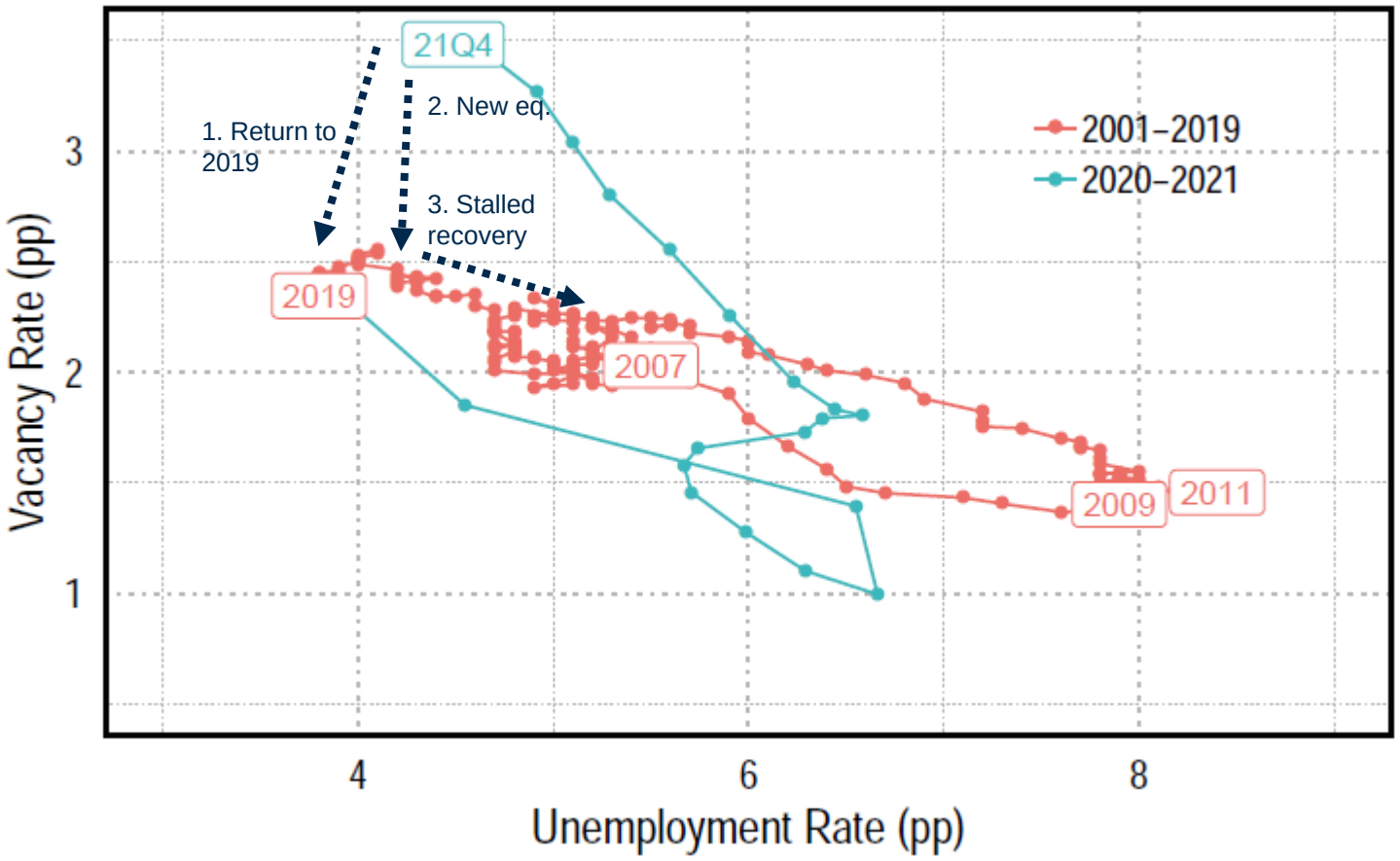

- Case 1: Recovery: less V, less U
  - Return to 2019
  - Interest rates likely to rise
- Case 2: Mismatch: more V, more U
  - Return to 2019
  - Interest rates likely to rise
- Case 3: Stalled recovery: less V and more U
  - Likely to pause interest rate rise

Source: ONS, Bank and author calculations.

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The big picture

- Much inflation variation due to energy, imports. Transitory.
- If labour market tight, wages rise.
  - Good!
  - But needs increased productivity to not be inflationary
- Is the labour market tight?
  - Initial indications from VU curve suggests it is
  - If the labour market stays tight, rates will have to rise
- Some perspective
  - COVID was the worst economic shock in 100 years.
  - The prospective rise in Bank Rate from its emergency level is not a bug, but a feature.
  - It reflects the success of the policies, mostly fiscal, health and science, that have supported the economy over the pandemic.