#### A Model of the Fed's View on Inflation

Thomas Hasenzagl<sup>1</sup>, Filippo Pellegrino<sup>2</sup>, Lucrezia Reichlin<sup>3</sup>, and Giovanni Ricco<sup>4</sup>

<sup>1</sup>Now-Casting Economics <sup>2</sup>London School of Economics, and Now-Casting Economics <sup>3</sup>London Business School, Now-Casting Economics, and CEPR <sup>4</sup>University of Warwick and OFCE-SciencesPo, and CEPR

Third MMCN Conference Goethe University, Frankfurt – 13-14 June , 2019





 $^{2/7}$ 

1. A **Trend in inflation** – reflecting long-term expectations

© : 2/7

- 1. A **Trend in inflation** reflecting long-term expectations
- The Business cycle relating economic slack to inflation and inflation expectations
  Output fluctuates around its output potential
  Output gap connects to the labour market via Okun's law
  and to inflation and inflation expectations via the Phillips curve

 $\odot$  :

- 1. A **Trend in inflation** reflecting long-term expectations
- 2. The Business cycle relating economic slack to inflation and inflation expectations Output fluctuates around its output potential Output gap connects to the labour market via Okun's law and to inflation and inflation expectations via the Phillips curve
- 3. Energy Price disturbances connect oil price, to expectations and inflation Nonfundamental fluctuations (Coibion and Gorodnichenko, 2015)

 $\odot$  :

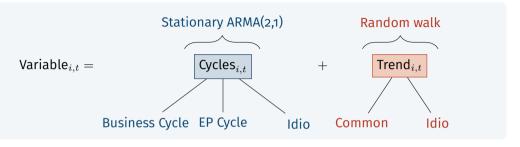
- 1. A **Trend in inflation** reflecting long-term expectations
- The Business cycle relating economic slack to inflation and inflation expectations
  Output fluctuates around its output potential
  Output gap connects to the labour market via Okun's law
  and to inflation and inflation expectations via the Phillips curve
- 3. Energy Price disturbances connect oil price, to expectations and inflation Nonfundamental fluctuations (Coibion and Gorodnichenko, 2015)

#### How do we **model** this **view on inflation**?

- A semi-structural unobserved components Trend(s)-Cycle(s) model
- Informed by New Keynesian theory
- ... employing survey data on inflation
- ... encompasses full information rational expectations (FIRE) but allows for deviations

© : 2/7

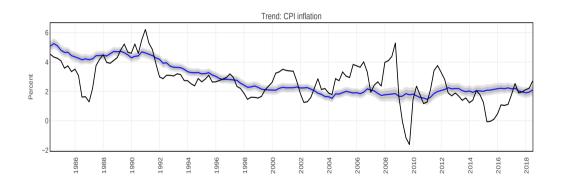
#### The Model in a Nutshell



Variable	Transformation	Loads on		
		BC Cycle	EP Cycle	Common Trend
Gross Domestic Product	Levels	<b>√</b>	Х	X
Employment	Levels	$\checkmark$	×	X
Unemployment Rate	Levels	$\checkmark$	×	X
WTI Spot Oil Price	Levels	$\checkmark$	$\checkmark$	X
CPI: All Items	YoY	$\checkmark$	$\checkmark$	$\checkmark$
Core CPI	YoY	$\checkmark$	$\checkmark$	$\checkmark$
UoM: Expected Inflation	Levels	$\checkmark$	$\checkmark$	$\checkmark$
SPF: Expected Inflation	Levels	$\checkmark$	$\checkmark$	$\checkmark$

O : 3/7

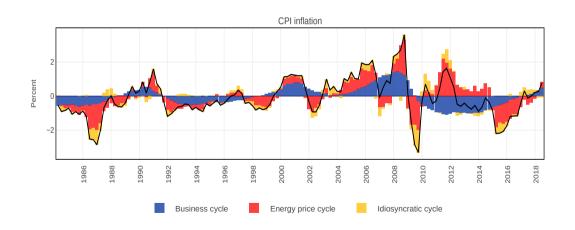
#### **Trend Inflation**



9:

# **Historical Decomposition of the Cycles**

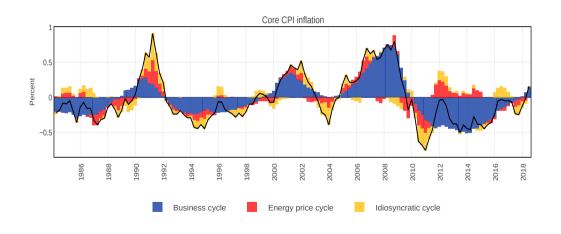
**Headline CPI** 



 $\mathfrak{D}$  :

# **Historical Decomposition of the Cycles**

**Core CPI** 



 $\mathfrak{B}$  :

- New model explicitly recovering of trends & cycles
- Allows for deviations from full information and perfect rationality
- Similar to VARs but informed by Economic theory
- Does not need tight parametrisation as DSGE models

- New model explicitly recovering of trends & cycles
- Allows for deviations from full information and perfect rationality
- Similar to VARs but informed by Economic theory
- Does not need tight parametrisation as DSGE models

#### Results:

1. Stable expectational trend

- New model explicitly recovering of trends & cycles
- Allows for deviations from full information and perfect rationality
- Similar to VARs but informed by Economic theory
- Does not need tight parametrisation as DSGE models

#### Results:

- 1. Stable expectational trend
- 2. Sizeable and fairly steep Phillips curve

 $\odot$  :

- New model explicitly recovering of trends & cycles
- Allows for deviations from full information and perfect rationality
- Similar to VARs but informed by Economic theory
- Does not need tight parametrisation as DSGE models

#### Results:

- 1. Stable expectational trend
- 2. Sizeable and fairly steep Phillips curve
- 3. **Oil fluctuations** are transmitted to prices

- New model explicitly recovering of trends & cycles
- Allows for deviations from full information and perfect rationality
- Similar to VARs but informed by Economic theory
- Does not need tight parametrisation as DSGE models

#### Results:

- 1. Stable expectational trend
- 2. Sizeable and fairly steep Phillips curve
- 3. Oil fluctuations are transmitted to prices
- 4. ... and can overpower the PC
- 5. some rationalisation of the inflation puzzles

- New model explicitly recovering of trends & cycles
- Allows for deviations from full information and perfect rationality
- Similar to VARs but informed by Economic theory
- Does not need tight parametrisation as DSGE models

#### Results:

- 1. Stable expectational trend
- 2. Sizeable and fairly steep Phillips curve
- 3. Oil fluctuations are transmitted to prices
- 4. ... and can overpower the PC
- 5. some rationalisation of the inflation puzzles