Inflation Dynamics in the Euro Area and the Role of Expectations*

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Inflation dynamics

- Important in monetary policy analysis:
 - -disinflation is costly
 - -inflation is persistent
 - -role of expectations?



New Keynesian Phillips curve

 Purely forward-looking New Keynesian Phillips curve

 $\pi_t = \beta E_t \pi_{t+1} + \kappa \hat{y}_t$

 Hybrid specification of New Keynesian Phillips curve

$$\pi_t = (1 - \omega)E_t\pi_{t+1} + \omega\pi_{t-1} + \phi \hat{y}_t$$



When allowing possible nonrationality in expectations

- Is the inflation process purely forwardlooking?
- Have inflation dynamics changed in recent years?
- How to measure real marginal costs?



Data

- Aggregated and pooled data for the euro area, 1977-2003
- Proxy for inflation expectations: OECD's inflation forecasts
- Driving variables: HP filtered output gap, OECD's estimate for output gap and labour income share
- Estimation methods: LS, GMM



New Keynesian Phillips curve

 $\pi_t = 0.97 \cdot \pi_{t+1}^* + \kappa \hat{y}_t$

Aggregated	к	J-stat.	Instruments	Obs
HP filtered output gap	0.207	0.072	$\mathbf{\hat{y}}_{t-1}$, $\mathbf{\hat{y}}_{t-2}$	27
	(0.183)	[0.164]		

Notes: Numbers in parentheses are standard errors.

J-statistic corresponds to Hansen test of overidentifying restrictions (associated p-values in brackets).



New Keynesian Phillips curve

 $\pi_t = 0.97 \cdot \pi_{t+1}^* + \kappa \hat{y}_t$

Aggregated	к	J-stat.	Instruments	Obs
Labor income share	0.003	0.123	$\mathbf{\hat{m}c}_{t-1}$, π_{t-1}	26
	(0.039)	[0.074]		
HP filtered output	0.207	0.072	$\mathbf{\hat{y}}_{t-1}, \mathbf{\hat{y}}_{t-2}$	27
	(0.183)	[0.164]		
OECD output gap	0.228	0.126	$\hat{y}_{t-1}^{}$, $\pi_{t-1}^{}$	24
	(0.188)	[0.081]		



Hybrid Phillips curve

$$\pi_t = (1 - \omega)\pi_{t+1}^* + \omega\pi_{t-1} + \phi \hat{y}_t$$

Pooled	ω	φ	J-stat.	Instruments	Obs
HP filtered	0.619	0.078	0.010	$\hat{y}_{t-1}, \pi_{t-2}, \pi_{t-3}$	316
	(0.058)*	(0.039)*	[0.075]		

Notes: Numbers in parentheses are standard errors.

J-statistic corresponds to Hansen test of overidentifying restrictions (associated p-values in brackets).



Hybrid Phillips curve

$$\pi_t = (1 - \omega)\pi_{t+1}^* + \omega\pi_{t-1} + \phi \hat{y}_t$$

Pooled	ω	φ	J-stat.	Instruments	Obs
Labor income share	0.632	0.001	0.006	$\mathbf{\hat{m}c}_{t-1}^{}$, $\pi_{t-2}^{}$, $\pi_{t-3}^{}$	312
	(0.057)*	(0.015)	[0.174]		
HP filtered output	0.619	0.078	0.010	$\boldsymbol{\hat{y}}_{t-1},\boldsymbol{\pi}_{t-2},\boldsymbol{\pi}_{t-3}$	316
	(0.058)*	(0.039)*	[0.075]		
OECD output gap	0.643	0.088	0.006	${\hat{y}}_{t-1}^{},\pi_{t-2}^{},\pi_{t-3}^{}$	288
	(0.068)*	(0.047)	[0.191]		



Conclusions

- Euro area inflation dynamics

 not purely forward-looking
 forward-looking expectations have become dominant in recent years
- Relevant real marginal cost measures: output gap and labour income share



Conclusions, **cont**.

- Once the rational expectations assumption is relaxed:
 - possible persistence in expectations improves the empirical fit of the New Keynesian Phillips curves
- Inflation cannot adjust instantaneously to new information

