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CONDUCT OF MONETARY POLICY IN TUNISIA: TOWARDS INFLATION TARGETING PERSPECTIVE

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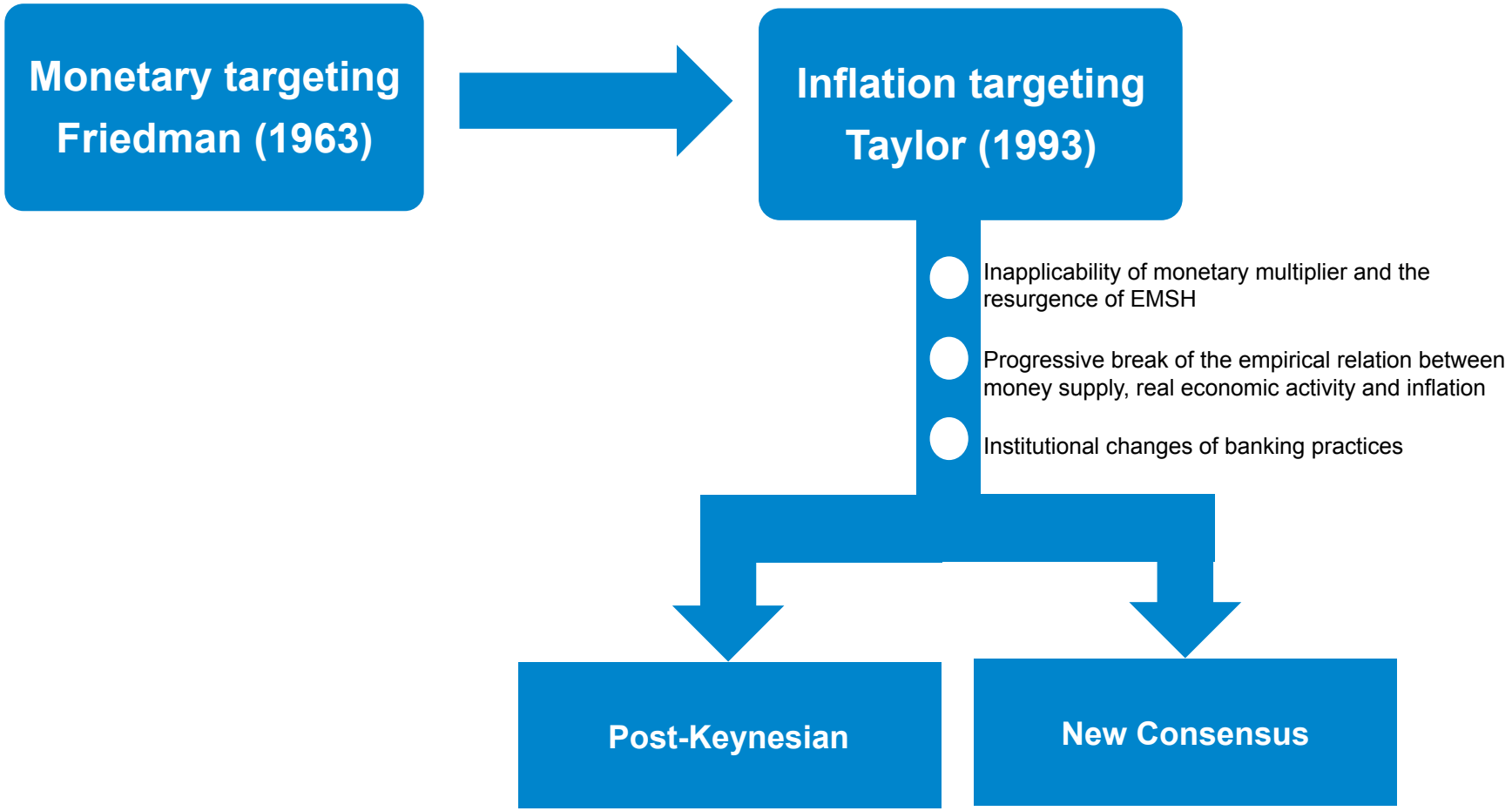
Conduct of monetary policy



How to conduct monetary policy in endogenous money framework

New Consensus Approach (Romer, 2000; Taylor, 2000; Woodford, 2002)		Post-Keynesian Approach (Le Héron, 1991; Palley, 2006; Parguez, 2006; Smithin, 2007)
Interest rate	Instrument	Interest rate
Taylor Rule or reaction function		Kansas City Rule Smithin rule Fair rate Rule
Anticipated inflation	Intermediate objective	Anticipated inflation
Curbing inflation	Ultimate objectives	Curbing inflation and economic growth

Research Question

Do Taylor Rules provide a reasonable approximation of interest rate setting in Tunisia?

Outline

1. Theoretical foundations of the New Consensus Approach
2. Post-Keynesian contribution in the modern theory of monetary policy
3. Empirical literature review
4. Data
5. Methodological procedures
6. Results
7. Conclusion

New Consensus

A $$i_t = (1-c_3)[r^* + E_t(\pi_{t+1}) + c_1 y^g_{t-1} + c_2(\pi_{t-1} - \pi^*)] + c_3 i_{t-1}$$ **Taylor rule**

B $$y^g_t = a_0 + a_1 y^g_{t-1} + a_2 E(y^g_{t+1}) - a_3[i_t - E_t(\pi_{t+1})] + \varepsilon_t$$ **IS relationship**

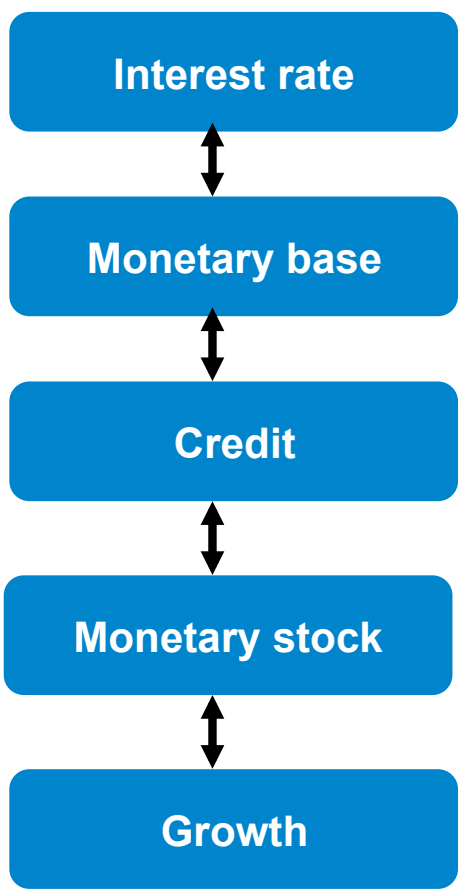
C $$\pi_t = b_1 y^g_t + b_2 \pi_{t-1} + b_3 E_t(\pi_{t+1}) + v_t, \text{with} (b_2 + b_3 = 1)$$ **NKPC**

- y^g_t **Output gap,**
- i_t **Nominal interest rate,**
- π_t **Inflation rate,**
- π^* **Inflation target rate,**
- r^* **Natural rate of interest,**
- a_0 **Autonomous components of aggregate demand,**
- ε_t **and** v_t **Non-recurrent shocks.**

Post-Keynesian approach

Exegenous interest rate

Endogenous interest rate



$$i_t = r^* + \alpha_1(\pi_t - \overline{\pi}) + \alpha_2(y_t - y^*) + \varepsilon_t$$

$r^* = 0$ **Kansas City rule (Wray, 2007)** **R1**

$r^* = \pi_t$ **Smithin rule (Smithin, 2004)** **R2**

$r^* = \pi_t + \overline{q}$ **Fair Rate (Pasinetti) rule (Lavoie, 1999)** **R3**

Empirical literature review

- Traditional Taylor rule

$$i_t = r^* + \pi_t + \alpha(\pi_t - \pi^*) + \beta(y_t - y^*) + \varepsilon_t \qquad \text{R4}$$

- Dynamic reaction function

$$i_t = \rho i_{t-1} + (1-\rho)[r^* + \pi_t + \alpha(\pi_t - \pi^*) + \beta(y_t - y^*)] + \varepsilon_t \qquad \text{R5}$$

- Forward-Looking reaction function

$$i_t = \rho i_{t-1} + (1-\rho)[r^* + E_t\pi_{t+1} + \alpha(\pi_t - \pi^*) + \beta(y_t - y^*)] + \varepsilon_t \qquad \text{R6}$$

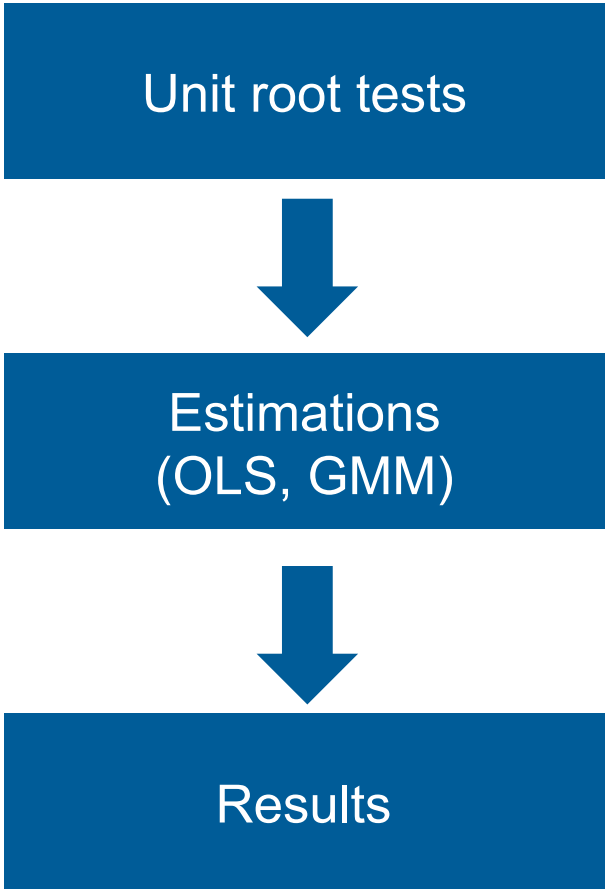
- Reaction function with exchange rate effect

$$i_t = \rho i_{t-1} + (1-\rho)[r^* + E_t\pi_{t+1} + \alpha(\pi_t - \pi^*) + \beta(y_t - y^*) + \sigma(e_t - e_{t-1})] + \varepsilon_t \qquad \text{R7}$$

Data

Variables	Denotation	Description
MMR	i_t	The monthly average money market rate(MMR) published by the CBT is the sum of day rates of the money market reported on the exact number of days of the month, the result being rounded to 1%.
Industrial Production Index (base 100 = 2005)	y_t	Variable used us proxy for GDP.
Potential Industrial Production Index	y^*	Potential IPI is unobservable variable determined by HP filter (1997).
Real Effective Exchange Rate	e_t	Real Effective Exchange Rate is adjusted by appropriate foreign price level and deflates by the home country price level.
Consumer Price Index (base 100 = 2005)	IPC_t	Consumer Price Index is an instrument used in Tunisia to measure within two period's variation in the general level of price.
Inflation rate	π_t	$(IPC_t - IPC_{t-1}/IPC_{t-1})x100$
Target inflation rate	π^*	The inflation rate that the Central Bank of Tunisia believes appropriate for the economy.
Anticipated rate of inflation	π^a	Value awaited or envisaged for the rate of inflation in a given period.
Real natural rate of interest	r^*	

Methodology



Results

Variables	R1	R2	R3	R4	R5	R6	R7
α	0.20421 (1.34412)	0.08860 (1.29028)	0.09904 (1.74263)	1.0869 (16.1374)			
β	0.00678 (0.08698)	0.02758 (0.69462)	0.87597 (11.3595)	0.02721 (0.69884)			
(1-ρ) α					0.00471 (1.61906)	0.00096 (0.43172)	0.00355 (1.26363)
(1-ρ) β					0.00029 (0.40969)	0.00085 (1.45254)	0.00128 (1.76430)
(1-ρ) σ							0.01369 (2.28519)
(1-ρ) r*					0.14718 (1.77786)	0.00977 (0.08899)	0.02563 (0.20864)
ρ					1.02518 (67.8122)	1.00822 (70.0048)	1.01495 (57.7759)
(1-ρ)					0.00515 (2.05712)	0.01747 (1.15576)	0.01799 (1.18143)
R-squared	0.73557	0.33359	0.79061	0.52484	0.9185	0.89748	0.89252
DW	0.0232	0.05750	1.83158	0.05870	1.9333	1.91852	1.83599
J-statistic					0.0917	0.13999	0.13663

Conclusion

Econometric results have shown that the Taylor rule, in its traditional specification (equation 4), or in its enhanced form with the inclusion of the lagged interest rate (equation 5) cannot be supported empirically for the period under investigation, in terms of descriptive, explanatory and predictive power and cannot be in accordance with the conduct of monetary policy in Tunisia. Indeed, the inclusion of the lagged interest rate in these models improved the explanatory power of the models, measured by the adjusted, but, on the other hand, it left no room in the gaps to function as a significant explanatory set of variables. Hence, the estimated parameters for this specification do not support the logic of the Taylor rule, since 100% of the explanatory power of the model is ascribed to the lagged interest rate term.

Thus, we extend the traditional Taylor rule with the inclusion of expectations scheme of inflation (equation 6). We estimated a Typical Taylor rule under the Forward-Looking version. Results shows that the behavior of the Central Bank of Tunisia is directed more towards the future.

The above approaches to Taylor rule are extended in another direction that of the enrichment of the initial Taylor equation with the real exchange rate (equation 7) to capture another effect of inflation. The coefficient granted to this variable is significant at 5% level. According to these results, the exchange rate channel may have a direct effect on the conduct of monetary policy. But there is an indirect effect. Thus, the inclusion of exchange rate in the Taylor rule may provide additional information on the future path of inflation and the output which is not captured by inflation and the current output.

Thank You