UNIVERSITÉ PARIS 1
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Phillips in a Revolution: Unemployment and Prices in Early 21st Century Egypt[1]

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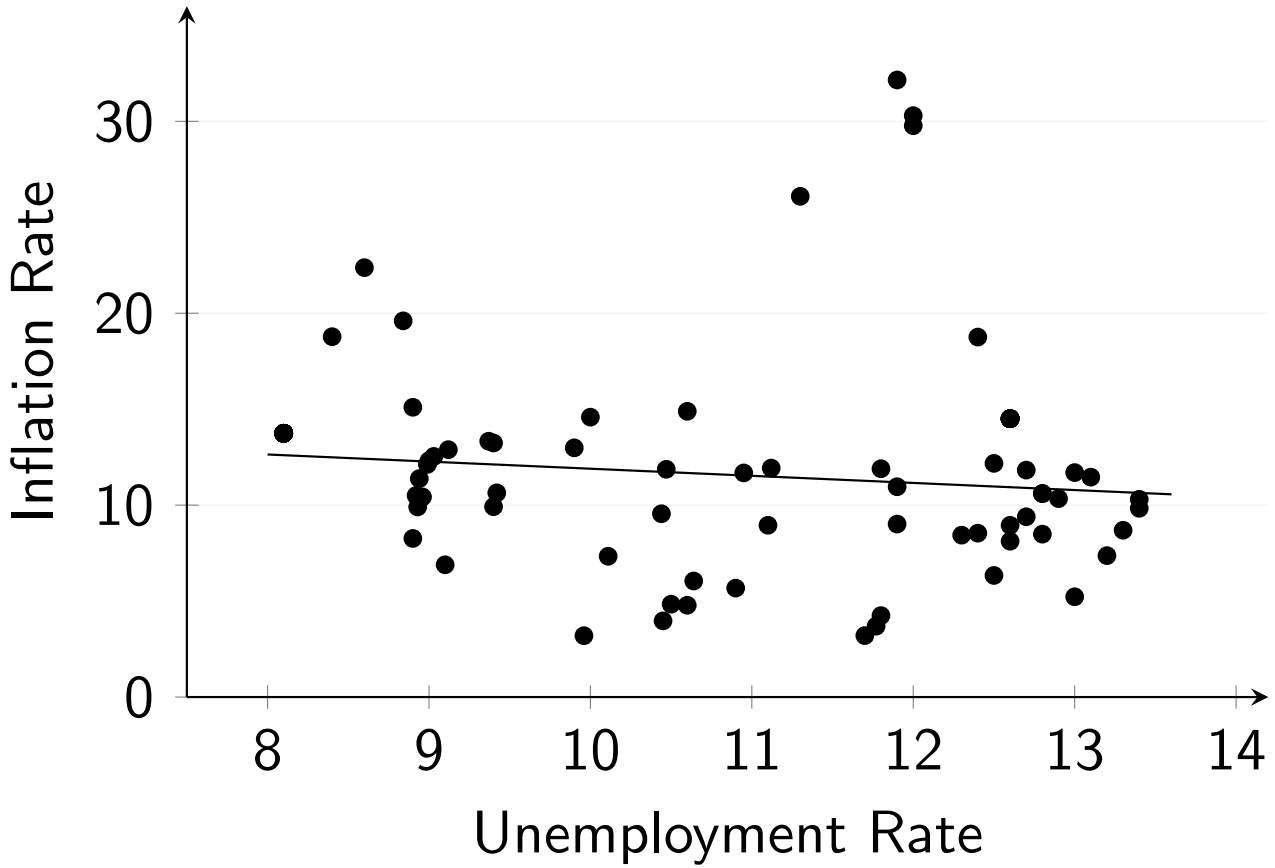
[1]The views expressed in these slides are my own and do not necessarily reflect the views of Banque de France.

Motivation

- Inflation dynamics:
  - Exchange rate movements, monetary growth, administered prices.
  - See Abdelraouf, El-Abbadi & Noureldin (2019).
- Unemployment dynamics:
  - Dual labour markets: large public sector, informality, educated youth unemployment, low female participation.
  - See Assaad (2014).
- Joint study of both: the Phillips curve

Phillips curve in Egypt



Sources: CBE, Capmas, IFS, elaborated by the author.

Research Question

- Does the Egyptian economy provides further evidence in support of the relative price Phillips curve hypothesis?
- Can this approach result more informative than the traditional Phillips curve approach to analyze the business cycle in Egypt?

Relative price Phillips curve hypothesis

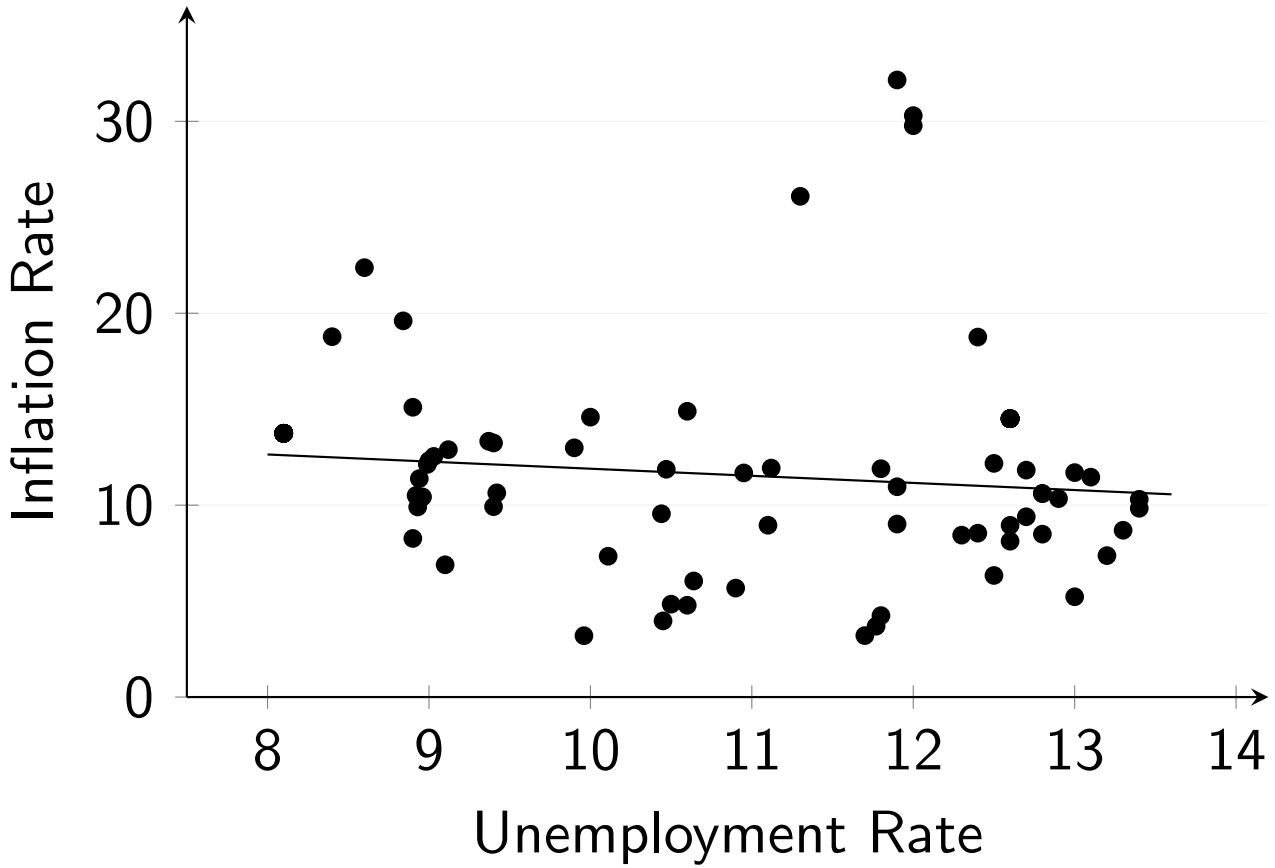
- Geerolf (2018): Dichotomy between fixed and flexible ER regimes can explain most episodes of absence of the Phillips curve
  - Fixed ER regime:
    1. $G \nearrow \Rightarrow Z \nearrow \Rightarrow P_{NT} \nearrow \Rightarrow \pi \nearrow$
    2. P_T and NER are fixed. Total impact on π is positive, RER appreciates
  - Flexible ER regime:
    1. $G \nearrow \Rightarrow Z \nearrow \Rightarrow P_{NT} \nearrow \Rightarrow \pi \nearrow$
    2. $G \nearrow \Rightarrow Z \nearrow \Rightarrow NER$ appreciation, with fixed P_T. Therefore : $P_{imports} \searrow$ in local currency $\Rightarrow \pi \searrow$ and RER appreciates

- Testable predictions:
  - Negative relation between inflation and unemployment in a fixed ER regime.
  - No, or weaker, negative relation in a flexible ER regime.
  - Negative relation between real exchange rate appreciation and unemployment in both fixed and flexible ER regimes.

Data

- Quarterly data covering 2003q1 - 2019q1.
- Unemployment:
  - Sources: IFS and CAPMAS.
- Inflation: year-over-year CPI growth rate
  - Sources: CBE and IFS.
- Real effective exchange rate
  - Source: Bruegel.
  - 143 trading partners, an increase denotes a real appreciation of the EGP.
- Interest rate:
  - Source: IFS. Computed as the average of the deposit and the lending rates.

Baseline result



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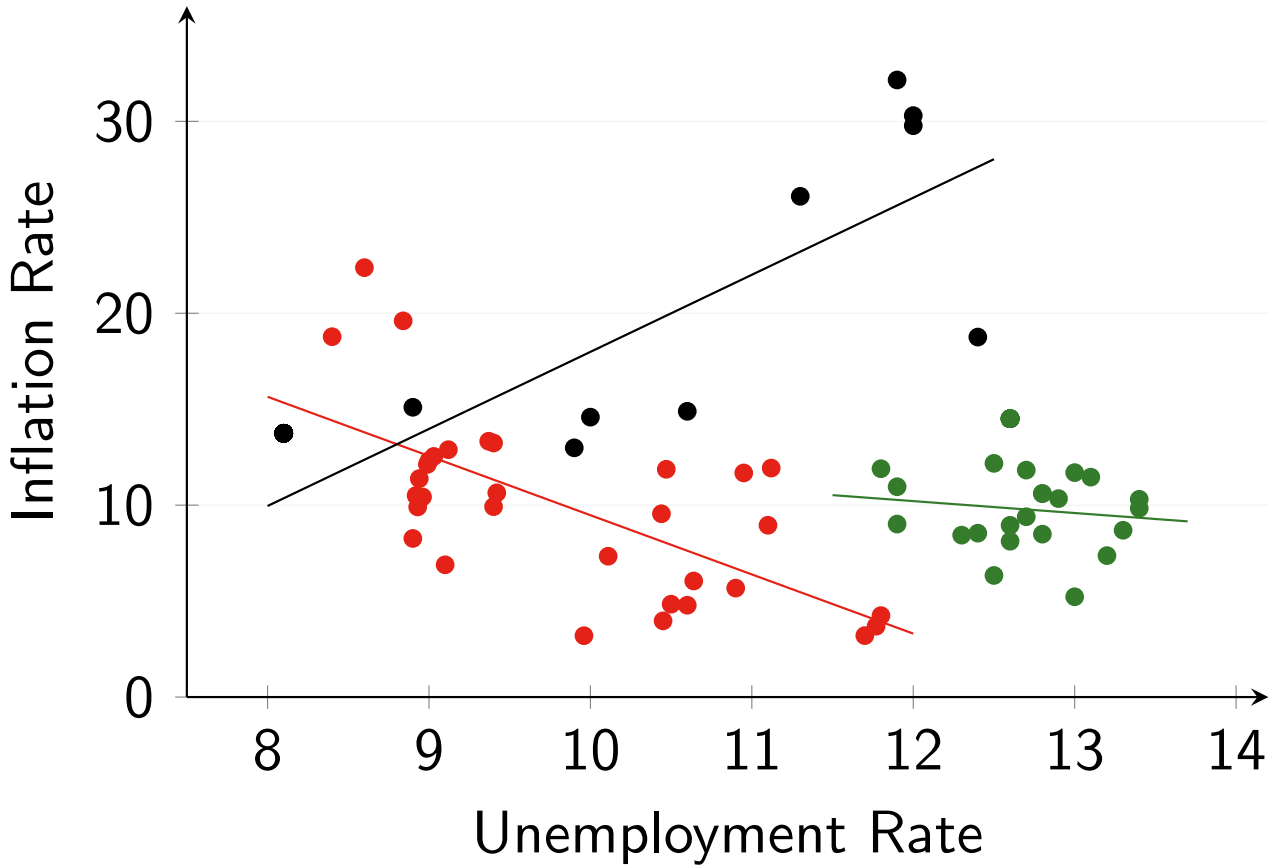
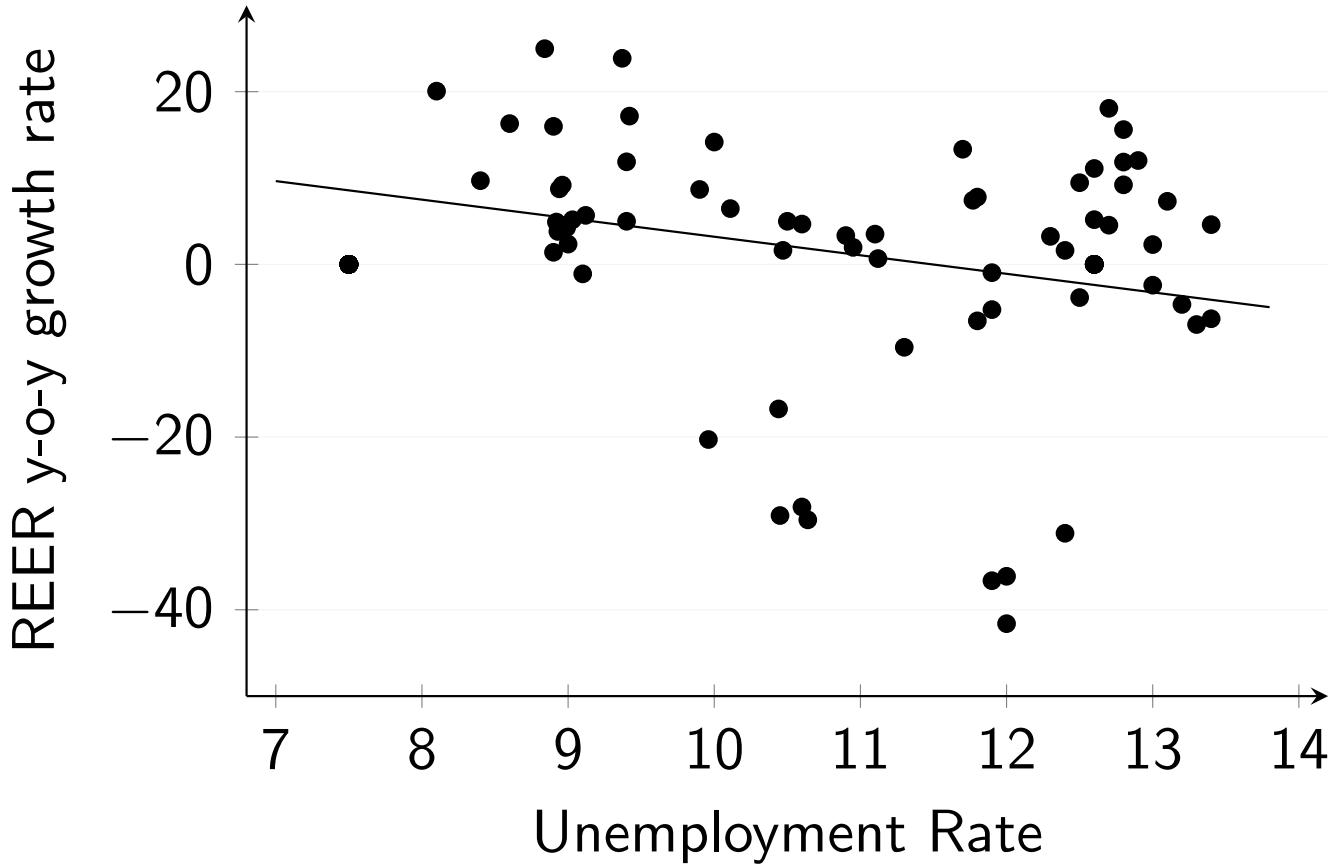


Sources: CBE, Capmas, IFS, elaborated by the author. The red colour indicates the period prior to the Egyptian Revolution, the green colour the period during the Revolution and prior to the devaluation, and the black colour the period since the devaluation.

Baseline result



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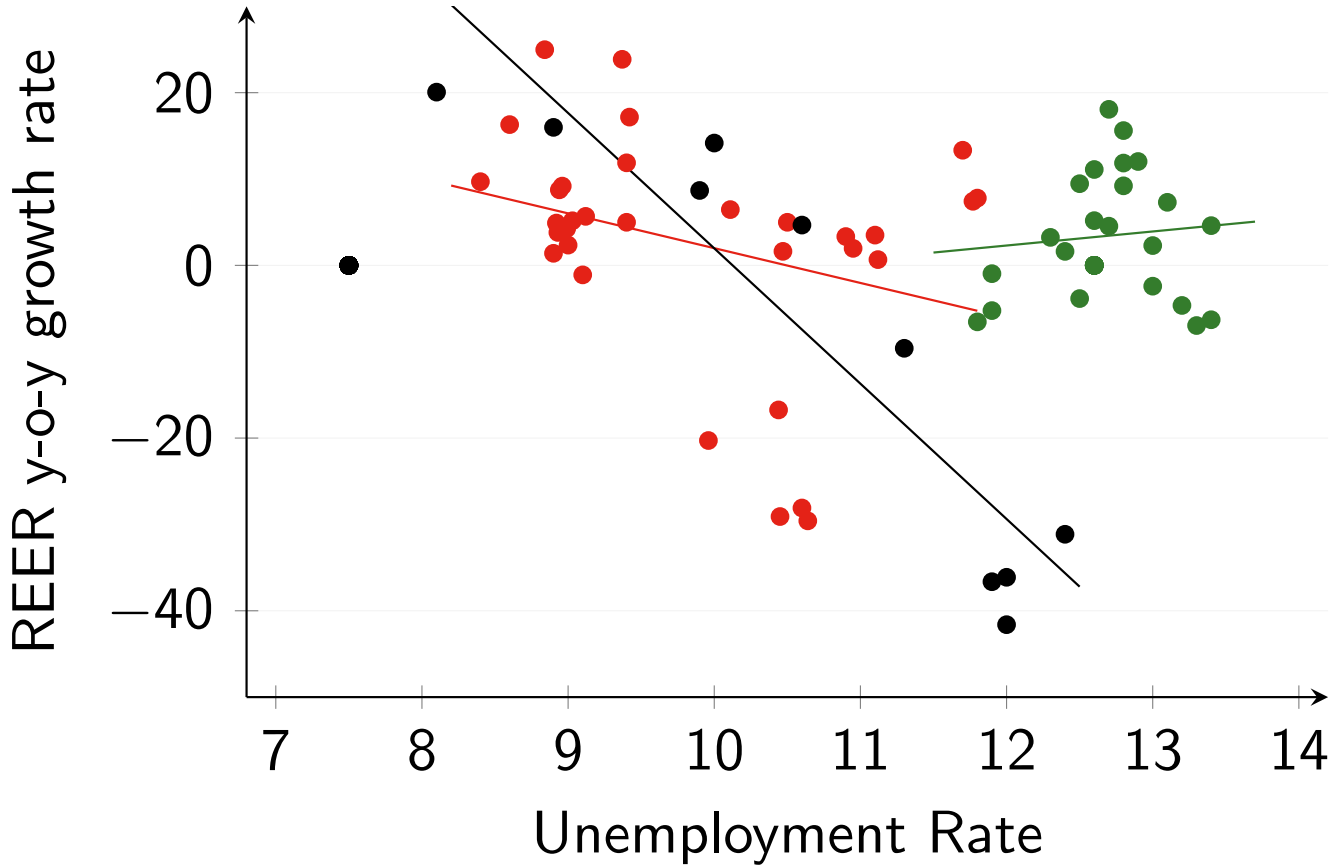

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Empirical strategy

- Estimate the main specifications of the Phillips curve to analyze the correlation between unemployment and inflation.
- Complement using GMM, as robustness check and for comparison purposes.

Phillips Curve Specifications

- Original Phillips Curve:

$$\pi_t = \alpha + \lambda U_t + \varepsilon_t \tag{1}$$

- Augmented Phillips Curve:

$$\pi_t = \alpha + \lambda U_t + \gamma \pi_{past} + \varepsilon_t \tag{2}$$

- Accelerationist Phillips Curve:

$$\Delta\pi_t = \alpha + \lambda U_t + \varepsilon_t \tag{3}$$

New Keynesian Phillips curves

$$\pi_t = \beta E[\pi_{t+4}] + \lambda(u_t - u_t^*) + \varepsilon_t \quad (4)$$

$$\pi_t = \beta E[\pi_{t+4}] + \lambda(u_t - u_t^*) + \gamma\pi_{past} + \varepsilon_t \quad (5)$$

	NKPC			*Hybrid NKPC*			
Period	PC Slope	t-stat	R^2	PC Slope	t-stat	R^2	Obs.
Full period	-0.91	-0.96	0.05	-0.34	-0.43	0.42	61
Before the Revolution	-2.91***	-4.31	0.30	-2.19***	-2.86	0.41	32
Before the Devaluation	-0.40	-0.35	0.19	0.01	0.01	0.27	23
Since the Devaluation	22.50***	4.21	0.85	19.34***	4.35	0.92	6

All regressions include robust standard errors. * Significant at the 10 percent level, ** Significant at the 5 percent level, *** Significant at the 1 percent level.

New Keynesian Phillips curve: GMM

$$\pi_t = \beta E[\pi_{t+4}] + \lambda(u_t - u_t^*) + \varepsilon_t \tag{6}$$

Instruments:	$(u-u^*)$, π				$(u-u^*)$, π, i			
Period	PC	S.E.	J-stat	Obs.	PC	S.E.	J-stat	Obs.
Full period	-0.24	4.42	1.08	59	-2.24	1.57	7.39	59
Before the Revolution	-5.57***	1.63	1.13	30	-5.57***	1.35	3.71	30
Before Devaluation	-2.65	3.74	0.82	23	-2.59	2.05	1.99	23
Since the Devaluation	24.15***	1.62	2.79	5	-	-	-	-

The complete set of instruments comprises the variables $(u-u^*)_{t-1}$, $(u-u^*)_{t-2}$, π_{t-1} and π_{t-2} in the left hand side colums, and the variables $(u-u^*)_{t-1}$, $(u-u^*)_{t-2}$, π_{t-1}, π_{t-2}, i_{t-1} and i_{t-2} in the right hand side columns.

Discussion

- Price Phillips curve: observed under fixed ER regime, not under more flexible ER regime.
- Evidence of negative relation between RER appreciation and unemployment under both fixed and flexible ER Regimes.
- Positive relation after the devaluation due to a transitory adjustment: sharply declining inflation with slightly declining unemployment.
- During the Revolution and until the devaluation: flat PC, no RER - unemployment relation.
  - Broken link likely due to political turmoil/uncertainty.
  - Usual indication that unemployment can be combatted at a low cost in terms of inflation would be misguiding.

Conclusion

- Relative price Phillips curve hypothesis more insightful than the Phillips curve to study the Egyptian business cycle.
- Political events (narrative approach) do matter.
- Relative price Phillips curve hypothesis might also be relevant for developing/emerging economies.
- More pessimistic view: if trade-off inflation/unemployment might be less stringent, trade-off unemployment/competitiveness is not.
- Additional empirical evidence and theoretical foundations are needed.