Monetary Policy: Theory & Practice
Assignment 2 : Phillips Curve II / Shocks

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1 Task 1. Robustness test for estimating the Phillips curve in the US

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To estimate Phillips curve, we will use quarterly data. In this task we choose CPI inflation (Consumer Price Index for All Urban Consumers: All Items in U.S. City Average (FRED code: CPIAUCSL)) as a broader inflation proxy.

Two Phillips curve functions are approximated: traditional Phillips curve ($\pi_t = \alpha u_n + \alpha u_t$) and adaptive Phillips curve ($\pi_t - \pi_{t-1} = \alpha u_n + \alpha u_t$), where u_n is a natural unemployment rate.
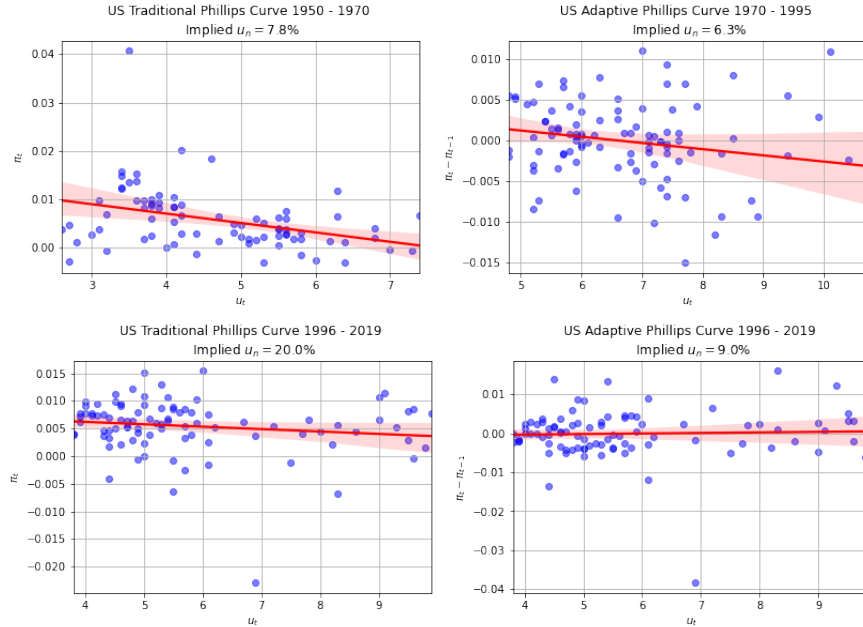

Figure 1: Phillips curve and implied u_n estimations

Four specifications are estimated: traditional PC for years 1950-1970 ($R^2 = 0.129$), adaptive PC for years 1970-1995 ($R^2 = 0.039$) and both for the time period 1996-2019 ($R^2 = 0.022$

and $R^2 = 0.001$ respectively). Scatter plots, regression lines with 95% confidence intervals as well as implied natural unemployment rate levels are presented in figure 1. It should be mentioned that the last two regressions are statistically insignificant given $\alpha = 15\%$, which might have caused inadequate estimations of the natural unemployment rate. Additional information on data, parameters and their coefficients can be found here.

2 Task 3. Intuition behind the paper by Jarocinski and Karadi (2020)

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The paper by Marek Jarocinski and Peter Karadi "Deconstructing Monetary Policy Surprises— The Role of Information Shocks" (2020) addresses a burning issue of identification in macroeconomics. More specifically, authors contribute to the debate of monetary policy non-neutrality by deconstructing monetary shocks into two components: policy shock (change in the CB interest rate) and CB information shock (unexpected economic outlook). Jarocinski and Karadi provide examples when the latter shock component led to counter intuitive results, like a strong stock market upside trend after FOMC announcement of the monetary policy tightening, which, in turn, often led to the "significantly higher price level and real activity and improvement in financial conditions".

Using Bayesian structural VAR, Jarocinski and Karadi try to separate these two shocks with the usage of high-frequency data (stock market index prices and interest rate futures) 10 minutes before and 20 minutes after Fed/ECB announcement. Author's' results clearly show that impulse response functions when accounting for different shock components are significantly different from each other and from 'classical' mixed high-frequency identification, which may cause biased inference of monetary policy effect on economy.

This paper distinctly shows some evidence of monetary policy influence on real variables, such as output and underlines the importance of central bank information shocks.

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