

Master course on "Monetary Economics: Theory and Empirics"

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Aim of the course

This 20-hour course aims to equip students with a solid theoretical foundation in monetary economics and the empirical tools necessary to bring theory to the data.

The theoretical component builds the core model of monetary policy used by central banks worldwide: the New Keynesian model of the business cycle. This model serves as the basis for deriving theoretical predictions regarding the effects of monetary policy shocks, the role of systematic monetary policy in stabilizing the business cycle, and the trade-offs such policy entails.

The empirical component focuses on two widely used tools in applied macroeconomics for assessing the effects of monetary policy shocks and the role of systematic monetary policy in mitigating inefficient fluctuations caused by various macroeconomic shocks. These tools are Vector Autoregressive (VAR) models and Local Projections (LP).

By the end of the course, students are expected to be able to conduct independent empirical research using macroeconomic data to analyze the effects of monetary policy impulses.

Tentative schedule

Week 1: November 18-21

- **November 18** (12:00-3:00 pm, 3 hrs): New Keynesian framework: Derivation of the Investment-Savings schedule and New Keynesian Phillips Curve, discussion on Taylor rules.
- **November 19** (8:45-11:45 am, 3 hrs): New Keynesian framework: Predictions and empirical validation.
- **November 20** (8:45-11:45 am, 3 hrs): Vector AutoRegressive (VAR) models: Reduced form, identification via zero restrictions.
- **November 21** (8:30-10:00 am, 1.5 hrs): Vector AutoRegressive (VAR) models: Identification via sign restrictions.

Week 2: November 25-28

- **November 25** (12:00-3:00 pm, 3 hrs): Vector AutoRegressive (VAR) models: Identification via sign, narrative, policy coefficient restrictions.
- **November 26** (8:45-11:45 am, 3 hrs): Vector AutoRegressive (VAR) models: High frequency identification, proxy-VAR, Local Projections (LP).
- **November 27** (4-6 pm, 2 hrs): Ph.D. students' presentations.
- **November 28** (8:30-10:00 am, 1.5 hrs): Counterfactual simulations in VARs.

Assessment

- **Master's students:** Empirical project (10 pages maximum, all included!)
- **Ph.D. students:** Empirical project (10 pages maximum, all included) plus presentation of a scientific paper on Nov 27
- Papers you can pick: Mountford and Uhlig (2009), Kim, Moon, and Velasco (2017), Badinger and Shiman (2023), Giannone and Primiceri (2024), ...
- ... or you can present your own project!

References

Theoretical part on the New Keynesian framework

- Galí (2015), ch. 1-5.

Empirical part on VARs and LPs

- Reduced-form VARs: Kilian and Lütkepohl (2017), ch. 2.
- Cholesky (zero restriction) VARs: Christiano, Eichenbaum, and Evans (1999), Christiano, Eichenbaum, and Evans (2005).
- Sign restrictions: Faust (1998), Canova and de Nicoló (2002), Uhlig (2005), Fry and Pagan (2011).
- Narrative restrictions: Antolín-Díaz and Rubio-Ramírez (2018), Ludvigson, Ma, and Ng (2021).
- Policy coefficient restrictions: Arias, Caldara, and Rubio-Ramírez (2019), Castellnuovo, Pellegrino, and Særkjær (2025).
- High frequency identification and proxy-VARs: Mertens and Ravn (2013), Stock and Watson (2018), Gertler and Karadi (2015), Jarociński and Karadi (2020), Miranda-Agrippino and Ricco (2021), Wolf (2020), Känzig (2021), Lagerborg, Pappa, and Ravn (2022).
- Counterfactual with VARs: Sims and Zha (2006), McKay and Wolf (2023).
- Local Projections: Jordà (2005), Ramey and Zubairy (2018), Tenreyro and Thwaites (2016), Plagborg-Møller and Wolf (2020), Ascari and Haber (2021), Jordà and Taylor (2023).

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