



Prof. Dr. Ralph Luetticke and Prof. Dr. Gernot Müller at the Faculty of Economics and Social Sciences at Tübingen University invite applications for the position of

Ph.D. students (m/f/d) (E13 TV-L, 65%)

Intended starting date is flexible (October 2026 to April 2027). The contract will be initially limited to two years, but might be extended to three years and possibly beyond.

Our research

We are looking for a PhD student to join the project “**Heterogeneous Expectations in HANK Models: Empirical Evidence, New Solution Methods, and Macroeconomic Implications**” funded by the **Thyssen Foundation**. The project studies how households form expectations, how expectation formation differs across households, and how these differences shape business-cycle dynamics and the transmission of monetary and fiscal policy.

A companion PhD project focuses on the empirical side: identifying expectation-formation types from household surveys and narrative data. This position is designed to complement that work on the **modeling and computational side**. The successful candidate will develop and solve a Heterogeneous-Expectations HANK model in which households do not form full-information rational expectations, but instead use empirically grounded belief rules.

The core task is to build scalable solution methods for this class of models. The project asks whether moving away from rational-expectations fixed-point problems creates a computational “free lunch”: households solve standard dynamic decision problems given perceived laws of motion, while beliefs evolve through type-specific learning and updating rules. The resulting model should retain the discipline of heterogeneous-agent macroeconomics—dynamic optimization, distributional heterogeneity, and general equilibrium—while allowing for empirically realistic expectation formation. Methodologically, the project connects HANK models with recent work on mean-field games, adaptive learning, hybrid structural methods, and reinforcement-learning-inspired solution algorithms. The PhD student will work on model solution, simulation, and counterfactual analysis, including distributional impulse responses and applications to monetary policy, forward guidance, fiscal multipliers, policy salience, and the macroeconomic consequences of heterogeneous belief updating.

Your profile

We are looking for a candidate who wants to **build and solve quantitative macroeconomic models**. The ideal candidate has a strong interest in heterogeneous-agent macroeconomics, numerical methods, and modern computational tools. A background in economics is highly welcome, but candidates from related quantitative fields such as mathematics, statistics, computer science, physics, or engineering are also encouraged to apply.

You should have strong programming skills, preferably in **Python, Julia, JAX, or a comparable scientific-computing environment**. Experience with dynamic programming, stochastic processes, numerical optimization, automatic differentiation, simulation methods, or high-performance computing is highly valuable. Prior exposure to HANK models, sequence-space methods, mean-field games, reinforcement learning, policy-gradient methods, or recurrent neural networks is an advantage, but not a strict requirement.

The position is particularly suited for someone who is excited by implementation-heavy research: translating economic structure into algorithms, testing solution methods, debugging numerical models, and using simulations to answer substantive macroeconomic questions.

Environment

The University of Tübingen, spread across the small and picturesque town of Tübingen in south-west Germany, is one of 11 Universities of Excellence in Germany, with a Cluster of Excellence Machine Learning in Science. The university's School of Business and Economics has a faculty of more than 30 professors, junior professors, and post docs. It attracts excellent students in its B.Sc. and M.Sc. programs, in part due to its strong international orientation. We offer an open and supportive work environment with a strong research orientation, which is also part of our teaching philosophy.

The University of Tübingen seeks to increase the number of women in research and teaching and therefore strongly urges qualified women to apply. Disabled persons will be preferred in case of equal qualification.

How to apply

Please submit your application, preferably in electronic form, with the usual documents (Letter of Motivation, CV; copies of degrees) by **31 July 2026** to economics@wiwi.uni-tuebingen.de. Please indicate the supervisor of your master thesis in the application.

In case you have questions about the application process or the position, please contact Prof. Dr. Ralph Luetticke (ralph.luetticke@uni-tuebingen.de) and Prof. Dr. Gernot Müller (gernot.mueller@uni-tuebingen.de).

The employment will be arranged by the Central Administration of the University of Tübingen.