Research statement Florian Kuhn

My research focuses on business cycle macroeconomics with heterogeneous agents. This means it considers the question how economic fluctuations interact with differences between economic subjects. Such differences can be lost when only considering, say, the outcome of an average firm or an average household. Realistically of course, economic agents vary on many dimensions – for example firms differ in their productivity and their levels of demand, and households differ in income and their demographic characteristics among many other things.

In models with heterogeneous agents, non-trivial distributions are preserved along important dimensions. The goal of my research is to study how properties of the distribution of agents on one hand and aggregate outcomes on the other hand affect each other. For example, to consider two questions from one of my papers, how do differences in firm-level demand translate into asymmetry of aggregate output? How do fluctuations in aggregate output affect differences in firm productivity?

To answer these and similar questions I use numerical tools to solve models and evaluate them against empirical evidence from microeconomic data. Ultimately the goal is to 1) learn about business cycle mechanisms 2) implement counterfactuals 3) evaluate policies.

Firm productivity, firm demand and the business cycle

My paper "Business Cycle Implications of Capacity Constraints under Demand Shocks" (with Chacko George) studies how to reconcile within one simple framework four disparate business cycle facts: the asymmetry of business cycle fluctuations, the countercyclicality of aggregate and cross-sectional volatility, the acyclicality of utilization-adjusted total factor productivity, and counter-cyclical fiscal multipliers. Together, these empirical findings characterize recessions as times when output is especially low, volatility is high, and fiscal policy is particularly effective.

While previous work has considered mechanisms that can account for each fact in isolation, these potential explanations are generally at odds with other facts; and the main contribution of this paper is to show that capacity constraints can explain several important features of the behavior of output under few additional assumptions. Second, capacity constraints suggest a novel explanation as to why productivity dispersion among firms is countercyclical. Third, while the traditional Keynesian literature has long emphasized idle capacities as one likely source of high fiscal multipliers when aggregate demand is low, there has been relatively little work on integrating this mechanism into modern DSGE models. Fourth, we document how much this model, in addition to being qualitatively consistent, can contribute quantitatively to the explanation of the four business cycle facts. Finally, we add empirical evidence to previous work on output asymmetry and find that large recessions on average deviate 30% more from trend output than large booms.

Also considering firm heterogeneity is my paper "Endogenous profitability dispersion" in which I consider how the empirically observed increase of dispersion in firm profitability in recessions can arise endogenously even when the dispersion in physical productivity remains constant over the cycle. While extensive work has shown that second-moment shocks to firm productivity can cause recessions ("exogenous increases in dispersion"), this paper is part of a complementary literature that demonstrates that causality can run both ways. To that end, it explicitly models firms' pricing decisions to account for differences in physical productivity and profitability (or "revenue productivity"). Two of

the most commonly used cross-sectional dispersion measures are the observed profitability dispersion and the dispersion in firms' risk premia. I show that these dispersion measures depend not only on the variance of the underlying firm-level shocks but also on the aggregate state of the business cycle. Therefore, taking empirically observed changes in those measures as only resulting from second moment shocks may lead one to overestimate the size of the shocks.

Household heterogeneity

I also study the business cycle effects on differences between households. In the paper "Gasoline price shocks and household welfare" (with Matthias Kehrig and Nicolas Ziebarth) we document that, relative to overall expenditure and to income, poor households' share of gasoline expenditures is greater than rich households. This relationship holds after controlling for many demographic characteristics. This finding implies that gasoline price fluctuations place a higher welfare burden on poor households than on relatively rich ones. We then formalize the relationship between gasoline consumption and income in a model which we use to evaluate the welfare cost of gas price increases.

In my work in progress "Labor Market Effects of Discrimination over the Business Cycle" I consider the effects of differential hiring on the labor market outcomes of different demographic groups, and how those effects vary over the course of the business cycle. Ample existing work on resume studies shows that certain groups with observable demographic characteristics like skin color or gender receive fewer callbacks for interviews when applying for job openings. In this paper I show that a fixed difference of average hiring preference implies that job finding rates between groups varies with the state of the labor market. In other words, even when discrimination does not become "stronger" in a recession, a discriminated against group will face stronger adverse effects of an economic downturn. To investigate the quantitative impact I study a search and matching model and compare it to empirical job finding probabilities constructed from CPS data.

Future work

Given the variety of topics my previous and current work touches upon there are multiple avenues for further research that I plan to undertake. One is in the area of firm capacity investment behavior. A straightforward extension of my previous paper is to incorporate more realistic assumptions on firm behavior like lumpy investment costs and more persistence in firm heterogeneity. Firm capacity investment is known to be particularly "lumpy", and primarily driven by firm demand. Such a model could be used to analyze differences between supply and demand shocks on firm investment, and may be helpful in shedding light on the questions why firms have been reluctant to invest following the Great Recession.

Another project in preparation extends the notion of heterogeneous decision makers to governments in a currency union. As seen in the aftermath of the Great Recession, Eurozone member countries' economies fared very differently from each other, and while they shared a common monetary policy, national governments set their own fiscal policies, having to take into account the effects of those national policies on the other members. Finally, and related to my ongoing work on discrimination, an interesting issue would be to use moments of the business cycle and composition of unemployment to research different implications of preference-based versus statistical discrimination.