Sebastian Graves **NYU** **Research Statement**

My research interests are primarily in the fields of macroeconomics and labor economics. In my research, I am guided by the principle that paying close attention to microeconomic behavior is crucial to fully understand the response of the economy to policy changes or aggregate shocks. To this end, I use quantitative structural models to study the implications of firm and household heterogeneity for business cycles and employment fluctuations. I use empirical methods and micro-data to ensure that these models are consistent with firm and household behavior.

In my job market paper, "**Does Unemployment Risk Affect Business Cycle Dynamics**", I study the implications of two key facts. First, unemployment risk is the largest source of income risk that households face. Second, the vast majority of household wealth is held in illiquid assets, which are poorly suited for smoothing consumption during unemployment spells. I use data from the Consumer Expenditure Survey to show that the size of the consumption decline that households experience during unemployment depends both on their liquid and illiquid asset holdings: the decline is smallest for households with significant liquid asset holdings, larger for households with only illiquid assets, and largest for households with no assets of either type. Using data from the Survey of Consumer Finances, I am able to explain this pattern by showing that unemployment is a strong predictor of illiquid asset withdrawal, particularly if the unemployment spell occurs when households have few liquid assets.

Motivated by these findings, I study a heterogeneous-agent New Keynesian (HANK) model in which households face endogenous unemployment risk and trade both liquid and illiquid assets. I show that the model is consistent with the above findings: illiquid assets provide some ability to smooth consumption during unemployment spells, but adjustment costs imply that they are not as well-suited for consumption smoothing as liquid assets.

I then study the response of the economy to aggregate shocks. I show that the combination of endogenous unemployment risk and the presence of illiquid assets provides a novel propagation mechanism for aggregate shocks: when unemployment risk rises, households shift their portfolios away from illiquid assets, motivated by the inability of these assets to be used to smooth consumption during unemployment spells. This "flight-to-liquidity" leads to a decline in investment and precipitates a feedback loop between unemployment risk and aggregate demand.

In this model, unemployment insurance can play an important role as an automatic stabilizer. In particular, by providing a source of liquidity for households during unemployment spells, unemployment insurance dampens the "flight-to-liquidity" that occurs when unemployment risk

rises, and consequently reduces the amplification of aggregate shocks caused by this mechanism. I show that this is particularly true when monetary policy is constrained by the zero lower bound.

In my second paper, "**The State Dependent Effectiveness of Hiring Subsidies**", I study the implications of firm, rather than household, heterogeneity. Aggregate employment growth can be decomposed into the contributions of job creation (the increase in employment coming from expanding or entering establishments) and job destruction (the decrease in employment coming from contracting or exiting establishments). The main empirical finding of this paper is to show that the relative contribution of job creation and job destruction to changes in aggregate employment varies significantly over the business cycle. I use state-level data on job creation and destruction rates to show that job creation is more responsive to shocks when employment growth is high, while job destruction is more responsive when employment growth is low.

These findings can be rationalized in a heterogeneous-firm model where hiring costs lead to lumpy employment adjustment at the firm level. This model is capable of generating time-varying responsiveness of job creation and destruction rates because of movements in the underlying distribution of firms over the business cycle. In a boom, more firms are either hiring workers or near their hiring threshold, and fewer firms are firing or near their firing threshold. This makes the job creation rate more responsive to either aggregate shocks or unexpected policy changes than it would be in a recession. The opposite is true for the job destruction rate. I show that the presence of lumpy employment adjustment is crucial for the model to match the empirical evidence: If employment adjustment is frictionless, there is no time-varying responsiveness of aggregate job creation or job destruction, in contradiction to the data.

Finally, I show that the time-varying responsiveness of job creation and destruction rates leads to significant state dependence of various labor market policies. The model implies that hiring subsidies, which operate at the job creation margin, are significantly less effective at stimulating employment during recessions. On the other hand, policies which target the job destruction margin, such as firing taxes or short-time work schemes, are significantly more effective at supporting employment at these times.

In my third paper, "**The Effect of Social Security Reform on Labor Supply Elasticities**" (co-authored with Victoria Gregory, Lars Ljungqvist, and Thomas Sargent), we study the implications of various social security systems for the elasticity of labor supply. We embed an endogenous retirement decision in the classic framework of Heckman, Lochner, and Taber (1998). In this model, we show that the design of the social security system has significant implications for aggregate labor supply elasticities. If the social security system is such that delaying retirement means forgoing social security benefits, there is a strong incentive to retire at the official retirement age, and labor supply elasticities are low. If all individuals receive benefits

after the official retirement age, regardless of their work status, labor supply elasticities are significantly higher. In recent years, the US social security system has become more actuarially fair with respect to the decision to delay social security benefits; our model suggests that such reforms will have raised the aggregate elasticity of labor supply.

In future research, I plan to continue focusing on how changes in unemployment risk affect household behavior. My project "**Unemployment Risk and Asset Prices**" is motivated by the fact that there is a strong negative correlation between equity returns and unemployment risk: firm equity is an asset whose value falls exactly when households are likely to need it most, during an unemployment spell. I am using a heterogeneous-agent model where households trade a risk-free bond and risky firm equity to study the ability of idiosyncratic unemployment risk to generate both realistic asset pricing dynamics and unemployment fluctuations in response to aggregate productivity shocks.

Finally, I am also working on a project that studies the interaction of frictions that firms face both in hiring workers and in selling their output. Using micro-data from the Italian Survey of Industrial and Service firms, I have shown that the dispersion of firm-level capacity utilization rates rises significantly during recessions. I plan to use a model with search frictions in both the labor market and goods market to rationalize the existence of idle capacity at the firm-level. I will then study the response of the model to aggregate shocks to understand whether the combination of these frictions can endogenously explain the increase in dispersion seen in the data.