**The Effect of Volatility on the Hiring Decisions of Multi-Worker Firms**

(Job Market Paper)

I build a dynamic stochastic general equilibrium model with heterogeneous firms to analyze the effects of time-varying idiosyncratic volatility on the unemployment rate, in an environment with ambiguity-averse agents. There is Diamond-Mortensen-Pissarides style search and matching in the labor market; firms can hire more than one worker; and the hiring decision is partially irreversible due to linear hiring costs. First, I show that the model explains 60% of the variation in unemployment and 54% of the variation in vacancies, while also performing well with respect to consumption and investment dynamics. Second, I show that if the idiosyncratic volatility rises, the unemployment rate increases. However, since wages are convex in idiosyncratic productivity, the workers who keep their jobs earn more on average. Thus, even though there are fewer people working, the total wage bill is larger. As a result, a positive idiosyncratic volatility shock is welfare-improving. Last, I show that since low-volatility states have low utility, the ambiguity-averse household puts more weight on low-volatility states when forming expectations. However, the additional effect of this distortion on the dynamics of the aggregate variables is negligible.

JEL Classifications: E22, E24, E32, J6, D8

Keywords: Idiosyncratic volatility, ambiguity, multi-worker firms, unemployment

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**Disaster Risk and Heterogeneous Firms**

I build a dynamic stochastic general equilibrium model with heterogeneous firms to analyze the effects of time-varying disaster probability on the aggregate variables. The disaster takes the form of capital depreciation. There is Diamond-Mortensen-Pissarides style search and matching in the labor market; firms can hire more than one worker; and the hiring decision is partially irreversible due to linear hiring costs. If the probability of disaster increases, the rate of return on investment becomes riskier, and households reduce their investment today. The firms' employment decision depends negatively on the rate of return, and thus the expectation of having lower capital supply (i.e., a higher rental rate of capital) tomorrow causes initial precautionary hiring on the firm side and an increase in capital demand today. However, this expansionary effect is short-lived. After the initial period, capital, employment, and output decline and stay below their pre-shock levels for some time. On the firm level, when the probability of disaster increases, the mass of inactive firms decreases and more firms move closer to the hiring and firing thresholds. Motivated by the effect of disaster probability on the hiring and firing thresholds, I also analyze how a change in disaster probability affects the dispersion of the cross-sectional distribution of the growth rate of sales, a measure of firm-level uncertainty.

JEL Classifications: E22, E24, E32, J6, D8

Keywords: Disaster risk, uncertainty, multi-worker firms, unemployment