Time-Varying Wage Risk, Incomplete Markets, and Business Cycles

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Abstract

When driven by shocks to aggregate total factor productivity (TFP), perfectly competitive labor market models generate a counterfactually strong comovement of employment and average labor productivity (output per labor hour). In an environment where individuals face idiosyncratic earnings risk when making employment choices, I show that the key to resolving this hours-productivity puzzle is cyclical variation in idiosyncratic wage risk. In the absence of full insurance, risk fluctuations have different effects on the labor supply of individuals with low and high productivity and produce a negative correlation between hours worked and productivity at the aggregate level. Specifically, a rise in wage risk initially increases the fraction of low-productivity individuals who work. Later, this fraction decreases, whereas more individuals with high productivity elect to work. In equilibrium, these shifts in labor supply first increase and then reduce employment. Labor productivity initially falls and later rises.

I identify time variation in idiosyncratic wage risk using the cross-sectional dispersion of wage innovations in the Panel Study of Income Dynamics (PSID). My estimate is that the standard deviation of fluctuations in risk is 4.4% annually. When introduced alongside shocks to aggregate TFP, the varying-risk model reproduces the weakly negative correlation between hours worked and labor productivity found in the U.S. data (–0.38 in the model compared with –0.32 in the data). As aggregate TFP shocks primarily shift labor demand, in the absence of fluctuations in wage risk, the model generates a strong, positive correlation of 0.83.