Comparative Advantage and Aggregate Unemployment

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Many authors have emphasized the role of wage rigidities in business cycle fluctuations. Most recently, Shimer (2004), Hall (2005a), and Gertler and Trigari (2006) show how restricting wage responses in a model with search frictions can greatly magnify cyclical fluctuations in unemployment. This work is motivated by findings, particularly in Shimer (2005a), that a calibrated Mortensen-Pissarides (1994) model with flexible wages yields much less cyclical volatility in unemployment and unemployment durations relative to wages than seen in the data. But judging the empirical rigidity of wages relative to model predictions is precarious. The prediction that wages are strongly procyclical assumes: (a) that the shocks driving labor fluctuations act largely by shifting labor demand, and (b) that workers do not easily substitute between market and non-market activities. Most acutely, testing the model prediction relies on having a genuine measure of cyclical movements in the price of labor. Although measured aggregate real wages are relatively acyclical, wage rates for new hires are much more procyclical. A more robust prediction of wage flexibility is that employment decisions are driven by comparative advantage.

For this reason, we focus on the ability of our model of unemployment to predict the behavior of wage and employment cyclical across workers. More precisely, we introduce worker heterogeneity in labor supply into a business cycle model of separations, matching, and unemployment under flexible wages. Workers with relatively high market skill or low payoffs in non-market tasks are predicted to have low reservation match qualities in order to stay in an employed match; these are workers with high labor supply. Recessions are times of longer unemployment duration. A worker who desires high labor supply will avoid separating into unemployment during these downturns—entering unemployment when unemployment duration is long is antithetical to high labor supply. Similarly, high labor supply workers will be less discriminating in deciding to take job offers during a recession. This yields our key model predictions: Workers with high desired labor supply will exhibit more cyclical wages, less cyclical separations, and less cyclical unemployment duration. We examine these predictions for workers in the Survey of Income and Program Participation (SIPP). As predicted by our model, wages are much more procyclical for workers who work more with this pattern mirrored by separations that are much less countercyclical. (Note: we are just now examining rates of exit from unemployment to employment by worker type.)

As in Mortensen and Pissarides (1994), we model employment matches as facing changes in match quality, with bad draws possibly leading to endogenous separations. We depart from Mortensen and Pissarides in three major ways. Most importantly, we allow for worker heterogeneity: Workers differ in market human capital and in the value of their non-market time.
Second, we allow for an intensive, e.g. workweek, labor margin conditional on working. We do so for empirical purposes. The model straightforwardly predicts that workers with relatively high labor supply, high productivity in market relative to home, will work more hours conditional on working. Thus typical hours worked, conditional on employment, provides an empirical proxy for a worker’s relative labor supply when we turn to the SIPP data. Third, we distinguish between matches generated between vacancies and unemployed versus transitions from unemployment to employment–matches that yield too little match surplus are spurned, failing to create transitions to employment. This last feature plays an important role in predicting a strongly procyclical finding rate.

Once a role for labor supply is allowed in separations, it naturally leads to differing separation decisions along the lines of comparative advantage. Workers with a comparative advantage in market work, are predicted to separate less into unemployment and return sooner to employment. But the impact of comparative advantage in the market on these decisions becomes exaggerated during a recession in response to the threat of longer unemployment durations. Our model employs flexible wage setting. Workers with higher labor supply are more willing to take a wage cut in recessions to maintain employment or to return to employment. This generates a prediction for wages that inversely mirrors that in separations and job finding rates–workers with higher labor supply should exhibit more cyclical wages as well as less cyclical separations and job finding rates.

Shimer (2005a), Hall (2005a), and Costain and Reiter (2003) have each argued that reasonable calibrations of standard search and matching models with flexible wages yield predictions dramatically at odds with the data–the models generate much more procyclical wages and much less procyclical job finding rates than observed. Our model performs better for three reasons. For one separations are endogenously countercyclical and exits from unemployment, conditional upon the flow of matches, are endogenously procyclical. This yields greater volatility in unemployment and job finding rates. Furthermore, our model does not linearly aggregate across workers. Workers with relative low labor supply exhibit much sharper cyclicality in unemployment than the median worker. This cyclicity is not cancelled by the, relative, acyclicity of unemployment for workers with high labor supply. Finally, our model, produces an effect that, qualitatively like wage rigidity, suppresses vacancy creation in recessions. When unemployment duration increases in a downturn this shifts separations toward workers with low labor supply and exits from unemployment toward workers with high labor supply. Therefore the the pool of unemployed shifts to workers with less comparative advantage in the market. Creating vacancies
for these workers is less attractive because their employment generates smaller expected surplus.

We compare cross-worker patterns in wage cyclicality, cyclicality of separations, and cyclicality in job finding to those predicted by the model. We do see patterns consistent with our model of comparative advantage. In particular, wages are more cyclical and separations from employment less cyclical for workers who work more. We do see a strong compositional shift during recessions among the unemployed toward workers who typically work less independently of the stage of the cycle. Thus the data support our model’s prediction that during recessions vacancies must draw from workers who exhibit lower labor supply.
References


