

DISSERTATION DEFENSE

“Three Essays in Macroeconomics”

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The first chapter argues that the countercyclical workforce occupational mobility could be caused by aggregate economic fluctuations, as a result, the workforce composition shifts over business cycle, which in turn can affect how the economy recovers from recession. Using the Current Population Survey, I find: a) workers were more likely to separate from their occupations during last two recessions, b) the deteriorated economic conditions during last recession significantly reduced the average productivity change upon occupation switch, which suggests the additional occupation switches were triggered by worsened economic conditions. To demonstrate how workforce composition could play a role in business cycle, I calibrate a model with aggregate TFP, occupational productivity, match quality and increasing productivity in occupational tenure. Workers can be separated endogenously from current occupation due to low continuation value for the firm. Aggregate TFP shifts the threshold of endogenous separation, and less productive workers are fired first in a recession, leaving workers who are in expanding occupations, have better match quality or longer occupational tenure in the workforce. The output recovers faster than the labor market because newly hired workers tend to concentrate in expanding occupations and have better match quality than before. The model is able to generate faster output recovery, slow labor market recovery after a recession and countercyclical endogenous occupation mobility rate. The result suggests that other than the total amount of labor input, the workforce composition change could also plays an important role in real business cycle and this channel shall be explored more in the future.

The second chapter, co-authored with Nicolas Petrosky-Nadeau and Etienne Wasmer, studies the shopping time over business cycle. Renewed interest in macroeconomic theories of search frictions in the goods market requires a deeper understanding of the cyclical properties of the intensive margins in this market. Using the American Time Use Survey we construct a shopping time indicator, both searching and purchasing goods, based on 25 time use categories (out of more than 400 time use categories). We find that average time spent shopping declined in the aggregate over the period 2008-2010 compared to 2005-2007. The decline was largest for the unemployed who went from spending more time shopping for goods than the employed to roughly the same, or even less, time. Cross-state and individual regressions indicate procyclical consumer shopping in the goods market, and refute models in which price comparisons are a driver of business cycles.

The third chapter proposes a new way to model the personal income process with stochastic monthly transitions between occupations and labor force statuses. Log monthly income while employment is decomposed into two components, the first one is determined by personal characteristics and evolves deterministically, and the second components is determined by the

occupation which change over time stochastically. The heterogeneous transition probabilities between labor force statuses and occupations can generate heterogeneous life-cycle income profiles. Transition probabilities are decomposed into: a) categorical probabilities which govern the career development and moving in and out of labor force, and b) conditional probabilities which specifies the new occupation upon promotion, demotion or re-employment. Two types of probabilities are estimated separated and combined to construct the transition probabilities. Using the estimated transition probabilities, I can construct the distribution of income at any time for any initial occupation and personal characteristics. The results highlight that heterogeneous people with the same initial income can have very different income growth rate due to different starting occupation and personal characteristics. Lastly, by decomposing the variance of income growth rate into expected individual uncertainty and variance of heterogeneous income profile, the model predicts that 55-57% of the income growth variance is due to heterogeneous income profile before age 55.