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Citizenship: U.S.A.

Gender: Male

Fields of Concentration:

Macroeconomics
Monetary Economics
Labor Economics

Desired Teaching:

Macroeconomics (Graduate and Undergraduate)
Monetary Economics
Labor Economics
Computational Economics

Comprehensive Exams Completed:

May 2007 (Written) Macro Theory (*with distinction*) and Micro Theory
May 2008 (Oral) Macroeconomics (*with distinction*) and Labor (*with distinction*)

Dissertation Title:

Essays on the Aggregate Implications of Lumpy Adjustment

Committee:

Professor Giuseppe Moscarini
Professor Eduardo Engel
Professor Tony Smith

Expected Completion Date: May 2012

Degrees:

Ph.D., Economics, Yale University, Expected May 2012
M.Phil., Economics, Yale University, Expected May 2012
M.A., Economics, Yale University, May 2008
B.A. (*High Honors*) Economics. Minors in Math and History, Swarthmore College, 2004

Fellowships, Honors and Awards:

Carl Arvid Anderson Fellowship, Cowles Foundation, 2010-2011
NSF Graduate Research Fellowship, 2007-2012
Raymond Powell Teaching Prize, Yale University, 2008-2009
Dissertation Fellowship, Yale University, 2010-2011
Doctoral Fellowship, Yale University, 2006-2010
Phi Beta Kappa Honor Society, 2004

Teaching Experience:

Teaching Fellow: Econ 511: General Economic Theory: Macroeconomics (Graduate),
Spring 2008
Teaching Assistant, Department of Economics, Swarthmore College, Fall 2003

Work Experience:

Visiting Researcher, Bureau of Labor Statistics: Spring 2005 – present
Research Assistant, Professor Giuseppe Moscarini, Fall 2009 – present
Research Assistant, Professor Eduardo Engel, May 2007 – 2009
Research Assistant, Professor Ricardo Caballero, May 2007 – 2009
Research Assistant, Federal Reserve Board of Governors, June 2004-July 2006

Published Papers:

“Order Flow and Exchange Rate Dynamics in EBS system Data (2008),” with S. Chernenko, A. Chaboud and J. Wright, *Journal of International Economics*, Vol. 75 Issue 1 pp. 93-109

“What Drives Volatility Persistence in the FX Market,” with A. Chaboud and E. Hjmarsson (2009), *Journal of Financial Economics*, Vol 94, Issue 2 pp. 192-213

Working Papers:

“Countercyclical Restructuring and Jobless Recoveries” (October 2011), *Job Market Paper*

“Dynamics of the U.S. Price Distribution” (August 2011) with Joseph Vavra

“Lumpy Durable Purchases and the Business Cycle” (October 2011), with Joseph Vavra

“Missing Aggregate Dynamics: On the Slow Convergence of Lumpy Adjustment Models” (August 2011) with Eduardo Engel and Ricardo Caballero

“Border Prices and Retail Prices” (May 2011), with J. Faust, J. Rogers and K. Steverson,
revise and resubmit *Journal of International Economics*

Work In Progress:

“Firm Size, Employment Dynamics and the Business Cycle”

Conferences:

MOOD 2010: EIEF, Rome (July 2011)

Cologne Macro Conference (July 2011)

References:

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Title: Essays on the Aggregate Implications of Lumpy Adjustment

Chapter 1 (Job Market Paper): Countercyclical Restructuring and Jobless Recoveries

What explains jobless recoveries? Interest in this question has been stoked again by the current slow recovery in U.S. labor markets. A full two years after the official end of the Great Recession, employment is still 5% below its pre-recession level. Average labor productivity (ALP), however, rebounded quickly: by 2009q2 it was already back above trend. These twin facts present a puzzle since one would expect firms to start hiring again at such productivity levels. While jobless recoveries are not a new phenomenon, it is less well known that rising ALP during recessions is also a pervasive feature of recent business cycles. Since the mid-1980s, the procyclicality of ALP has declined dramatically at the exact same time as employment recoveries became jobless. In this paper, I formalize a single explanation for both facts.

I develop a quantitative model where firms take advantage of recessions as an opportunity to streamline and restructure. The model captures the common sense idea that firms grow "fat" during economic expansions but then quickly trim this fat by aggressively cutting costs in recessions. Firms employ unproductive workers because learning about match quality takes time and because adjustment is costly. In recessions, firms shed unproductive workers,

entering the recovery with a greater ability to meet expanding demand without hiring additional workers. I call this mechanism "restructuring" because it formalizes the often reported idea that firms survive recessions by focusing on cost cutting and boosting productivity. I show that this model can quantitatively match both facts: it explains 54% of the decline in the procyclicality of ALP and can generate substantial jobless recoveries.

The model is based on the standard competitive industry model, Hopenhayn (1992), but it departs significantly from it in three major respects. First, workers are heterogeneous to capture the idea that firms "restructure" their workplaces not by firing workers at random, but by selectively getting rid of their poorly matched employees. Second, I consider a more general set of employment adjustment costs. These costs generate a trade-off between living with a low quality workforce and foregoing production while adjusting employment, creating opportunities for intertemporal substitution. Together they imply that restructuring will be concentrated in recessions. Third, I include aggregate shocks which are essential to investigating the business cycle implications of the model.

I calibrate the model in steady state to match a variety of cross-sectional facts, including the size and employment distribution of all U.S. nonfarm establishments as well as the average level of job creation and destruction. I estimate the level of employment adjustments costs by SMM using moments of the employment change distribution derived from the micro data of the Longitudinal Business Database. The model replicates key empirical facts such as a positive correlation between productivity and age, and that conditional on age, establishment growth is uncorrelated with size.

After calibrating the model, I add aggregate productivity shocks to the model and perform multiple computational experiments. First, I show that the model without worker heterogeneity and labor adjustment costs cannot match the post-1985 labor market facts: ALP is strongly procyclical and there are no jobless recoveries. Second, adding adjustment costs can generate moderate jobless recoveries, but makes ALP strongly procyclical due to a standard labor hoarding effect (Bernanke and Parkinson 1991). Third, I add worker heterogeneity and selective firing and show that this model can generate jobless recoveries that average four quarters in duration and a large decline in the procyclicality of ALP. Finally, I back out the sequence of shocks that can replicate the growth rate of GDP in the data. I use this series to examine what the employment recovery in the Great Recession would have been if output growth recovery had been as sharp as after the 1982 recession. I find that the jobless recovery would have only been about two quarters in duration, about half of what we have observed.

Chapter 2: Dynamics of the U.S. Price Distribution (*With Joseph Vavra*)

Price setting behavior determines the real effects of monetary policy. A long literature in macroeconomics uses higher moments of the cross-sectional distribution of price changes to distinguish between different price setting models. Almost all existing empirical evidence is based on highly aggregated data or small samples. Studies frequently contradict each other, making it difficult to identify the true empirical facts. In this paper, we shed new light on this literature by studying higher moments of the price change and their relationship to the broader business cycle using the monthly confidential micro data that the Bureau of Labor Statistics collects to create the Consumer Price Index.

We document four new facts about the distribution of price changes in the United States: (1) The cross-sectional dispersion (second moment) of price changes is strongly countercyclical. This countercyclical dispersion holds both within and between sectors, as well as for price

increases, decreases and the spread between the mean increase and decrease. These facts are consistent with the presence of second moment shocks as in Bloom (2009). (2) Price dispersion is positively correlated with the frequency of adjustment. (3) There is a U-Shaped relationship between price dispersion and inflation. (4) The skewness of price changes is moderately correlated with inflation but is acyclical. In contrast to previous research, we show that facts (3) and (4) are not useful for distinguishing between models of price setting behavior, but that facts (1) and (2) are.

Chapter 3: Lumpy Durable Purchases and the Business Cycle (*With Joseph Vavra - In progress*):

Approximately one fourth of aggregate consumption expenditures are for durable goods and these expenditures are substantially more volatile than non-durable expenditures. However, most macro models typically abstract from durable consumption. Even when they do address it, they frequently assume that it can be adjusted costlessly. Yet at the micro level, durable adjustment is subject to large frictions, and there is strong evidence of lumpy adjustment. Does this lumpiness matter for the behavior of aggregate consumption and its components over the business cycle?

In this paper, we extend both a standard representative agent model as well as a heterogeneous agent incomplete markets model to include durable consumption. We assess the ability of these models to match the behavior of consumption during the Great Recession of 2007. We show that both representative agent and standard incomplete markets models imply a decline in durable expenditures that is too large, and a decline in non-durable expenditures that is too small, relative to the data. When introducing fixed costs of durable adjustment consistent with micro data in an incomplete markets model, the decline in durable expenditures in the recession is dampened while the decline in non-durable expenditures is amplified. Households have a large fraction of wealth in illiquid durables that cannot easily be used to smooth non-durable consumption. We provide micro evidence using Italian panel data that is consistent with this mechanism.