

# Discussion of Buera, Fattal-Jaef and Shin (2013)

## 'Anatomy of a Credit Crunch: From Capital to Labor Markets'

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## **Representative Firm**

Jermann and Quadrini (2012) 'Macroeconomic Effects of Financial Shocks'

## **Heterogeneous Firms**

Khan and Thomas (forthcoming) 'Credit Shocks and Aggregate Fluctuations in an Economy with Production Heterogeneity'

Khan, Senga and Thomas (2013) 'Default Risk and Aggregate Fluctuations in an Economy with Production Heterogeneity'

## **Heterogeneous Entrepreneurs**

Bassetto, Cagetti and DiNardi (2013) 'Credit Crunches and Credit Allocation in a Model of Entrepreneurship'

Buera and Moll (2013) 'Aggregate Implications of a Credit Crunch '

Shourideh and Zetlin-Jones (2012) 'External Financing and the Role of Financial Frictions over the Business Cycle: Measurement and Theory'

# Buera, Fattal-Jaef and Shin

Builds on Buera and Shin (2013) 'Financial Frictions and the Persistence of History: A Quantitative Exploration.'

Introduce a frictional labour market and examine the effects of a credit shock on unemployment.

The theory of unemployment is adapted from Alvarez and Veracierto (2001) 'Severance payments in an Economy with Frictions' and Veracierto (2009) 'Establishments Dynamics, Vacancies and Unemployment: A Neoclassical Synthesis.'

Households choose to be workers or entrepreneurs.

Workers may or may not have employment opportunities.

# Model

Household state is  $(a, z)$  and employment opportunity. Each period they have an occupational choice.

Entrepreneurs operate decreasing returns to scale technologies that are subject to idiosyncratic productivity shocks.

$$y = zk^{\alpha}l^{\theta}$$

Collateral constraints limit an entrepreneur's ability to borrow,

$$k \leq \lambda_t a.$$

Capital rental and labour are functions of individuals' assets and productivity:  
 $k(a, z), l(a, z)$

When an entrepreneurs reduces employment, job destruction increases unemployment,

$$U_{t+1} = U_t - M_t + JD_t.$$

## Model and Mechanism

Matched workers supply labour in a competitive labour market. Workers match with probability  $\gamma$ .

$$M_t = \gamma (U_t + JD_t).$$

Entrepreneurs with similar productivity operate decreasing returns to scale technologies with different levels of capital. In the aggregate, there is an endogenous component to total factor productivity.

Credit shocks that tighten collateral constraints and reduce borrowing increase the misallocation of capital. Aggregate TFP falls.

A similar mechanism operates in Buera and Moll (2013) and Khan and Thomas (2013). Neither studies unemployment.

In Buera, Fattal-Jaef and Shin, as entrepreneurs reduce capital and employment, job destruction rises. The frictional labour market implies a persistent rise in unemployment.

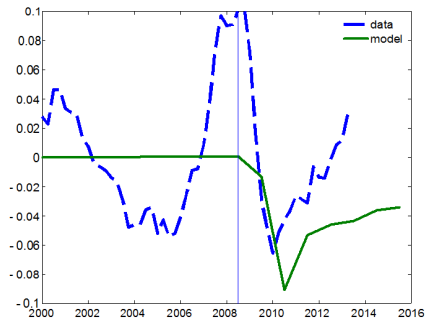
# Unemployment and Occupational Choice

- Unemployment benefits pay the market real wage; employment does not affect income of workers.
- A household's employment status does not affect the relative value of entrepreneurship so Buera and Shin (2013) occupational choice decision applies.
- If the unemployed earned less than the employed, they would be more likely to become entrepreneurs.

# Unemployment and Employment

- Workers are indifferent to unemployment.
- Entrepreneurs have no costs of job destruction, there are no firing costs and hiring is at a centralised labour market.
- The effect of changes in unemployment is on the number of workers in the hiring market, available immediately for employment.
- Thus the role of unemployment is to vary equilibrium employment when households labour supply is inelastic.
- Khan and Thomas (2013) allow for variation in equilibrium employment.
- However, in Buera, Fattal-Jaef and Shin, equilibrium employment moves slowly over time, it's less responsive to changes in real wages.

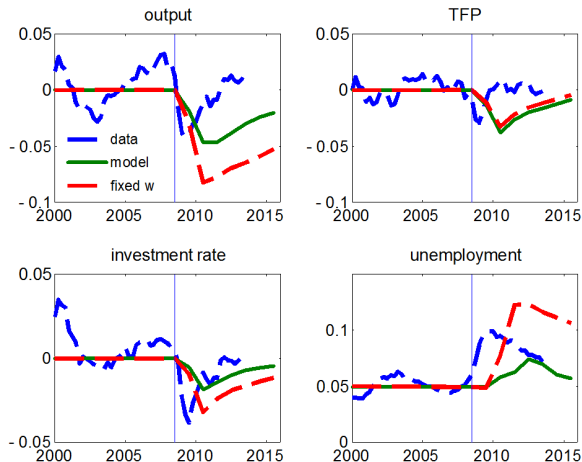
# Ratio of External Finance to Capital Stock



It appears that the credit shock ( $\lambda_t$  falls) is more severe and more persistent than in the data.

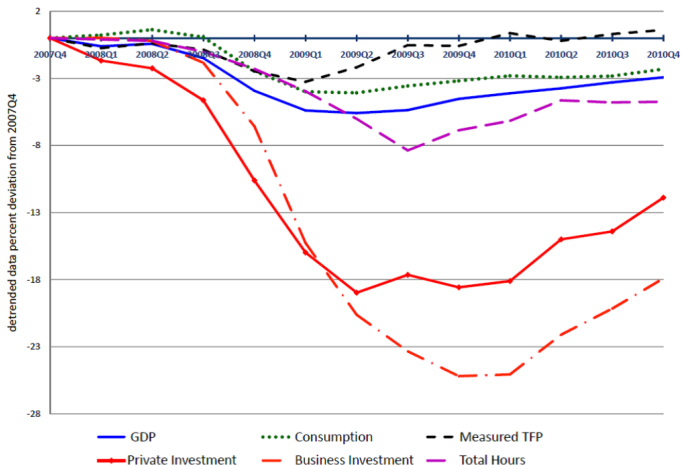


# Credit Shocks and Persistence



- Slow adjustment of employment may explain why model lags data.
- Might add investment, in levels, and consumption.

FIGURE 5. The Recent U.S. Recession



- There was a disproportionate response in investment.
- Detrended TFP changed, peak-to-trough, by far less than GDP.

# Business Cycles, TFP and Credit Shocks

The model has no response in unemployment rates following an exogenous shock to TFP.

Workers in the hiring market offer labour inelastically; wage adjusts to maintain employment.

Thus the model is designed to explore the effect of credit shocks.

Troublesome to develop a model inconsistent with earlier recessions?

Perhaps not, the mechanisms that propagated shocks in earlier recessions may have recently played little role. Alternatively, we may want models consistent with both credit and other shocks.

Examining GDP and investment rates, there's little qualitative difference in the response to a TFP shock compared to a credit shock. A credit shocks does not deliver a non-monotone response in aggregate quantities that propagates over time.

# Small and Large Firms

Gertler and Gilchrist (1994) showed small firms were more sensitive to contractionary monetary policy.

Fort, Haltiwanger, Jarmin and Miranda (2013) find that net employment growth fell by more in smaller, younger firms than in larger, older firms.

Fort et al document a significant role for firm age over and above firm size.

A credit shock in BFJS affects smaller, younger firms; they are more reliant on external finance.

Wealth rises with the age of the firm. This makes older firms less reliant on external finance.

# Disparate Incidence of Credit Shocks

Unconstrained entrepreneurs with sufficiently high  $a$  given  $z$  are able to rent efficient levels of capital.

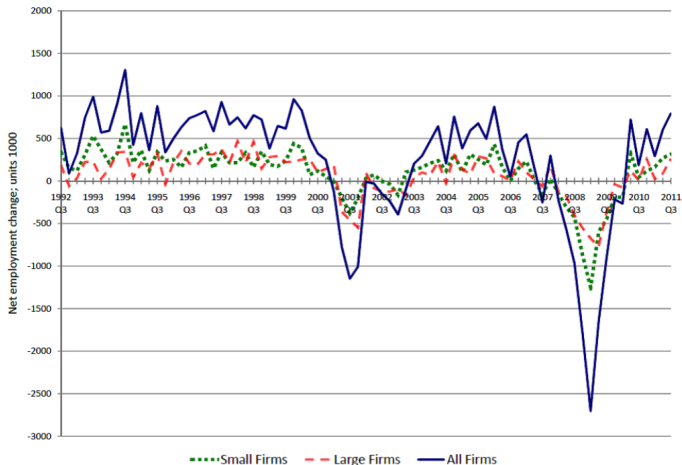
As wealth rises in the time spent in entrepreneurship, older firms, whether large or small, are less likely to be reliant on external finance and more likely to be unconstrained.

When credit shocks reduce access to external finance, older firms are less likely to reduce employment.

A disparate impact of a credit shock lies at the core of heterogeneous firm models.

Small firms (<100) had 37 percent of employment in 2007.

FIGURE 8. Net employment changes by size



Their employment declined by 47 percent of the decline in total employment (Khan and Thomas 2013). This disproportionate decline relative to large firms (>1000) is in contrast to the 2001 recession.