DISCUSSION OF "FIRM ENTRY AND EMPLOYMENT DYNAMICS IN THE GREAT RECESSION"

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> NBER EFEL July 15, 2014

OVERVIEW

• Empirical results: Small and young firms, in Rajan-Zingales financially dependent industries, during 2007-09, had sharper declines in employment.

• Model: Financial friction reduces entry, which leads to missing generation of firms.

• Really important questions, and empirics and mechanism are plausible.

EFD

$$\mathsf{EFD}_J = \mathsf{med}_{j \in J} \left[\frac{I_j - CF_j}{I_j} \right]$$

- I_j: Average capital expenditure by firm j.
- *CF_j*: Average of cash flow from operations.
- J defined at 2 digit industry level.
- Compustat firms, 1980-96, at least 10 years old.

HIGH AND LOW EFD INDUSTRIES

Low EFD		High EFD	
Industry	EFD	Industry	EFD
Forestry	-4.63	Pipelines	1.00
Insurance carriers	-3.96	Metal mining	0.96
Leather products	-0.96	Home furniture stores	0.69
Tobacco products	-0.92	Water transportation	0.67
Apparel	-0.61	Construction	0.57
Educational services	-0.55	Transportation by air	0.48
Social services	-0.43	Home Depot	0.47
Repair services	-0.25	Auto repair	0.43
Food	-0.24	Auto dealers & gas stations	0.41
Fabricated metal	-0.24	Oil and gas extraction	0.40
Furniture and fixtures	-0.23	Hotels and lodging	0.38
Stone, clay, glass, concrete	-0.20	Real estate	0.38

		Employment Growth 2007:4 to 2009:3		
	(1)	(2)	(3)	(4)
small	0.027***	0.043***	0.045^{***}	
	(0.002)	(0.003)	(0.003)	
young				0.294^{***}
				(0.002)
small high-EFD	-0.038^{***}	-0.031^{***}	-0.033^{***}	
	(0.001)	(0.003)	(0.003)	
young high-EFD				-0.057^{***}
				(0.002)
young small				
large	-0.035^{***}	-0.017^{**}		
	(0.006)	(0.007)		
young small high-EFD				
large high-EFD	0.083^{***}	0.017^{*}		
	(0.009)	(0.01)		
2-digit SIC, State FE	no	yes	yes	yes
Observations	4042853	4042853	4042853	4042853

BASELINE EMPLOYMENT RESULTS

- Firm is defined as all establishments within a state, but does not cross state boundaries.
- Standard errors: are there 74 industries X 3 size classes = 222 observations, or 4,042,853? Cluster...
- Weighting: should a firm changing from 5 to 4 employees receive equal regression weight to a firm changing from 49 to 39?
- Positive coefficient on large EFD?
- Non-parametric representation would be extremely informative: group firms into industry-by-initial size bins and plot industry employment growth against EFD, with distinct markers for young/old or small/large.
- Baseline sample is 2007:Q4-2009:Q3. Would be useful to see results starting from 2008:Q3.

OIL AND GAS EXTRACTION



PIPELINE TRANSPORTATION



EMPLOYMENT LOSSES BY FIRM SIZE



ENTRY AND EXIT RESULTS

	Conditional growth rate 2007:4-2009:3	
	Full sample	Balanced panel
Small & young	0.220	0.135
Small & young & high-EFD	0.150	0.107
Difference	-0.070	-0.028

- Useful to split entry, exit, and growth conditional on entry.
- The model emphasizes effects on entry, but empirical results could come from either the entry or exit margin.
- Could match exit rates as well as entry.

FIRM EXIT RATE, BY FIRM SIZE



MODEL

- Firm dynamics with endogenous entry and partially endogenous exit.
- Key assumption: new firms finance part of start-up costs with debt.
 - Generates greater reliance on debt at small and young firms.
 - Empirically plausible.
- Financial crisis: decline in recovery rate upon default.
 - Higher borrowing cost reduces entry, slows expanding firms, and increases exit.
- Main comment: model solved in partial equilibrium and lacks key spillover channels. Makes quantitative analysis difficult.

LOANS OUTSTANDING BY AGE



GE EFFECTS AND FIRM SPILLOVERS

• Wage assumption:

$$w(h_{it}) = \lambda_t^{-1}\left(\zeta_1 + \zeta_2 \frac{h_{it}^{1+\nu}}{1+\nu}\right).$$

- Wage depends on aggregate labor market only through marginal utility of consumption λ_t. Partial equilibrium implies rigid wages.
- Homogenous input kills relative price and aggregate demand channels. With CES:

$$y_{it} = \left(\frac{p_{it}}{P_t}\right)^{-\sigma} Y_t.$$

- Partial equilibrium kills rise in borrowing cost *q_{it}* due to reduction in household saving.
- Lower entry plus exogenous death rate mechanically generates missing mass of firms. In GE, absence of competition from new firms will increase survival of incumbent firms.

$$\beta_0 = \hat{C}_t - \frac{v\sigma}{v+\sigma} \left[\left(\hat{p}_{1,t} - \hat{P}_t \right) + \left(\hat{w}_t - \hat{p}_{1,t} \right) \right]$$

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- Elasticity of employment to reallocation rising in the substitutibility of the goods produced (σ) but falling in the frictions to labor mobility $(\frac{1}{\nu})$.

CALIBRATION

$$u(C,L) = \begin{cases} \frac{\left[C - \phi\left(\frac{\varepsilon}{1+\varepsilon}\right)L^{1+\frac{1}{\varepsilon}}\right]^{1-\frac{1}{\theta}}}{1-\frac{1}{\theta}} & \text{GHH}\\ \frac{C^{1-\frac{1}{\rho}}}{1-\frac{1}{\rho}} - \frac{L^{1+\frac{1}{\varepsilon}}}{1+\frac{1}{\varepsilon}} & \text{SEP.} \end{cases}$$

PARAMETER VALUES

Description	Value(s)	Source
Elasticity of output to labor	2/3	Labor share
Elasticity of substitution	6.5	18% markup
Labor Frisch elasticity	2	Hall
IES	3	Nakamura et al.; Gruber;
		Rotemberg and Woodford
Firm labor supply elasticity	1;2;3	Ashenfelter et al; Manning;
		Webber; Woodford
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CALIBRATED PERCENT DIFFERENCE BETWEEN PARTIAL EQUILIBRIUM AND GENERAL EQUILIBRIUM EFFECTS

(< 0 ≓	> employment	decline in	GE exceeds	PE decline)

v	GHH	SEP
1	-0.72	-0.36
2	-0.12	0.11
3	0.08	0.27

PERMANENT EFFECTS?

• Model features constant mass *M* of potential firms each period. Marginal firm during crisis cannot wait and enter later.

• Key question for welfare, recovery is persistence of missing mass of firms.

• Recent work: Lee and Mukoyama (2012); Sedlacek and Sterk (2014); Barrot, Sraer, and Thesmar (2014).

Appendix slides