

Financial Frictions and Employment during the Great Depression

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We learn two things.

- ▶ Firms cut employment when they had to roll long term debt **and** when a local branch of a national bank closed.
- ▶ A calibrated model of employment and financial frictions attributes 10-30% of the drop in employment to financial frictions.

I celebrate this type of paper!

- ▶ Asks an interesting and important question!
- ▶ The data are wonderful!
- ▶ Nice integration of reduced-form and structural work!

Outline

- ▶ Tiny comments on the empirical work
- ▶ Lots of discussion of the model

Did the Depression take all firms by surprise?

- ▶ Anecdotal evidence from U.S. Steel and Bethlehem Steel
- ▶ Used rights offers to delever right before the Great Depression
- ▶ Do the firms who have to roll debt have less foresight?

Do the firms who have to roll debt use shorter term debt?

- ▶ Easy to check
- ▶ Easy to control for

Is this model the right one for understanding the Great Depression?

- ▶ Probably not
- ▶ This model has some odd properties
- ▶ Sketch and solve a possibly more useful model

The calibration is actually sensible.

- ▶ They estimate most of the crucial parameters.
- ▶ They understand that identifying the model friction requires that it be monotonically related to a feature of the data.

Let's start with a model without financing.

- ▶ Maximize the expected present value of profits

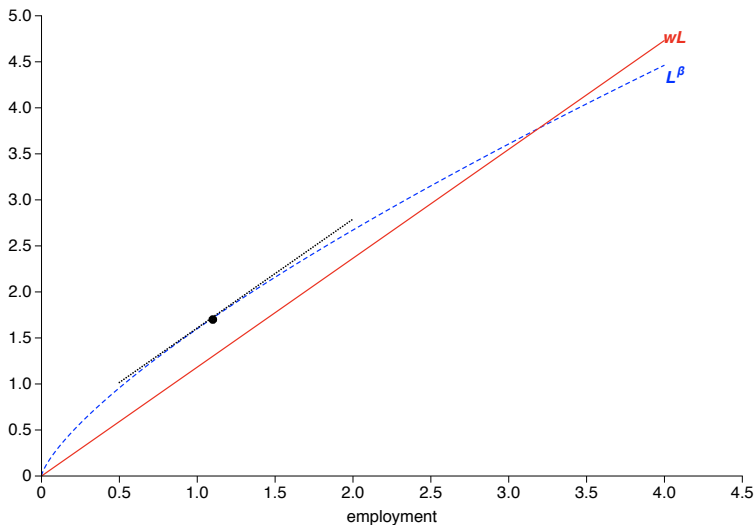
$$e^z L^\beta - wL'$$

- ▶ The shock follows a Markov process

$$z' = \kappa z + \sigma_z \varepsilon'$$

- ▶ Discount at a rate $R \equiv 1 + \text{risk free rate}$.
- ▶ This model is not really dynamic and has a simple solution.

Optimal employment policy is always self-financing!



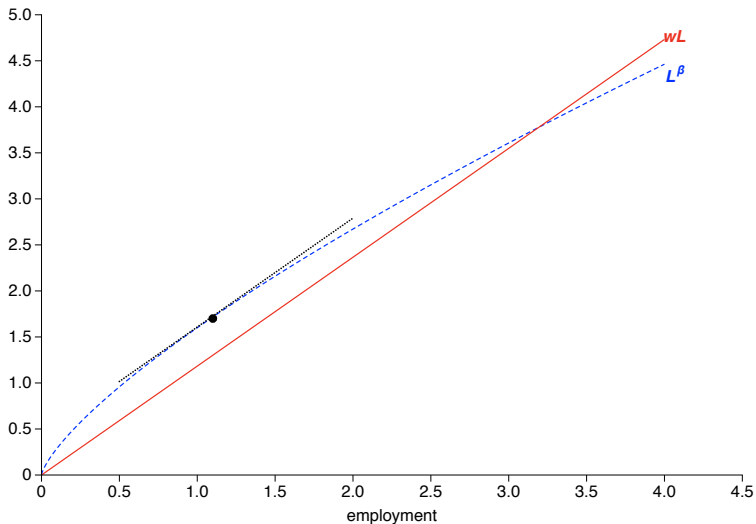
Debt is chosen to fill the gap.

- ▶ Debt is collateralized by one unit of land.
- ▶ No interest tax deduction.
- ▶ Debt fills in the difference between inflows and outflows:

$$e^z L^\beta - wL' - RD$$

- ▶ Unless the gap is positive. Then debt is zero.
- ▶ Implication is no external equity finance.

But there is no gap to fill



But there is no gap to fill

- ▶ Unless there is old outstanding debt.

- ▶ When I solve and simulate the model, I quickly get for the time series of debt:

something
something smaller

0

0

0

0

0

0

0

0

⋮

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⋮

no tax shield!

This optimal policy does not describe actual firms.

- ▶ The implication is that all of their quantitative results are based on out-of-steady state behavior.
- ▶ The firm is wending its way to zero debt.
- ▶ The only way to have debt on the balance sheet is to start out with debt on the balance sheet.

The financial friction in the model is redundant.

- ▶ Modigliani-Miller is broken by two important frictions:
 - ▶ No external equity finance
 - ▶ Collateral constraint
- ▶ The extra financial friction,

$$\frac{\phi}{2} D'^2,$$

just makes the optimal policy of zero debt more optimal.

The financial friction does not correspond to the natural experiment.

- ▶ The friction represents a big cash flow shock, $\frac{\phi}{2}D'^2$, to firms young enough to have too much debt on the balance sheet.

- ▶ Does not correspond to a credit freeze.

Sketch a better model with interesting leverage dynamics

► Keep important features

① Same technology: $e^z L^\beta$, $z' = \kappa z + \sigma_z \varepsilon'$

② No equity finance

③ Collateralized debt

Sketch a better model with interesting leverage dynamics

► Three changes

- 1 Lose the redundant financial friction: $\frac{\phi}{2}D^2$
- 2 Add an interest tax shield
- 3 Make the collateral constraint stochastic

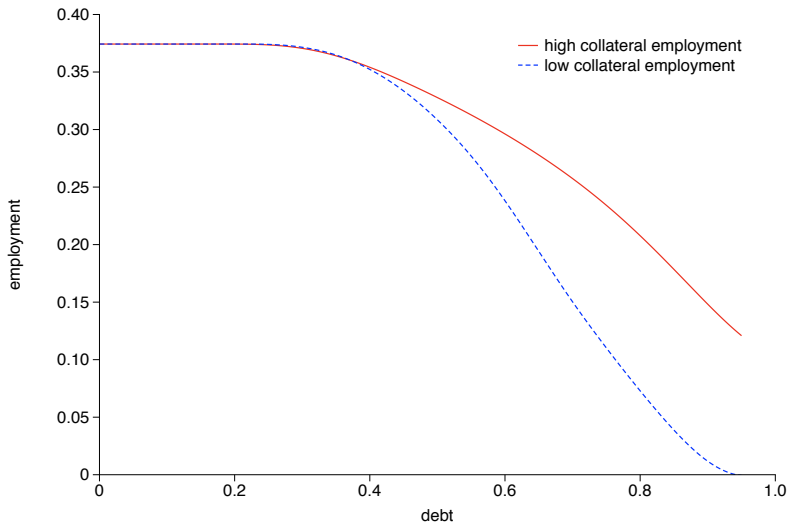
The collateral constraint follows a two-state Markov process.

- ▶ Either 1 or a small number.
- ▶ Stays at 1 with a very high probability.
- ▶ If it tightens, then it moves back to 1 with a high probability.

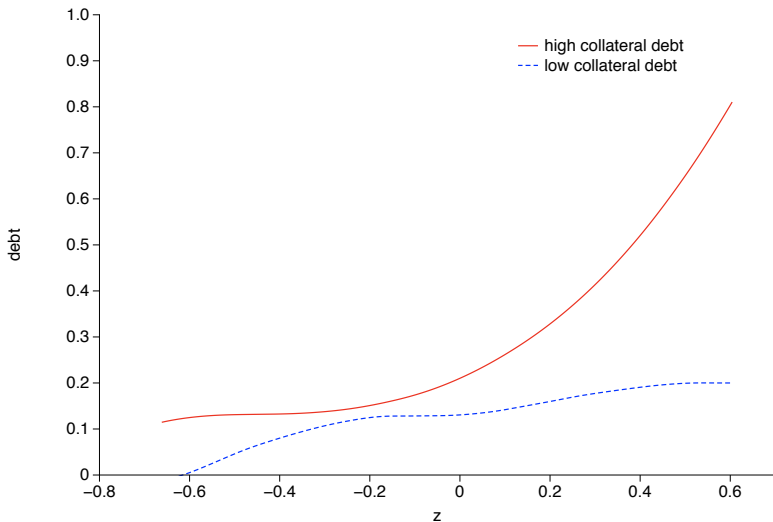
This friction is has three nice features.

- ▶ Easy to think about expected and unexpected frictions!
- ▶ Easy to think about permanent and temporary frictions!
- ▶ Corresponds more closely to the empirical work!

Optimal employment is decreasing in leverage and collateral matters



Firms conserve debt capacity



This model can answer further interesting questions.

- ▶ It can still quantify the role of financial frictions in generating employment losses.
- ▶ Is it obvious that firms would have cut employment?
- ▶ What kinds of firms would be more likely to cut employment?
- ▶ How much does it matter that the Depression was unanticipated?

This is the best type of paper to discuss!

- ▶ Basically really good!!!
- ▶ Part of it is preliminary
- ▶ I hope I added value