Discussion of "Trading Down and the Business Cycle" by Nir Jaimovich, Sergio Rebelo and Arlene Wong

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Stanford

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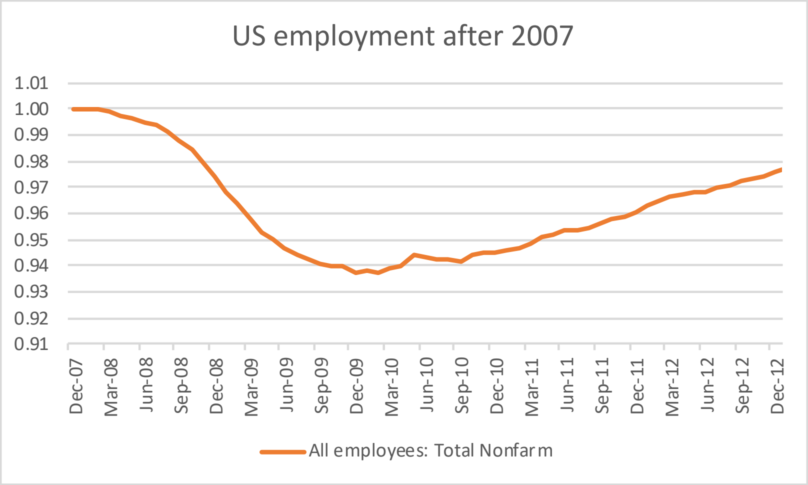
What this paper is about



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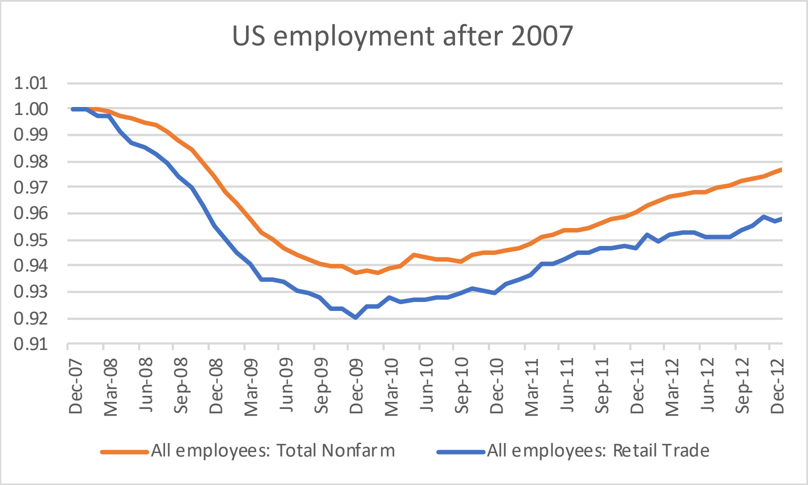

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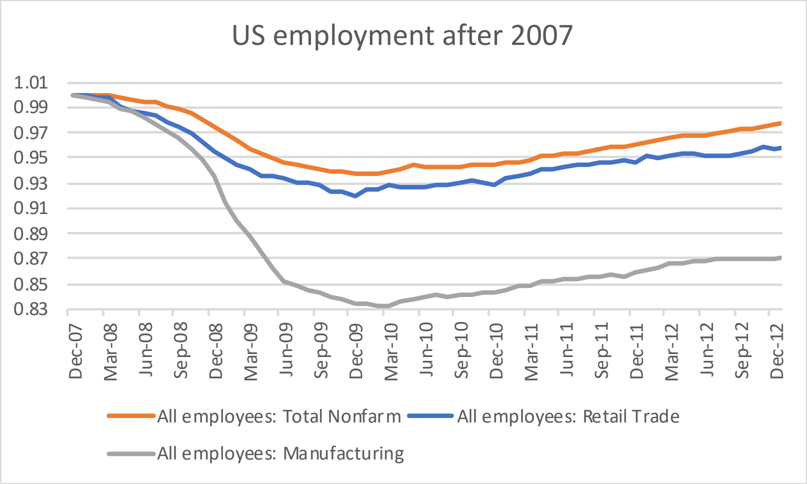

Decomposing aggregate employment effects

- Consider retail employment H and sales PY as sums over firms of different quality $q \in Q$

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$$dh = \sum_q (ds_q)\, h_q + \sum_q s_q\, (dh_q)$$

- Since $\sum_q ds_q = 0$, this is also

$$dh = \mathrm{Cov}_Q\,(ds_q, h_q) + \sum_q s_q\,(dh_q)$$

The trading down effect

- **Conclusion**: change in aggregate retail employment dH is

$$dH = \underbrace{\mathrm{Cov}_Q \left(ds_q, h_q\right) \cdot PY}_{\text{Trading down effect}} + \underbrace{\sum_q s_q \left(dh_q\right) \cdot PY + d\left(PY\right)}_{\text{Macro effect}} \qquad (1)$$

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Quality q	Low	Middle	High
h_q	5.41	8.49	10.36
ds_q	0.07	-0.06	-0.01
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- Conclusion: **trading down effect** is negative...
  - and accounts for >80% of the job loss in retail (54 in manufacturing)

Discussion

- Equation (1) is an accounting decomposition
- Has some very significant advantages:
  - Requires no assumptions!!
  - Straightforward to implement with the right data
  - Generates new and nice stylized facts
- But also has drawbacks:
  - Challenging to implement in practice
  - Accounting $\neq$ causal decomposition
  - Model section helps with some aspects of this, but could do more
- **Next**: discuss empirics and model in turn

Discussion of empirical results

- Empirical implementation very creative:
  - Yelp data to measure quality tier as within-sector price tier
  - Related to a literature on quality measurement in trade
- Several challenges in practice. For instance:
  1. Requires making heroic extrapolation assumptions for h_q
     - Why not use Census employment data instead of Compustat?
  2. Quantitative results appear quite sensitive to choices
     - Counting 2007-2009 as recession period, share of trading down only 20% vs 88% in baseline 2007-2012. Why?
     - Equation (1) does not deal well with trends
     - That said, I am convinced that the qualitative pattern is there

From accounting to causal decomposition

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  - Empirical issue: we lack identification
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- Simple model that captures the story the authors have in mind:
  - Exogenous prices P_q, rental rate R, wage rate W and income Y
  - Consumers have **nonhomothetic** utility $U(\{C_q\})$, income PY, demand

$$P_q C_q = s_q(\{P_q\}, Y) \cdot PY$$

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Comments on the model

- Equation (2) is the same as (1), but is model-based
  - On labor demand side, need average = marginal to avoid extra term
  - Key remaining question is where prices and incomes come from
  - This is what GE models help us do!

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- Equation (2) is the same as (1), but is model-based
  - On labor demand side, need average = marginal to avoid extra term
  - Key remaining question is where prices and incomes come from
  - This is what GE models help us do!
- The model has these ingredients but loses track of (1)–(2)
  - Quality/quantity model has a unique quality in equilibrium
  - Used to get RBC amplification and comovement
  - Heterogeneous agent similarly a bit underexploited
  - **My advice:** use Stone-Geary model instead, see if model and data decompositions can be reconciled
  - Would round up the paper very nicely

The model of production

- Production function has the form

$$Y = A\left[\alpha\left(\frac{L}{q}\right)^{\frac{\epsilon-1}{\epsilon}} + (1-\alpha)\,K^{\frac{\epsilon-1}{\epsilon}}\right]^{\frac{\epsilon}{\epsilon-1}}$$

- Assumptions:

1. If q doubles, would need to double L to produce same Y
2. When $\epsilon < 1$, increase in q raises MPL relative to MPK

$$\frac{F_L}{F_K} = \frac{\alpha}{1-\alpha}(q)^{\frac{1-\epsilon}{\epsilon}}\left(\frac{L}{K}\right)^{-\frac{1}{\epsilon}} = \frac{W}{R}$$

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- Factor demand properties, if $\overline{\alpha} \equiv$ initial labor share and $\epsilon < 1$:

1. Higher quality goods are more expensive, $\frac{dP}{P} = \overline{\alpha}\frac{dq}{q}$
2. Firms employ more capital to produce each unit, with $\left.\frac{dK}{K}\right|_Y = \epsilon\overline{\alpha}\frac{dq}{q}$
3. Firms also employ more labor $\left.\frac{dL}{L}\right|_Y = \left[\epsilon\overline{\alpha} + 1 - \epsilon\right]\frac{dq}{q}$
4. Relative labor intensity increases $\left.\frac{dL/K}{L/K}\right|_Y = (1-\epsilon)\frac{dq}{q}$

- Nice homothetic form capturing differential labor intensity by q

The model of quality/quantity choice

- Consumers choose

$$\max U(C,q) \equiv \frac{q^{1-\theta}}{1-\theta} \log C$$
$$\text{s.t.} \quad P(q)\, C = y$$

- FOC is

$$(1-\theta) \log C = \frac{qP'(q)}{P(q)}$$

- Recall from production side that $\frac{qP'(q)}{P(q)} =$ labor share
  - RBC model relies on procyclical labor share as key driving mechanism
  - Would be nice to also confront this prediction to the aggregate data

Conclusion

- Very nice and thought-provoking paper:
  - New stylized fact: consumers traded down in the retail sector during the great recession
  - New decomposition of aggregate employment change, with creative implementation
- The empirical and theoretical sections could be unified by computing the sufficient statistic

$$\mathrm{Cov}_Q\left(ds_q, h_q\right)$$

in the model with multiple goods and comparing it to the data

Thank you!