The Interest Rate Elasticity of Investment: Micro Estimates and Macro Implications

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QUESTION OF THE PAPER

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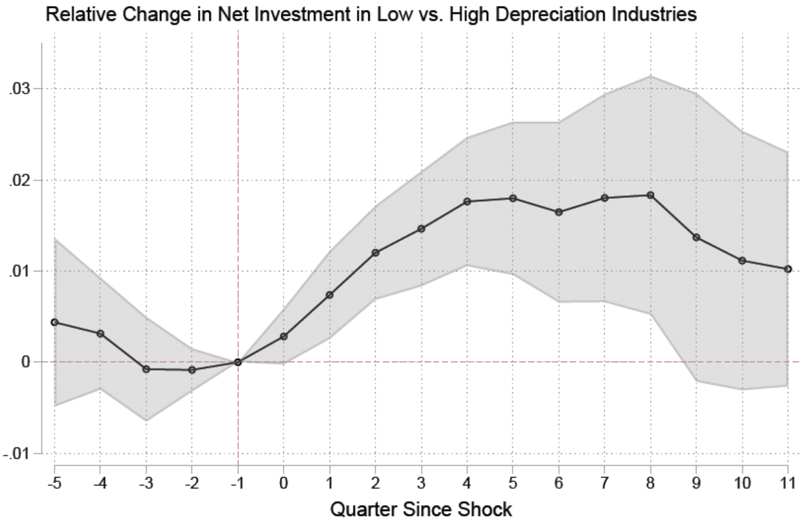
MAIN IDEA OF THE PAPER

- Consider two industries in the construction sector
  - Industry L: capital is metal, low depreciation rate
  - Industry H: capital is wood, high depreciation rate
- Compare capital response to monetary policy surprise for L vs. H in year t
- Gives us the PE effect of a change in the user cost of capital, because:
  - Differences in depreciation rates = differences in user cost of capital
  - Inside a sector inside a year, assume no differential GE effects across industries

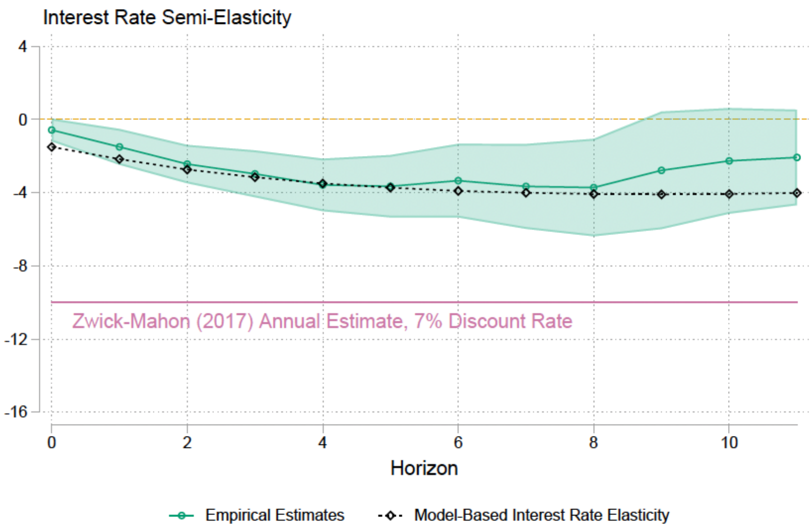
OVERVIEW OF THE PAPER

- Simple model to formalize intuition
  - Take "difference-in-differences" of $\alpha z K^{\alpha-1} = R + \delta + \Theta$
- Panel local projections
  - $\log k_{f,t+h} - \log k_{f,t-1} = \beta_h \, \varepsilon_t \delta_i + \alpha_{f,h} + \alpha_{s\times t,h} + \Gamma' Z_{f,t-1} + \eta_h z_{i,t} + e_{f,t,h}$
- Quantitative model
  - $V_t(k, z, \delta) = \max f(k, z, n) - w_t n - q_t\big(k' - (1-\delta)k\big) + E_t\Big[\frac{1}{1+r_t} V_{t+1}(z, k', \delta)\Big]$

FINDINGS


Relative Change in Net Investment in Low vs. High Depreciation Industries
.03
.02
.01
0
-.01
-5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11
Quarter Since Shock

FINDINGS


Interest Rate Semi-Elasticity
4
0
-4
-8
-12
-16
0
2
4
6
8
10
Horizon
Zwick-Mahon (2017) Annual Estimate, 7% Discount Rate
Empirical Estimates
Model-Based Interest Rate Elasticity

MY COMMENTS

1. Positioning in the literature
2. GE vs. PE
3. δ vs. α
4. Correlation of δ with firm characteristics
5. Standard errors

POSITIONING IN THE LITERATURE

- Many papers proceed as follows (slight caricature):
  - "How does the investment response to monetary policy vary with x_{it}?"
  - "Easy! Let's run a panel local projection, interacting MP surprise with x_{it}"
  - "Here are the results"

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- Many papers proceed as follows (slight caricature):
  - "How does the investment response to monetary policy vary with x_{it}?"
  - "Easy! Let's run a panel local projection, interacting MP surprise with x_{it}"
  - "Here are the results"
- This paper proceeds as follows:
  - Let's carefully think about what we want to identify
  - Interacting MP surprise with δ_i serves an identification purpose
  - The results inform us about a well defined elasticity
- I commend the paper for this thoughtful approach
- Related in spirit to Zwick and Mahon (2017)

GE vs. PE

- Variation is within sector*time, across industries with different depreciation rates
- GE effects on high vs. low δ industries within same sector must be the same
- Plausible?

GE vs. PE

- Variation is within sector*time, across industries with different depreciation rates
- GE effects on high vs. low δ industries within same sector must be the same
- Plausible?
- Maybe $R \downarrow$ increases demand more for construction goods produced with metal than for construction goods produced with wood
  - Even though these industries are in the same sector and year
- Maybe metal purchases easier to finance than wood purchases when $R \downarrow$
  - Not a user cost effect but a financial friction GE effect that differs across industries

GE vs. PE

- One response to this concern: many controls are added
- But: the controls are always lagged; the LP is run at horizon h
- I do not see how an LP can control for **GE effects between** $t-1$ **and** h
- We have to trust that dynamic GE effects do not kick in differently across industries with different depreciation rates (within a sector)
- Note: Zwick and Mahon (2017) did not use local projections

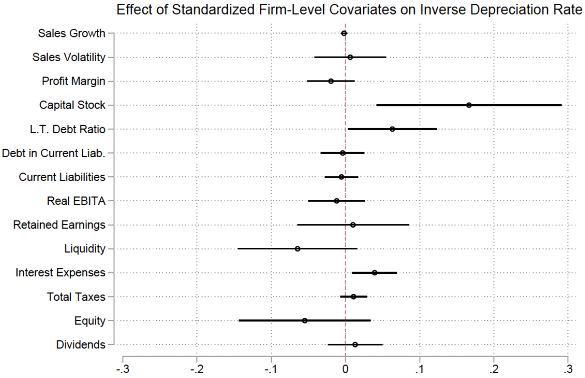
δ vs. α

- The user cost elasticity is inherently linked to the curvature in production α

$$\Psi = \frac{1}{\alpha - 1}$$

- Paper assumes δ_i varies across firms, but not α
- Somewhat difficult to accept
- The paper actually shows that firms with smaller δ_i have larger k_i

CORRELATION OF δ WITH FIRM CHARACTERISTICS

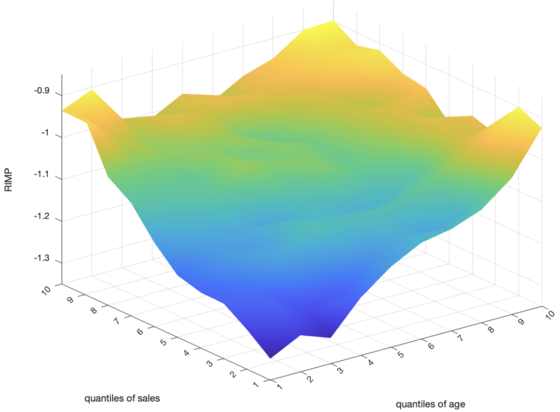


- Linearly, δ is not correlated with many firm characteristics $\rightarrow$ quite reassuring
- My concern is that these relationships might be nonlinear

NONLINEARITIES & MULTIDIMENSIONALITY IN THE RIMP

- Insights from some new work (Drechsel, Lewis, Melcangi, and Pilossoph, 2026)
- Instead of $\beta\varepsilon_t x_{it}$ we examine $\beta_{g(i,t)}\varepsilon_t$ using a clustering approach
- We estimate group membership $g(i,t)$ which varies across i and t
- Based on this procedure, we get a posterior estimate of the responsiveness of investment to monetary policy ("RIMP") for every firm and time $\widetilde{\gamma}_{i,t}$
- We link $\widetilde{\gamma}_{i,t}$ to firm observables ex post

NONLINEARITIES & MULTIDIMENSIONALITY IN THE RIMP



- RIMP nonlinearly connected to (multidimensional) observables
- Same might be true for δ

STANDARD ERRORS

- Paper uses two-way clustering, following several preceding panel LP papers
- Great “manual style” paper on panel LPs: Almuzara and Sancibrián (2024)
- Recommendation: cluster only by time

CONCLUSION

- Central question in macroeconomics
- Very clever idea
- I see a clear place for this paper in the literature
  - "Zwick-Mahon meets Ottonello-Winberry"
- Based on my comments, I recommend:
  - Explaining more transparently which assumptions the reader needs to accept
  - Any auxiliary tests to support those assumptions would be helpful
  - Since I like the idea, I am willing to accept fairly strong assumptions
  - But I would like to see more work dedicated to explaining and checking them

BIBLIOGRAPHY

ALMUZARA, M. AND V. SANCIBRIÁN (2024): "Micro responses to macro shocks," *FRB of New York Staff Report*.

DRECHSEL, T., D. LEWIS, D. MELCANGI, AND L. PILOSSOPH (2026): "The Investment Channel of Monetary Policy: Disentangling Firm Heterogeneity," .

ZWICK, E. AND J. MAHON (2017): "Tax Policy and Heterogeneous Investment Behavior," *American Economic Review*, 107, 217–248.