

**“The Impact of Uncertainty Shocks:
Firm Level Estimation and a 9/11
Simulation**

by Nick Bloom

Discussion by Valerie Ramey

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Contributions of the Paper

- Documents large but short-lived bursts of uncertainty
- Builds a structural firm-level model with costly reversibility and nonconvex adjustment costs on investment and employment
- Estimates the structural parameters using Compustat data
- Simulates the effect of uncertainty shocks on aggregated data

Assessment

- Ambitious paper that tackles important, but technically challenging, topic
- Meticulous attention to detail, particularly to aggregation across units and over time
- Many robustness checks of model and estimation

Outline of Discussion

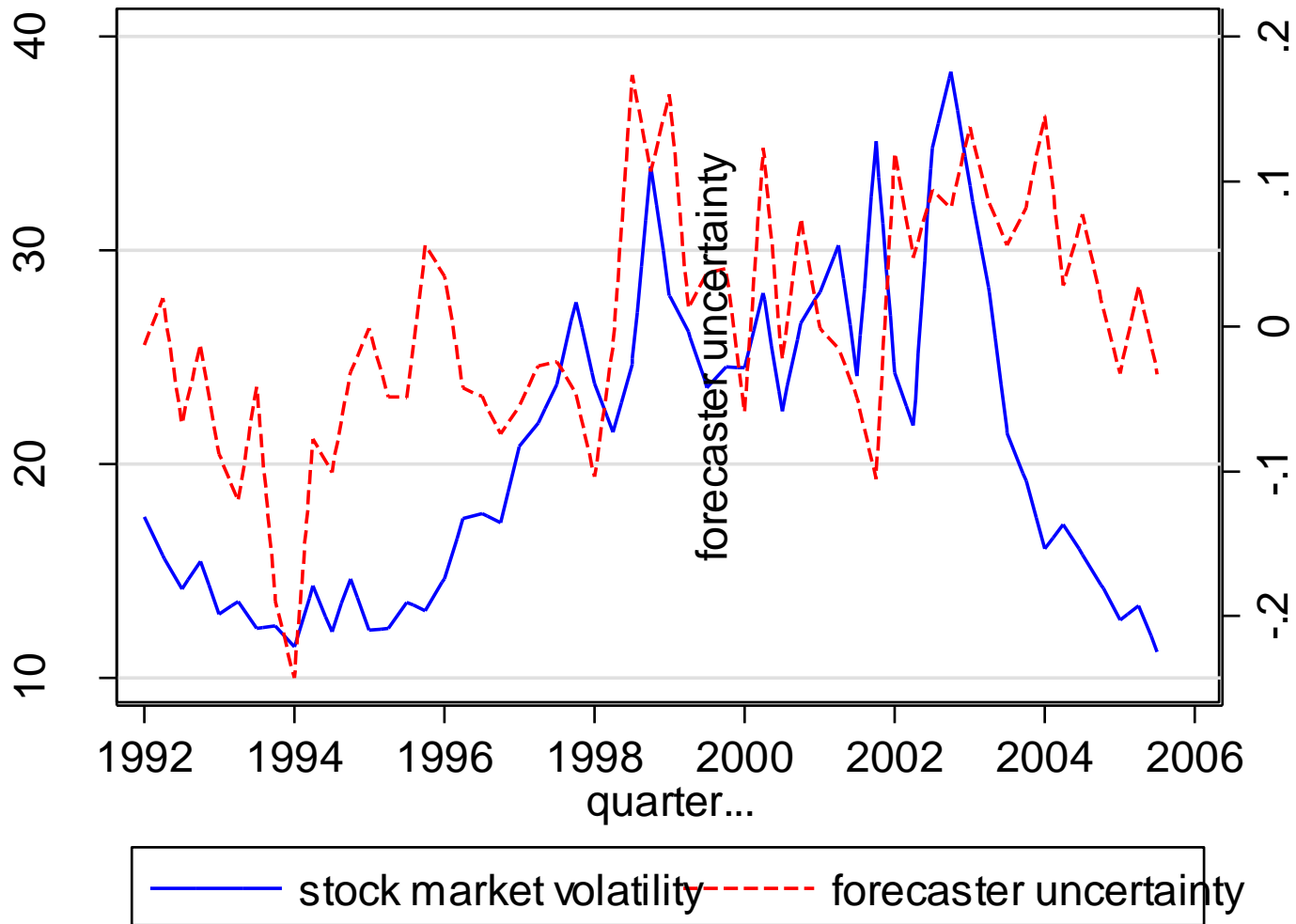
1. Measures of uncertainty
2. Compustat data
3. An unexploited implication of the model
4. VAR estimates of the effects of uncertainty
5. Conclusions

1. Is stock market volatility the right measure of uncertainty?

Alternative measures:

- ARCH
- Professional forecaster uncertainty about GDP growth (Philadelphia Fed data)

Comparison of Uncertainty Measures



Correlations of Measures

- (Forecaster(t), Stock market (t)) = 0.46
- (Forecaster(t), Stock market (t-1)) = 0.53

2. Compustat Data

- Bloom uses Compustat data to estimate his model.
- He drops observations with jumps of 200% or -66% in the employment and capital stocks. Uses only manufacturing firms with 500+ employees and a full 10 years of data. He uses current year price deflators.

Major Problem with Compustat Data

Acquisitions and mergers are very problematic for Compustat data

Ramey and Shapiro “Capital Churning” learned the hard way.

We first used variable 30, assuming it was purchases of new capital, and got crazy results from our procedure that calculated the average age of capital.

We tried to use other variables from the statement of cash flows to disentangle new investment and acquisitions, to no avail.

Compustat Variable 30

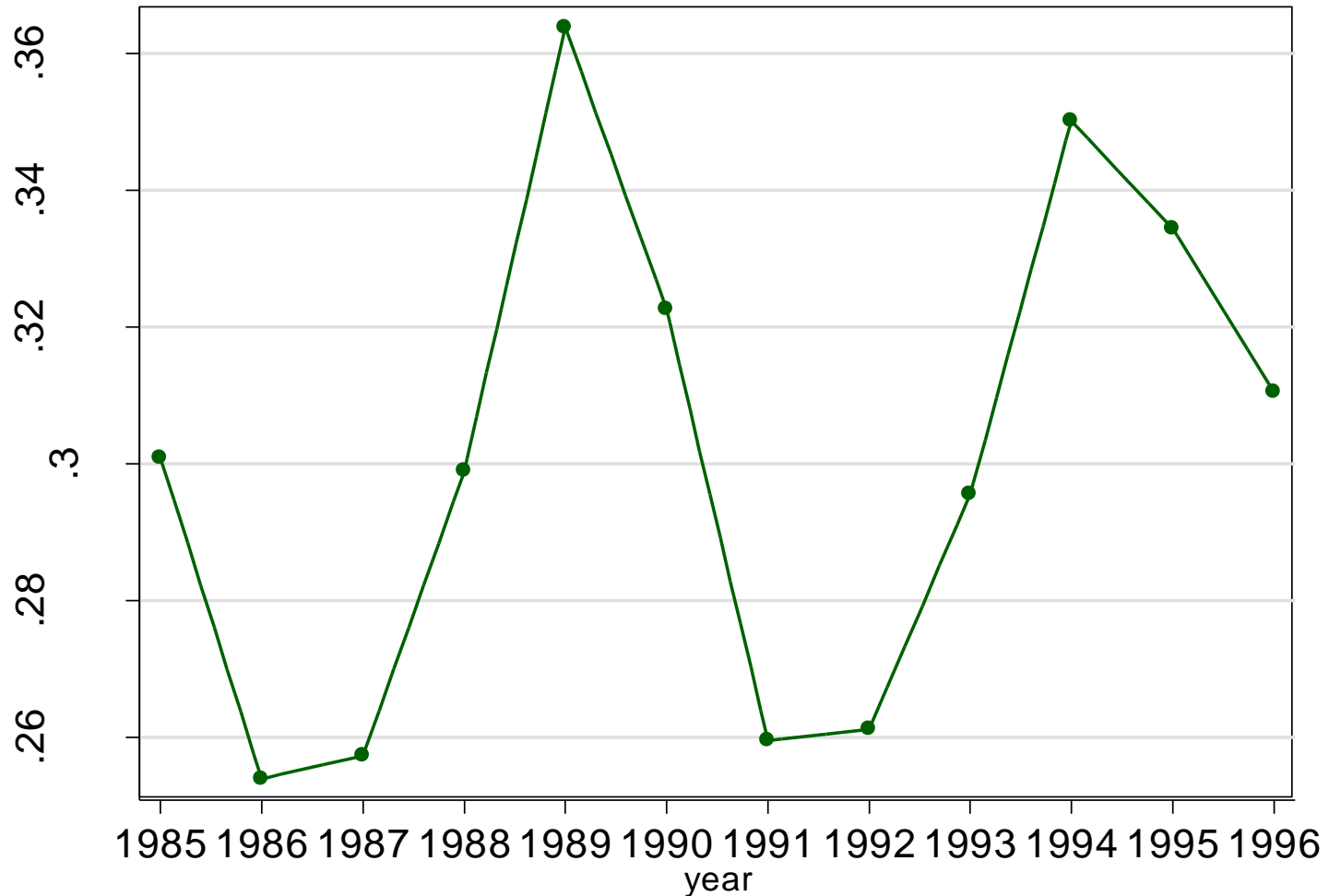
Property, Plant, and Equipment – Capital Expenditures.

“This item represents the amount spent for the construction and/or acquisition of property, plant, and equipment.”

“This item includes: Property, plant, and equipment of purchased companies”

Capital Expenditure Rate at Ford

(relative to net book value of plant, property, and equipment)



Timeline of Ford Acquisitions and Sales

1986: Purchased New Holland

Bought First Nationwide Bank

1987: Purchased Versatile

(based on these purchases, Ford becomes #3 agricultural equipment maker in the world.)

1989: Bought Associates and Jaguar

1990: Sold Ford Aerospace

1993: Sold N. American Automotive Seating

1994: Sold Nationwide Bank

Acquired Volvo's share in Hertz

Assessment

Estimating Bloom's model using Compustat data

is like

“casting pearls (the model)

before swine (Compustat data)”

3. An Unexploited Implication of the Model

Consider the model's revenue function:

$$\text{Max PDV of } R(Y, K, L, H) = Y^{1-a-b} K^a (L \times H)^b - \text{Costs}$$

where

$$\text{Costs} = w_1 \times (1 + w_2 H^\gamma) L$$

+ adjustment costs involving L and K, but not H

Effect of a Pure Second Moment Shock

- Net hiring rate will fall
- Investment will fall

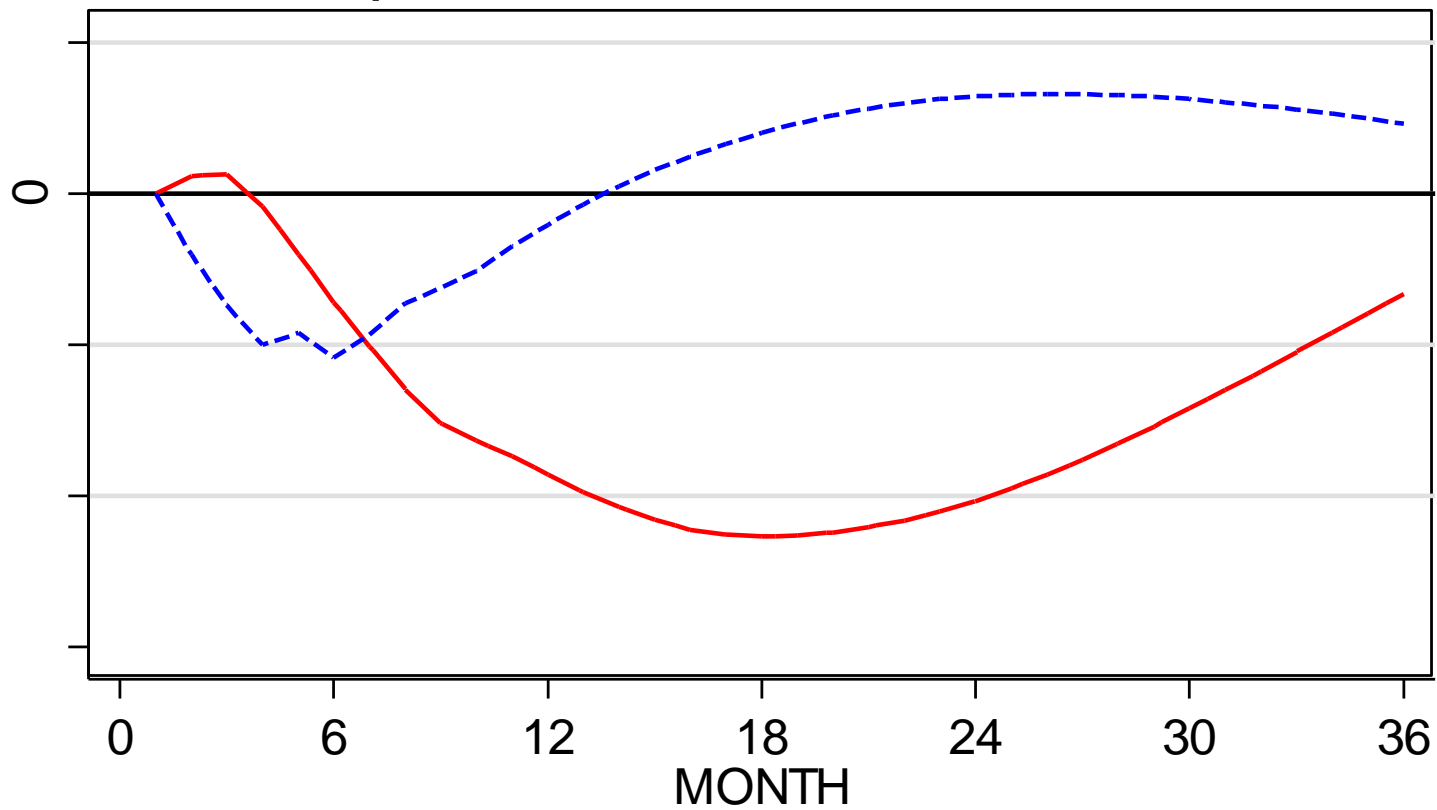
But:

- Average hours per worker should rise!

4. What is the Empirical Effect of Uncertainty Shocks?

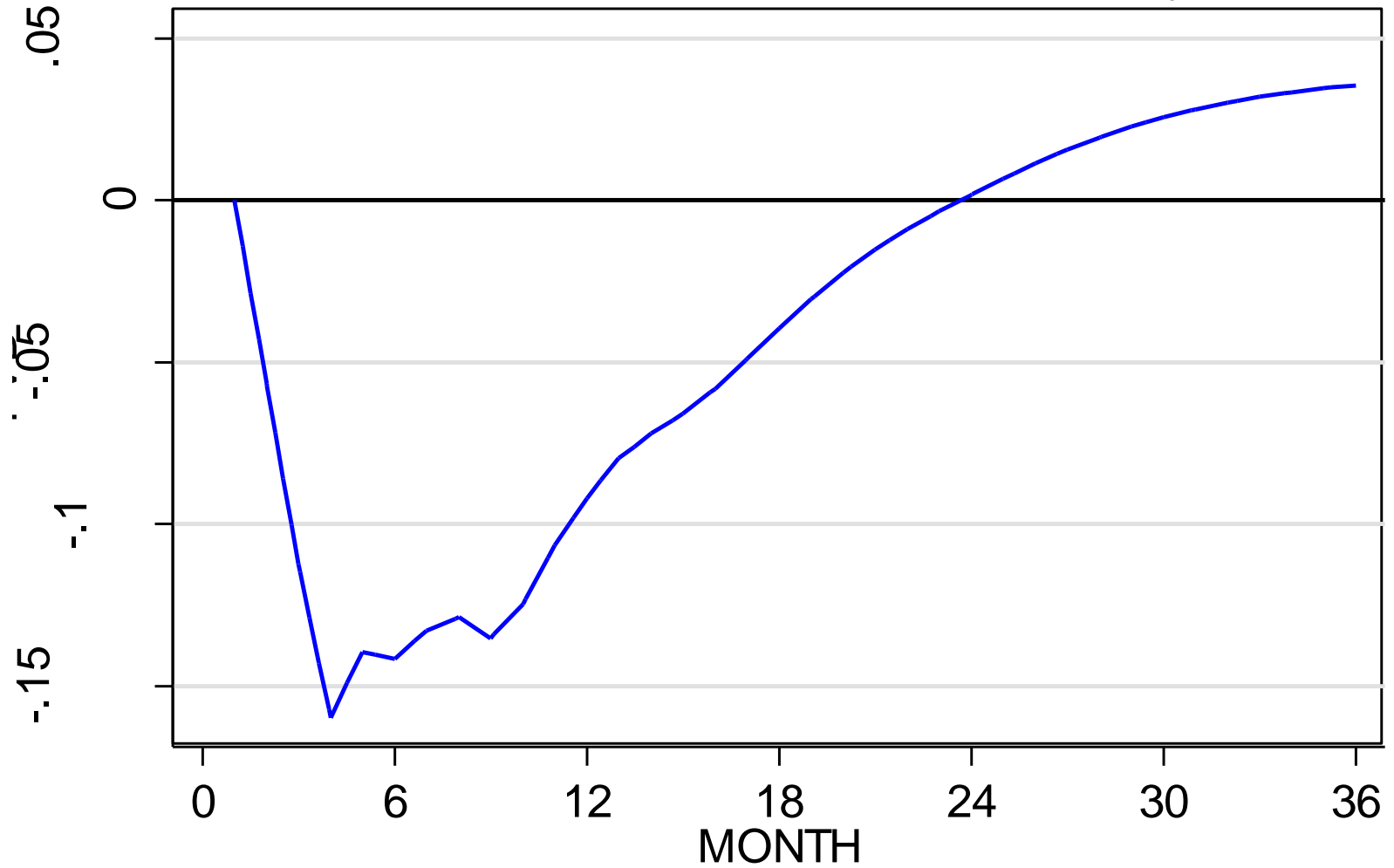
- Bloom only estimates structural parameters for firms and then uses them to simulate
- It would be interesting to see the reduced form effects of the uncertainty shocks
- To this end, I estimated a VAR with industrial production, inflation, fed funds rate, Bloom's measure of uncertainty, and other variables of interest. I remove very low frequency movements; I use 6 monthly lags; data from 1962 through 2005

Response of Industrial Production

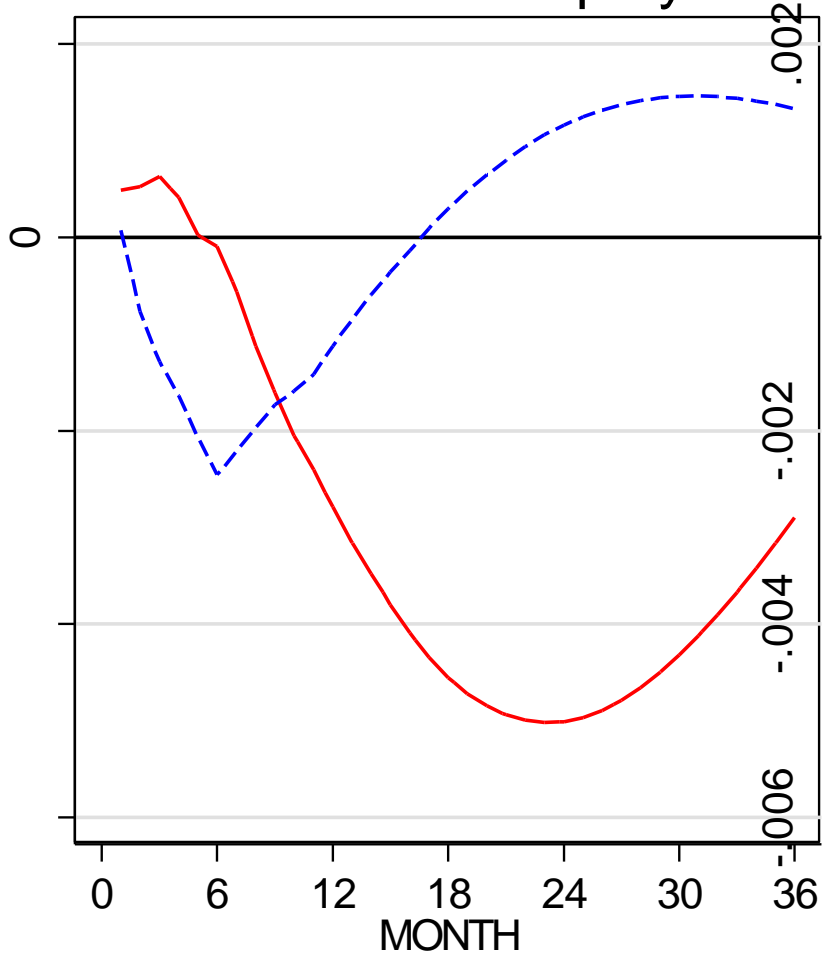


— fed funds shock - - - - volatility shock

Response of Funds Rate to Volatility Shock

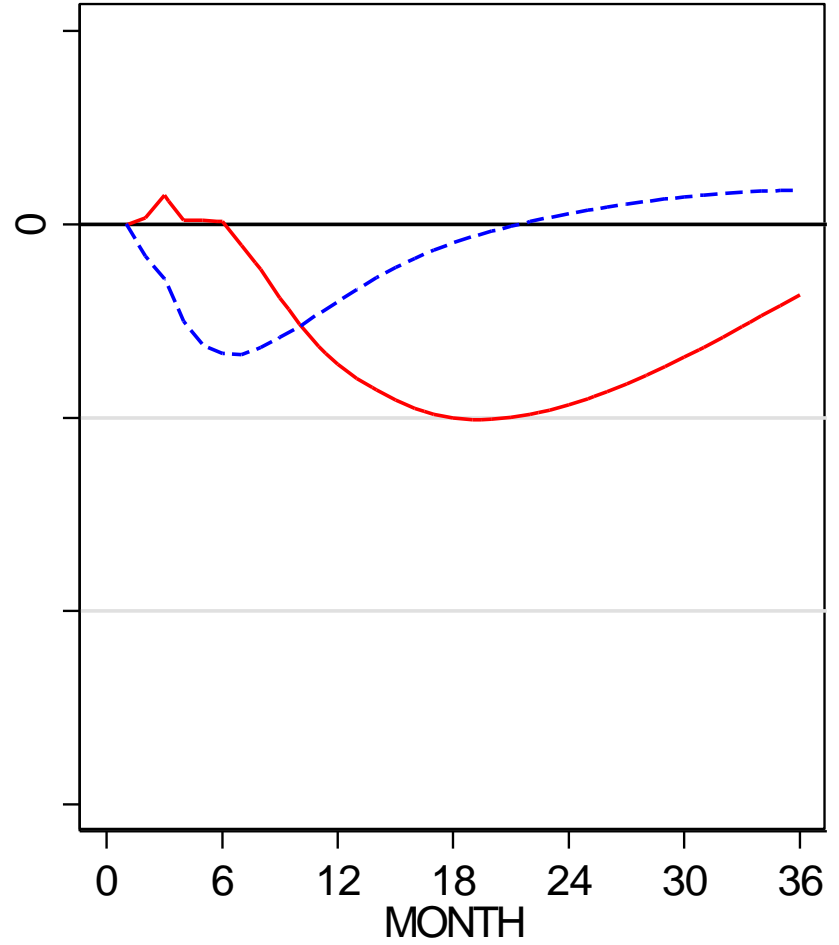


Durable Manuf Employment



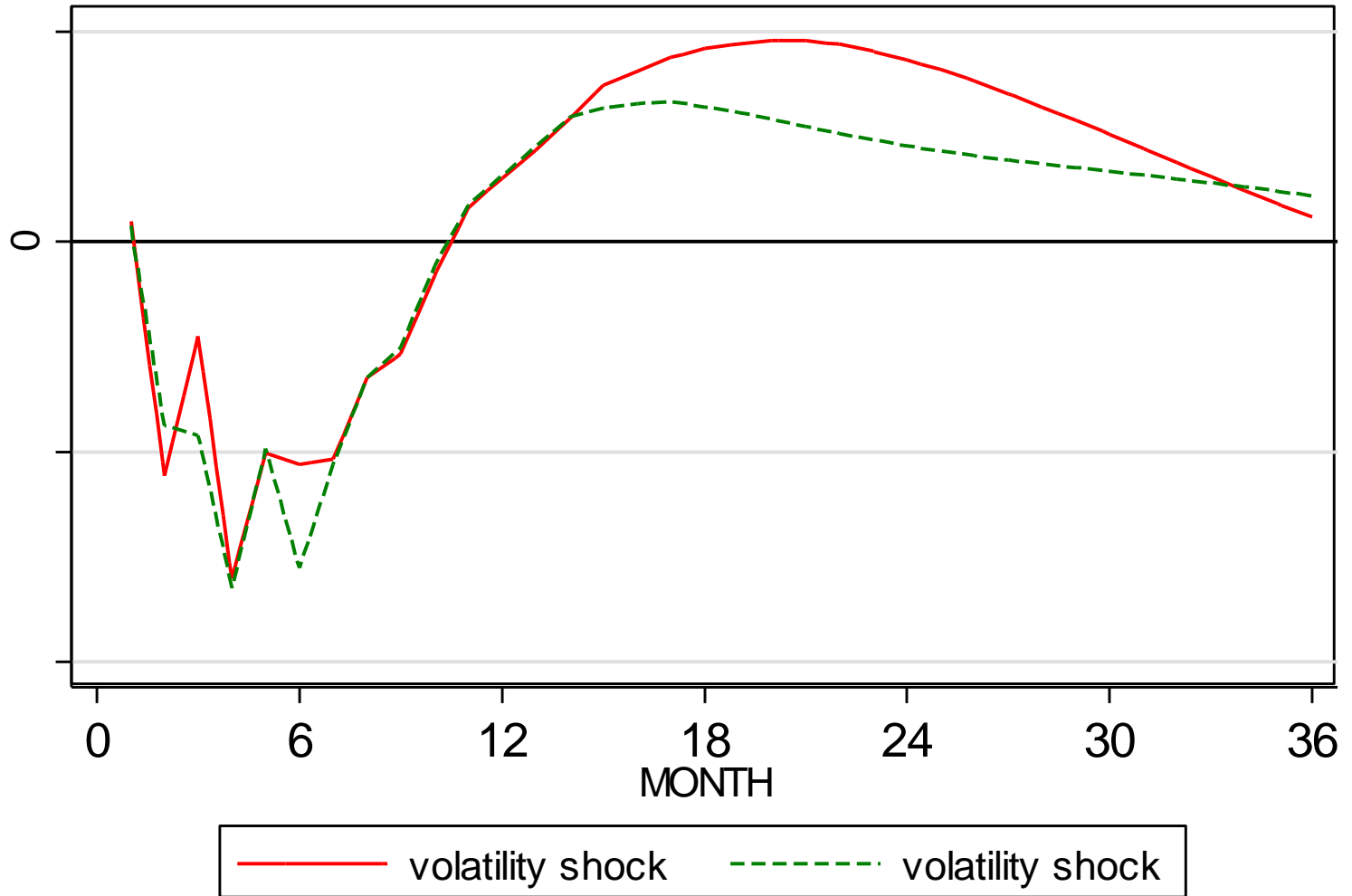
— fed funds shock - - - volatility shock

Nondurable Manuf Employment



— fed funds shock - - - volatility shock

Response of Avg. Weekly Hours to a Volatility Shock



Assessment

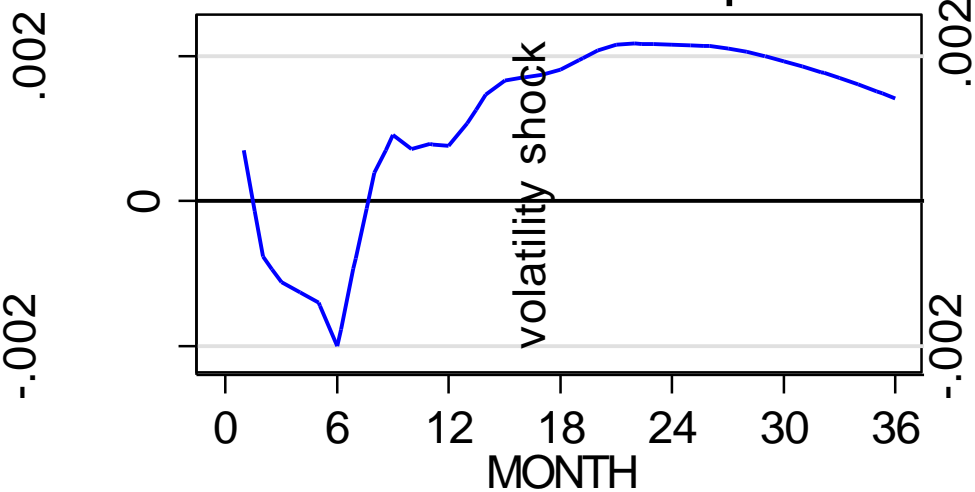
The previous graph suggests that first moment effects are more important than second moment effects.

But it doesn't imply that uncertainty is unimportant. What Bloom does not study is the effect of uncertainty on firms' *demand*, i.e., uncertainty has first moment effects.

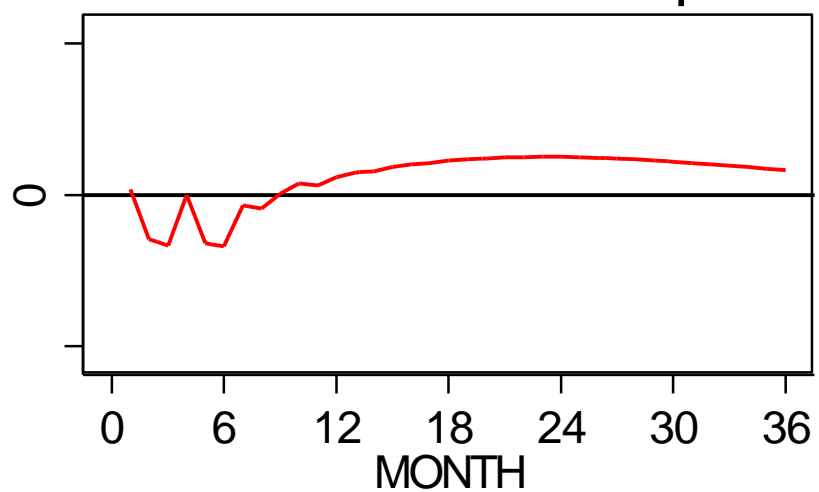
↑ uncertainty → ↓ investment → ↓ demand for capital goods firms

↑ uncertainty → ↓ consumption → ↓ demand for consumer goods firms (particularly durables, since partially irreversible)

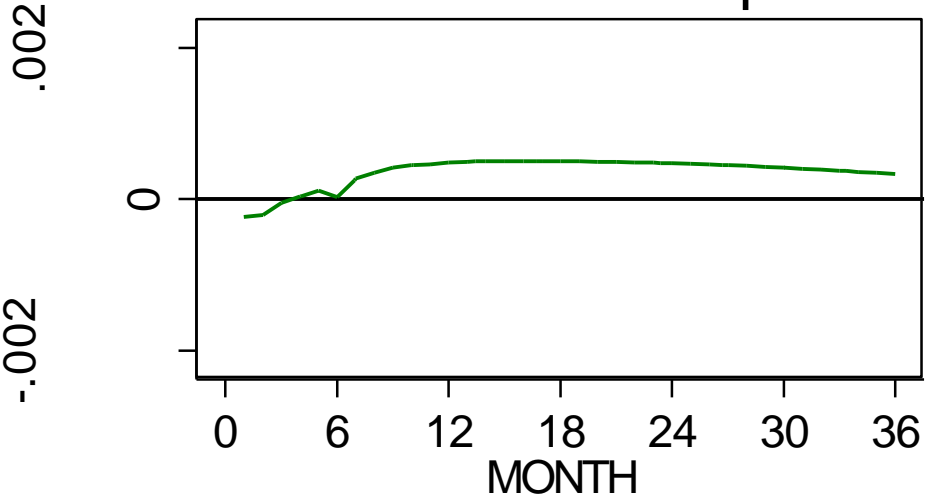
Durable Consumption



Nondurable Consumption



Services Consumption



Conclusion

Ambitious paper that just begins to study the
importance of uncertainty shocks

Much more work should be done on this topic