The Propagation of Shocks Across the Production Network: Implications for Monetary Policy

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discussed by Michael Weber

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"The fact that an individual firm's production occurs within a network of firms is typically ignored by macroeconomists."

Larry Christiano (2015)

Discussion of Acemoglu, Akcigit and Kerr (NBER Macro Annual 2016)

Before Networks: Where Transmission Comes From

- One sector NK model summarize production by NKPC
  Woodford (2003)
- Multisector models stress heterogeneity in price adjustment
  Carvalho (2006); Nakamura and Steinsson (2010)
- HANK models focus on heterogeneity in household balance sheets and MPCs
  Kaplan, Moll and Violante (2018)
- Financial-friction models place amplification on credit and balance sheets
  Bernanke, Gertler and Gilchrist (1999); Gertler and Kiyotaki (2010)

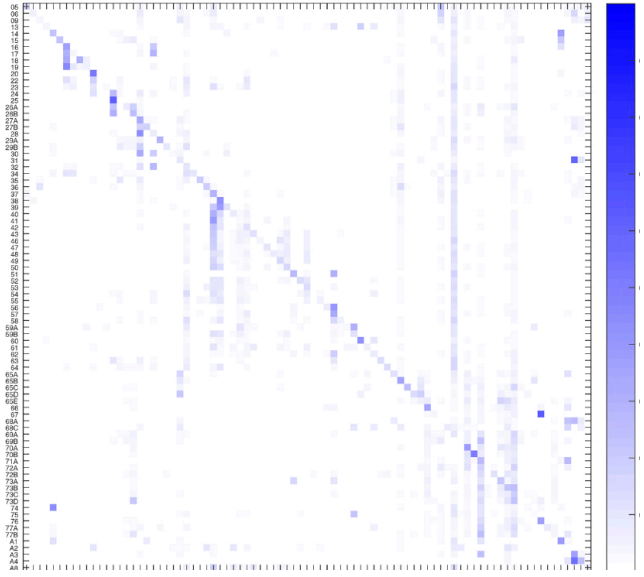
What is missing?

Where a shock originates and how it travels through production network key

This Paper

- Synthesizes ChaMP on production networks and monetary transmission
- Shows that shock transmission depends on sector and firm of origin
- Distinguishes demand, supply, financial, and MP shocks in networks
- Connects network propagation to EA heterogeneity and nonlinear PC
- Main contribution: networks become an input to monetary-policy diagnosis

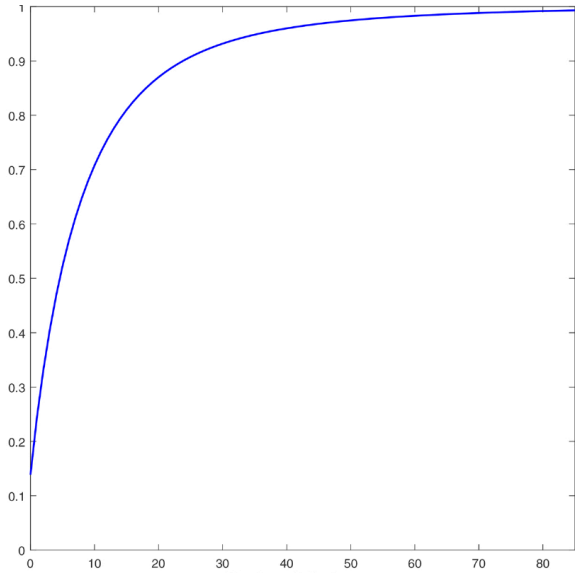
Why Network Position Matters



Source: *Monetary Policy through Production Networks*, Ozdagli and Weber (2026 RFS)

- Figure plots U.S. supplier-customer links across industries
- Sparsity coexists with central sectors and supply-chain clusters
- Shocks to central suppliers affect many downstream sectors
- Sector identity matters beyond the degree distribution
- **Policy implication:** locate the shock before diagnosing stance

From Network Position To Propagation



Source: *Monetary Policy through Production Networks*, Ozdagli and Weber (2026 RFS)

- Figure shows how many indirect rounds matter
- Zero-order term is the direct response without feedback
- Higher-order terms are rounds through the Leontief inverse
- Most of the monetary-policy response is indirect

  Ozdagli and Weber (2026); Ghassibe (2021)

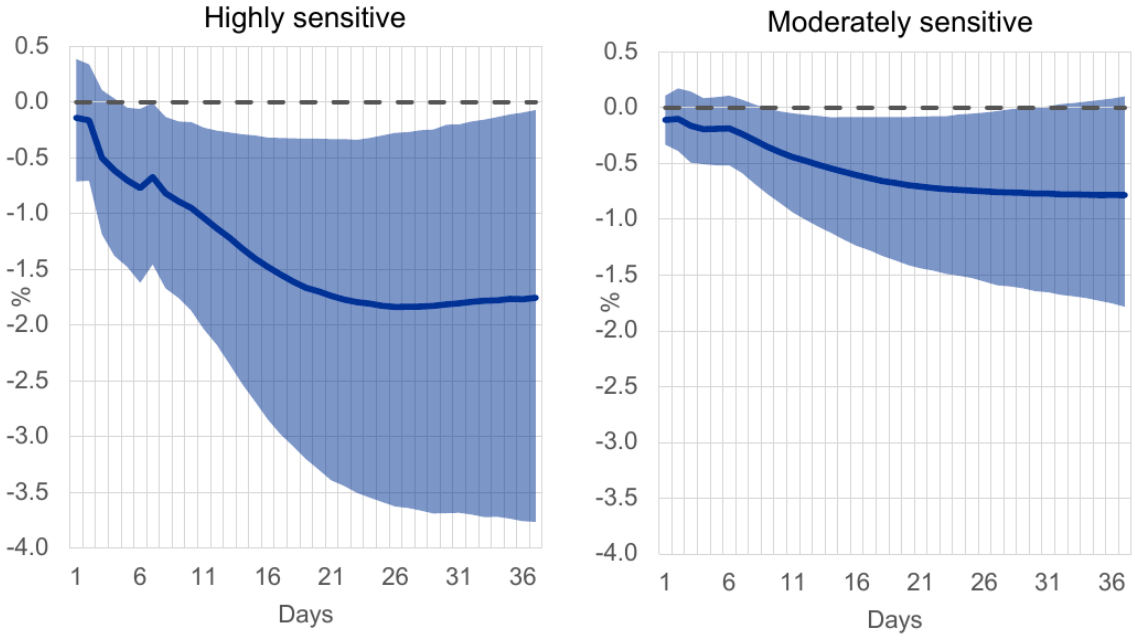
The Benchmark And How It Breaks

- In frictionless benchmark, Domar weights are sufficient for first-order effects
  Hulten (1978)
- Lucas's diversification argument makes small independent shocks average out
  Lucas (1977)
- Granularity breaks diversification when large or central sectors dominate
  Gabaix (2011); Acemoglu et al. (2012)
- Nominal rigidities break sufficiency by changing effective centrality
  Pasten, Schoenle and Weber (2024)
- Nonlinearities & constraints break it beyond first-order approximations
  Baqaee and Farhi (2019)

Supply Shocks Versus Demand Shocks

- Supply shocks propagate costs downstream through networks
- Demand shocks propagate upstream through customer-supplier chains
- State-dependent pricing turns large cost shocks into repricing cascades
  Ghassibe and Nakov (2026)
- Networks can dampen or amplify cascades depending on the shock
  - Demand shocks: muted price cascades and larger real effects
  - Input-cost shocks: amplified repricing and inflation persistence

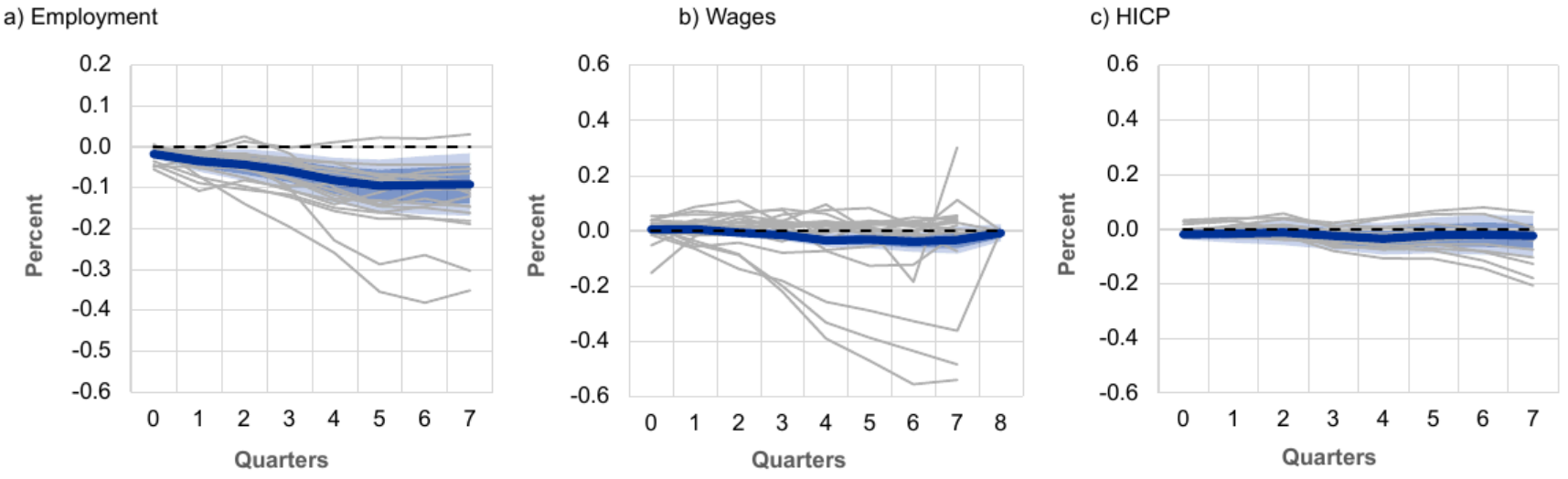
Monetary-Policy Pass-Through To Prices Is Heterogeneous



Source: Allayioti et al. (2025)

- Figure shows HICPX responses to a 25bp Bund-yield policy shock
- Only around one-third of core inflation items respond
- Discretionary and credit-sensitive items respond more strongly
- Sensitivity reflects demand cyclicality and price-setting frictions
- **Policy implication:** track pass-through by expenditure class

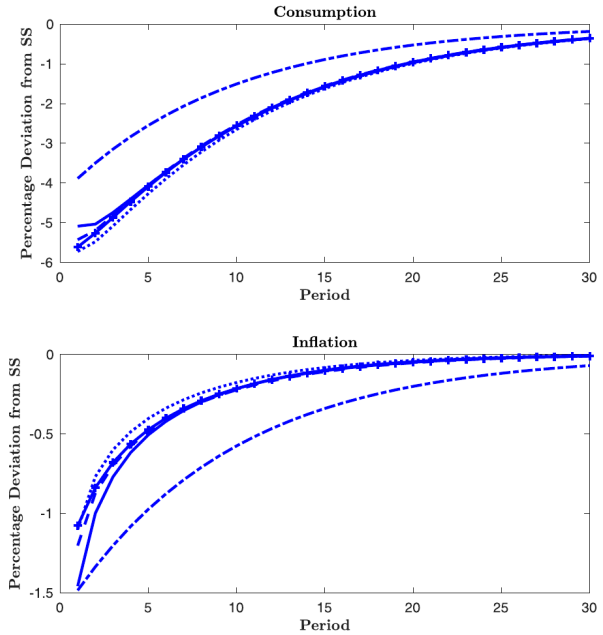
Monetary Policy Has Uneven Real Effects



Source: Rubbo et al. (2026)

- Figure plots employment, wage, and HICP responses after a policy shock
- Employment and wages decline everywhere
- **BUT:** common MP creates persistent dispersion across countries and sectors
- Industry composition and wage-price rigidities shape real contraction
- **Policy implication:** one policy instrument $\longrightarrow$ many transmission channels

Price Rigidity Reallocates Monetary Non-Neutrality



Source: *The Propagation of Monetary Policy Shocks*, Pasten, Schoenle and Weber (2020 JME)

- Sectoral price rigidity is central for monetary non-neutrality
- Input-output linkages determine where non-neutrality appears
- Similar inflation responses can coexist with different output effects
- **Policy implication I:** the inflation response alone is not diagnostic
- **Policy implication II:** rigidity upstream is partially inherited downstream

Aggregation Changes Measured Transmission

- Aggregation
  - masks concentration in high-throughput sectors
  - mismeasures Δ from final demand and upstream cost exposure
  - compresses heterogeneity in price and wage rigidities
- Coarser models can match impact inflation yet understate non-neutrality

  Pasten, Schoenle and Weber (2020)
- **Policy implication I:** aggregate inflation is not enough to infer real effects
- **Policy implication II:** B2B data wealth of info for policy & research

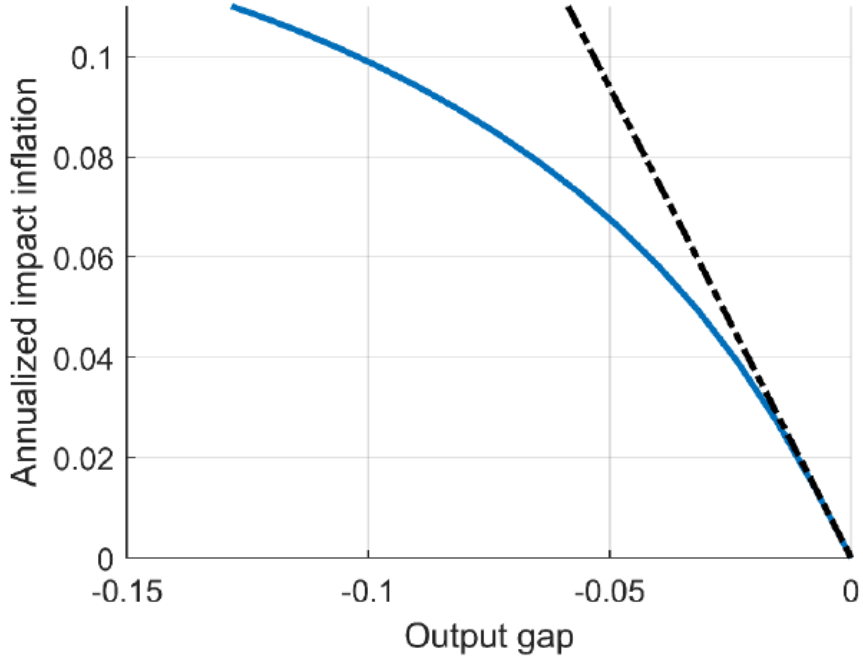
Frictional Centrality Re-Ranks Sectors

- Physical centrality is not same object as policy relevance
- A sector is policy-relevant when its shocks create aggregate trade-offs
- Price rigidity changes how sectoral shocks map into π & output volatility
- Size, supplier centrality, and rigidity must be evaluated jointly

  Pasten, Schoenle and Weber (2024); Rubbo (2023)

- **Policy implication:** monitor effective centrality, not only sales centrality

The Phillips Curve Becomes State Dependent



Source: Karadi et al. (2025)

- Large shocks make more firms adjust prices simultaneously
- Cost-push shocks can steepen Phillips curve
- Marginal cost of reducing inflation in terms of output loss lower
- **Policy implication:** *"strike while the iron is hot"*
  front-loading also lowers risk of de-anchoring

Divine Coincidence Breaks

- Networks break alignment of price and output
- Supply shocks create endogenous cost-push pressure
- Demand shocks can still create trade-offs with heterogeneity
- Optimal stabilization targets network-weighted distortions
- **Policy implication:** relevant inflation index is state contingent

  La'O and Tahbaz-Salehi (2022); Rubbo (2023)

What Central Banks Should Measure

- Sector size, Domar weights, and input-output centrality
  Hulten (1978); Acemoglu et al. (2012)
- Upstream exposure to energy, imports, and supplier concentration
  Ghassibe and Nakov (2026); Baqaee and Rubbo (2023)
- Frequencies of price and wage adjustment across sectors and countries
  Nakamura and Steinsson (2008); Pasten, Schoenle and Weber (2020)
- Capacity constraints, financial constraints, and market power
  Ahlander et al. (2025); De Sanctis et al. (2026)
- Firm-to-firm transactions with prices, quantities, wages, and balance sheets

Expectations Are the Next Layer

- Consumers rationally inattentive
- Form expectations from salient consumption categories
- Energy and food can dominate perceived inflation pressure
- Heightened inflation expectations can increase effective pricing power
- Expectations can turn cost shocks into demand volatility
- Future work should connect networks, narratives, and policy

  Dietrich (2024); D'Acunto et al. (2021); Weber et al. (2022)

What's Next?

- Decompose inflation into origin, propagation, and repricing margins
- Jointly estimate cost, demand, and financial shocks in networks
- Measure wage-price adjustment after large shocks, not only averages
- Link procurement, energy, and import exposure to trade-offs
- Integrate household expectations into network-based models
- Move from monitoring indicators to model-based counterfactuals

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