News Media and International Fluctuations

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Motivation

- In networks, firms' optimal production depends on conditions of their suppliers and customers
- Abundant empirical survey evidence: managers are rationally/irrationally inattentive
- Important source of information: news media

Questions:

- How does informational friction modify production responses in GVCs?
- What is the role of news in the transmission of shocks across sectors and countries?

This Paper

- Empirical contribution
  - construct new panel of sectoral news coverage frequency in top international newspapers
  - provide evidence for sectoral hours' responses to intensity of news coverage
- Quantitative: introduce informational friction into a production economy with GVCs
  - informational friction greatly dampens the effects of fundamental shocks
  - noise in news induces international fluctuations independent of fundamentals
  - sectoral shock transmissions strongly increases in news coverage intensity

Related Literature

- International comovement and trade: Frankel and Rose (1998),Imbs (1999), Heathcote and Perri (2002), Kose, Otrok, and Whiteman, (2003), Ambler, Cardia, and Zimmermann (2004), Kose and Yi (2006), di Giovanni and Levchenko (2010), Crucini, Kose, and Otrok (2011), Johnson (2014), Liao and Santacreu (2015), Eaton, Kortum, Neiman and Romalis (2016)

- Network propagation: Acemoglu et al. (2012), Baqaee (2017), Grassi (2017), Barrot and Sauvagnat (2016), Carvalho et al. (2016), Boehm, Flaaen, and Pandalai-Nayar (2019), Baqaee and Farhi (2019a,b,c), Allen, Arkolakis, and Takahashi (2020), Huo, Levchenko and Pandalai-Nayar (2020), Kleinman, Liu, and Redding (2020)

- Sentiments and information frictions: Lorenzoni (2009), Angeletos and La'O (2009,2013), Barsky and Sims (2012), Benhabib, Wang, and Wen (2015), Huo and Takayama (2017), Levchenko and Pandalai-Nayar (2018), Angeletos, Collard, and Dellas (2018), Chahrour and Jurado (2018), Chahrour, Nimark, and Pitschner (2020)

Data and Empirical Results

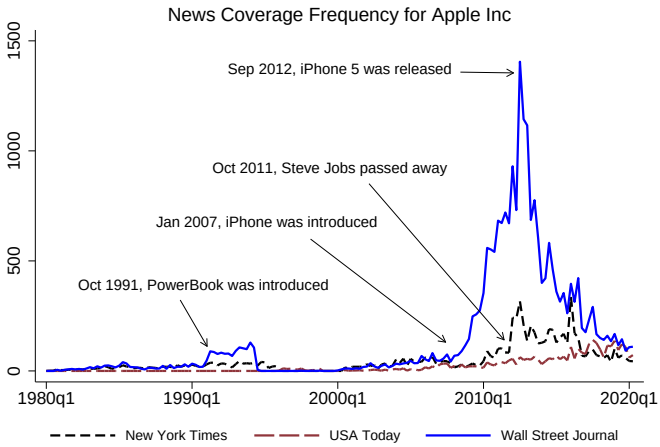
International News Coverage: Data

- Frequency of news coverage by country×sector in G7 + Spain newspapers
  - newspapers: WSJ, FT, NYT, USA Today, FT, Shimbun, etc
- Approach: manual collection of frequency of news coverage
  - Factiva tags for each "economic" news article
  - count number of country×sector tags in a newspaper-quarter
  - limitation: no information on content of news article, only frequencies
- Product: quarterly panel of coverage intensity, 1995-2020, 11 newspapers

Other Data

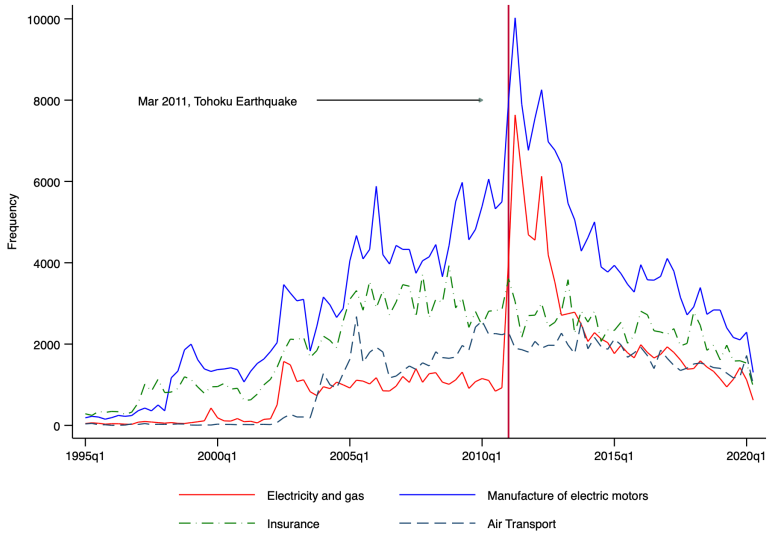
- Forecast data: IMF World Economic Outlook, US Census, US Bureau of Labor Statistics Industry Projections, Japanese Indices of Industrial Production Forecast
- Real data: new dataset of quarterly sectoral hours and IP
  - synchronized data from national statistical agencies, 23 sectors, 8 countries, unbalanced panel
- Data on GVCs: WIOD, KLEMS 2019

Example: News Coverage for Apple Inc



- News reports are correlated but not perfectly correlated with innovations

Example: News Coverage During Tohoku Earthquake



Stylized Facts on News Coverage

1. Most variation in news coverage is cross-sectional
2. News coverage share is related but different from sales share
3. News coverage intensity is related with a sector's importance in GVCs

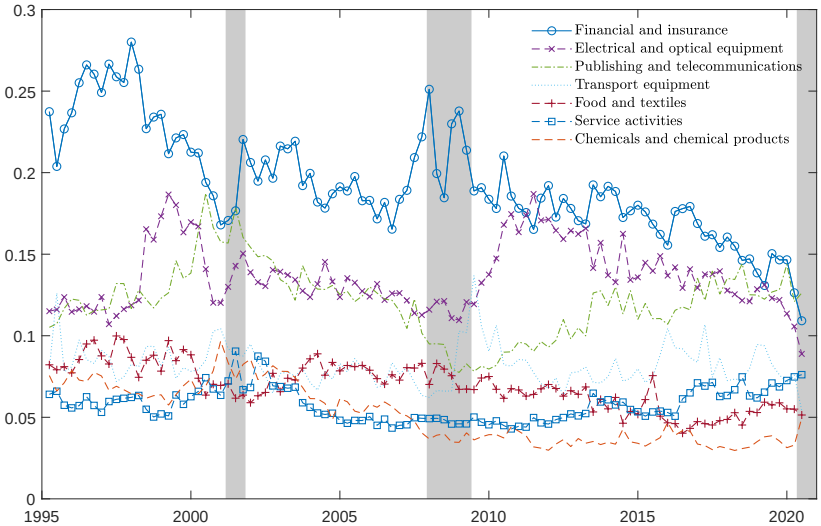
Fact 1: Cross-Sectional Variation in News Coverage

- Let $F_{mi,t}$ denote the news share of county m sector i in the global news coverage
- Conduct a within-across decomposition

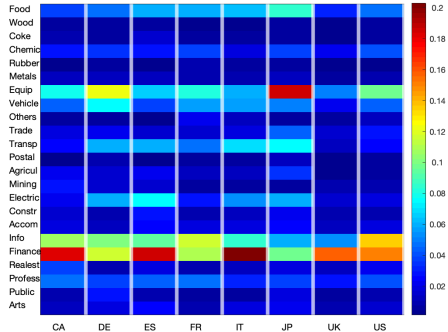
$$F_{mi,t} = \underbrace{\delta_{mi}}_{\text{account for } 80\%} + u_{mi,t}$$

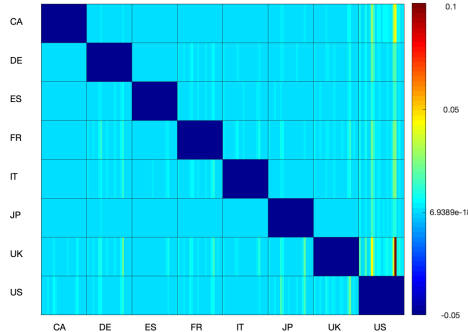
- Cross-sectional variation is dominating

News Coverage by Sector

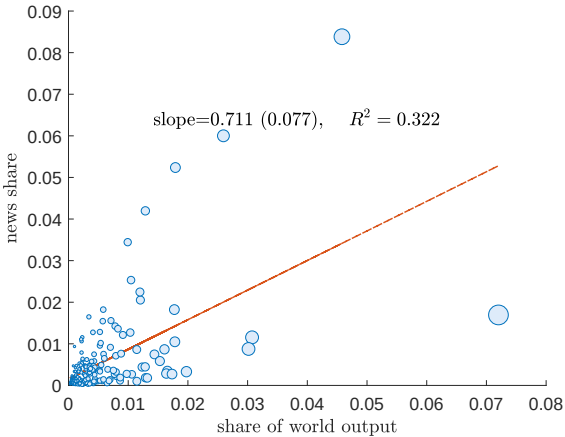


Domestic and Foreign Sectoral News Coverage





Fact 2: News Share is Different from Sales Share



- News share is positively correlated with sales share, but cannot explain majority of news share

Fact 3: Sectoral News Coverage and Importance in GVCs

- Use input share to measure a country-sector's importance as an upstream supplier

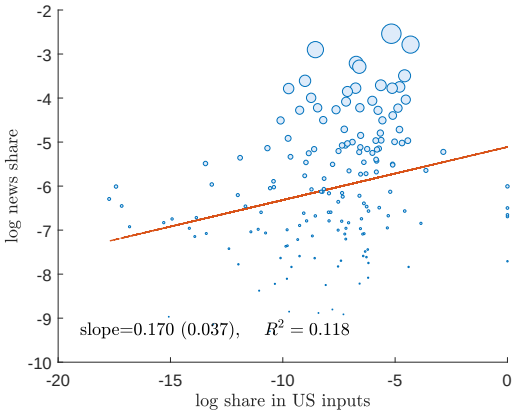
$$UP_{s,mi} = \frac{1}{J}\sum_{j}\gamma_{mi,sj}, \quad \gamma_{mi,sj} \equiv \frac{x_{mi,sj}}{\sum_{l,k} x_{lk,sj}}$$

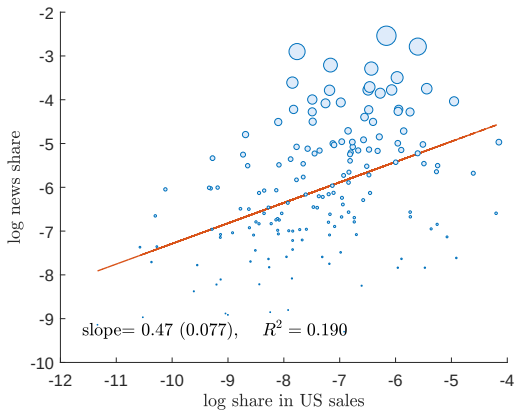
- Use expenditure share to measure a country-sector's importance as a downstream customer

$$DN_{s,mi} = \frac{1}{J}\sum_{j}\omega_{sj,mi}, \quad \omega_{sj,mi} \equiv \frac{x_{sj,mi}}{\sum_{l,k} x_{sj,lk}}$$

- How does the news coverage depend on a sector's importance in GVCs?

Sectoral News Coverage in US and GVCs





- Coverage is positively correlated with importance of a sector in upstream/downstream

News Coverage and GVCs

$$F_{s,mi} = \beta_1 S_{mi} + \beta_2 UP_{s,mi} + \beta_3 DN_{s,mi} + \beta_4 \mathbf{1}\{s = m\} + \boldsymbol{\delta} + \epsilon_{smi}$$

Dep. Var.: $F_{s,mi}$	(1)	(2)	(3)	(4)	(5)	(6)
S_{mi}	0.226**	0.111	0.273***	0.111	0.116	0.142
	(0.099)	(0.090)	(0.010)	(0.091)	(0.091)	(0.103)
$UP_{s,mi}$	0.365***	0.364***	0.341***	0.364***	0.366***	0.342***
	(0.120)	(0.120)	(0.103)	(0.120)	(0.119)	(0.102)
$DN_{s,mi}$	0.0664	0.0741	0.0855	0.0744	0.0647	0.0773
	(0.115)	(0.114)	(0.106)	(0.115)	(0.115)	(0.105)
$1\{s = m\}$	0.0152***	0.0150***	0.0154***	0.0150***		
	(0.003)	(0.003)	(0.003)	(0.003)		
Observations	1,472	1,472	1,472	1,472	1,472	1,472
R^2	0.390	0.392	0.504	0.393	0.406	0.520
Country s FE	YES	NO	NO	YES	NO	NO
Country m FE	NO	YES	NO	YES	NO	NO
Country pair FE	NO	NO	NO	NO	YES	YES
Sector FE	NO	NO	YES	NO	NO	YES

News Coverage and Labor Comovement

$$\rho_{nj,mi} = \beta_1 \ln \text{Trade}_{nj,mi} + \beta_2 \ln \text{Trade}_{nj,mi} \times \text{News}_{nj,mi} + \boldsymbol{\delta} + \epsilon_{nj,mi}$$

- trade intensity: $\text{Trade}_{nj,mi} = \gamma_{mi,nj}^{\frac{1}{4}} \gamma_{nj,mi}^{\frac{1}{4}} \omega_{mi,nj}^{\frac{1}{4}} \omega_{nj,mi}^{\frac{1}{4}}$ news intensity: $\text{News}_{nj,mi} = F_{nj}^{\frac{1}{2}} F_{mi}^{\frac{1}{2}}$

Dep. Var.:	(1) $\rho_{nj,mi}^{Hours}$	(2) $\rho_{nj,mi}^{Hours}$	(3) $\rho_{nj,mi}^{Hours}$	(4) $\rho_{nj,mi}^{Hours}$
$\ln \text{Trade}_{nj,mi}$	0.020***	0.012***	0.024***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)
$\ln \text{Trade}_{nj,mi} \times \text{News}_{nj,mi}$	0.917***	0.198**	1.176***	0.359***
	(0.125)	(0.094)	(0.122)	(0.105)
Observations	19,770	19,770	19,770	19,770
R^2	0.069	0.609	0.182	0.627
Country-sector nj FE	NO	YES	NO	YES
Country-sector mi FE	NO	YES	NO	YES
Country pair FE	NO	NO	YES	YES

News Coverage and Labor Fluctuations

$$\Delta \ln H_{nj,t} = \alpha_t + \underbrace{\delta_{nj} + \beta^{own} F_{nj,t}}_{\texttt{own productivity}} + \underbrace{\beta^{own,up} F_{nj,t}\gamma_{nj,nj} + \beta^{own,dn} F_{nj,t}\omega_{nj,nj}}_{\texttt{own news GE effects}}$$
$$+ \beta^{up} \underbrace{\left(\sum_{m,i;mi\neq nj} \gamma_{mi,nj} \Delta \ln H_{mi,t} \right)}_{\texttt{true upstream hours}} + \beta^{up}_{news} \underbrace{\left(\sum_{m,i;mi\neq nj} F_{mi,t}\gamma_{mi,nj} \Delta \ln H_{mi,t} \right)}_{\texttt{news of upstream hours}}$$
$$+ \beta^{dn} \underbrace{\left(\sum_{m,i;mi\neq nj} \omega_{nj,mi} \Delta \ln H_{mi,t} \right)}_{\texttt{true downstream hours}} + \beta^{dn}_{news} \underbrace{\left(\sum_{m,i;mi\neq nj} F_{mi,t}\omega_{nj,mi} \Delta \ln H_{mi,t} \right)}_{\texttt{news of downstream hours}} + u_{nj,t}.$$

- Labor responds positively to news coverage
- Robust to using various newspapers, and to increasing fixed effects to country-time and country-sector

Estimating the Effect of News: Standardized Version

Variables	$\Delta \ln H$	$\Delta \ln H$	$\Delta \ln H$	$\Delta \ln IP$
β_{up}	0.28***	0.31***	0.31***	0.41***
	(0.04)	(0.05)	(0.05)	(0.05)
β_{dn}	0.15***	0.10***	0.10***	0.09*
	(0.04)	(0.04)	(0.04)	(0.05)
$\boldsymbol{\beta}_{dn,news}$		0.09***		
		(0.02)		
$\boldsymbol{\beta}_{up,news}$		-0.07*		
		(0.03)		
$\boldsymbol{\beta}_{dn,news,f}$			0.08***	0.09**
			(0.02)	(0.04)
$\boldsymbol{\beta}_{dn,news,dom}$			0.07***	0.08***
			(0.03)	(0.03)
$\beta_{up,news,f}$			-0.05**	-0.03
			(0.02)	(0.03)
$\beta_{dn,news,dom}$			-0.05	-0.08**
			(0.03)	(0.04)
Observations	10,947	10,947	10,947	13,519
R-squared	0.42	0.42	0.42	0.53
Country-sector FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Own News Controls	YES	YES	YES	YES
News	NYT/FT/WSJ	NYT/FT/WSJ	NYT/FT/WSJ	NYT/FT/WSJ

Estimating the Effect of News: Renormalized Version

Variables	$\Delta \ln H$	$\Delta \ln H$	$\Delta \ln H$	$\Delta \ln IP$
β_{up}	0.39***	0.44***	0.37***	0.53***
	(0.08)	(0.10)	(0.12)	(0.10)
β_{dn}	0.52***	0.33***	0.44***	0.40***
	(0.07)	(0.09)	(0.09)	(0.08)
$\boldsymbol{\beta}_{dn,news}$		0.30***		
		(0.11)		
$\boldsymbol{\beta}_{up,news}$		-0.09		
		(0.09)		
$\boldsymbol{\beta}_{dn,news,f}$			0.40***	0.53***
			(0.09)	(0.07)
$\boldsymbol{\beta}_{dn,news,dom}$			0.07	0.06
			(0.12)	(0.09)
$\beta_{up,news,f}$			-0.01	0.04
			(0.09)	(0.06)
$\beta_{dn,news,dom}$			0.09	-0.28**
			(0.14)	(0.13)
Observations	10,947	10,947	10,947	13,519
R-squared	0.43	0.43	0.44	0.58
Country-sector FE	YES	YES	YES	YES
Time FE	YES	YES	YES	YES
Own News Controls	YES	YES	YES	YES
News	NYT/FT/WSJ	NYT/FT/WSJ	NYT/FT/WSJ	NYT/FT/WSJ

Framework with Noisy GVCs

Households

- Households' problem

$$\max \mathcal{F}_{n,t} - \sum_j \int H_{nj,t}(\iota)^{1+\frac{1}{\psi}} \, d\iota$$

subject to

$$P_{n,t}\mathcal{F}_{n,t} = \sum_j \int W_{nj,t}(\iota) H_{nj,t}(\iota) \, d\iota + \sum_j R_{nj,t} K_{nj}$$

  - fixed capital stock
  - sector-specific labor supply
  - composite of final goods: $\mathcal{F}_{n,t} = \prod_{m,j} \mathcal{F}_{mj,n,t}^{\vartheta_{mj,n}}$

Production

- Production function for firm in country-sector (n, j)

$$Y_{nj,t} = Z_{nj,t} \left(K_{nj}^{1-\alpha_j} H_{nj,t}^{\alpha_j} \right)^{\eta_j} \left(\prod_{m,i} X_{mi,nj,t}^{\omega_{mi,nj}} \right)^{1-\eta_j}$$

  - fundamentals: TFP shock $Z_{nj,t}$

- Two stages
  - stage 1: decide labor hiring based on incomplete information
  - stage 2: choose intermediate inputs observing all market prices

Stage 2

- The firm's problem is

$$\Omega_{nj,t}(H_{nj,t}) = \max_{X_{mi,nj,t}} P_{nj,t} Z_{nj,t} \left(K_{nj}^{1-\alpha_j} H_{nj,t}^{\alpha_j} \right)^{\eta_j} \left(\prod_{m,i} X_{mi,nj,t}^{\omega_{mi,nj}} \right)^{1-\eta_j} - \sum_{m,i} P_{mi,t} X_{mi,nj,t}$$

- Goods market clearing condition requires

$$P_{nj,t} Y_{nj,t} = \sum_{m} P_{m,t} \mathcal{F}_{m,t} \, \pi^{f}_{nj,m} + \sum_{m,i} (1-\eta_i) P_{mi,t} Y_{mi,t} \, \pi^{x}_{nj,mi}$$

  - $\pi^{f}_{nj,m}$: final goods expenditure share
  - $\pi^{x}_{nj,mi}$: intermediate goods expenditure share

- Prices are functions of sectoral labor $\{H_{nj,t}\}$ and productivity $\{Z_{nj,t}\}$

Stage 1: Information Island (n, j, ι)

- Firms' hiring problem

$$\max_{H_{nj,t}(\iota)} \mathbb{E}[\Omega_{nj,t}(H_{nj,t}(\iota))|\mathcal{I}_{n,j,\iota,t}] - W_{nj,t}(\iota)H_{nj,t}(\iota)$$

- Workers' optimal labor supply: $W_{nj,t}(\iota) = H_{nj,t}^{\frac{1}{\psi}}(\iota)\mathbb{E}[P_{n,t}|\mathcal{I}_{n,j,\iota,t}]$

- Combining local labor demand and supply

$$\begin{aligned}\ln H_{nj,t}(\iota) = &\left(1 + \frac{1}{\psi} - \alpha_j\right)^{-1} \mathbb{E}\left[\frac{1}{\eta_j}\ln Z_{nj,t}\middle|\mathcal{I}_{n,j,\iota,t}\right] \\ &+ \left(1 + \frac{1}{\psi} - \alpha_j\right)^{-1} \mathbb{E}\left[\frac{1}{\eta_j}\ln P_{nj,t} + \left(1 - \frac{1}{\eta_j}\right)\sum_{m,i}\pi^{x}_{mi,nj}\ln P_{mi,t} - \sum_{m,i}\pi^{f}_{mi,n}\ln P_{mi,t}\middle|\mathcal{I}_{n,j,\iota,t}\right]\end{aligned}$$

Network Game

- Sectroal labor in stage 1 can be represented as a beauty-contest game

$$\ln \mathbf{H}_t = \boldsymbol{\varphi}\, \overline{\mathbb{E}}_t[\ln \mathbf{Z}_t] + \boldsymbol{\gamma}\, \overline{\mathbb{E}}_t\, [\ln \mathbf{H}_t]$$

where $\boldsymbol{\gamma}$ and $\boldsymbol{\varphi}$ capture the effects of global value chains

$$\begin{aligned}
\boldsymbol{\varphi} &= \left(\frac{1+\psi}{\psi}\mathbf{I} - \boldsymbol{\alpha}\right)^{-1} (\boldsymbol{\eta}^{-1} + \mathbf{M}) \\
\boldsymbol{\gamma} &= \left(\frac{1+\psi}{\psi}\mathbf{I} - \boldsymbol{\alpha}\right)^{-1} \boldsymbol{\alpha}\boldsymbol{\eta}\, \mathbf{M} \\
\mathbf{M} &= \left(\boldsymbol{\eta}^{-1} + (\mathbf{I} - \boldsymbol{\eta}^{-1})\boldsymbol{\pi}^{x} - \boldsymbol{\pi}^{f}\right) (\mathbf{I} - (\mathbf{I} - \boldsymbol{\eta})\boldsymbol{\pi}^{x})^{-1}
\end{aligned}$$

Frictionless Solution

- Familiar Leontief inverse matrix

$$\ln \mathbf{H}_t = (\mathbf{I} - \boldsymbol{\gamma})^{-1} \boldsymbol{\varphi} \ \ln \mathbf{Z}_t$$

- Decompose into direct and indirect effects

$$\ln \mathbf{H}_t = \boldsymbol{\varphi} \ln \mathbf{Z}_t + \boldsymbol{\gamma}\boldsymbol{\varphi} \ln \mathbf{Z}_t + \boldsymbol{\gamma}^2 \boldsymbol{\varphi} \ln \mathbf{Z}_t + \dots$$

  - so far, the fundamental uniquely determines the outcomes
  - news media is irrelevant

Incomplete Information Economy

In each information island (n, j, ι), agents observe the following signals

1. Own sectoral TFP: $\ln Z_{nj,t}$
2. Private noisy signal about other sectors' fundamental

$$x^{nj\iota}_{mi,t} = \ln Z_{mi,t} + u^{nj\iota}_{mi,t}, \qquad u^{nj\iota}_{mi,t} \sim N(0, \tau_u^{-1})$$

3. Public news about other sectors' fundamental

$$s_{mi,t} = \ln Z_{mi,t} + \epsilon_{mi,t}, \qquad \epsilon_{mi,t} \sim N(0, \tau^{-1}_{\epsilon,mi})$$

   - the precision of news is increasing in the news coverage intensity

Higher-Order Expectations

- Recall that $\ln \mathbf{H}_t = \boldsymbol{\varphi}\, \overline{\mathbb{E}}_t[\ln \mathbf{Z}_t] + \boldsymbol{\gamma}\, \overline{\mathbb{E}}_t\, [\ln \mathbf{H}_t]$
- Responses to TFP shock depend on higher-order expectations (HOE)

$$\ln \mathbf{H}_t = \boldsymbol{\varphi}\mathbb{E}[\ln \mathbf{Z}_t] + \boldsymbol{\gamma}\boldsymbol{\varphi}\mathbb{E}^2[\ln \mathbf{Z}_t] + \boldsymbol{\gamma}^2\boldsymbol{\varphi}\mathbb{E}^3[\ln \mathbf{Z}_t] + \dots$$

  - direct effects are arrested by first-order uncertainty
  - indirect effects are arrested by higher-order uncertainty

- With incomplete information, Bonacich centrality $(\mathbf{I} - \boldsymbol{\gamma})^{-1}\boldsymbol{\varphi}$ is not sufficient

GVCs and Reliance on News

- Expectations rely more on news as the order of expectation k increases

$$\mathbb{E}^k_{nj,t}[\ln Z_{mi,t}] = (1-\lambda^k)x_{mi,t} + \lambda^k s_{mi,t}, \quad \lambda = \frac{\tau_\epsilon}{\tau_u + \tau_\epsilon} \in (0,1)$$

  - public signals more useful in forecasting others' beliefs
  - expectations depend more on noise in news in forecasting others' beliefs

- Firms that need to infer remote sectors in GVCs rely more on news

Quantification

Externally Determined Parameters

Param.	Value	Source	Related to
ψ	2		Frisch elasticity
α_j	[.38, .69]	KLEMS, OECD STAN	labor and capital shares
η_j	[.33, .65]	KLEMS, OECD STAN	intermediate input shares
$\pi^f_{mi,n}$		OECD ICIO	final use trade shares
$\pi^x_{mi,nj}$		OECD ICIO	intermediate use trade shares

Internally Calibrated Parameters

- Private signal precision: τ_u
- News signal precision: $\tau_{\epsilon,mi} = \chi_0 + \chi_1 F_{mi}$
- Indirect inference: target the same regression coefficients to determine $\{\tau_u, \chi_0, \chi_1\}$

$$\Delta \ln H_{nj,t} = \beta^{up} \underbrace{\left(\sum_{m,i;mi \neq nj} \gamma_{mi,nj} \Delta \ln H_{mi,t} \right)}_{\texttt{true upstream hours}} + \beta^{up}_{news} \underbrace{\left(\sum_{m,i;mi \neq nj} F_{mi,t} \gamma_{mi,nj} \Delta \ln H_{mi,t} \right)}_{\texttt{news of upstream hours}}$$
$$+ \beta^{dn} \underbrace{\left(\sum_{m,i;mi \neq nj} \omega_{nj,mi} \Delta \ln H_{mi,t} \right)}_{\texttt{true downstream hours}} + \beta^{dn}_{news} \underbrace{\left(\sum_{m,i;mi \neq nj} F_{mi,t} \omega_{nj,mi} \Delta \ln H_{mi,t} \right)}_{\texttt{news of downstream hours}} + u_{nj,t}.$$

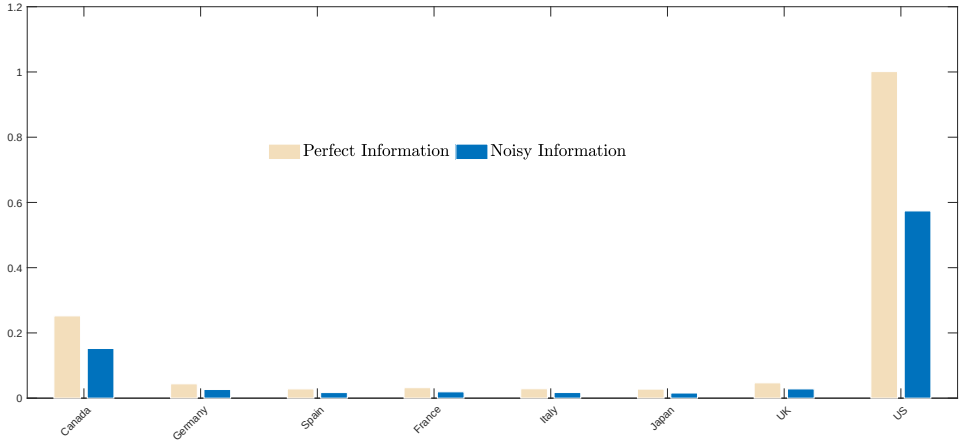
Internally Calibrated Parameters

- Regression coefficients in the model versus data

	Model		Data	
	renormalized	standardized	renormalized	standardized
β^{down}	0.422	0.335	0.330	0.300
β^{up}	0.346	0.288	0.440	0.310
β^{down}_{news}	0.233	0.044	0.300	0.090
β^{up}_{news}	0.056	-0.035	-0.090	-0.070

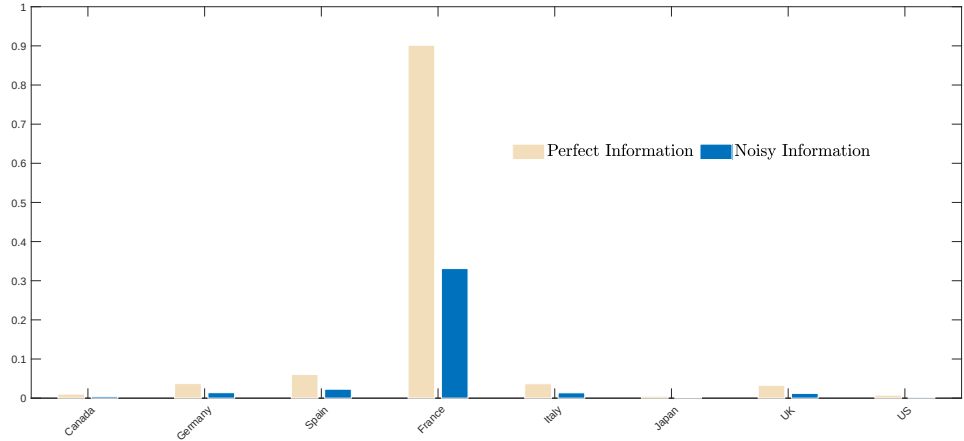
- Implied parameters
  - very noisy private signals: $\tau_u = 0.1$
  - news precision sensitive to the news coverage intensity: $\chi_0 = 0.1, \chi_1 = 1.2$

Impulse Responses: TFP Shock



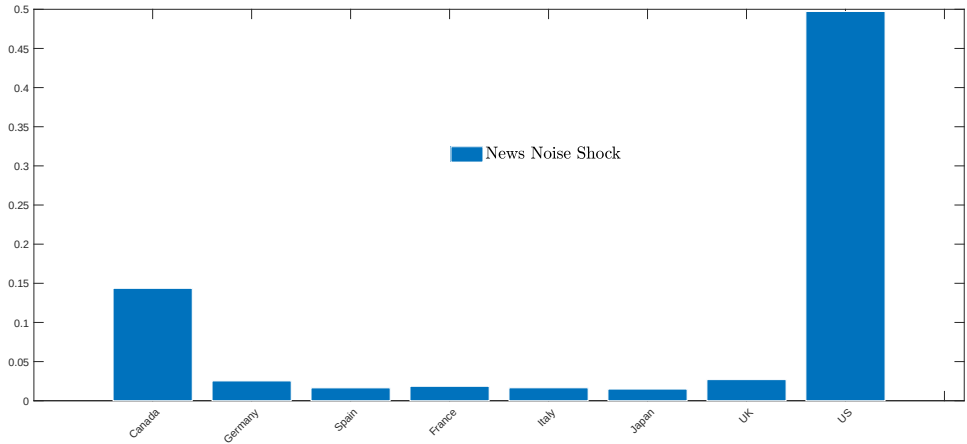
- Heterogeneous responses across locations
- Dampened response with informational friction

Impulse Responses: TFP Shock



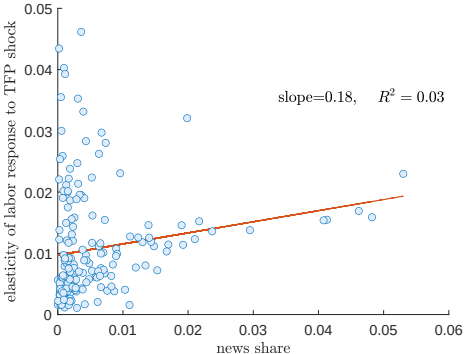
- Heterogeneous responses across locations
- Dampened response with informational friction

Impulse Responses: Noise Shock

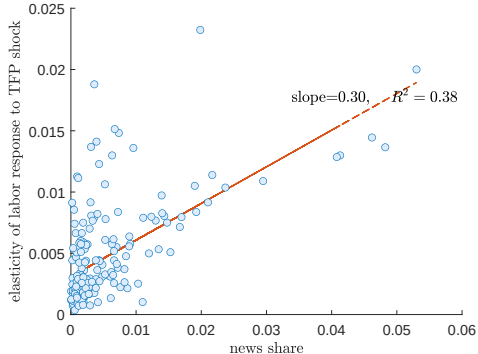


- Noises that are orthogonal to fundamentals cause international fluctuations

Role of News Coverage in TFP Shock Transmission



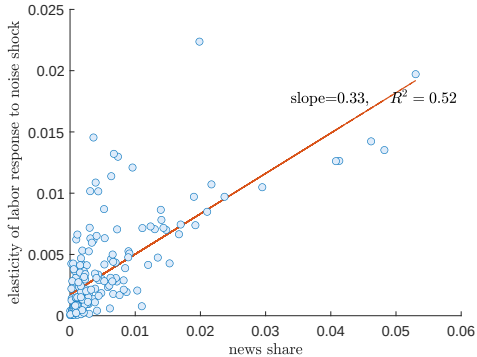
Perfect Information Model



Noisy Information Model

- Average elasticity of labor response measures the magnitude of the transmission effect
- Transmission effect is much more correlated with news coverage in noisy information world

Role of News Coverage in Noise Shock Transmission



- The transmission effect is strongly increasing in the news coverage intensity

Business Cycle Statistics

Labor volatility	Perfect Information	Noisy Information			News Coverage
	TFP	TFP	Noise	Total	
Canada	0.51	0.22	0.22	0.31	9.69%
Germany	0.32	0.16	0.13	0.20	13.16%
Spain	1.10	0.29	0.31	0.42	2.62%
France	0.41	0.15	0.15	0.21	8.18%
Italy	0.47	0.17	0.21	0.27	4.79%
Japan	0.79	0.42	0.36	0.56	18.41%
UK	0.70	0.25	0.59	0.64	13.30%
US	0.42	0.23	0.31	0.39	29.86%
Bilateral correlation	0.085	0.104	0.098	0.104	

What if Firms only Pay Attention to News on Domestic Sectors?

- International transmission requires that firms are aware of other countries' labor responses
- Without access to news about foreign countries
  - less response to other countries' fundamental through both direct and indirect channels
  - less response to noise shocks in the news

What if Firms only Pay Attention to News on Domestic Sectors?

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	TFP	TFP	Noise	Total	
Canada	0.51	0.20	0.20	0.28	9.69%
Germany	0.32	0.16	0.12	0.20	13.16%
Spain	1.10	0.28	0.31	0.42	2.62%
France	0.41	0.14	0.15	0.21	8.18%
Italy	0.47	0.16	0.20	0.26	4.79%
Japan	0.79	0.42	0.36	0.55	18.41%
UK	0.70	0.25	0.58	0.64	13.30%
US	0.42	0.22	0.31	0.38	29.86%
Bilateral correlation	0.085	0.043	0.024	0.036	

What if News are More Noisy than Perceived?

- Agents may perceive the precision of news higher than its actual level

$$\text{perceived precesion } \hat{\tau}_{\epsilon,mi} \quad > \quad \text{actual precesion } \tau_{\epsilon,mi}$$

  - diagnostic expectations: Bordalo et al (2020), overconfidence: Broer and Kohlhas (2020)
  - consistent with the finding that forecast errors are negatively correlated with news coverage

- We allow the perceived precision of news to be higher than the actual one
  - how to use signals only depends on perceived precision, but outcomes depend on actual one
  - impact of noise shocks will be amplified, but mostly for locations with high news coverage

What if News are More Noisy than Perceived? $\hat{\tau}_{\epsilon,mi} = 1.5\tau_{\epsilon,mi}$

Labor volatility	Perfect Information	Noisy Information			News Coverage
	TFP	TFP	Noise	Total	
Canada	0.51	0.22	0.27	0.35	9.69%
Germany	0.32	0.16	0.16	0.22	13.16%
Spain	1.10	0.29	0.38	0.48	2.62%
France	0.41	0.15	0.19	0.24	8.18%
Italy	0.47	0.17	0.25	0.30	4.79%
Japan	0.79	0.42	0.44	0.61	18.41%
UK	0.70	0.25	0.72	0.76	13.30%
US	0.42	0.23	0.38	0.45	29.86%
Bilateral correlation	0.085	0.104	0.098	0.103	

What if Noise in News is Correlated?

- Assume that there is a common component in the noise shocks

$$\epsilon_{mi,t} = \lambda\epsilon_t + (1-\lambda)\kappa_{mi,t}$$

  - in the baseline, $\lambda = 0$ and noises are i.i.d

- When $\lambda > 0$, international comovements can be a direct result of correlated noise shocks
  - necessary to generate observed comovements (Huo,Levchenko, and Pandalai-Nayar, 2021)

- Extend the idea in Angeletos and La'O (2013) to an international trade environment

What if Noise in News is Correlated? $\lambda = 0.1$

Labor volatility	Perfect Information	Noisy Information			News Coverage
	TFP	TFP	Noise	Total	
Canada	0.51	0.22	0.25	0.33	9.69%
Germany	0.32	0.16	0.15	0.22	13.16%
Spain	1.10	0.29	0.33	0.44	2.62%
France	0.41	0.15	0.17	0.23	8.18%
Italy	0.47	0.17	0.23	0.28	4.79%
Japan	0.79	0.42	0.39	0.57	18.41%
UK	0.70	0.25	0.63	0.68	13.30%
US	0.42	0.23	0.33	0.40	29.86%
Bilateral correlation	0.085	0.104	0.251	0.193	

Conclusion

- Construct new data set on global news coverage
- News matters: sectoral labor responds to sectors' news coverage
- Informational frictions plus news introduce a new channel for international fluctuations