Unbalanced Financial Deepening

Paul Dai
MIT

Karsten Müller
NUS & CEPR

Emil Verner
MIT & NBER

May 15, 2026

Fudan University

Motivation

- A large rise in **real-estate-related** credit around the world, along with a decline in the size of the **manufacturing** sector

  Jordà Schularick Taylor '16, Müller Verner '24

- Natural process of structural change?

  Kuznets '57

- Or is there "too much of the wrong sort of debt"?

  Turner '16 (Between Debt and the Devil)

This paper: investigate the interplay between
sectoral allocation of credit and **economic development**

This paper

1. How does the sectoral allocation of credit evolve as countries develop?
   - New stylized facts: as economies develop, share of **manufacturing** credit **falls**, while share of **real estate** credit **rises**

2. What are the underlying mechanisms?

- Model of **structural change** with collateral constraints, and **empirical evidence**
  - Economic force: rising **manufacturing TFP**
  - Financial force: change in **financial constraints**

3. What is the role of government policies?
   - **Directed credit policies (DCP)** have historically steered credit to priority sectors
   - **DCP liberalization** $\Rightarrow$ credit flows from **manufacturing** to **real estate**

4. Does credit allocation matter for long-run growth?
   - Higher share of **manufacturing credit** predicts **higher growth**, opposite for real estate
   - Consistent with theories emphasizing growth-enhancing externalities in **manufacturing**

Literature review

1. **Structural change**: New stylized facts + collateral channel

   Lewis 54, Rybczynski '55, Kuznets '57, Baumol '67, Kuznets '70, Matsuyama '92, Kongsamut Rebelo Xie '01, Ngai Pissarides '07, Acemoglu Guerrieri '08, Herrendorf Rogerson Valentinyi '14, Boppart '14, Comin Lashkari Mestieri '21, Porzio Rossi Santangelo '22, Buera Kaboski Mestieri O'Connor '24

2. **Finance, growth, and development**: Role of credit allocation

   Financial frictions in macro Kiyotaki Moore '97, Iacoviello '05, Gan '07, Kiyotaki Michaelides Nikolov'11, Chaney Sraer Thesmar '12, Gourinchas Obstfeld '12, Liu Wang Zha '13, Jorda Schularick Taylor '16 '17, Mian Sufi Verner '20, Brunnermeier Palia Sastry Sims '21, Elenev Landvoigt Van Nieuwerburgh '21, Greenwald Guren '24, Müller Verner '24

   Finance and development Schumpeter '11, Shaw '73, Townsend '83, Gertler '88, Lucas 88', Greenwood Jovanovic '90, King Levine '93, Levine '97, Rajan Zingales '98, Benigno Fornaro Wolf '20, Banerjee Duflo '05 '10, Townsend Ueda '06, Greenwood Sanchez Wang '10, Kaboski Townsend '11, Buera Kaboski Shin '11, Buera Shin '13, Midrigan Xu '14, Moll '14, Itskhoki Moll '19, Bustos Caprettini Ponticelli '20, Howes '22, Bau Matray '23, Ji Teng Townsend '23, Cavalcanti Kaboski Martin Santos '23, Hirano Stiglitz '24, D'Amico Alekseev '25

   Credit policies Bertand Schoar Thesmar '07, Studwell '13, Buera Shin '13, Aikman Bush Taylor '16; Itskhoki Moll '19, Liu '19, Choi Levchenko '21, Choi Shim '22, Baron Green '23, Matray Müller Xu Kabir '24

Stylized facts

Data

4 broad sectors: agriculture, **manufacturing** (BC), **real estate** (FL), services

Credit data: Updated version of the **Global Credit Project** (Müller Verner '24)

- Newly compiled sectoral credit data from 600+ sources for 120 countries
- Claims of domestic financial institutions on the **private** sector

  `http://www.globalcreditproject.com`

Value added and **employment** data

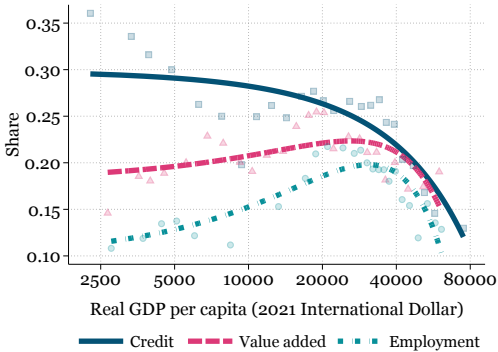
- EU KLEMS, GGDC, UN, UNIDO, OECD STAN, WIOD, ECLAC

Main sample: 77 countries, 1970-2020

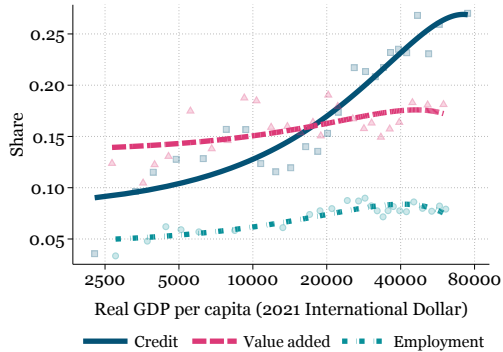
How the sectoral allocation of credit varies with development

- **Fall** in **manufacturing** credit, **rise** in **real estate** credit
- Patterns for credit **more pronounced** than for value added or employment

(a) Manufacturing shares



(b) Real Estate shares



Credit-to-VA | Credit-to-GDP | Sector ratios | Within Avg. | Credit vs. VA | Bonds | Over time | With FE | Agri./Services

Mechanism: Model

Set-up: Two-sector model with financing constraints

- Savers (S), **manufacturing (M)**, and **real estate (E)** entrepreneurs with preferences

$$\sum_{t=0}^{\infty}(\beta^i)^t\left[(c_t^i)^{\frac{\eta-1}{\eta}}+s(h_t^i)^{\frac{\eta-1}{\eta}}\right]^{\frac{\eta}{\eta-1}}, \quad i\in\{S,M,E\},$$

- An entrepreneur in sector j produces $y_t^j = z_t^j(l_t^j)^{\alpha^j}$; prices $p_t^M = 1$, $p_t^E = q_t$
- Flow of funds constraint for entrepreneur in sector $j \in \{M, E\}$

$$\underbrace{c_t^j}_{\text{manuf. good}} + \underbrace{q_t h_t^j}_{\text{housing}} + \underbrace{q_t\left[l_{t+1}^j-(1-\delta)l_t^j\right]}_{\text{invest in collateral } l^j} + \underbrace{d_t^j}_{\text{repay}} = \underbrace{p_t^j z_t^j(l_t^j)^{\alpha^j}}_{\text{rev from } l^j} + \underbrace{\frac{d_{t+1}^j}{1+r_t}}_{\text{borrow}}.$$

- Sectoral financing constraints (Kiyotaki Moore '97):

$$\underbrace{d_{t+1}^j}_{\text{sectoral credit}} \leq \lambda \underbrace{q_{t+1}l_{t+1}^j}_{\text{collateral value of } l_{t+1}^j}, \quad j\in\{M,E\}$$

Common-λ case: $\lambda^M = \lambda^E = \lambda$.

Model mechanism: Output, credit, and leverage

$$\underbrace{R_y = \frac{qy^E}{y^M}}_{\text{Output share}} \qquad \underbrace{\kappa^j = \frac{d^j}{p^j y^j} = \alpha^j \lambda \tilde{\lambda}}_{\text{Sector leverage}} \qquad \underbrace{R_d = \frac{d^E}{d^M} = \frac{\kappa^E}{\kappa^M} R_y}_{\text{Credit share}}$$

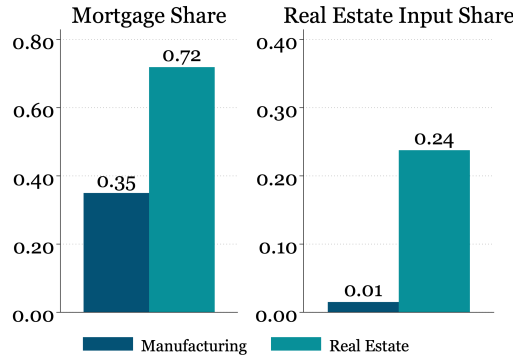
Channel	Output and credit	Leverage
Manufacturing TFP z^M ↑	$z^M \uparrow \Rightarrow q \uparrow$. If $\eta < 1$, $R_y \uparrow$ and $R_d \uparrow$.	κ^j unchanged: credit mirrors output.
Common λ ↑, fixed $\alpha^E > \alpha^M$	Raises real estate credit and output even when $\eta = 1$.	$\Delta\kappa^E > \Delta\kappa^M$, but $\kappa^E/\kappa^M = \alpha^E/\alpha^M$ is fixed.
Changing α^E/α^M or λ^E/λ^M	Changes κ^E/κ^M, creating a wedge between credit and output.	Needed for real estate leverage to change disproportionately.

Takeaway: A wedge between real estate's credit and output share requires relative leverage κ^E/κ^M to rise.

Mechanism: Empirical evidence

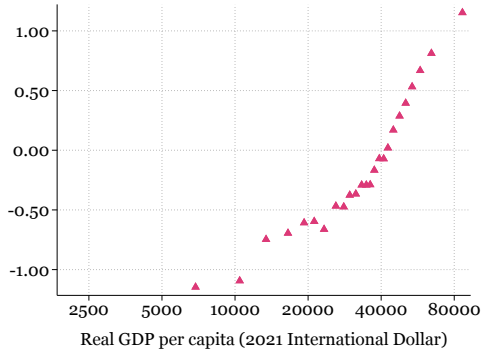
Do sectors differ in their reliance on real estate inputs?

- **Model assumption:** Sectors differ in reliance on real estate, used both as collateral and production input
- **Mortgage share**
  - Share of loans secured on real estate relative to all outstanding loans
  - Average of 5 economies: Denmark, Latvia, Switzerland, Taiwan, US
- **Real estate input share** (α^j)
  - Data: World Input-Output Tables (Timmer et al '15)



Do real estate prices rise with development?

Model prediction: higher manufacturing productivity $z^M \rightarrow$ rising real estate prices q



Additional facts

Notes: Log real house prices, net of country and time FE.

Data sources: BIS, OECD, Dallas Fed.

Do sectors differ in their borrowing response to rising real estate prices

Model prediction: sectoral credit elasticities to real estate prices

$$\frac{\partial \log d^E}{\partial \log q} < \frac{\partial \log d^M}{\partial \log q}$$

Empirical test: sector-specific local projections with $H = 10$ and $L = 2$

Why? l^E, l^M

(Jordà '05; Montiel Olea Plagborg-Møller '21)

$$\Delta_h y^j_{c,t+h} = \alpha^h_c + \sum_{l=0}^{L} \beta^j_{h,l} \Delta_1 \log(\mathsf{HPI}_{c,t-l}) + \sum_{l=0}^{L} \gamma^j_{h,l} \Delta_1 y^j_{c,t-l} + \sum_{l=0}^{L} \theta^j_{h,l} X^j_{c,t-l} + \epsilon^j_{c,t+h}$$

y = log credit, c = country, t = time, h = horizon, j = sector, X = controls

Identification: differential sensitivity of domestic to regional real estate prices

(Saiz '10, Guren McKay Nakamura Steinsson '21, Palmer '23)

- Estimate sensitivity in a separate time-series regression for each country c:

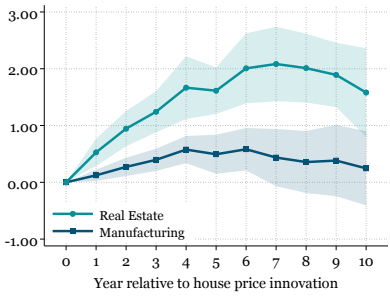
$$\Delta \log(\mathsf{HPI}^c_t) = \varsigma^c + \vartheta^c \Delta \log(\mathsf{HPI}_{r(c),t}) + e^c_t, \quad t \in \mathcal{T}_c$$

- Use $\widehat{\vartheta}^c \Delta_1 \log(\mathsf{HPI}_{r(c),t})$ as an IV for $\Delta_1 \log(\mathsf{HPI}_{c,t})$; include 2 IV lags in the first stage

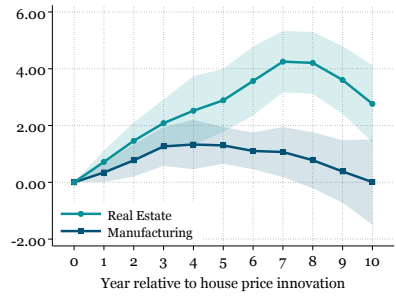
Sectoral borrowing response of rising real estate prices: results

$$\Delta_h y^j_{c,t+h} = \alpha^h_c + \sum_{l=0}^{L} \beta^j_{h,l} \Delta_1 \log(\text{HPI}_{c,t-l}) + \sum_{l=0}^{L} \gamma^j_{h,l} \Delta_1 y^j_{c,t-l} + \sum_{l=1}^{L} \theta^j_{h,l} X^j_{c,t-l} + \epsilon^j_{c,t+h}$$

(a) Baseline LP



(b) Sensitivity-IV LP



Rising house prices predict stronger growth in
real estate credit relative to **manufacturing** credit

Do changes in intangibles vs. tangibles explain the reallocation of credit?

Model prediction: Change in debt capacity (λ^M) $\rightarrow$ reallocation of credit

- One potential shifter: changes in the importance of intangible assets
- Intangibles are less collateralizable than tangibles
  (Williamson '88; Dell'Ariccia et al. '21; Falato et al. '22; Kermani Ma '23)

Empirical tests:

1. Does the rise of intangibles as countries develop differ across sectors?
2. Does credit respond more to innovations in tangible or intangible investment?

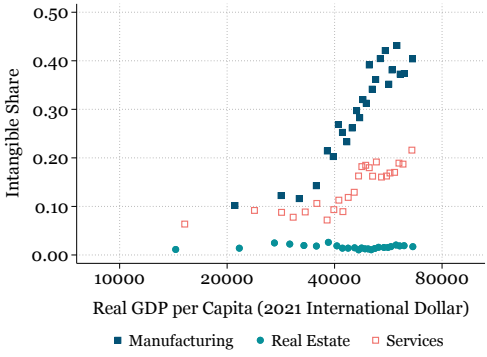
Methodology: Local projections using sector-level data with $L = 5$ lags

$$\Delta_h \log d_{cjt} = \alpha_c^h + \nu_j^h + \sum_{l=0}^{L} \left[\beta_{h,l}^{\text{INT}} I_{cj,t-l}^{\text{INT}} + \beta_{h,l}^{\text{TAN}} I_{cj,t-l}^{\text{TAN}} + \gamma_{h,l}^{j} \Delta y_{cj,t-l} \right] + \epsilon_{cj,t+h}$$

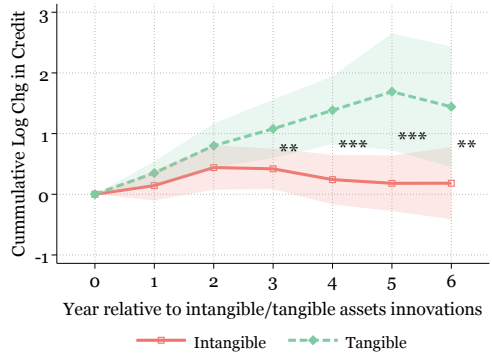
$I_{cjt}^k \equiv \Delta \log(\text{Real Capital}_{cjt}^k)$ for $k \in \{\text{INT}, \text{TAN}\}$; data from EU-KLEMS and INTANProd.

Financial constraints channel: rising intangibles in manufacturing

(a) Intangibles and Development



(b) Asset Tangibility and Credit Growth



Takeaway: Higher reliance on intangibles in the manufacturing sector can tighten its collateral constraints and reallocate credit toward real estate

Can government policy affect the allocation of credit?

Widely-used tool: directed credit policies

- Channel credit to "priority sectors," often **manufacturing** and exporters
- Restrict lending to "non-productive" uses, especially **real estate** and consumption
- In the model: shifters of λ^M and λ^E

Historical background

- East Asian growth miracles: preferential credit to **manufacturers/exporters**
- Prominently used in Japan, Korea, and China
- Also widely used in Western economies (e.g., France) for monetary policy

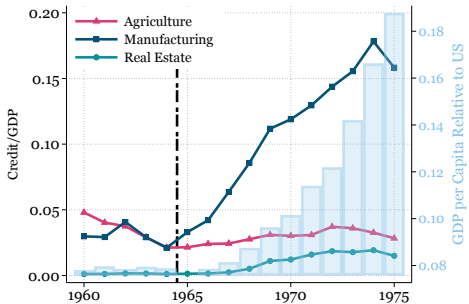
Empirical strategy

- New chronology: 37 directed credit **liberalizations**
- Most liberalizations happened in waves during 1980s and 1990s
- Test whether liberalization reallocates credit using LP-DiD (Dube Girardi Jordà Taylor '23)

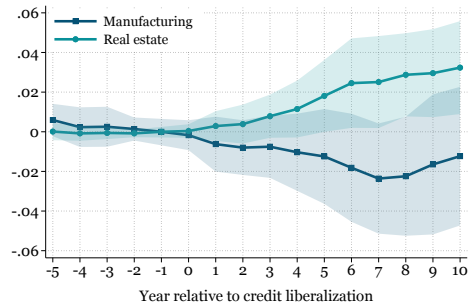
Other outcomes | Cases | Local projections | Predictability

Directed credit and sectoral financing constraints

(a) DCP Introduction: South Korea



(b) DCP Liberalization: Sectoral Credit/GDP



Takeaway: Policy can move sectoral financing constraints: directed credit raises credit to priority sectors, while liberalization reallocates credit toward real estate

Other outcomes | Cases | Local projections | Predictability

Credit allocation and long-run economic growth

Does the allocation of credit matter for long-run growth?

- Recent theory work highlights **growth-enhancing externalities** of manufacturing
  Rodrik '14, Benigno Fornaro Wolf '24, Hirano Stiglitz '24

- In the real estate sector, existing work highlights risks of misallocation and crises
  Reis '13, Rogoff Yang '20, Brunnermeier Reis '23, Müller Verner '24

- We investigate the empirical link between the credit allocation and **long-run growth**

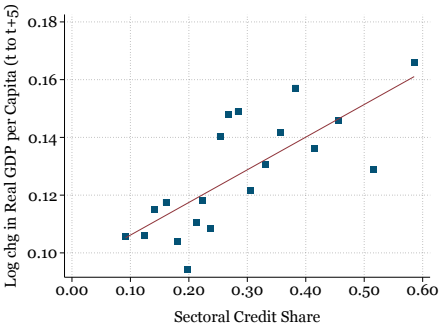
$$\ln(RGDP_{c,t+5}) - \ln(RGDP_{c,t}) = \alpha_c + \tau_t + \beta\, CreditShare^{j}_{c,t} + \Gamma X_{c,t} + \varepsilon_{c,t+5}$$

α_c, τ_t: country/year FE; $X_{c,t}$: GDP per capita polynomial and sectoral VA shares

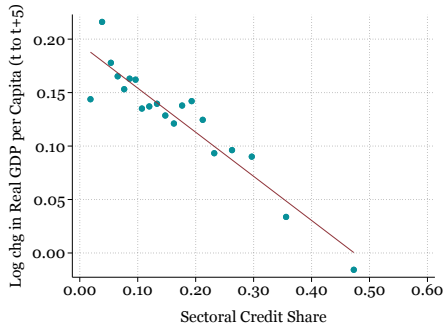
- Not causal, but highly robust empirical relation
  - … consistent with idea that **allocation of credit matters for long-run growth**

Credit allocation and long-run growth: Evidence

(a) Manufacturing



(b) Real Estate



Takeaway: The sectoral allocation of credit is highly informative about future growth prospects

Regressions | 10-year | Local projections

Conclusion

Conclusion

- **New stylized facts**:
  - Reallocation of credit from **manufacturing** to **real estate** over development
  - More pronounced than reallocation in real activity $\Rightarrow$ higher real estate leverage

- **Economic** and **financial forces** of structural change in credit:
  - Sectoral **productivity** differences $\Rightarrow$ collateral price $\Rightarrow$ credit reallocation
  - Relaxation of **financing constraints**, especially in real estate

- **Takeaway**: credit chases the **stagnant** (real estate) sector at the expense of **productivity-enhancing** (manufacturing) sector
  - Cross-country evidence: credit allocation **predicts economic growth**
  - Endogenous process: rising **intangibility** is **unbalanced** across sectors
  - Scope for policy intervention: **directed credit policies** matter for credit allocation

- Open questions:
  - Optimal sector-specific credit policies over the course of development
  - Causal link between credit allocation and growth

Unbalanced Financial Deepening

Paul Dai
MIT

Karsten Müller
NUS & CEPR

Emil Verner
MIT & NBER

May 15, 2026

Fudan University

Appendix

Literature review

1. **New facts + new mechanism of structural change**

   Sectoral structural change: theory and evidence Lewis 54, Rybczynski '55, Kuznets '57, Baumol '67, Kuznets '70, Matsuyama '92, Kongsamut Rebelo Xie '01, Ngai Pissarides '07, Acemoglu Guerrieri '08, Herrendorf Rogerson Valentinyi '14, Boppart '14, Comin Lashkari Mestieri '21, Porzio Rossi Santangelo '22, Buera Kaboski Mestieri O'Connor '24

   New cross-country empirical stylized facts Gollin Lagakos Waugh '14, Porzio '17, Bick Fuchs-Schündeln Lagakos '18, Lagakos Moll Porzio Qian Schoellman '19, Jensen '22, Donovan Lu Schoellman '23

2. **Role of credit allocation on economic development and growth**

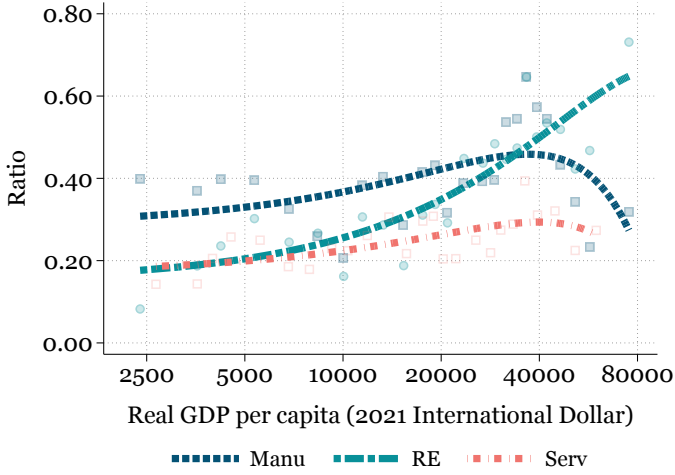
   Credit or financial frictions on macro Kiyotaki Moore '97, Iacoviello '05, Gan '07, Kiyotaki Michaelides Nikolov'11, Chaney Sraer Thesmar '12, Gourinchas Obstfeld '12, Liu Wang Zha '13, Jorda Schularick Taylor '16 '17, Mian Sufi Verner '20, Brunnermeier Palia Sastry Sims '21, Elenev Landvoigt Van Nieuwerburgh '21, Greenwald Guren '24, Müller Verner '24

   Finance and development Schumpeter '11, Shaw '73, Townsend '83, Gertler '88, Lucas 88', Greenwood Jovanovic '90, King Levine '93, Levine '97, Rajan Zingales '98, Benigno Fornaro Wolf '20, Banerjee Duflo '05 '10, Townsend Ueda '06, Greenwood Sanchez Wang '10, Kaboski Townsend '11, Buera Kaboski Shin '11, Buera Shin '13, Midrigan Xu '14, Moll '14, Itskhoki Moll '19, Bustos Caprettini Ponticelli '20, Howes '22, Bau Matray '23, Ji Teng Townsend '23, Cavalcanti Kaboski Martin Santos '23, Hirano Stiglitz '24, D'Amico Alekseev '25

   Credit Policies Bertand Schoar Thesmar '07, Studwell '13, Buera Shin '13, Aikman Bush Taylor '16; Itskhoki Moll '19, Liu '19, Choi Levchenko '21, Choi Shim '22, Baron Green '23, Matray Müller Xu Kabir '24

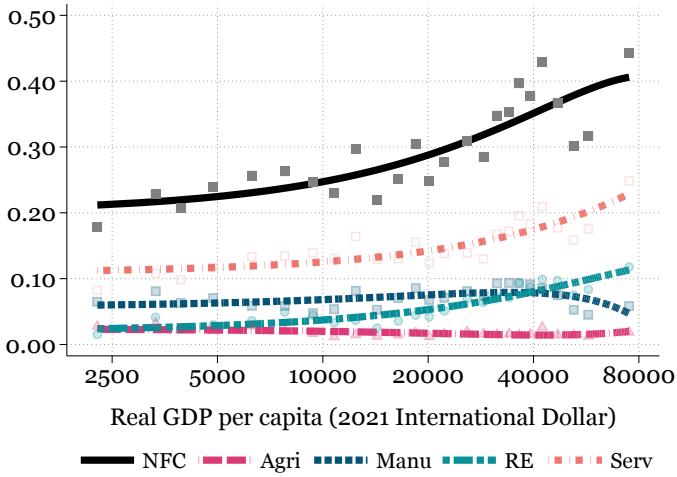
Financial Kuznets Facts | Conclusion

Rising credit-to-output in real estate



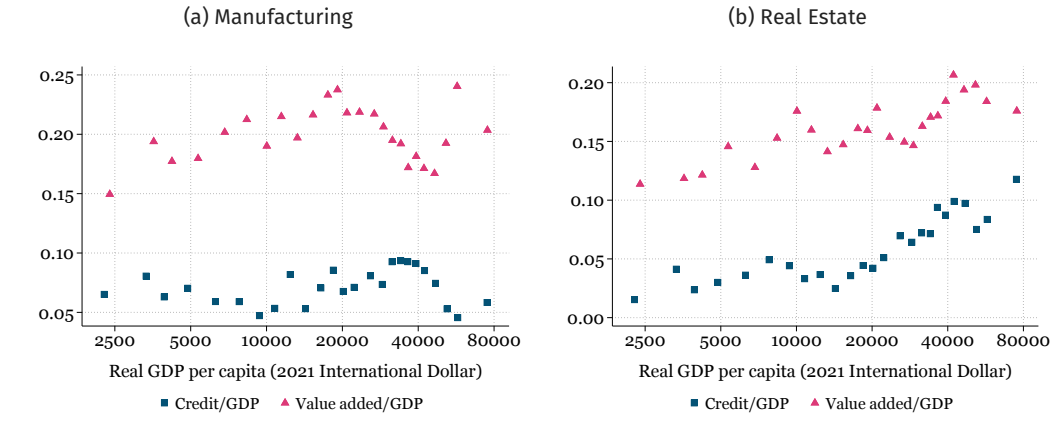
Back

Credit deepening: credit-to-GDP ratio rises everywhere, especially in real estate



Back

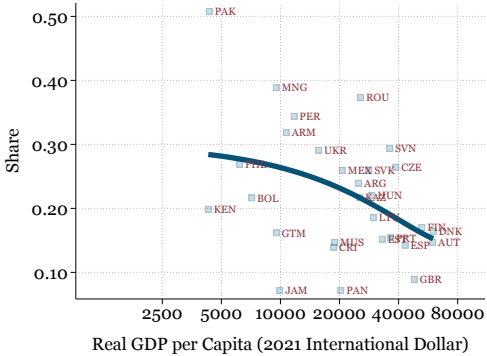
Real estate share rises strongly with development, especially in credit



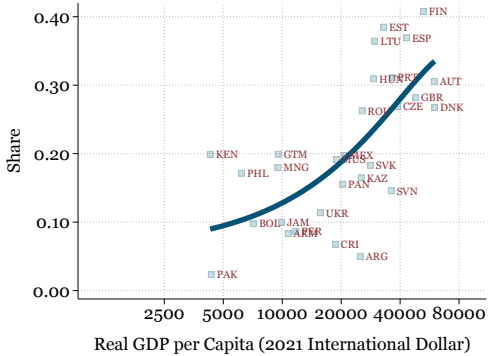
Back

Stylized facts using within-country averages (instead of panel data)

(a) Manufacturing Credit Share

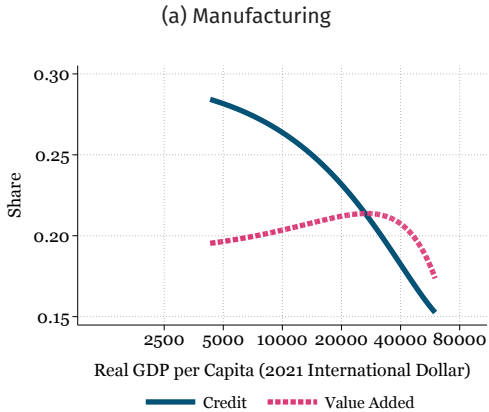


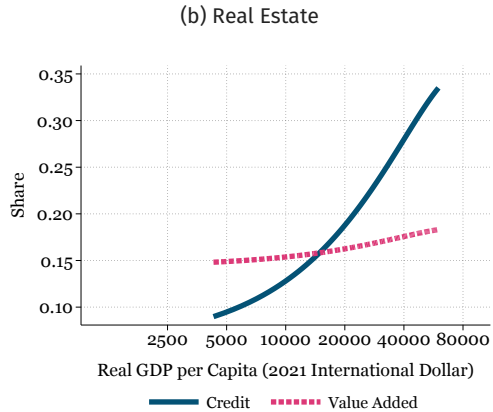
(b) Real Estate Credit Share



Back

Within-country averages comparing credit and value added shares

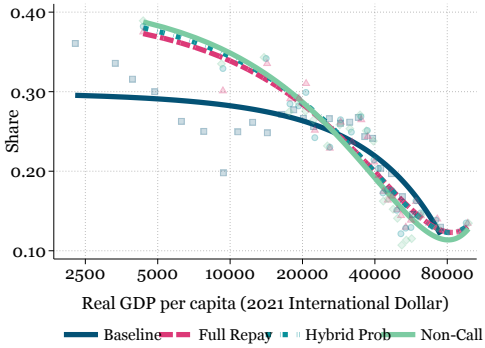




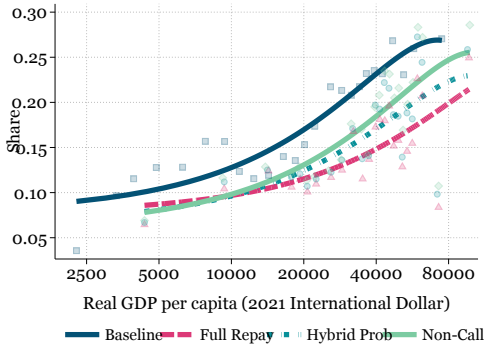
Back

Baseline facts cannot be explained by bond market development

(a) Manufacturing credit share

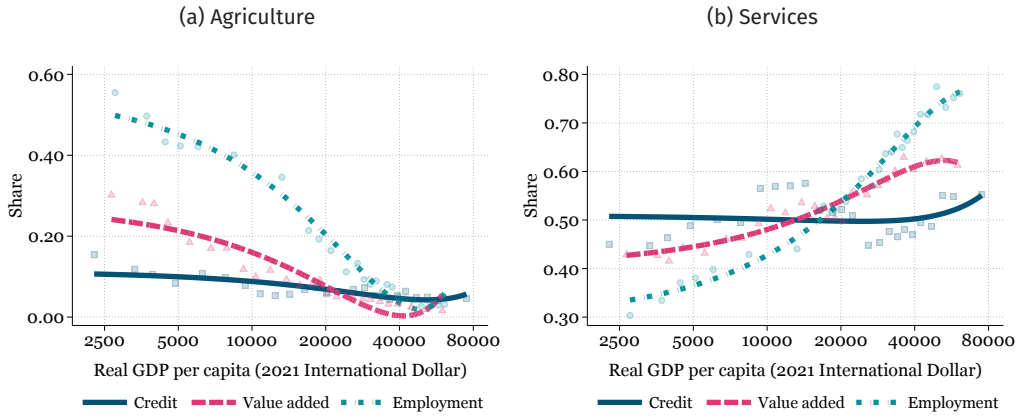


(b) Real estate credit share



Back

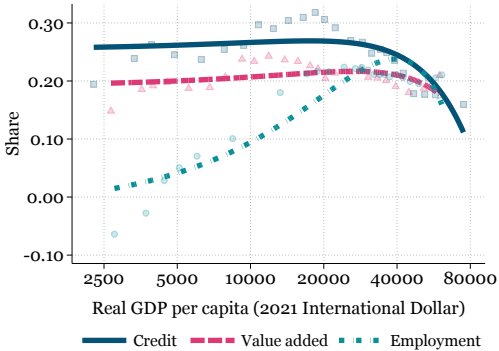
Stylized facts: agriculture and services



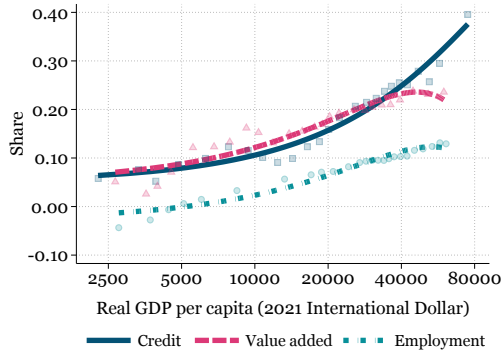
Back

Stylized facts with country and year fixed effects

(a) Manufacturing



(b) Real Estate



Back

Sectoral credit allocation over time

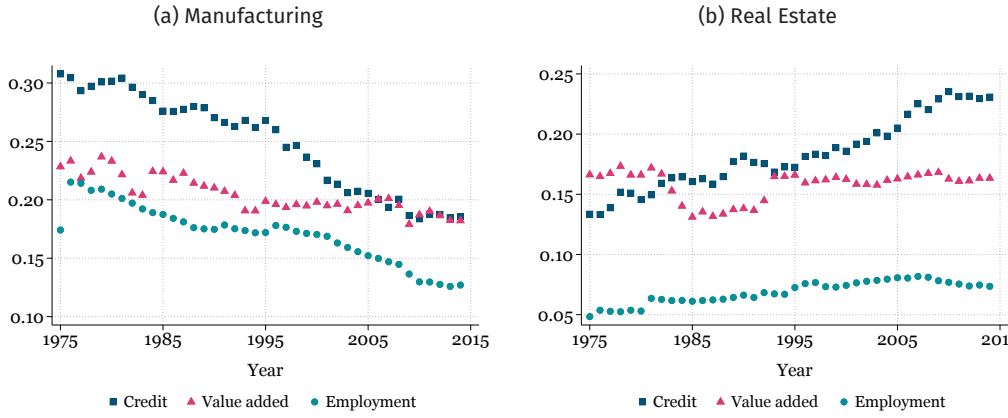
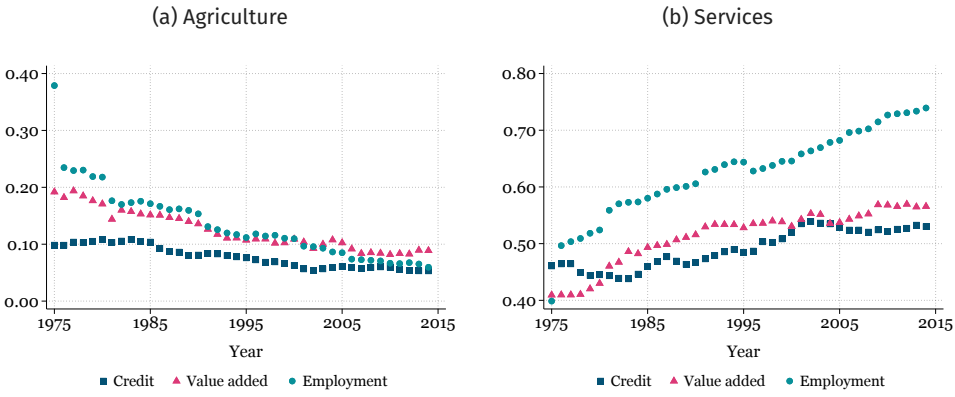


Figure: Agriculture and Services

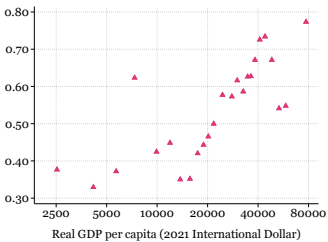
Sectoral credit allocation over time: agriculture and services



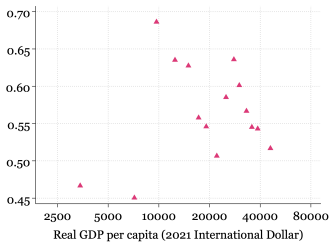
Back

Additional evidence on real estate prices, collateral, and urbanization

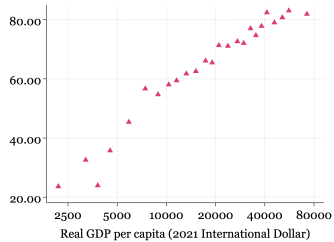
(a) Share of Mortgages in Household Credit



(b) Share of Real Estate Collateral in Firm Credit



(c) Urbanization Rate

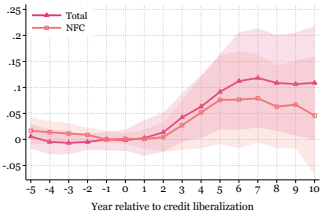


Back

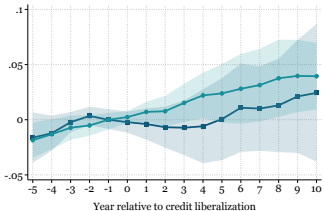
Sources: Panel (a): Global Credit Project. Panel (b): BEEPS. Panel (c): World Bank.

Directed credit liberalization: other outcomes

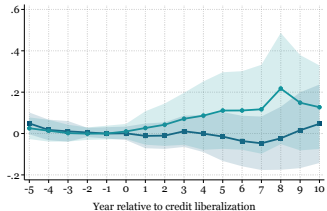
(a) Total and NFC Credit/GDP



(b) Sectoral VA/GDP



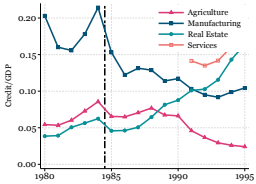
(c) Sectoral Credit/VA



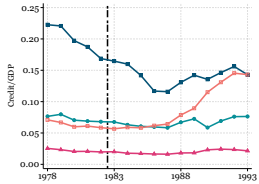
Back

Directed credit liberalization: case studies

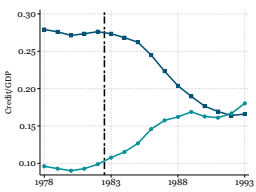
(a) Israel, 1985



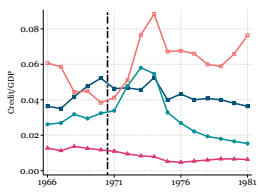
(b) Italy, 1983



(c) Japan, 1982



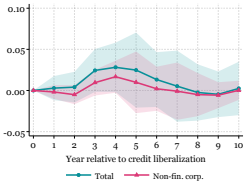
(d) United Kingdom, 1971



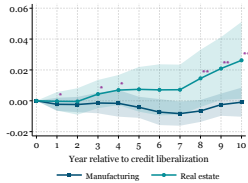
Back

Local projections

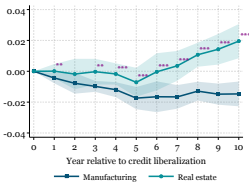
(a) Total Credit/GDP



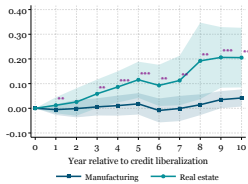
(b) Sectoral Credit/GDP



(c) Sectoral VA/GDP



(d) Sectoral Credit/VA



Back

How predictable are directed credit liberalizations?

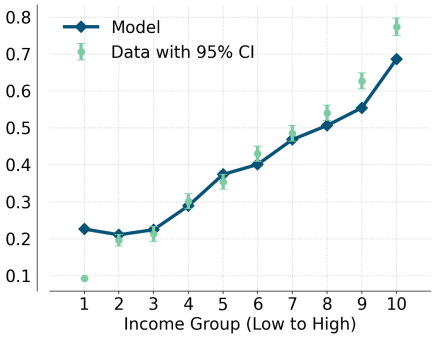
	$\mathbf{1}\{\text{Liberalization}_{c,t}\}$					
	GDP Growth	Inflation	$\frac{\text{Credit}}{\text{GDP}}$	$\frac{\text{FDI Inflow}}{\text{GDP}}$	$\frac{\text{Trade}}{\text{GDP}}$	Bank Crisis
	(1)	(2)	(3)	(4)	(5)	(6)
$X_{c,t-1}$	0.0037	0.00010	-0.012	0.0015	0.014*	0.0074
	(0.0082)	(0.0094)	(0.019)	(0.0015)	(0.0073)	(0.012)
$X_{c,t-2}$	-0.00097	0.011	-0.011	-0.0034	-0.0031	0.0027
	(0.0086)	(0.013)	(0.016)	(0.0028)	(0.0077)	(0.0099)
$X_{c,t-3}$	0.010	-0.0016	-0.0034	0.0045	-0.017*	-0.00063
	(0.010)	(0.0050)	(0.015)	(0.0034)	(0.0089)	(0.0079)
$X_{c,t-4}$	0.015**	-0.00033	-0.0082	0.00092	0.0055	-0.0034
	(0.0078)	(0.0019)	(0.014)	(0.0025)	(0.011)	(0.0063)
$X_{c,t-5}$	-0.0019	-0.0019	0.015	0.0037	-0.00077	0.0045
	(0.011)	(0.0023)	(0.013)	(0.0023)	(0.0083)	(0.0091)
Observations	8,676	7,432	6,208	5,717	5,847	6,301
Country FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
R^2	.031	.036	.042	.038	.037	.034

Back

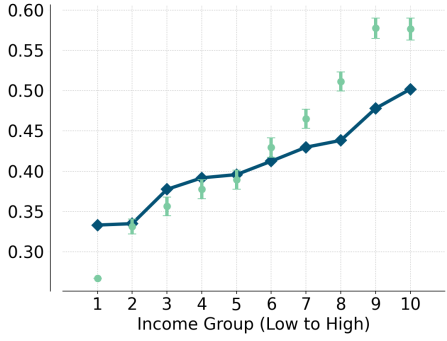
Quantification: model vs. data

- Model matches rise in real estate credit and output share over development

(a) Real Estate Credit Share



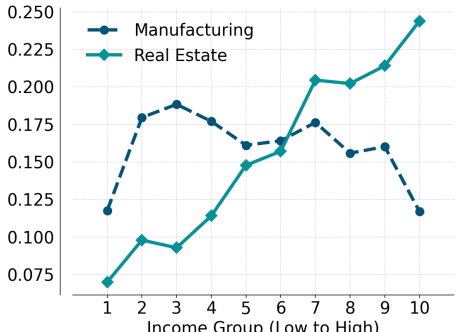
(b) Real Estate Output Share



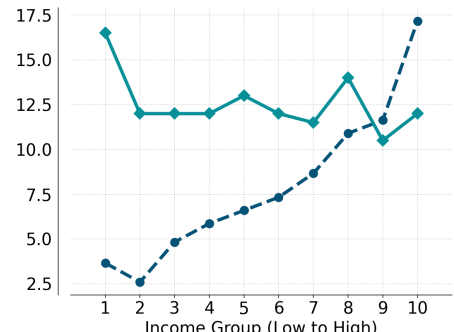
Calibrated sectoral financial constraints and TFP

- **Financial force**: Large relaxation in **real estate** financing constraints λ^E
- **Economic force**: Large rise in **manufacturing** TFP z^M, while real estate TFP is stagnant
- **New Stylized Facts**: **29%** from economic forces, **71%** from financial forces
- **Canonical Kuznets Facts**: **81%** from economic forces, **11%** from financial forces Caselli

(a) Sectoral Financing Constraint $\{\lambda_n^j\}_{n=1}^N$



(b) Sectoral TFP $\{z_n^j\}_{n=1}^N$



Rest of the model

- Flow of fund constraint for saver:

$$c_t^S + q_t h_t^S + \frac{b_{t+1}}{1+r_t} = b_t \tag{1}$$

- Market clearing conditions, $i \in \{S, M, E\}, j \in \{M, E\}$

$$y_t^M = \sum_i c_t^i, \quad y_t^E = \sum_i h_t^i + \sum_j [l_{t+1}^j - (1-\delta) l_t^j], \quad b_t = \sum_j d_t^j$$

- Aggregation rules for consumption $c = \sum_i c^i$ and housing $h = \sum_i h^i$

$$\frac{c^i}{h^i} = \left[\frac{q}{s}\right]^\eta \Rightarrow \frac{c}{h} = \left[\frac{q}{s}\right]^\eta \tag{2}$$

  - A higher collateral price q lowers the relative demand for housing h/c

Market clearing condition for real estate goods

- Market clearing conditions at the steady states

$$z^M (l^M)^{\alpha^M} = c, \quad z^E (l^E)^{\alpha^E} - \delta l^E = h + \delta l^M \tag{3}$$

- Consumption FOC

$$\frac{c^i}{h^i} = \left[\frac{q}{s}\right]^{\eta} \Rightarrow \frac{c}{h} = \left[\frac{q}{s}\right]^{\eta} \tag{4}$$

- Combining these two, we have

$$h = (s/q)^{\eta} c = (s/q)^{\eta} z^M (l^M)^{\alpha^M} = \underbrace{(s/q)^{\eta} z^M (\tilde{\zeta}^M)^{\alpha^M}}_{\tilde{\zeta}^H} q^{-\frac{\alpha^M}{1-\alpha^M}},$$

- $\Rightarrow$ Housing demand is downward-sloping in q; manufacturing land demand $l^M(q)$ also falls as q rises.

Steady state equilibrium: Collateral quantities and price

- Sectoral collateral input l^j: marginal benefit = user cost

$$l^E = (\alpha^E z^E \widetilde{\lambda}^E)^{\frac{1}{1-\alpha^E}}, \quad l^M = (\alpha^M z^M \widetilde{\lambda}^M / q)^{\frac{1}{1-\alpha^M}},$$

  - Intuition: rising q increases revenue and cost equally in **real estate** sector
- Market clearing for real estate pins down collateral price q

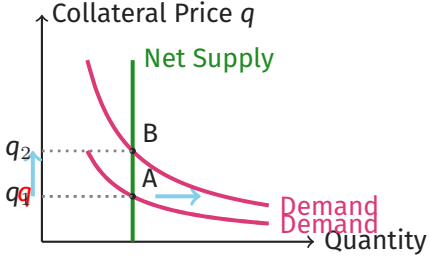
$$\overbrace{z^E \underbrace{(\widetilde{\zeta}^E)}_{l^E}{}^{\alpha^E} - \delta \widetilde{\zeta}^E}^{\text{Net Supply}} = \overbrace{\underbrace{\widetilde{\zeta}^H q^{-\eta - \frac{\alpha^M}{1-\alpha^M}}}_{h(q)} + \delta \underbrace{\widetilde{\zeta}^M q^{-\frac{1}{1-\alpha^M}}}_{l^M(q)}}^{\text{Demand}},$$

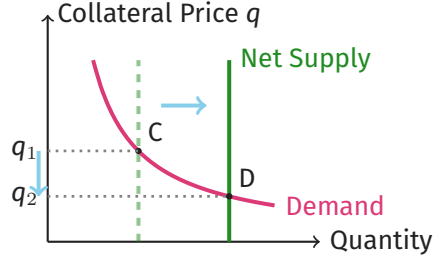
$\widetilde{\lambda}^j \equiv \frac{\beta}{1-\beta(1-\delta)-\lambda^j(\beta^S-\beta)}$, $\widetilde{\zeta}^j \equiv (\alpha^j z^j \widetilde{\lambda}^j)^{\frac{1}{1-\alpha^j}}$ for $j \in \{M, E\}$, and $\widetilde{\zeta}^H \equiv s^\eta z^M (\widetilde{\zeta}^M)^{\alpha^M}$

Comparative statics of collateral price q

$$z^E \underbrace{\left(\widetilde{\zeta}^E\right)^{\alpha^E}}_{l^E} - \delta\widetilde{\zeta}^E = \underbrace{\widetilde{\zeta}^H q^{-\eta-\frac{\alpha^M}{1-\alpha^M}}}_{h(q)} + \underbrace{\delta\widetilde{\zeta}^M q^{-\frac{1}{1-\alpha^M}}}_{l^M(q)}$$

- **Net Supply** and **Demand** intersect at equilibrium price q
- **Demand**: higher z^M or λ^M boosts l^M and h, both driving q **up**
- **Net Supply**: higher z^E or λ^E expands Net Supply, driving q **down** (when $\widetilde{\lambda}^E < 1/\delta$)





Development accounting exercise

	Panel A: $\frac{d^E}{d^E+d^M}$	Panel B: $\frac{qy^E}{qy^E+y^M}$	Panel C: $\log(q)$	Panel D: $\log\left(\frac{y^M+y^E}{n^M+n^E}\right)$
(1) Baseline	45.98	16.88	2.02	1.16
(2) Vary productivity (z^M, z^E)	13.38 (29.1)	13.64 (80.8)	2.27 (112.3)	1.12 (96.5)
(3) Vary both sector constraints (λ^M, λ^E)	30.95 (67.3)	-0.02 (-0.1)	-0.02 (-1.1)	0.01 (1.0)
(a) Vary manufacturing constraint (λ^M)	0.14 (0.3)	0.00 (0.0)	-0.00 (-0.0)	-0.00 (-0.0)
(b) Vary real estate constraint (λ^E)	28.78 (62.6)	-0.02 (-0.1)	-0.02 (-1.1)	0.01 (1.0)
(4) Vary both sector input shares (α^M, α^E)	1.86 (4.0)	1.89 (11.2)	-0.37 (-18.2)	0.19 (16.4)
(a) Vary manufacturing input share (α^M)	0.27 (0.6)	0.28 (1.6)	-0.05 (-2.2)	-0.03 (-2.4)
(b) Vary real estate input share (α^E)	1.57 (3.4)	1.61 (9.5)	-0.32 (-16.0)	0.21 (17.9)

Sectoral financial deepening and subsequent long-run growth

	$\Delta_5 \log$(**Real GDP per Capita**$_{c,t}$)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manu Credit to GDP$_{c,t}$	0.29**	0.26**	0.45***					
	(0.13)	(0.13)	(0.14)					
RE Credit to GDP$_{c,t}$	-0.63***	-0.67***	-0.57***					
	(0.14)	(0.15)	(0.15)					
Agri Credit to GDP$_{c,t}$			0.27					
			(0.52)					
Serv Credit to GDP$_{c,t}$			-0.23**					
			(0.11)					
Manu Credit Share$_{c,t}$				0.19***		0.14**		
				(0.068)		(0.068)		
RE Credit Share$_{c,t}$					-0.23***	-0.18***		
					(0.050)	(0.053)		
Lower Income$_{c,t}$ × Credit/GDP$_{c,t}$							0.12**	0.13*
							(0.052)	(0.076)
Higher Income$_{c,t}$ × Credit/GDP$_{c,t}$							-0.13***	-0.17***
							(0.027)	(0.048)
Observations	2,978	2,574	2,129	2,129	2,129	2,129	6,540	2,407
# Countries	82	75	77	77	77	77	131	79
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Control: VA to GDP		✓						
Interacted Var: Credit/GDP							Total	NFC
Control: GDP per Capita	✓	✓	✓	✓	✓	✓	✓	✓
R^2	0.17	0.21	0.17	0.13	0.13	0.14	0.05	0.07

Back

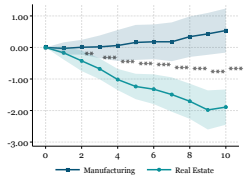
Sectoral financial deepening and long-run growth: 10-year horizon

	$\Delta_{10}\log(\textbf{Real GDP per Capita}_{c,t})$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Manu Credit to $GDP_{c,t}$	0.74***	0.80***	1.01***					
	(0.17)	(0.19)	(0.23)					
RE Credit to $GDP_{c,t}$	-0.81***	-0.81***	-0.74***					
	(0.17)	(0.20)	(0.26)					
Agri Credit to $GDP_{c,t}$			0.072					
			(0.72)					
Serv Credit to $GDP_{c,t}$			-0.34*					
			(0.18)					
Manu Credit $Share_{c,t}$				0.36***		0.30***		
				(0.098)		(0.10)		
RE Credit $Share_{c,t}$					-0.33***	-0.23***		
					(0.069)	(0.079)		
Lower $Income_{c,t} \times Credit/GDP_{c,t}$							0.25***	0.45***
							(0.079)	(0.11)
Higher $Income_{c,t} \times Credit/GDP_{c,t}$							-0.24***	-0.20***
							(0.032)	(0.053)
Observations	2,632	2,287	1,823	1,823	1,823	1,823	6,074	2,075
# Countries	82	75	76	76	76	76	130	77
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Control: VA to GDP		✓						
Interacted Var: Credit/GDP							Total	NFC
Control: GDP per Capita	✓	✓	✓	✓	✓	✓	✓	✓
R^2	0.32	0.36	0.30	0.25	0.24	0.26	0.09	0.11

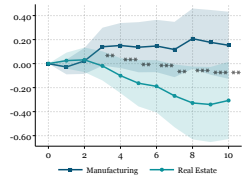
Back

Local projection: financial deepening, credit allocation, and long-run growth

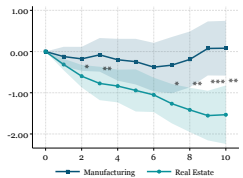
(a) Credit/GDP and GDP Growth



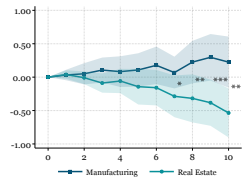
(b) Credit Share and GDP Growth



(c) Credit/GDP and TFP Growth



(d) Credit Share and TFP Growth



Back

Mortgage share and sectoral credit growth

$$\Delta_h \log(\text{Credit}_{c,j,t}) = \beta^h \text{Mortgage Share}_{c,j} + \delta_{c,t} + \gamma_{j,t} + \epsilon_{c,j,t}, \text{ for } h = 5, 10, \quad (5)$$

	$\Delta_h \log(\text{Credit}_{c,j,t})$					
	$h = 5$			$h = 10$		
	(1)	(2)	(3)	(4)	(5)	(6)
Mortgage Share	0.80***	0.38***		1.66***	0.78***	
	(0.21)	(0.040)		(0.38)	(0.068)	
Δ_hMortgage to GDP$_c \times \mathbf{1}\{j = \text{Cons.}\}$			2.80***			3.37***
			(0.19)			(0.27)
Δ_hMortgage to GDP$_c \times \mathbf{1}\{j = \text{Manu.}\}$			0.72***			1.02***
			(0.14)			(0.29)
Observations	337	3,344	324	217	2,324	206
# Countries	4	32	13	4	30	10
# Industries	7	7	2	7	7	2
Country FE			✓			✓
Year FE			✓			✓
Country×Year FE	✓	✓		✓	✓	
Industry×Year FE	✓			✓		
Industry Level	Broad	Broad	Broad	Broad	Broad	Broad
Mean of Dependent Var.	0.20	0.45	0.16	0.36	0.88	0.32
R^2	0.90	0.75	0.70	0.89	0.74	0.77

Back