FAMILIAR STRANGERS: LINEAGE CONNECTION AND DIASPORA DIRECT INVESTMENTS IN CHINA

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Motivation

- Developing countries strive to attract FDI.
  - FDI generates positive spillovers to the domestic sector (Harrison and Rodríguez-Clare, 2010).
- Nevertheless, developing countries face huge difficulties in competing for foreign capital from global markets.
  - Even by 2019, more than 50% of annual world FDI flow to OECD countries rather than the vast developing world.
  - **"Why doesn't capital flow from rich to poor countries?" (Lucas, 1990)**
- Barriers for developing countries to use outside forces to kick start development trajectory:
  - information frictions
  - institution weaknesses
  - corruption
  - infrastructure insufficiency

Motivation

- Many countries use diaspora networks to overcome these innate barriers.
  - 90% of countries have policies or programs in place targeting their diasporas for development purposes (International Organization for Migration, 2005).
  - African Diaspora Program launched by World Bank in 2007.
  - African Diaspora Marketplace launched by USAID.
  - the rise of Bangalor software industry (Saxenian, 1994).
- Diaspora Direct Investment (DDI), a special type of FDI, accounts for large portions of FDIs in developing countries.
  - 26% for India from 1991 to 2001 (Wei and Balasubramanyam, 2006)
  - 37% for Philippine; 60% if considering generally diaspora-affiliated firm (Graham, 2019).
- But so far DDI only attracts limited attention other than policymakers.

Motivation

- China provides an ideal research context:
  - remained closed for 30 years before the Reform and Opening-Up in 1979.
  - rose to a hub for multinationals and foreign firms within very short time.
  - IFDI volumn only second to the US from 1979 to 1999 (Huang, 2003).
- Anecdotes attribute this achievement to the Chinese diasporas (Vogel, 1990; Tan, 2006):
  - socially connected to ancestral hometowns through lineage.
  - pioneered in an immature market.
  - used informal networks to overcome entry barriers.
  - planted the seed investment for later industrial growth of China.
- How important are the roles of diasporas in explaining the entry of foreign firms in China? Is there a causal effect of lineage connection? What are the long-term implications?

Figure 1. Examples of Diaspora Firms in China

This Paper

- Build a comprehensive dataset on the universe of foreign firms controlled by diasporas in China, from 1980 to 2014 using firm registration data.
  - leveraging the spellings of Chinese surnames.
  - account for more than 60% of all foreign firms; ≥ 90% before 1995.
- Exploit variations from both the staggered timings of opening shocks during the Reform Era and surname distributions across Chinese prefectures, and adopt a Triple DID design.
- Find that stronger lineage connection, following the prefecture-level opening shocks, facilitates the entry of diaspora firms through reducing information frictions and strengthening contract enforcement.
- Show these DDIs have "seeding effects" on non-diaspora investments.

Historical Background

- China has a long history of emigration.
  - 1300s-1840s: South East Asia
  - 1840s-1949: North and South America, Australia
  - 1949-1979: HMT
  - 1979-present: US, Canada, Europe
- One of the largest migrant network in the world.
  - 5.8 million in stock (Global Migrant Origin Database, 2007)
  - high income level and social status in host countries
  - 3/4 of $ 369 billion worth wealth was controlled by Chinese diaspora (The Economist, 2020)
- Though as emigrants, Chinese diaspora (of earlier generations) remained socially connected to their ancestral hometowns (Kuhn, 2008).
  - During 1949 and 1979, they kept in touch with lineage members through letters and remittance.

Figure 2. Letters, Remittance, Ancestral Temple, and Genealogy

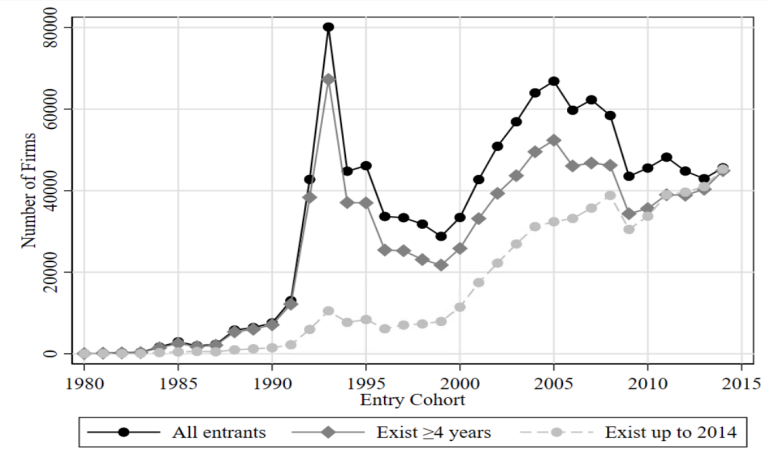


Figure 3. Entry and Survival of Foreign Firms by Cohort

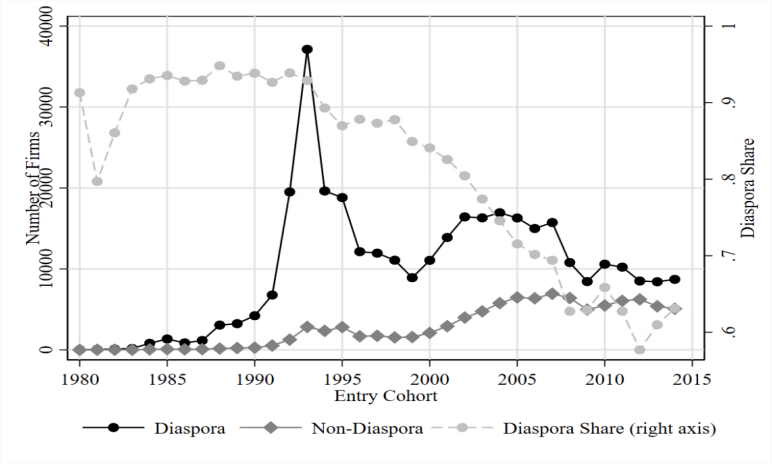


Figure 4. Decomposition of Foreign Firms: Diaspora versus Non-Diaspora

Related Literature and Contribution

- **Social affinities on trade and investment**: Rauch and Trindade (2002), Javorcik et al. (2011), Ma (2018), Burchardi et al. (2019)
  - a new type of social tie: lineage connection (between surname and location) that is prevalent and important among businessmen in developing countries
- **International migration and empirical studies on names:** Sequeira et al. (2019), Tabellini (2020), Abramitzky et al. (2020)
  - "brain gains": returned investments in addition to remittance
  - use surnames to infer one's lineage group or ancestry
- **FDI spillovers in China:** Cheng and Kwan (2000), Gao (2003), Tong (2005), Amit and Javorcik (2008), Du et al. (2008), Huang et al. (2016), Lu et al. (2017)
  - differentiate DDI from FDI: a new perspective other than horizontal/vertical spillovers.
- **Studies on Chinese economy using firm registration data:** Dai et al. (2019), Bai et al. (2020).
  - focus on the small yet indispensable foreign sector.

Data

- **Firm registration data**
  - the universe of firms ever registered in China up till 2014
  - entry & exit dates
  - industry code (4-digit), region code (6-digit), ownership code (4-digit)
  - up-to-date registered capital (2014). strongly correlated with assets, employment, and sales (Bai et al. 2020)
  - list of shareholders & registered personnel.
- **Population census 2005**
  - 0.2% representative sample of population
  - region code (6-digit)
  - *individual surnames*
- **Other sources**
  - China Compendium of Statistics 2009
  - Input-Output Table 2002

Identifying Diaspora Firms & Surnames

- Use ownership code to select the subgroup of foreign firms.
  - any change in the nature of ownership will automatically create a new legal entity (Chen et al. 2019)
  - immediate shareholding structure do not imply ultimate control structure, e.g., the existence of holding shells (Bai et al. 2020)
  - richer information: joint-venture (JV), headquarter or branch, HMT
- Use surnames to identify Chinese diaspora.
  - extract surnames of registered personnel in foreign firms. ▸ See details
  - Diaspora = Chinese surname + non-mainland ID (passport, HMT residency)
- Use the surname of the diaspora legal representative to proxy the firm's lineage
  - surnames of shareholders in foreign-registered firms not observable.
  - legal rep. unique in every firm. ▸ See details
  - legal rep. ≈ highest executive position. ▸ See details

Surname-Based Lineage Connection

- The lineage connection between surname s and prefecture p is:

$$m_{sp} = \frac{E_{sp}}{\sum_p E_{sp}} \tag{1}$$

- where E_{sp} denotes the population of surname s in prefecture p.
- a measure of lineage connection not necessarily driven by surname size

▸ See details

- novelty of this measure:
  - practical: lack of statistics for emigration in China
  - methodological: pre-determined variable (Clark, 2015; Bai and Kung, 2020)

▸ See details

- assume surname distribution remains relatively stable from 1981 to 2005.
  - Hukou registration not formally relaxed until 2000s (Tombe and Zhu, 2019)
  - exclude ethnic minority provinces and prefectures that experience influx of internal immigrants: Beijing, Shanghai, Guangzhou, Shenzhen

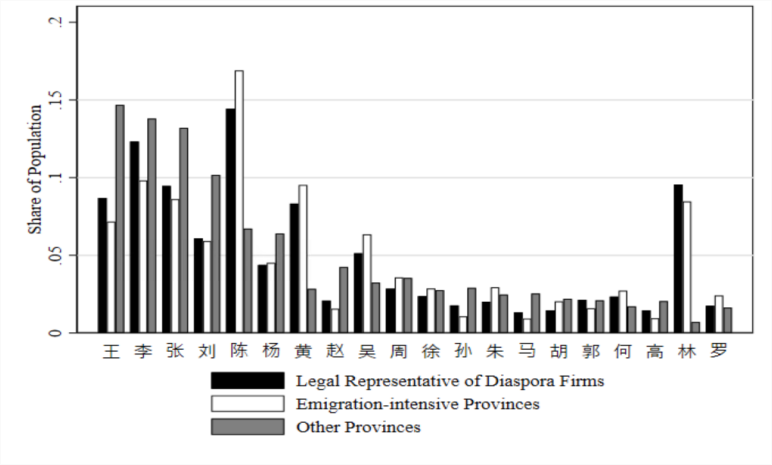


Figure 5. Surname Distributions in Different Populations

Comparison with Other Data and Cross Validation

- Foreign Firm Entry vs. Official FDI Inflows. ▸ See details
- Firm registration data vs. Annual Survey of Industrial Firms. ▸ See details
- Diaspora firms vs. HMT firms. ▸ See details
- Diaspora firms in Fujian Province during the 1980s. ▸ See details
- Lineage connection measures based on 2005 Census vs. based on firm registration data. ▸ See details

Empirical Strategy

$$Y_{spc} = \eta_{sp} + \theta_{sc} + \phi_{pc} + \beta \times Open_{pc} \times m_{sp} + \lambda \times S_{s,p,c-1} + \epsilon_{spc} \quad (2)$$

- surname s, prefecture p, cohort c (1981-1996, the "Reform Era")
- Y_{spc}: outcome variable, e.g. number of entrants, number of survived firms
- m_{sp}: lineage connection between surname s and prefecture p
- $S_{s,p,c-1}$: number of incumbent firms
- η_{sp}, θ_{sc}, ϕ_{pc}, controlling for:
  - geographic characteristics, entrepreneurial culture
  - place-based policies (and agglomerations)
  - surname-specific advantages
- $Open_{pc}$: =1 if prefecture p has conducted opening reform in year c, =0 otherwise See details

Event Study

$$Y_{spc} = \eta_{sp} + \theta_{sc} + \phi_{pc} + \sum_{\tau \in \{\leq -4, -3, -2, 0, .. 3, \geq 4\}} \beta^{\tau} \times Open_{pc}^{\tau} \times m_{sp} + \lambda \times S_{spc} + \epsilon_{spc} \quad (3)$$

- surname s, prefecture p, cohort c (1981-1996, the "Reform Era")
- $\tau = c - \tau^{p}$ is the normalized time window relative to opening reform
- τ^{p} is the year of openness reform firstly launched in prefecture p
- $Open_{pc}^{\tau} = 1$ if prefecture p in year c is τ year relative to reform, =0 otherwise
- Common trend assumption holds if β^{τ} insignificant for $\tau < 0$

Baseline Results

	Number of Entrants	Survival-adjusted Number of Entrants	Number of Survived Firms in 2014
	(1)	(2)	(3)
Mean of Dep. Var.	0.060	0.052	0.009
Open × Lineage Connection	1.767***	1.517***	0.218*
	(0.574)	(0.527)	(0.399)
Adj.R^2	0.570	0.555	0.399
N	1,344,421	1,344,421	1,344,421
Number of Incumbent Firms	Y	Y	Y
Surname-Prefecture FE	Y	Y	Y
Surname-Cohort FE	Y	Y	Y
Prefecture-Cohort FE	Y	Y	Y

Note: ***, **, * denote significance level at 1%, 5%, and 10% respectively. Standard errors are clustered at surname-prefecture level. Survival-adjusted Number of Entrants is the number of entrants that survive for more than 4 years (included).

Testing Common Trend Assumption

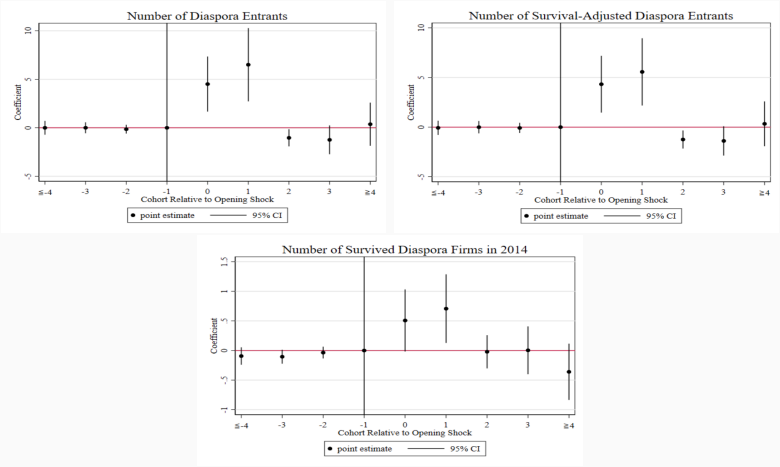


Figure 6. Estimates of β^{τ} in Equation (3)

Testing Selective Entry Hypothesis

	Survival Ratio in 2014 Conditional on Entry	Average Registered Capital in 2014 Conditional on Entry
	(1)	(2)
Open × Lineage Connection	-0.333	-7040.914
	(0.825)	(7984.062)
Adj.R^2	0.364	0.054
N	20,633	20,633
Number of Incumbent Firms	Y	Y
Surname-Prefecture FE	Y	Y
Surname-Cohort FE	Y	Y
Prefecture-Cohort FE	Y	Y

Note: ***, **, * denote significance level at 1%, 5%, and 10% respectively. Standard errors are clustered at surname-prefecture level.

Robustness Checks I: Alternative Dependent Variables

	At Least One Entrant	At Least One Survived Entrant in 4 Years	At Least One Survived Entrant in 2014	Arcsinh (Survived Registered Capital in 2014)
	(1)	(2)	(3)	(4)
Open × Lineage Connection	0.766***	0.672***	0.165***	1.229***
	(0.112)	(0.102)	(0.053)	(0.422)
Adj.R^2	0.383	0.373	0.255	0.271
N	1,344,421	1,344,421	1,344,421	1,344,421
Number of Incumbent Firms	Y	Y	Y	Y
Surname-Prefecture FE	Y	Y	Y	Y
Surname-Cohort FE	Y	Y	Y	Y
Prefecture-Cohort FE	Y	Y	Y	Y

Note: ***, **, * denote significance level at 1%, 5%, and 10% respectively. Standard errors are clustered at surname-prefecture level.

Robustness Checks II: Alternative Setups

	Open × Lineage Connection		
	Alternative Lineage Connection Measure	Alternative Standard Error	Include Roundtrip Diaspora Entrants
	(1)	(2)	(3)
Number of Diaspora Entrants	2.874***	1.767***	3.821***
	(0.946)	(0.493)	(0.820)
Survival-Adjusted Number of Diaspora Entrants	2.511***	1.517***	3.253***
	(0.903)	(0.456)	(0.743)
Number of Incumbent Firms	Y	Y	Y
Surname-Prefecture FE	Y	Y	Y
Surname-Cohort FE	Y	Y	Y
Prefecture-Cohort FE	Y	Y	Y

Note: ***, **, * denote significance level at 1%, 5%, and 10% respectively. Standard errors are clustered at surname-prefecture level except in column (2). Survival-adjusted Number of Diaspora Entrants is the number of entrants that survive for more than 4 years (included). Potential roundtrip diaspora entrants are defined as entered foreign firms represented by citizens of People's republic of China.

Robustness Checks III: Subsample Regressions

	Open × Lineage Connection			
	Excluding Emigration-intensive Provinces	Excluding Emigration-intensive Surnames	Within Emigration-intensive Provinces	Excluding FDI-intensive Prefectures
	(1)	(2)	(3)	(4)
Number of Entrants	0.642***	1.733***	6.001***	1.534***
	(0.233)	(0.332)	(2.476)	(0.440)
Survival-Adjusted Number of Entrants	0.482***	1.480***	5.152***	1.308***
	(0.167)	(0.292)	(2.186)	(0.380)
Number of Incumbent Firms	Y	Y	Y	Y
Surname-Prefecture FE	Y	Y	Y	Y
Surname-Cohort FE	Y	Y	Y	Y
Prefecture-Cohort FE	Y	Y	Y	Y

Note: ***, **, * denote significance level at 1%, 5%, and 10% respectively. Standard errors are clustered at surname-prefecture level except in column (2). Survival-adjusted Number of Entrants is the number of entrants that survive for more than 4 years (included). Emigration-intensive provinces include Guangdong, Fujian, Zhejiang. Emigration-intensive surnames refer to the 20 most populous surnames among all diaspora legal representatives from 1981 to 2014. FDI-intensive prefectures are those whose cumulative number of hosted foreign firms rank top 20 among all prefectures during 1981 to 2014.

Permutation Tests: Reshuffling Lineage Connection Measures Within Prefecture

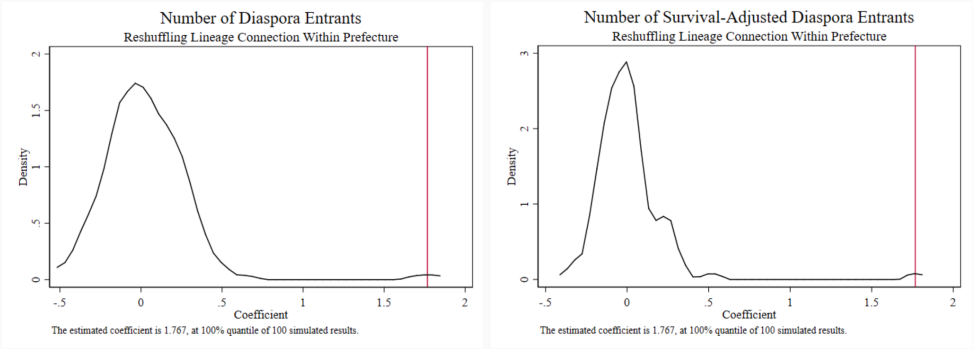
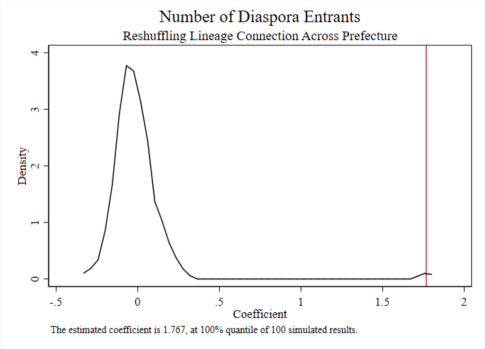


Figure 7. Permutation Tests

Permutation Tests: Reshuffling Lineage Connection Measures Across Prefecture



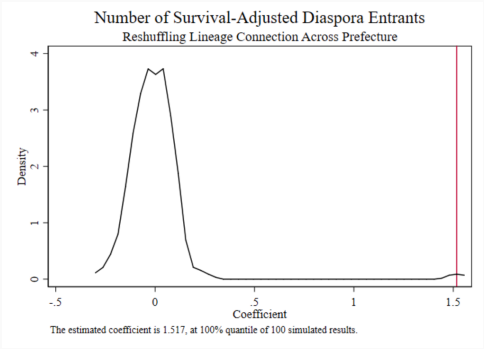


Figure 8. Permutation Tests

Mechanism: Placebo Test for WTO Accession

	Number of Diaspora Entrants	Survival-Adjusted Number of Diaspora Entrants
	(1)	(2)
WTO Accession × Lineage Connection	0.224	0.300
	(0.240)	(0.217)
Number of Incumbent Firms	Y	Y
Surname-Prefecture FE	Y	Y
Surname-Cohort FE	Y	Y
Prefecture-Cohort FE	Y	Y

Note: ***, **, * denote significance level at 1%, 5%, and 10% respectively. Standard errors are clustered at surname-prefecture level. Survival-adjusted Number of Entrants is the number of entrants that survive for more than 4 years (included). The sample periods are from 1997 to 2009. Variable *WTO accession* takes value 1 for the period from 2002 onward, and 0 otherwise.

Mechanism: Reducing Information Frictions

	Number of Entrants	Survival-adjusted Number of Entrants
	(1)	(2)
Panel A: Communication Infrastructure		
Open × Lineage Connection	-2.507	-1.814
	(1.908)	(1.846)
Open × Lineage Connection × Telephone Exchange Capacity	1.074***	0.868**
	(0.409)	(0.386)
Adj.R^2	0.454	0.437
N	666,397	666,397
Fixed Effects	sp,pc,sc	sp,pc,sc
Panel B: Social Fragmentation		
Open × Lineage Connection	-9.356***	-7.201***
	(2.936)	(2.899)
Open × Lineage Connection × Surname Fragmentation	11.963***	9.365***
	(3.336)	(2.899)
Adj.R^2	0.409	0.395
N	1,186,664	1,186,664
Fixed Effects	sp,pc,sc	sp,pc,sc
Panel C: Pioneer Firm		
Open × Lineage Connection	7.424**	6.390**
	(3.063)	(2.712)
Open × Lineage Connection × Pioneer Firm	-13.080**	-11.263**
	(5.650)	(4.974)
Adj.R^2	0.465	0.458
N	2,690,048	2,690,048
Fixed Effects	sp,pc,sc,x	sp,pc,sc,x

Note: All regressions control for number of incumbent firms.

Mechanism: Strengthening Contract Enforcement

	Number of Entrants	Survival-adjusted Number of Entrants
	(1)	(2)
Panel A: Branch Firm		
Open × Lineage Connection	8.795***	7.633**
	(3.363)	(2.997)
Open × Lineage Connection × Branch Firm	-15.823***	-13.749***
	(6.255)	(5.547)
Adj.R^2	0.452	0.444
N	2,690,048	2,690,048
Panel B: Labor Intensive		
Open × Lineage Connection	-1.864*	-1.650*
	(1.043)	(0.928)
Open × Lineage Connection × Labor Intensive	4.990**	4.433**
	(2.466)	(2.226)
Adj.R^2	0.665	0.645
N	2,690,048	2,690,048
Panel C: Supplier Intensive		
Open × Lineage Connection	-2.331*	-2.030**
	(1.156)	(1.010)
Open × Lineage Connection × Supplier Intensive	6.196**	5.397**
	(2.736)	(2.427)
Adj.R^2	0.688	0.673
N	2,690,048	2,690,048
Fixed Effects	sp,pc,sc,x	sp,pc,sc,x

Note: All regressions control for number of incumbent firms.

Seeding Effects of DDI on Firm Entry: Local Private Firms

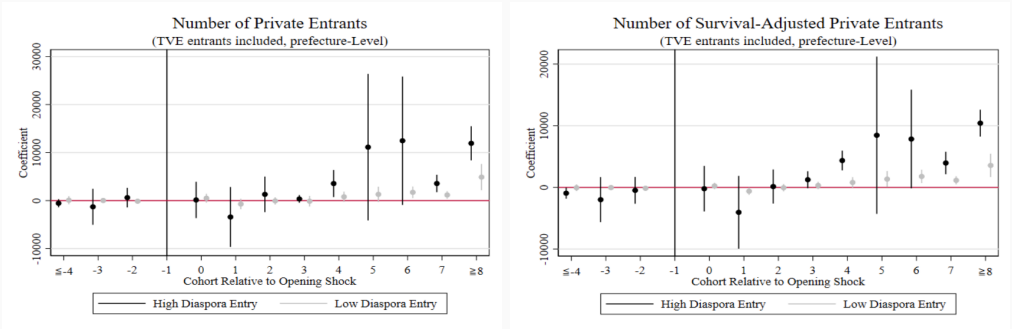


Figure 9. Prefecture-Level Event Study

Seeding Effects of DDI on Firm Entry: Non-Diaspora Foreign Firms

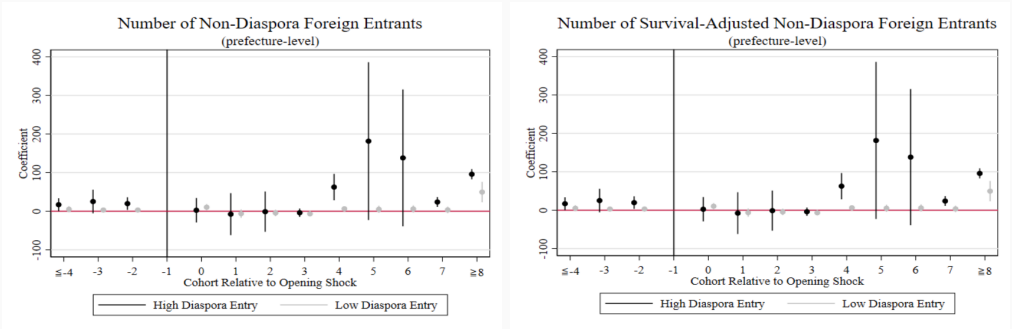


Figure 10. Prefecture-Level Event Study

Conclusions & Follow-ups

- For the first time in literature, we document quantitatively the prevalence of diaspora firms in China.
- Lineage connection lowered entry barriers by reducing information frictions and strengthening contract enforcement in an immature market environment.
- DDIs, as the leading investments, seeded the local development: more follow-up entry of local firms and non-diaspora foreign firms.
- Policy implications: Developing countries have comparative advantage to make use of informal institutions.
- More follow-up questions: transition from informal to formal institution during development process.

Thank you & Contact

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Backup Slides

Registered Capital vs. Other Economic Outcomes

	Log Registered Capital	
	(1)	(2)
Log Employment	0.025***	0.018***
	(0.003)	(0.004)
Log Assets	0.976***	0.416***
	(0.003)	(0.004)
Log Sales	-0.124***	-0.005
	(0.003)	(0.003)
R^2	0.710	0.946
N	150065	124964
Year Fixed Effects	Y	Y
Industry Fixed Effects	Y	N
Firm Fixed Effects	N	Y

Notes: Samples are foreign firms according to ownership code from Annual Survey of Industrial Firms (ASIF) ,1998-2007. Industry is at 2-digit level. ******,* denote significance level at 1%, 5%, and 10%, respectively. Standard errors are clustered at firm level.

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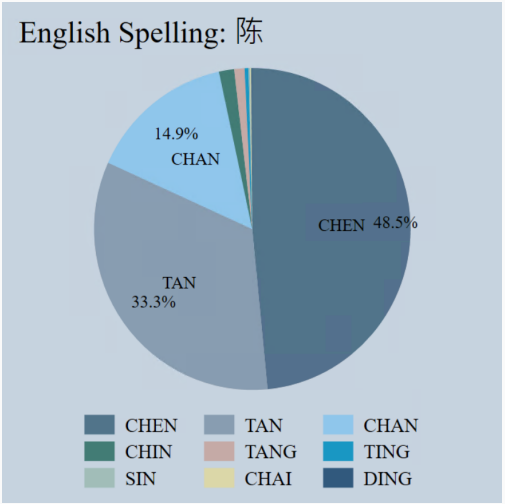
Algorithm to Extract Surname

- Names of registered personnel in foreign firms:
  - English entries: e.g. "Fanghao Chen" (7.51%)
  - Chinese entries: e.g. " **陈方豪**" (91%)
  - mixed entries: e.g. " **陈方豪** (Fanghao Chen)" (1.49%)
- Construct a English spelling-Chinese spelling mapping based on mixed entries.
  - e.g. 1 Zhang =0.8 **张** + 0.2 **章** (an illustrative case)
- Rule out non-Chinese surnames using Chinese spelling.
  - e.g. Japanese, Korean, transliterated names.
- Manually process highly-unstructured entries.

▸ Back ▸ Example



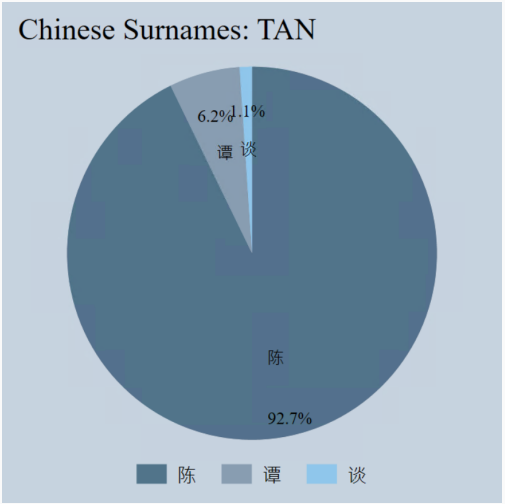


Figure 11. An Example of Spelling-Character Mapping between English and Chinese

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Structure of Registered Personnel in Foreign Firms

	Percentage
Has a legal representative	96.84%
Has a chairman on the board	23.90%
Has a CEO	20.57%
Has more than one legal representative	1.35%
Has more than one chairman	4.78%
Has more than one CEO	1.24%

Notes: The samples are registered personnel in foreign firms ever existed from 1985 to 2014.

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Legal Representative vs. Top Executive Position within Foreign Firms

	Is Top Executive	Not Top Executive	Total
Is Legal Representative	1334367	94956	1429323
Not Legal Representative	458908	1065118	1524026
Total	1793275	1160074	2953349

Notes: The samples are registered personnel in foreign firms ever existed from 1985 to 2014. Conditional on being a legal representative, a person has 93.35%(=1334367/1429323) chance of holding a top executive position within a foreign firm. Conversely, the chance is reduced to 74.41% (=1334367/1793275) for one's being a legal representative given that he or she holds a top executive position

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Bai and Kung (2020)

Table A1: Correlation of historical surname share with that in the 2005 census

	Surname share in total population				
	(1) All sur-names	(2) Top-100 surnames	(3) Non-top-100 surnames	(4) All sur-names	(5) All sur-names
Surname share in CBDB	1.134***	1.202***	0.934***	1.176***	1.222***
	(0.194)	(0.241)	(0.136)	(0.223)	(0.260)
Surname rank				0.040	0.191
				(0.029)	(0.154)
Squared term of surname rank					-0.029
					(0.024)
Observations	493	100	393	493	493
R-squared	0.774	0.742	0.347	0.778	0.781

Note: * significant at 10%; ** significant at 5%; *** significant at 1%; robust standard errors in parentheses.

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Table A2: Correlation of historical surname share with that in the 2005 census

	Surname share in total population of each prefecture			
	(1)	(2) Small sample size	(3) Medium sample size	(4) Large sample size
Surname share in CBDB	0.375***	0.255***	0.442***	0.637***
	(0.031)	(0.038)	(0.042)	(0.041)
Observations	52,751	17,748	17,748	17,255
R-squared	0.284	0.191	0.339	0.480

Note: * significant at 10%; ** significant at 5%; *** significant at 1%; robust standard errors in parentheses.

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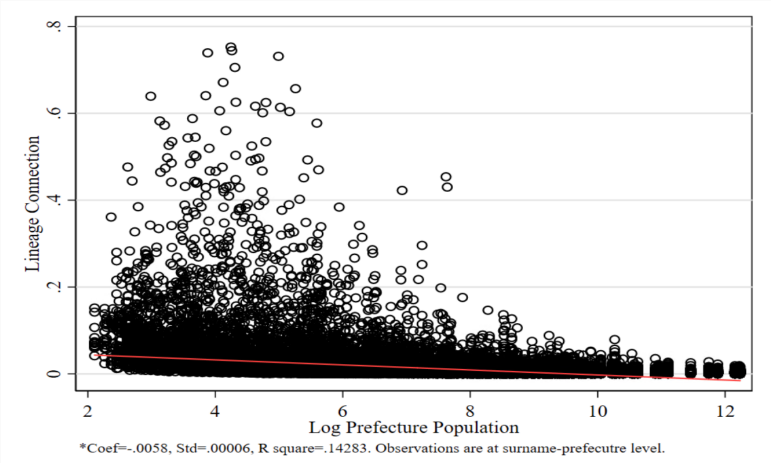
Lineage Connection Measure vs. Prefecture Population



*Coef=-.0058, Std=.00006, R square=.14283. Observations are at surname-prefecutre level.

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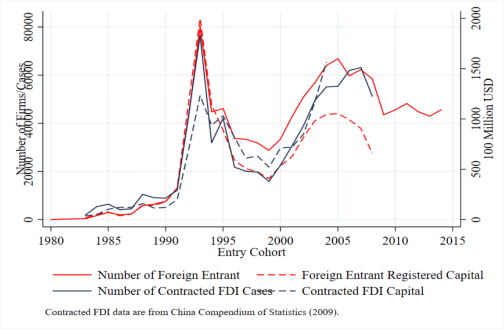
Foreign Firm Entry vs. Official FDI Inflows



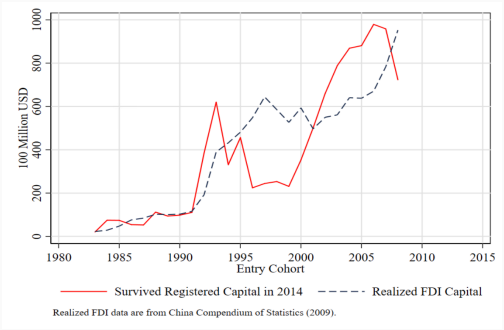


Figure 12. Foreign Firm Entry vs. Official FDI Inflows

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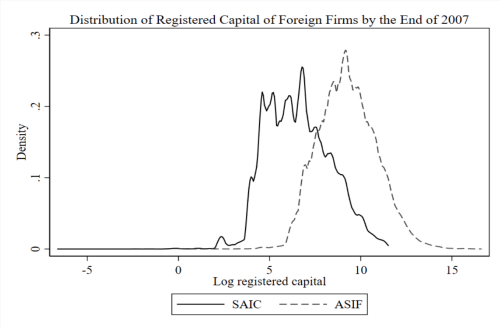
Firm Registration Data vs. Annual Survey of Industrial Firms



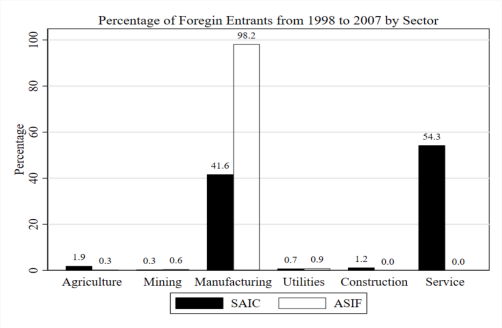


Figure 13. Comparing two popular data sources

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Firm Registration Data vs. Annual Survey of Industrial Firms

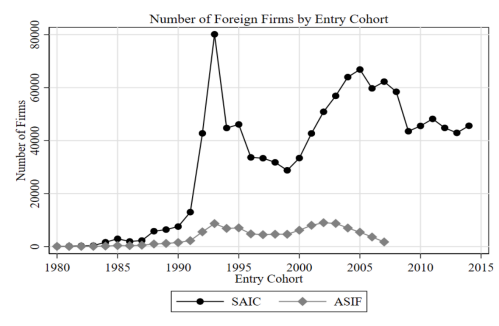

Figure 14. Comparing two popular data sources

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Diaspora Firms vs. HMT Firms

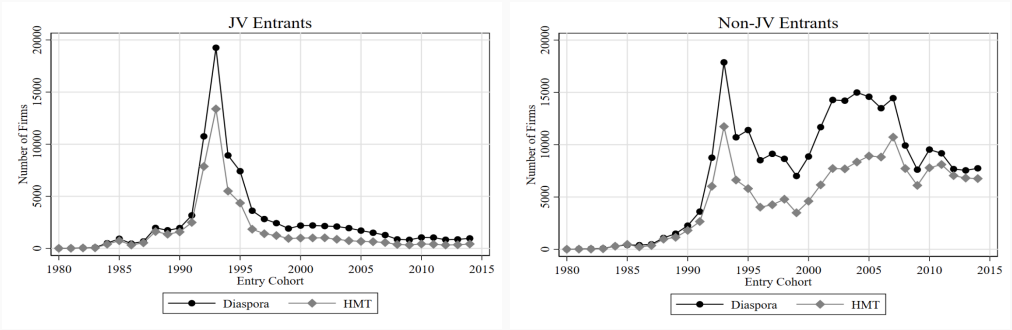

Figure 15. Huaren Foreign Firms vs. HMT Firms

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Diaspora Firms in Fujian Province during the 1980s

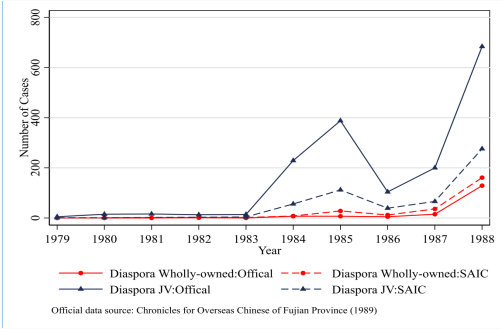

Figure 16. Huaren Foreign Firms: SAIV vs. Local Chronicle

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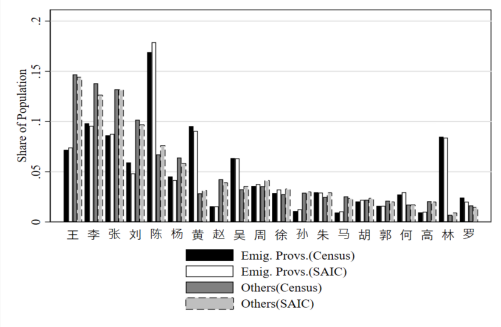
Lineage Connection Measure: 2005 Census vs. Firm Registration data



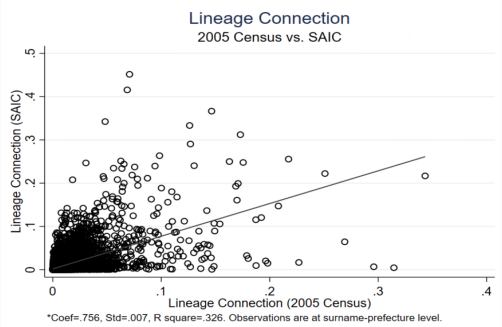


Figure 17. Lineage Connection: Census vs. SAIC

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China's Staggered Opening Reform: $Open_{pc}$

Year	Opening Policy	Open Regions
1980	Special Economic Zone	Shenzhen, Zhuhai, Shantou, Xiamen
1984	Open Coastal City	Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Shanghai, Ningbo, Wenzhou, Fuzhou, Guangzhou, Zhanjiang, Beihai
1985	Open Coastal City	Yingkou
1987	Open Coastal City	Weihai
1988	Special Economic Zone	Hainan Province
1990	Special Economic Zone	Shanghai Pudong District
1992	Deng Xiaoping's South Tour	All other regions

Source: https://en.wikipedia.org/wiki/Chinese_economic_reform

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