Foreign Firms and Foreign Managers

Miklós Koren   Álmos Telegdy

Motivation

Research question

- What role do expatriate managers play in foreign direct investment?
    - Do they improve firm performance?
    - Do they facilitate trade with their "home country"?
- What role for personal connections and face-to-face meetings in globalization?

Related to four strands of literature

1. What are the boundaries of (global) firms?
2. Foreign owned firms perform better than domestic firms
3. Management/managers matter
4. Personal networks matter

Degrees of control between/within firms

arm's length $\longrightarrow$ relational $\longrightarrow$ acquisition $\longrightarrow$ management

This paper

- Compile new data on which firm is run by which manager: Hungary, 1980–2018.
- Measure different degrees of foreign control:
    1. acquisition
    2. replace CEO
    3. hire expat CEO
- Results:
    - Exporters and low-productivity firms become more tightly controlled.
    - Firms with high intangible capital receive local managers.
    - Expat controlled firms become more productive and more likely to export (relative to other forms of control).

Data

Data

Hungarian Manager Database

- coverage: universe of corporations, 1980–2018
- CEO: highest officer of corporation as specified in corporate law.
  - information: name, mother's name, address, tenure at firm
- 1 million firms, 2 million CEOs, 5 million job spells

Balance sheet data

- coverage: universe of double entry firms, 1980–2018
- information: sales, exports, employment, equipment, immaterials etc.

Customs statistics

- coverage: universe of direct exports and imports, 1992–2003
- information: product code, partner country, firm id, value

Names

- We use manager names to infer
  1. CEO change
  2. nationality
  3. gender (not used today)
- Foreign manager: firm representative with a non-Hungarian first name
  1. e.g. Eva Bauer v Bauer Éva
  2. but: George Soros v Soros György
- Allow for misspelling, omitted middle name, missing data (jr, dr)

Sample

- Exclude:
  - employing less than 20 people
  - financial sector
  - domestic firms with expat CEO
  - greenfield FDI
  - firms with more than 15 CEOs
- Left with 24,500 firms

Largest investment partners of Hungary 1992–2003

Expatriate Managers in Hungarian Firms
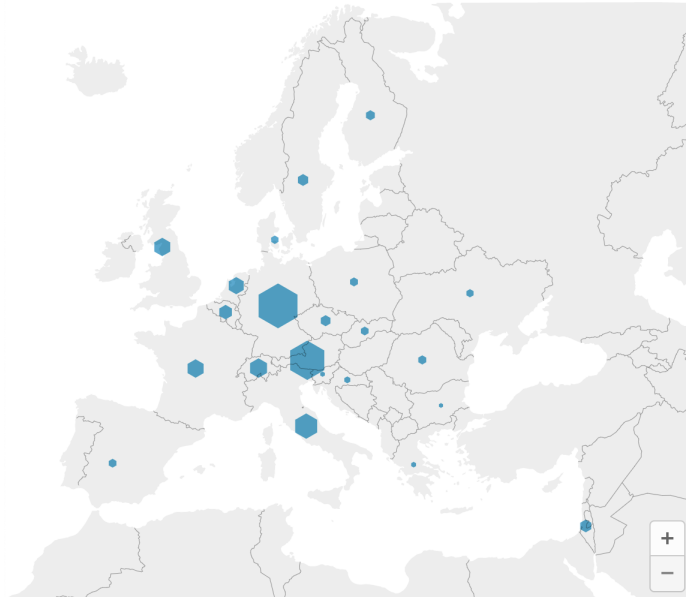
Foreign owners often replace managers

Foreign Owners Often Replace Managers

■ Number of firms

acquired	1,770
replaced manager	1,235
hired expat	654

Sample: Hungarian corporations with 20+ employees 1992-2003.

Chart: Koren, Orbán and Telegdy • Get the data • Created with Datawrapper

Estimation

Estimating equations

Selection

Sample: $\text{CONTROL}_i^{k-1} = 1$, years before acquisition

$$\text{CONTROL}_i^k = \mu_{st} + \gamma X_{it} + u_{ist}$$

Diff-in-diff (!)

Sample: acquisitions

$$Y_{ist} = \alpha_i + \mu_{st} + \sum_{k=1}^{3} \beta_k \text{CONTROL}_{it}^k + u_{ist}$$

Differences in differences

$$Y_{it} = \alpha_i + \nu_t + \beta\mathsf{CONTROL}_{it} + u_{it}$$

Old diff-in-diff
Estimate by two-way fixed effects.

New diff-in-diff
Compute group-specific treatment effects and aggregate. (Callaway and Sant'Anna 2020)

Problem with TWFE

Model may be misspecified. Often, β is heterogeneous or increases over treatment length.

This is a problem if treatment is staggered, especially in long panel (our case).

Long treated firms will act as a control, biasing $\hat{\beta}$. May even have different sign than all the individual treatment effects.

Callaway - Sant'Anna solution

G_i: time of treatment of unit i (may be ∞)

$C_{gt} = \{i : G_i > \max(g, t)\}$: control group is not yet treated

$$\gamma_{gt} := E_{i:G_i=g}(Y_{it} - Y_{ig}) - E_{i \in C_{gt}}(Y_{it} - Y_{ig})$$

Aggregate γ_{gt} with "suitable" weights

Multiple treatments

We have three treatments: acquisition only, domestic hire, expat hire.

How to do Callaway-Sant'Anna in this case?

Make sure treatments don't "leak" into controls.

Our solution

G_i^k: time of treatment k of unit i (may be ∞)

$C_{gt} = \{i : \min_k G_i^k > \max(g,t)\}$: control group is not yet treated with **any** of the treatments

$$\gamma_{gt}^k := E_{i:G_i=g}(Y_{it} - Y_{ig}) - E_{i \in C_{gt}}(Y_{it} - Y_{ig})$$

Each treatment has the **same** control group.

We also do inverse-probability weighting within control group (Abadie 2005). This helps kill pretrends.

Results

## Positive selection on exports, negative on TFP

| VARIABLES	(1) No_hire	(2) Local_hire	(3) Expat_hire	(4) Ordered
Employment (log)		0.019	-0.101*	-0.07
		(0.055)	(0.055)	(0.04
Capital per worker (log)		0.113***	0.140***	0.089
		(0.038)	(0.041)	(0.02
Material share (log)		-0.153	-0.480***	-0.336
		(0.143)	(0.152)	(0.11
Exporter (dummy)		0.165	0.382**	0.275
		(0.161)	(0.164)	(0.12
TFP (log)		-0.314	-1.122***	-0.803
		(0.203)	(0.222)	(0.15
Observations	1,501	1,501	1,501	1,50

Without change in management

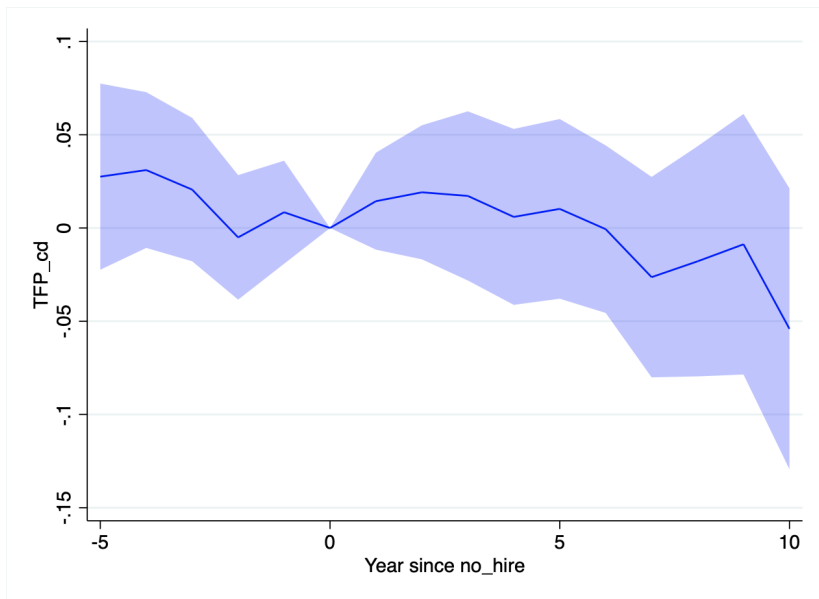# No effects of foreign acquisition on employment
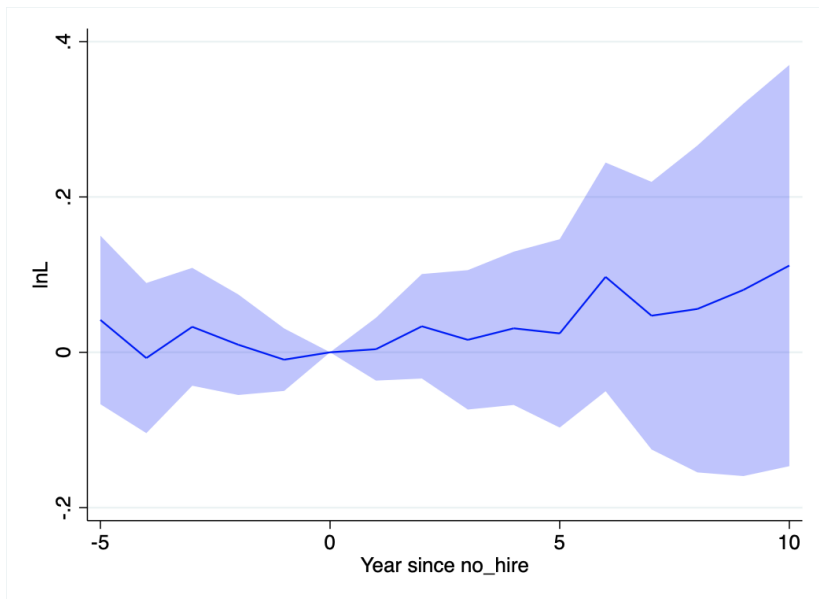
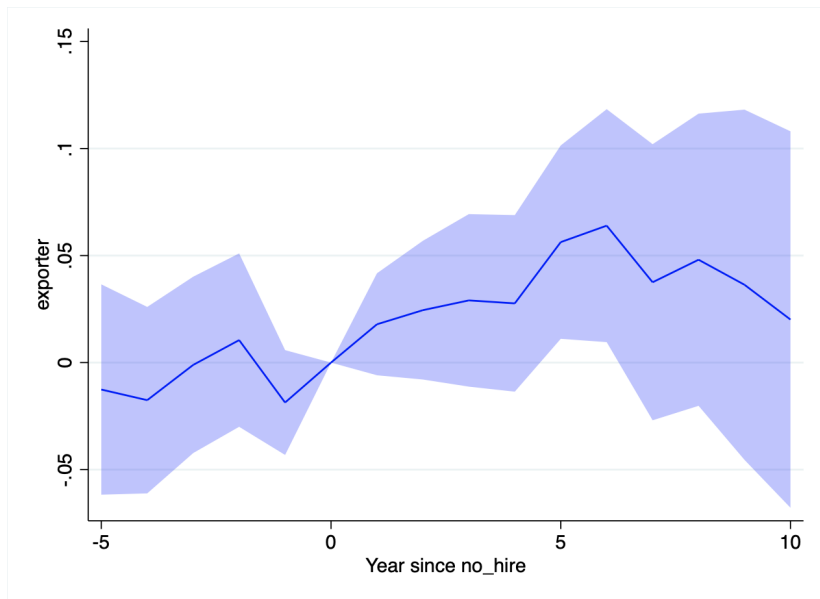# No effects of foreign acquisition on capital
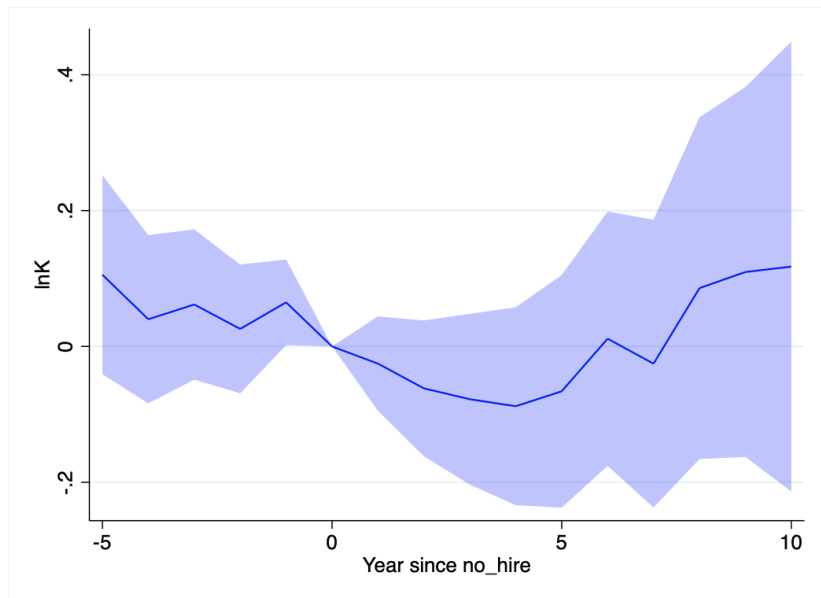
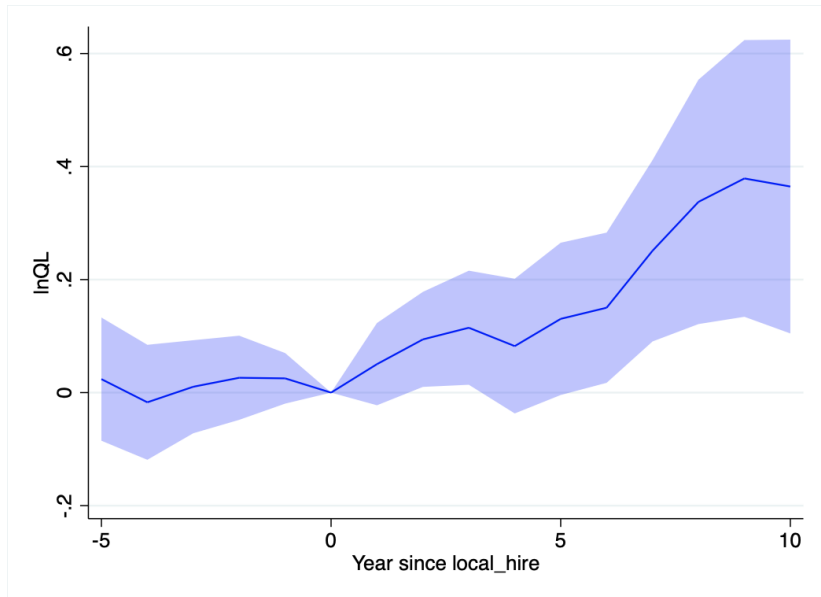# No effects of foreign acquisition on labor productivity
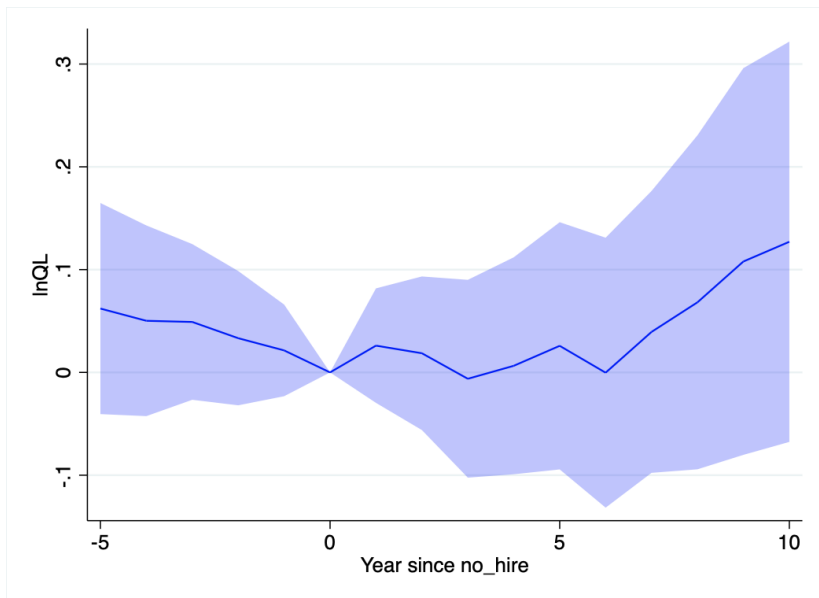
. . . or TFP
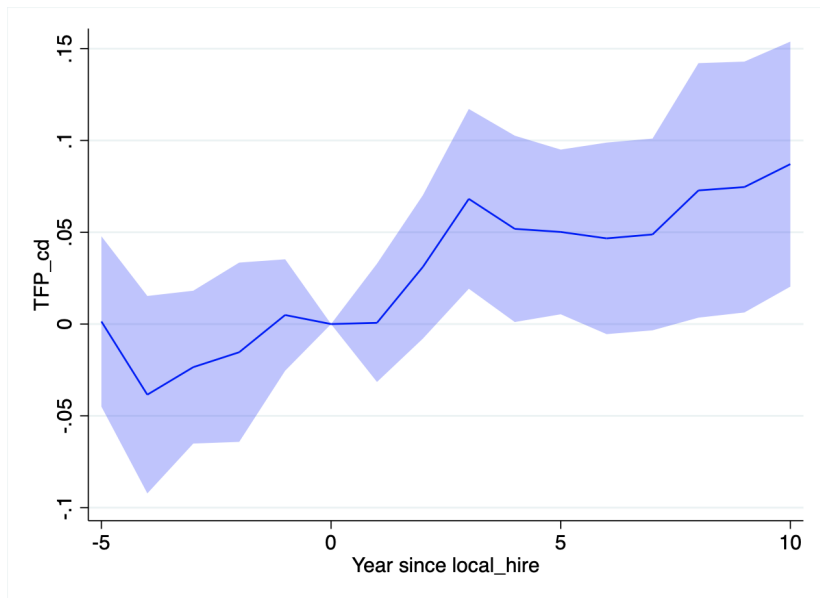
Some transitory increase in exporting

Hire a local manager

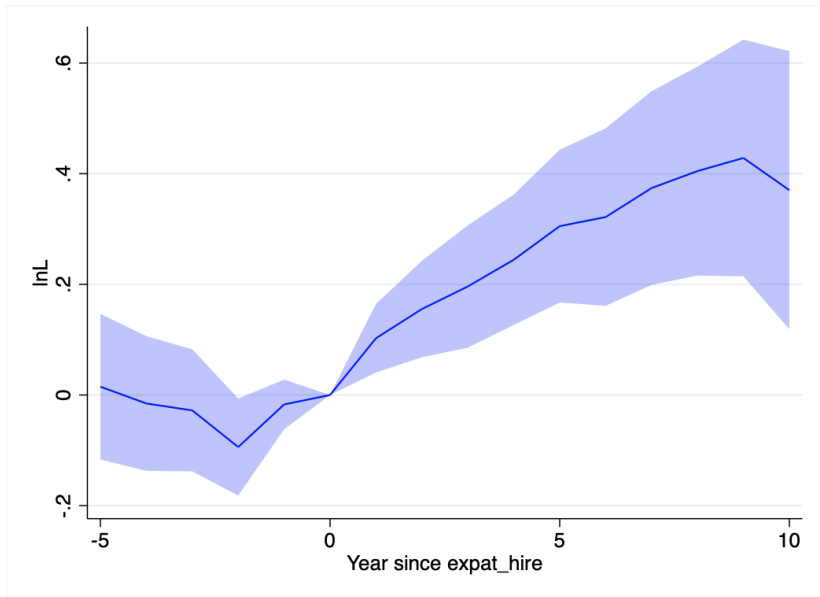# Fast productivity growth after local manager is hired
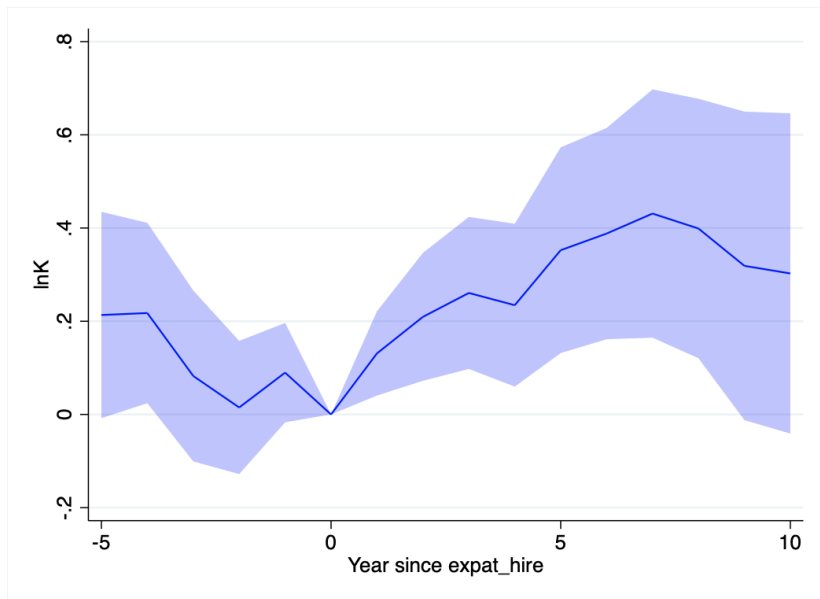
Also in TFP

Hire an expat manager

Fast employment growth after expat manager is hired

Positive capital investments after expat manager is hired

Productivity growth of same magnitude as with local manager
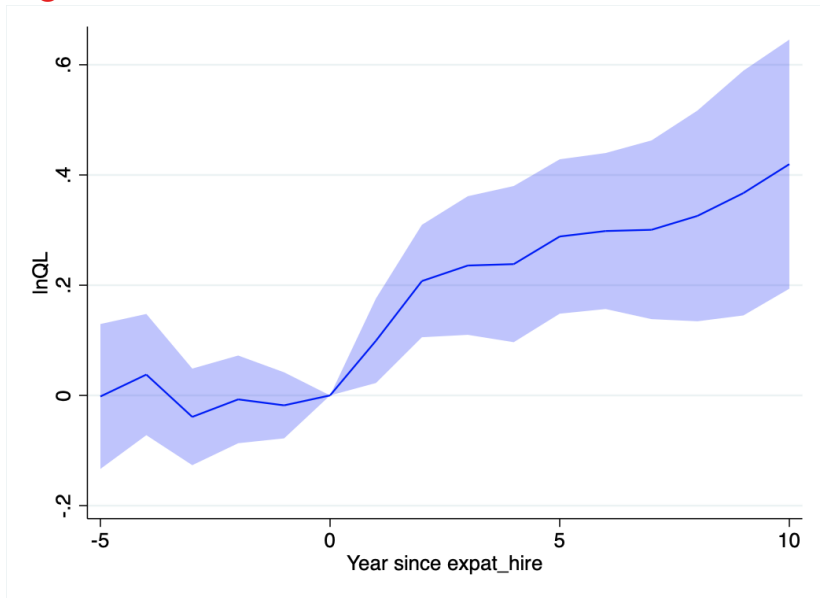
Also in TFP
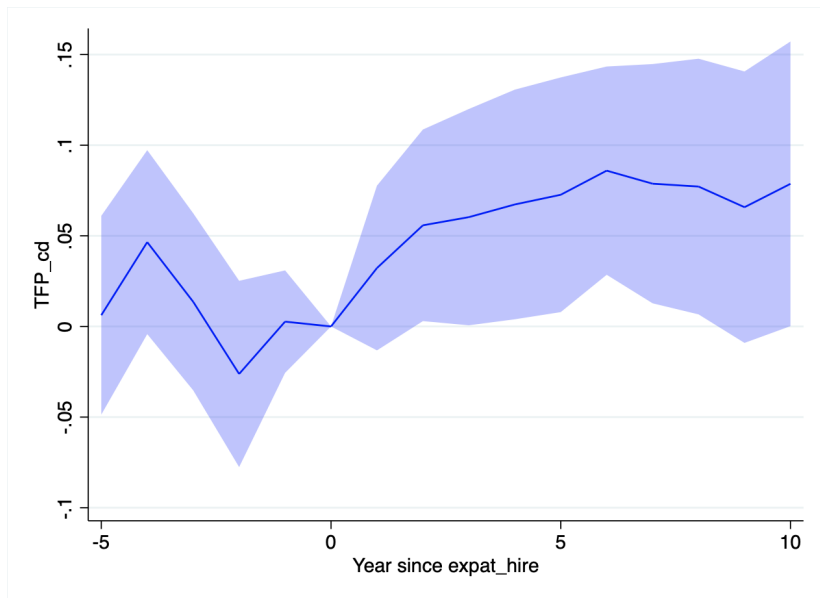
Large effects on exporting
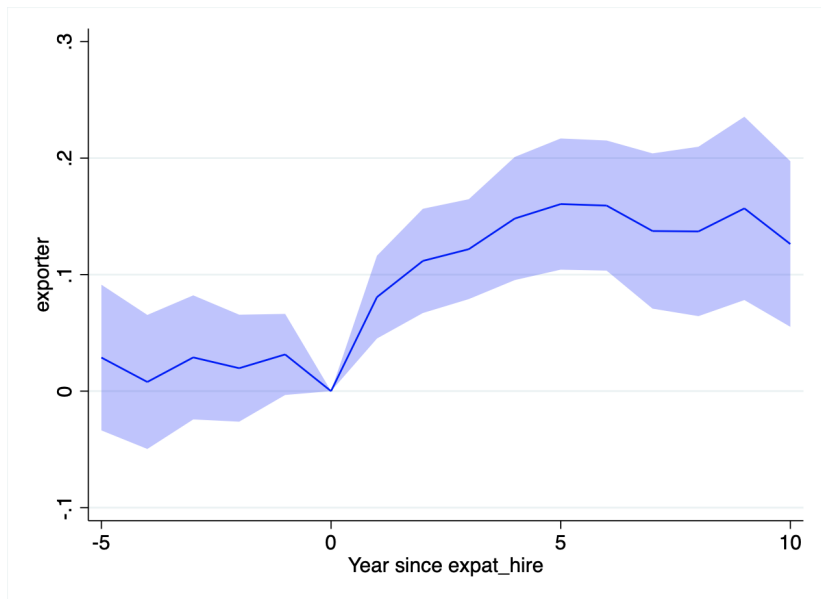
Market access

Market access

Ongoing work with Krisztina Orbán and Álmos Telegdy.

Infer nationality from name

Addr.	Name	Nat.	Lang.	AT	DE	IT
DE	Klaudia Wolf	de	de	N+L	A+N+L	
AT	Enrico Mazzanti	it	de,it	A+L	L	N+L
IT	Fioretta Luchesi	it	it			A+N+L

Estimating equation

For each firm-year, take 24 major partner countries. What is the probability to export/import to/from that country, *relative to all other countries*?

$$\Pr(X_{ict} = 1) = \mu_{ct} + \nu_{it}$$
$$+ \beta_1 \text{ADDRESS}_{ict} + \beta_2 \text{NATIONALITY}_{ict} + \beta_3 \text{LANGUAGE}_{ict} + u_{ict}$$

Manager address and nationality matter for trade

	(1) export	(2) export	(3) import	(4) import
ADDRESS	0.142***	0.100***	0.220***	0.183***
	(0.031)	(0.031)	(0.038)	(0.040)
NATIONALITY	0.037**	0.034*	0.091***	0.090***
	(0.018)	(0.018)	(0.026)	(0.025)
LANGUAGE	-0.025**	-0.032***	0.005	0.003
	(0.011)	(0.012)	(0.012)	(0.012)
ADDRESS (owner)		0.090***		0.075***
		(0.021)		(0.021)
LANGUAGE (owner)		0.018**		0.005
		(0.009)		(0.010)
Observations	67,965	67,965	64,834	64,834
R-squared	0.232	0.235	0.269	0.270
Mean dep. var.	0.0387	0.0387	0.0624	0.0624

Discussion

Effects are large

Fixed-cost estimates in Halpern, Koren and Szeidl (2015)

Equivalent to $12-14,000 drop in fixed costs ''per year''.

Scenario	Import hazard	Fixed cost
Average firm	0.010	$15,000
Only owner	0.081	$2,300
Only manager	0.106	$1,700
Both	0.226	$600

Trade experience premia

Mion, Opromolla and Sforza (2016) estimate a 0.01–0.04 increase in hazard after manager with relevant export experience joins. Bisztray, Koren and Szeidl (2018) estimate 0.002–0.005 peer effects in importing.

Three stories

Vertical integration
Foreign owner takes over firm to export/import within own supply chain.

Professional network
Managers help connect different firms within their professional network.

Business culture
Managers know the business culture of their home country.

A potential model

Production function

Firm j, market i

$$Q_{ij} = A_j K_{ij}^{\alpha} L_{ij}^{1-\alpha} \text{ with } i = H, F$$

in contrast to

$$\sum_i Q_{ij} = A_j K_j^{\alpha} L_j^{1-\alpha}$$

Firm characterized by (A_j, K_{Hj}, K_{Fj})

Market access skills

Manager m, market i

$$\kappa_{im} p_i \text{ with } \kappa_{im} \in (0, 1)$$

Manager characterized by $(\kappa_{Hm}, \kappa_{Fm})$

Net revenue per market

$$\kappa_{im} p_i A_j K_{ij}^{\alpha} L_{ij}^{1-\alpha} - w L_{ij}$$

Labor frictionlessly hired,

$$R_{ijm} = \left(\frac{1-\alpha}{w} \right)^{1/\alpha - 1} (\kappa_{im} p_i)^{1/\alpha} A_j^{1/\alpha} K_{ij}$$

$$R_{ijm} = \tilde{\kappa}_{im} \tilde{K}_{ij}$$

Assignment

Firms hire managers in frictionless, competitive markets. Optimal manager maximizes net revenue minus her wage,

$$\max_m \alpha \sum_i R_{ijm} - \nu_m = \max_m \alpha \sum_i \tilde{\kappa}_{im} \tilde{K}_{ij} - \nu_m,$$

Equilibrium

Given fixed distributions over (A_j, K_{Hj}, K_{Fj}) and $(\kappa_{Hm}, \kappa_{Fm})$ (with $\#j = \#m$), determine

- firm-manager assignment: $\mu(j, m)$
- manager wages: ν_m
- firm profits: π_j
- revenue per market: R_{ijm}

Key ingredients

1. Diminishing returns within each market
2. Inelastic supply of manager skills
3. Complementarity of manager skills with firm capital

Optimal transport

Equilibrium assingment is equivalent to following optimal transport problem (Galichon 2016)

$$\int_{j,m} \mu(j,m)(\tilde{\mathbf{K}}_j - \tilde{\kappa}_m)^2 dj dm \to \min$$

s.t.

$$\int_j \mu(j,m) dj = \mu(j)$$

$$\int_m \mu(j,m) dm = \mu(m)$$

Focus on discrete manager types, continuous firm types.

Predictions

Cross sectional predictions

1. Conditional on R_j, there is heterogeneity in R_{Fj}/R_{Dj}.
2. Managers at larger firms earn more.
3. Manager wages convex in $\mathbf{K}$.
4. Conditional on R_{Dj}, managers at high R_{Fj} firms earn more.

Export heterogeneity

$$\mathsf{Var}\ln R_{ij} = \mathsf{Var}\ln\tilde{\kappa}_{im} + \mathsf{Var}\ln\tilde{K}_{jm} + 2\mathsf{Cov}(\ln\tilde{\kappa}_{im}, \ln\tilde{K}_{jm})$$

- additional heterogeneity in managers: $\mathsf{Var}\ln\tilde{\kappa}_{im} > 0$
- complementarity of managers and firms:
  $2\mathsf{Cov}(\ln\tilde{\kappa}_{im}, \ln\tilde{K}_{jm}) > 0$

Comparative statics

Supply shock

Trade liberalization

Export markets become liberalized (p_F increases).

1. Managers with export skills earn more.
2. Net entry into exporting is zero (by assumption).
3. Export-skilled managers move from low export-intensity firms to high export-intensity firms. (magnifying export heterogeneity)

Wage returns to exporting increased among CEOs
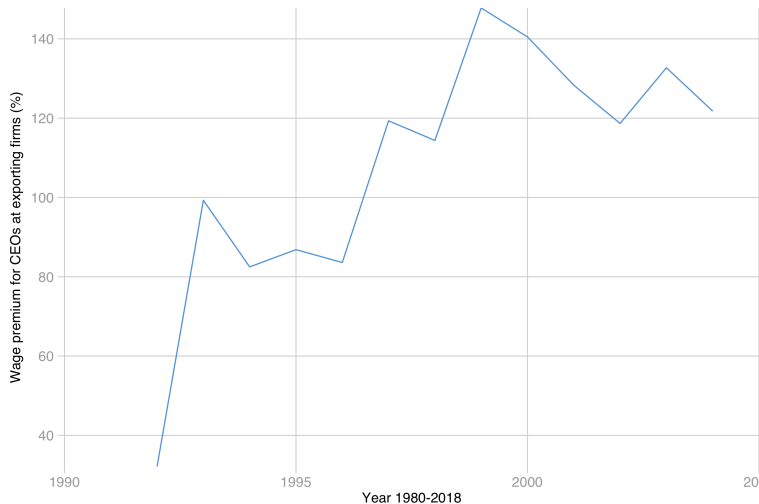
Conclusions

Conclusions

- What are the causes and consequences of foreign acquisitions?
- We ask when managers are also replaced.
- Using data on the universe of foreign acquisitions in Hungary, 1980-2018, we estimate that exporters and low-productivity firms become more tightly controlled.
- Foreign controlled firms become more productive and more likely to export.
- These facts help inform theories about the boundaries of global firms and about the role of managers in firm performance.