Foreign Firms and Foreign Managers

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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. ethnicity
  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)

Shape of data

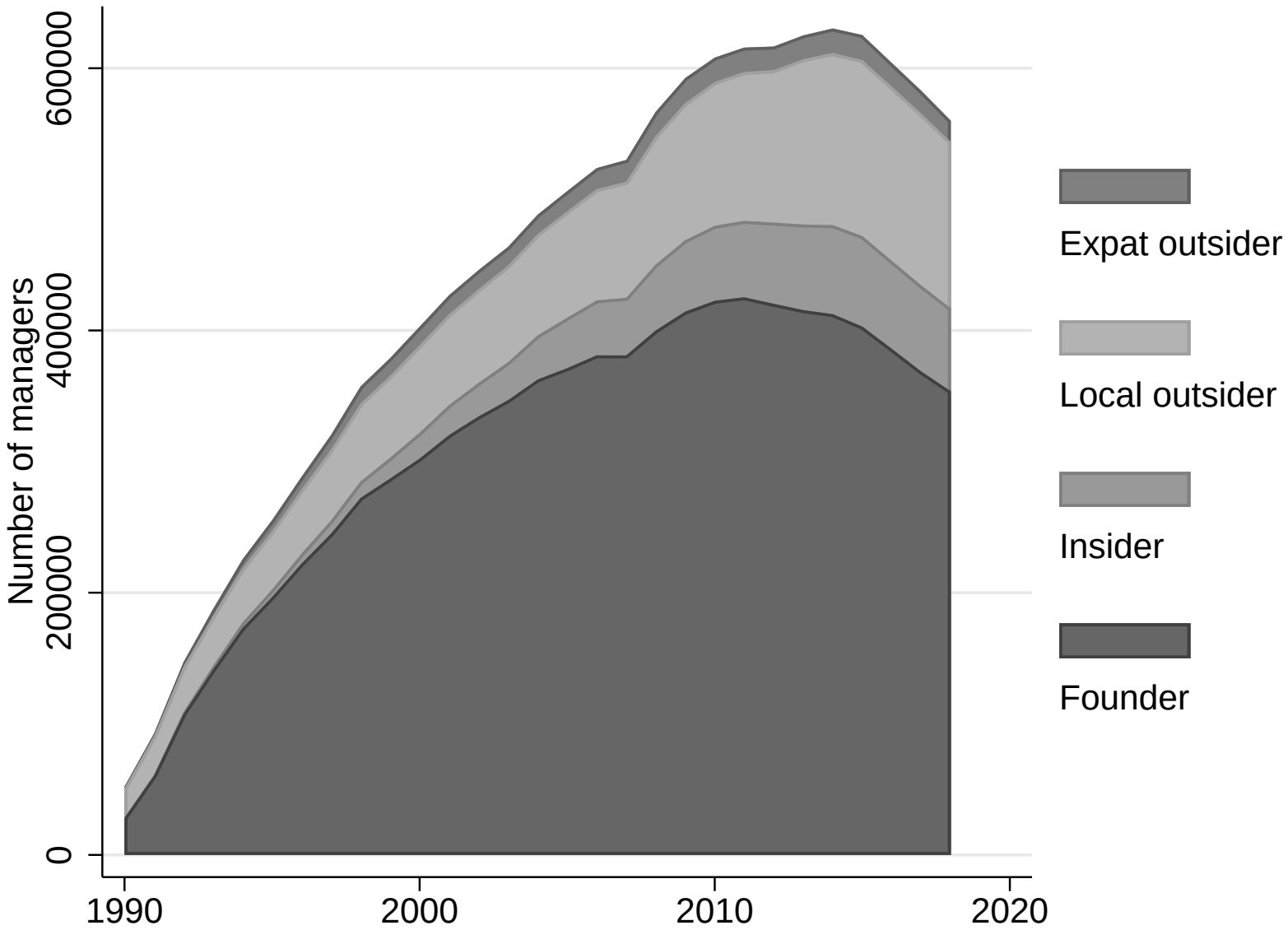
```
firm,manager,country,from,to
123456,Szilágyi Erika,HU,1992-01-01,1996-12-31
123456,Pálffy György,HU,1997-01-01,1999-12-31
123456,Greta Schröder,DE,2000-01-01,2003-03-31
```

Data cleaning

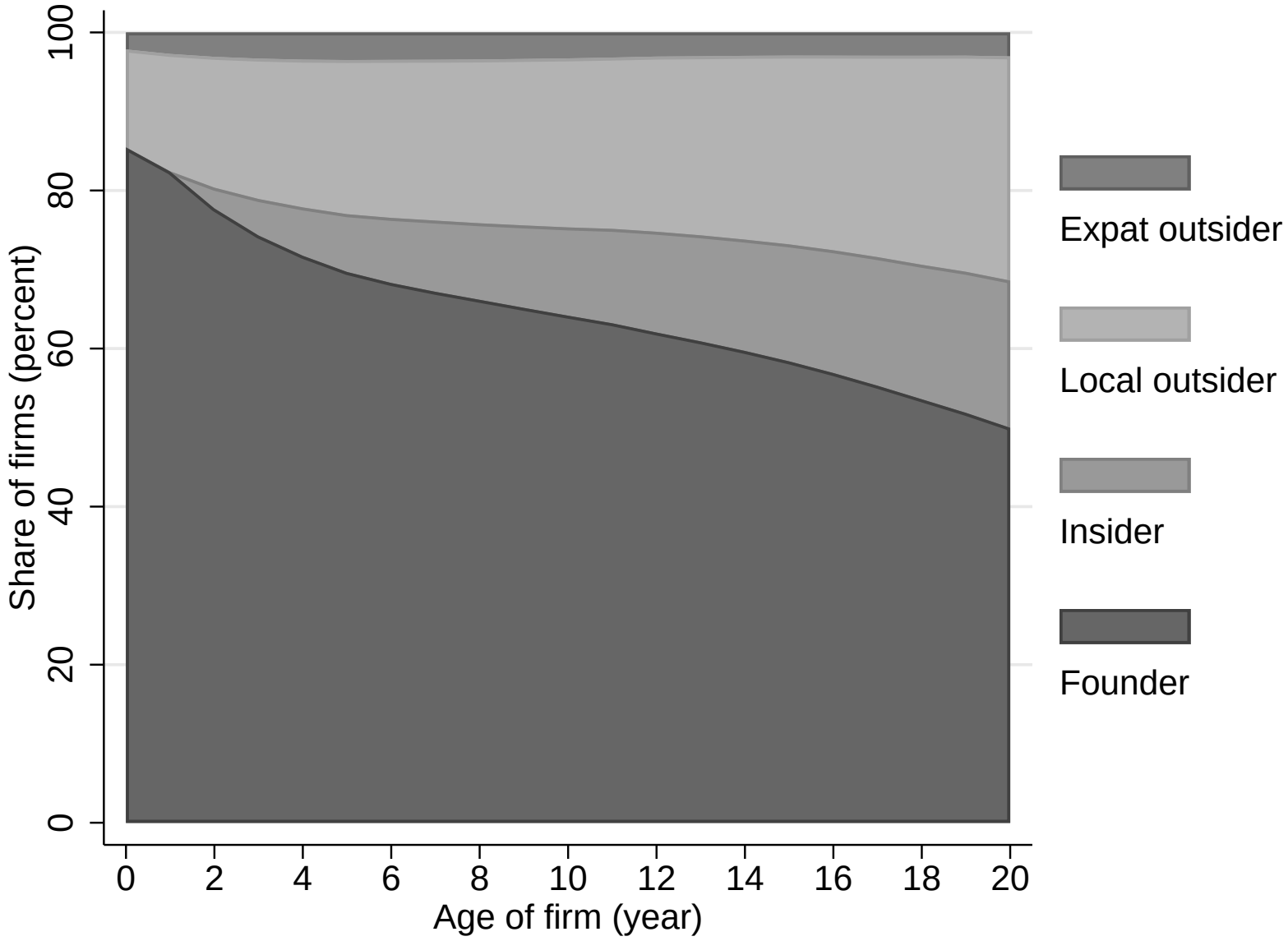
1. Convert names to numerical IDs
2. Infer Hungarian ethnicity from name
3. Classify everyone else as foreign
4. Clean up time interval and position description
5. Create annual panel for June 21
6. In progress: Infer ethnicity (other than Hungarian) from name

Descriptives

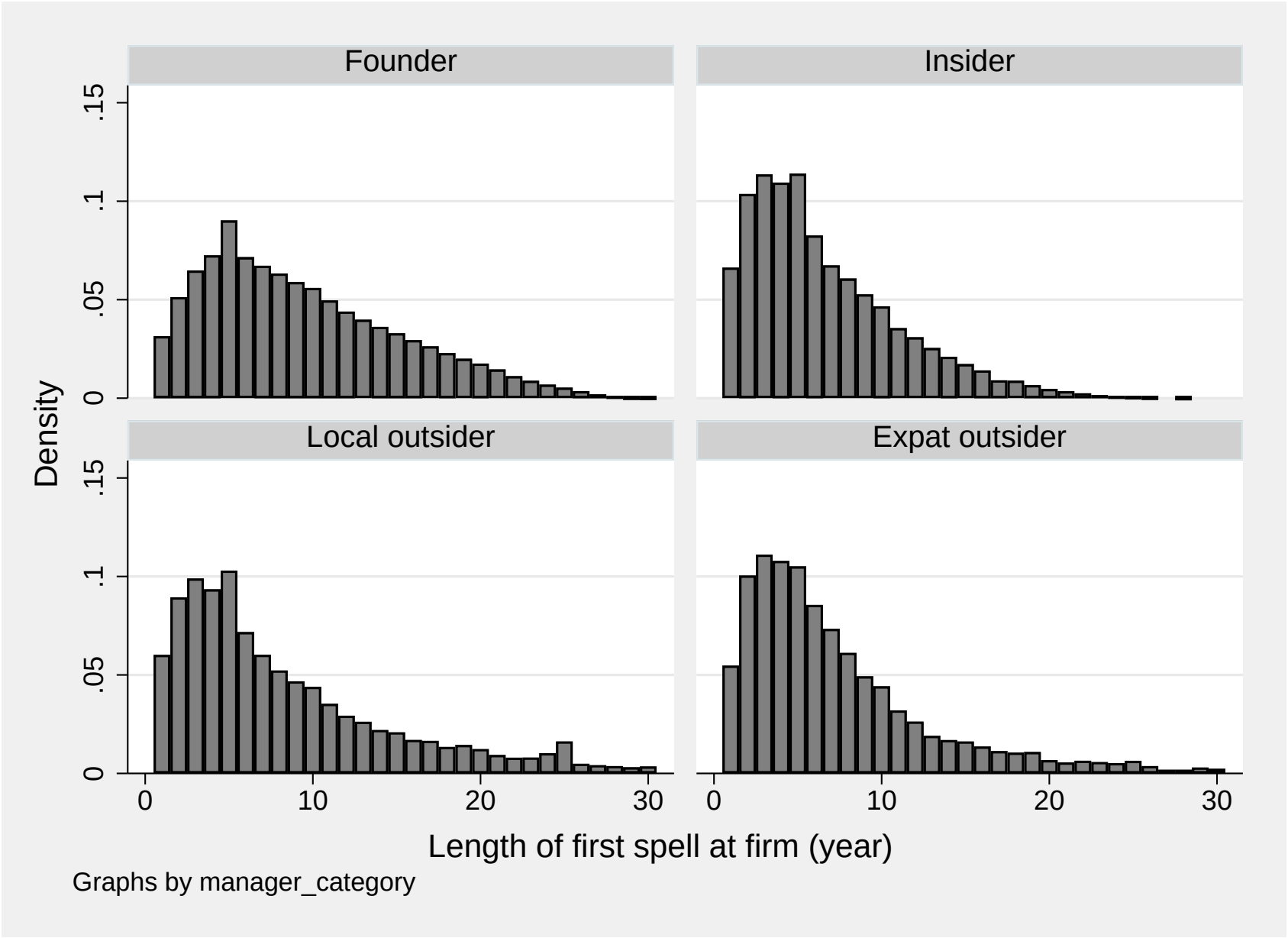
The number of CEOs increased sharply until 2010



The share of firms managed by founders gradually decreases with age



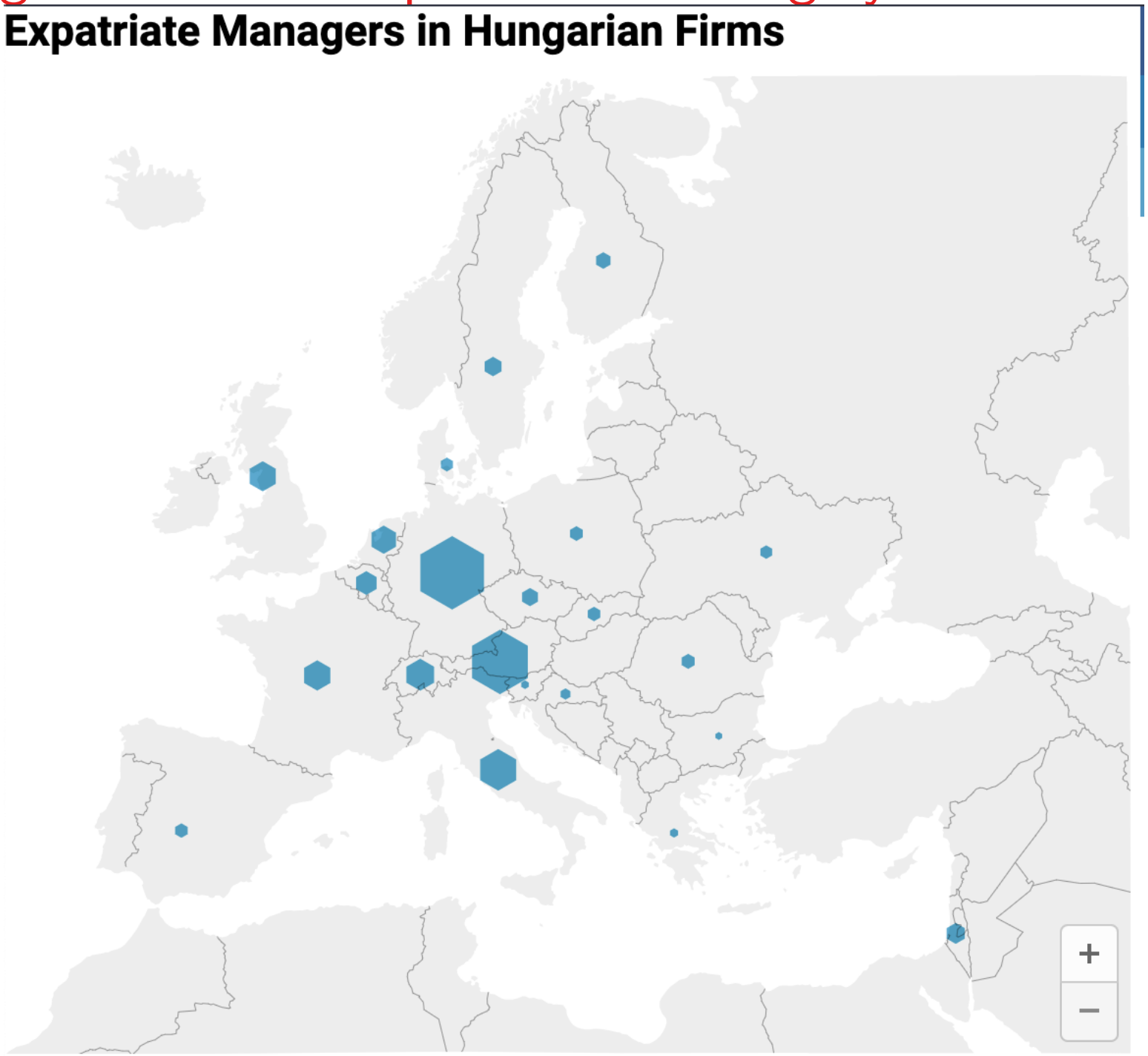
Founders stay longest at the firm



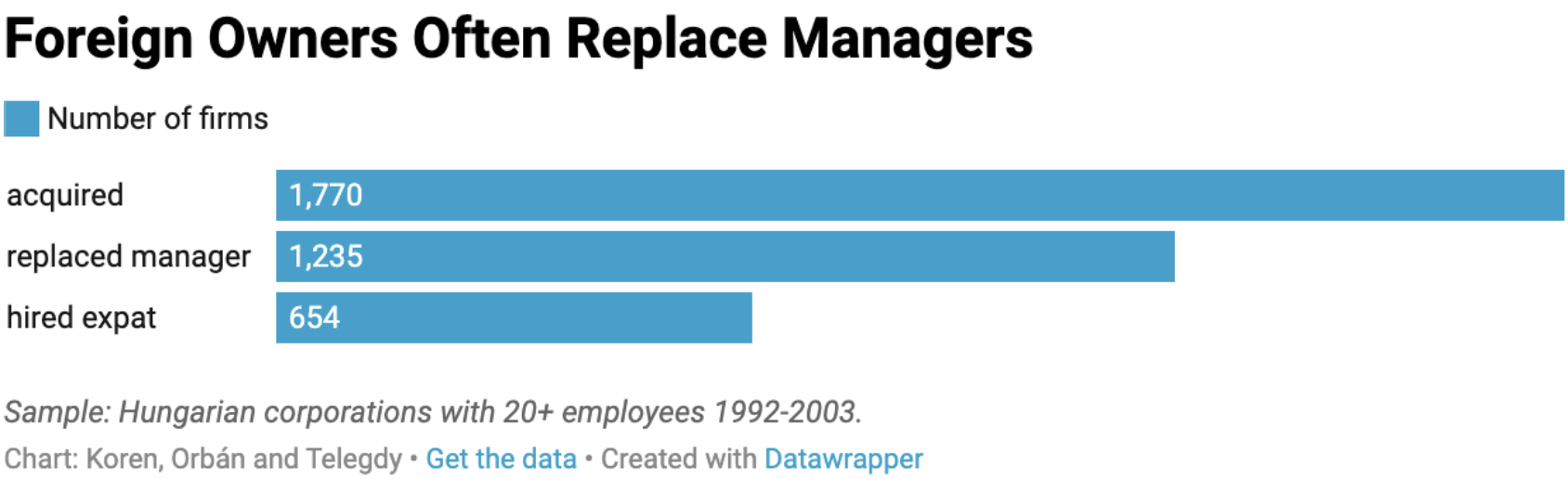
Sample

- 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



Foreign owners often replace managers



Estimation

Variables

- **foreign**: firm has majority foreign owner
- **foreign_hire**: firm has a manager hired by foreign owner
- **has_expat**: firm has an expat manager
- **CONTROL**^{k}: one of the three ($k = 1, 2, 3$)
- **lnL**: log employment
- **lnQL**: log output per worker
- **exporter**: firm has positive exports

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

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

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.

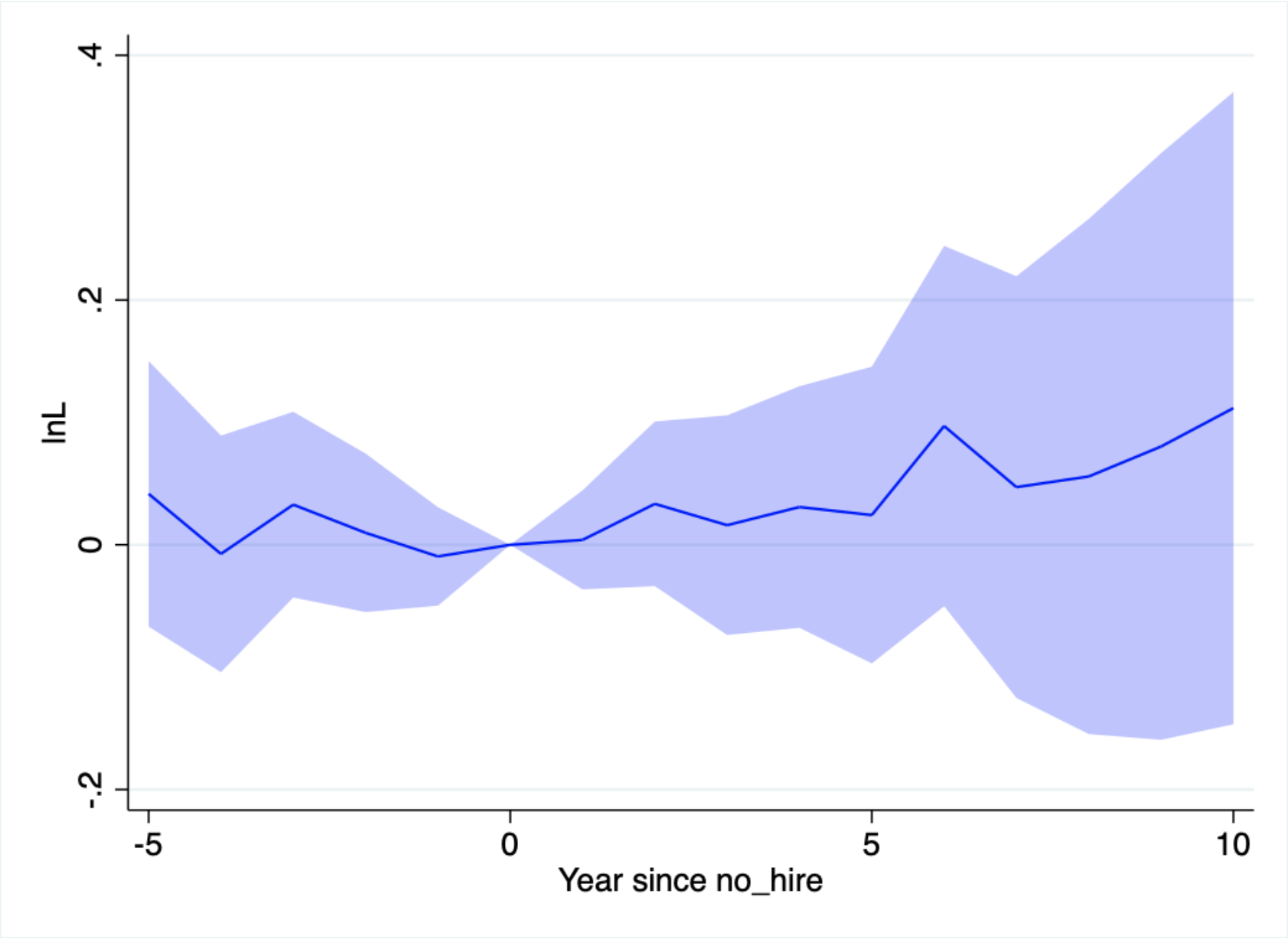
Results

Positive selection on exports, negative on TFP

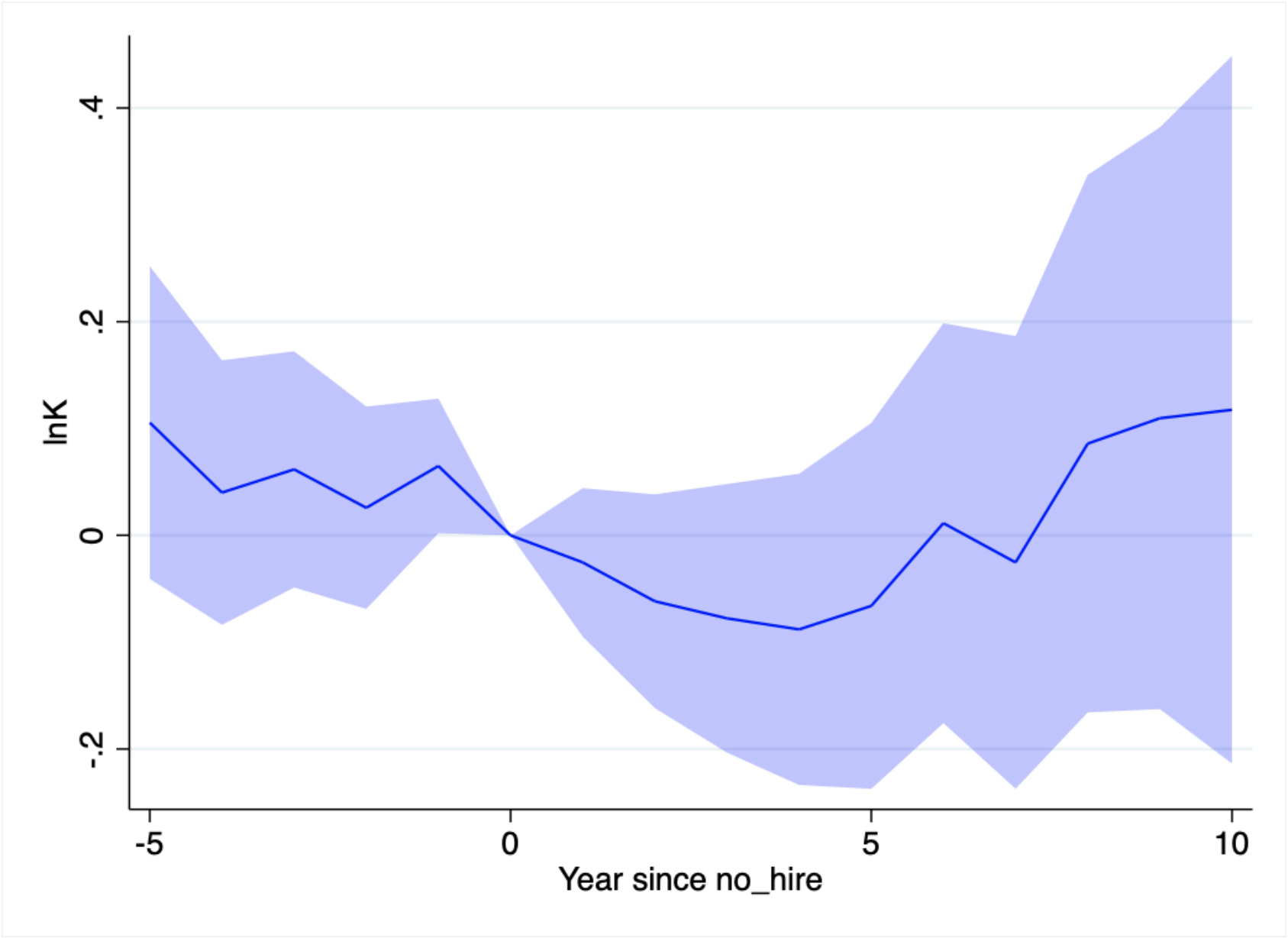
VARIABLES	(1) ever_foreign	(2) ever_foreign_hire	(3) ever_expat
lnL	0.005***	0.003	-0.019
	(0.001)	(0.010)	(0.012)
exporter	0.020***	0.070**	0.066*
	(0.003)	(0.030)	(0.036)
TFP_cd	-0.003**	-0.040**	0.011
	(0.001)	(0.018)	(0.027)
RperK	0.026***	0.174*	-0.223**
	(0.008)	(0.095)	(0.093)
Observations	250,450	8,919	5,769
R-squared	0.108	0.128	0.236
Ind-year FE	YES	YES	YES

Without change in management

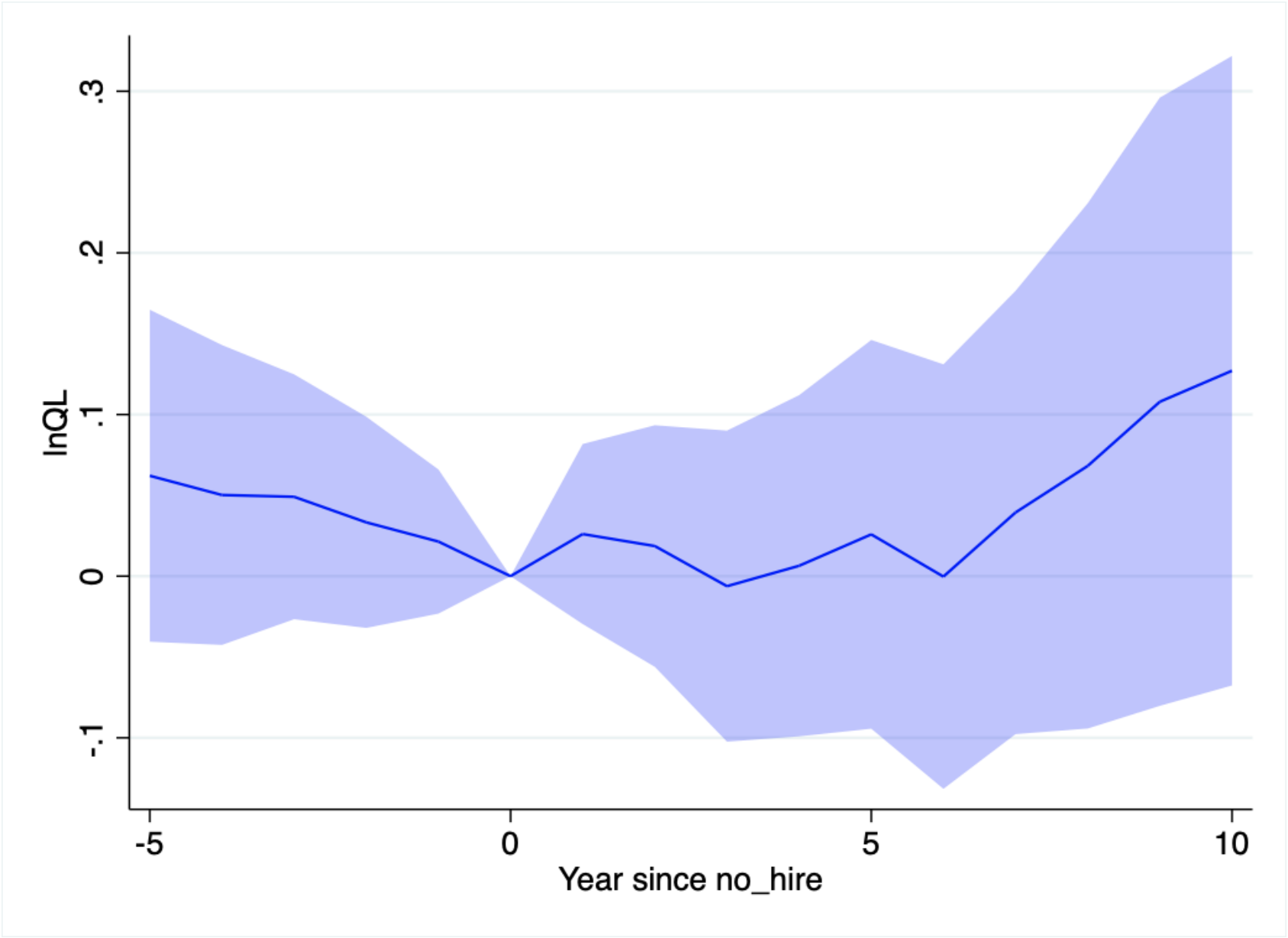
No effects of foreign acquisition on employment



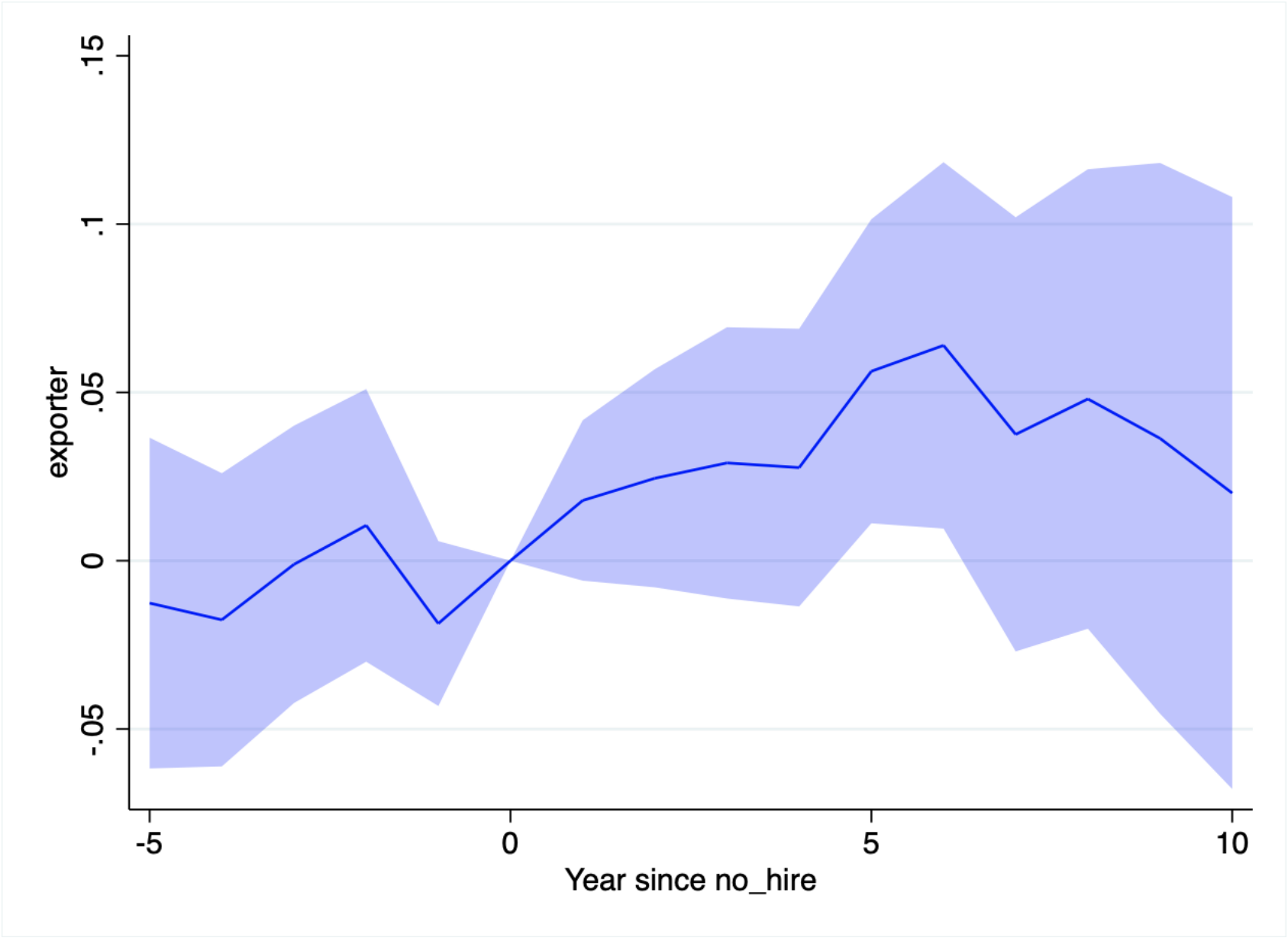
No effects of foreign acquisition on capital



No effects of foreign acquisition on productivity

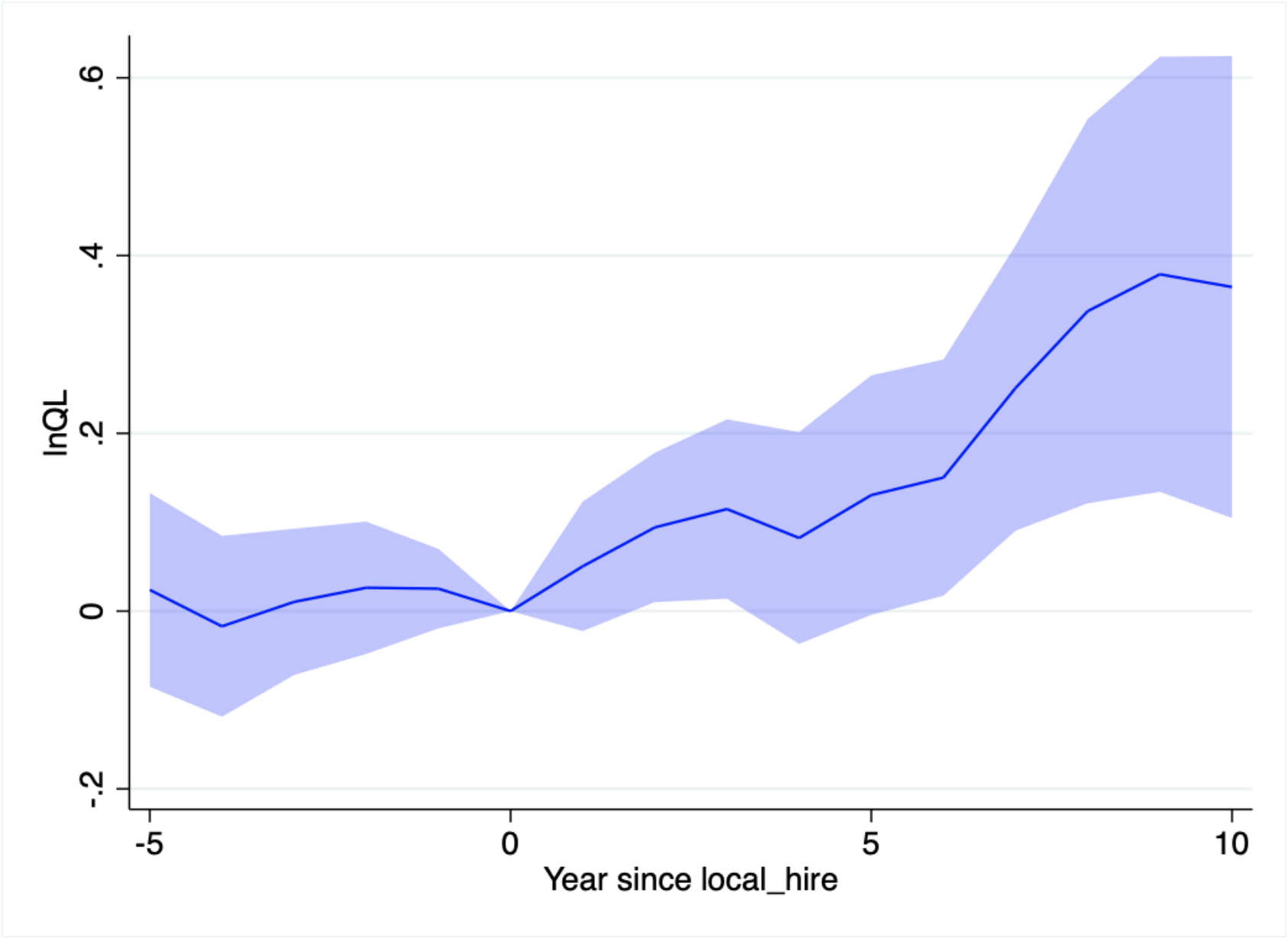


Some transitory increase in exporting



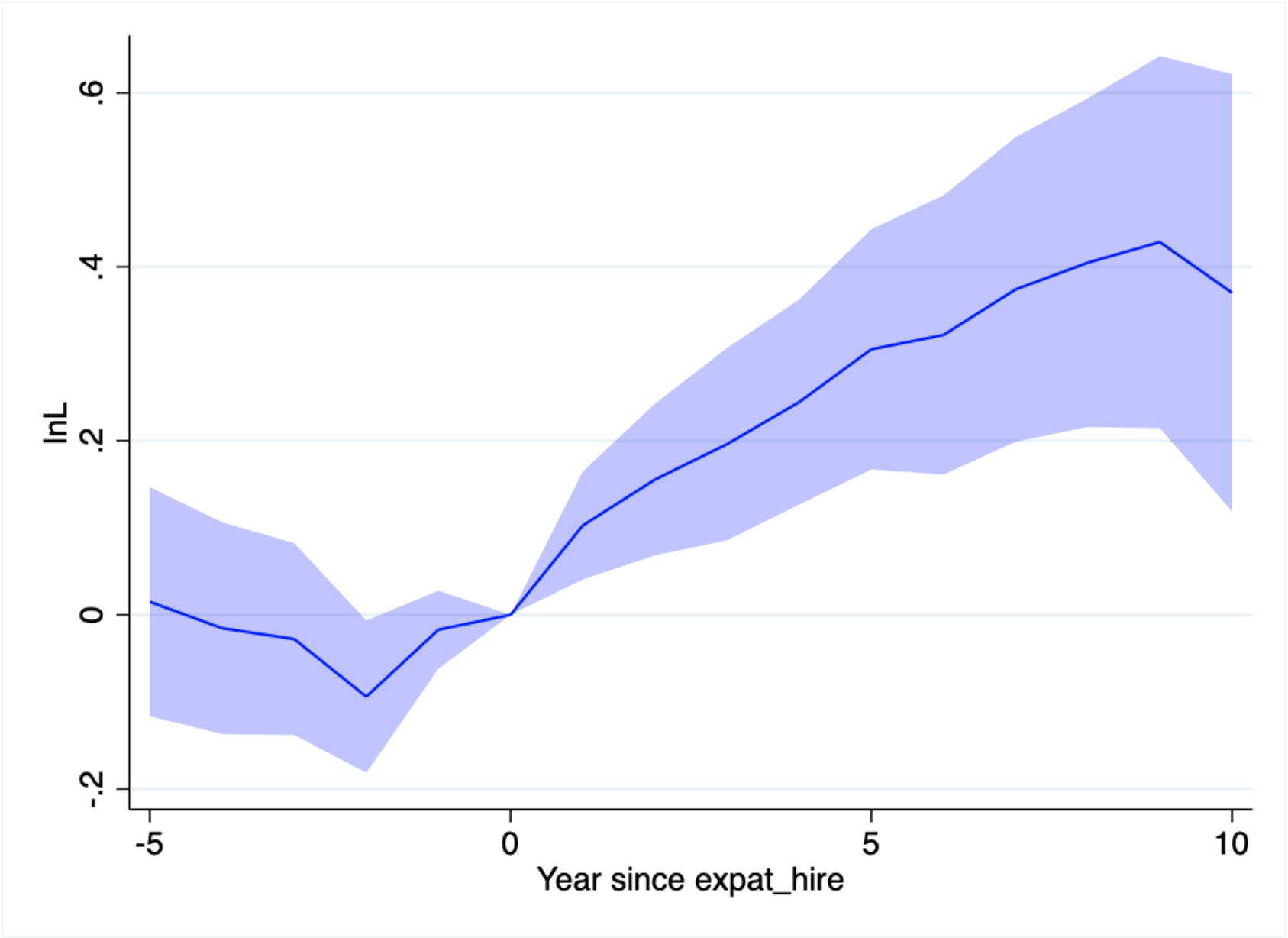
Hire a local manager

Fast productivity growth after local manager is hired

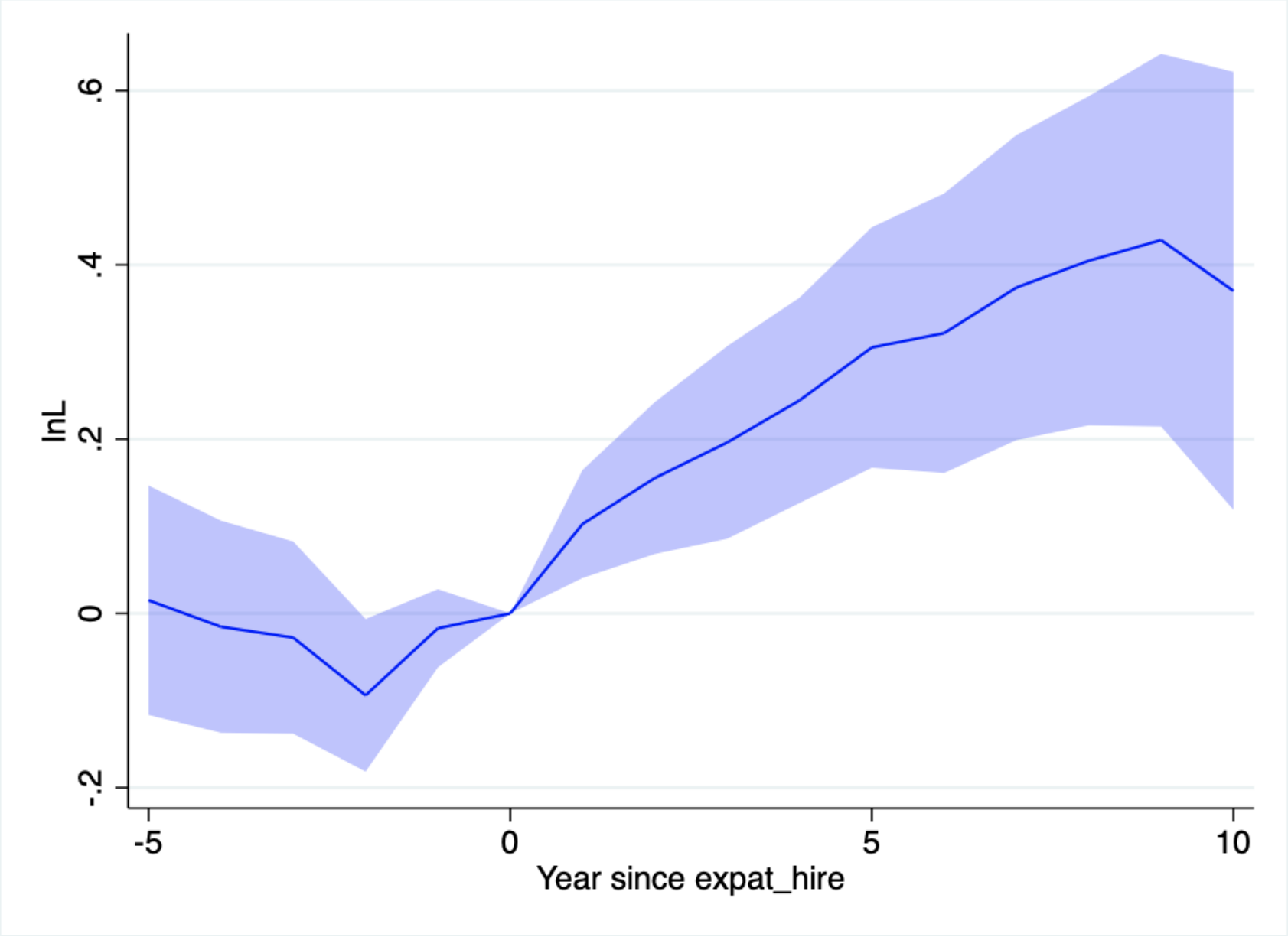


Hire an expat manager

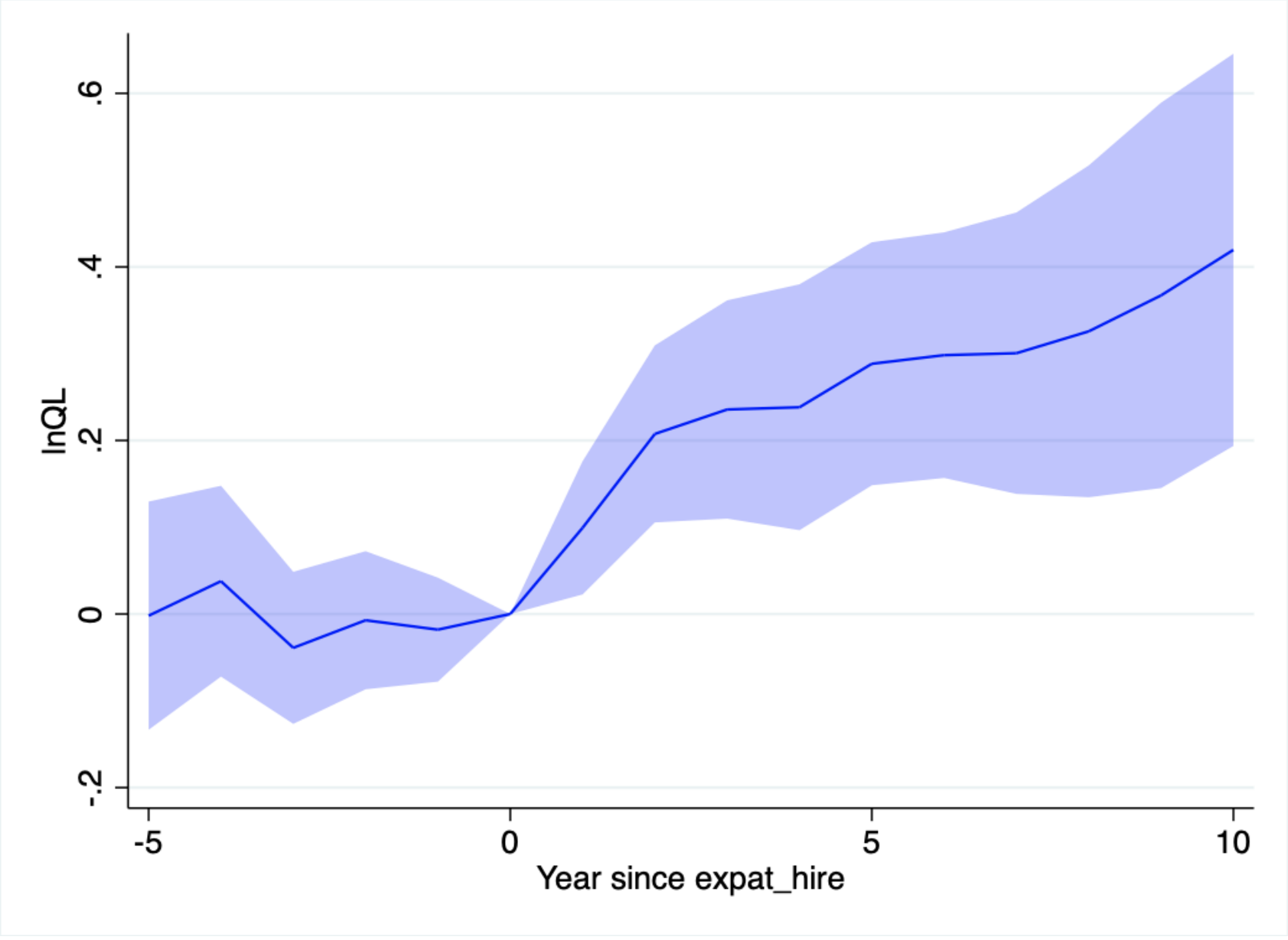
Fast employment growth after expat manager is hired



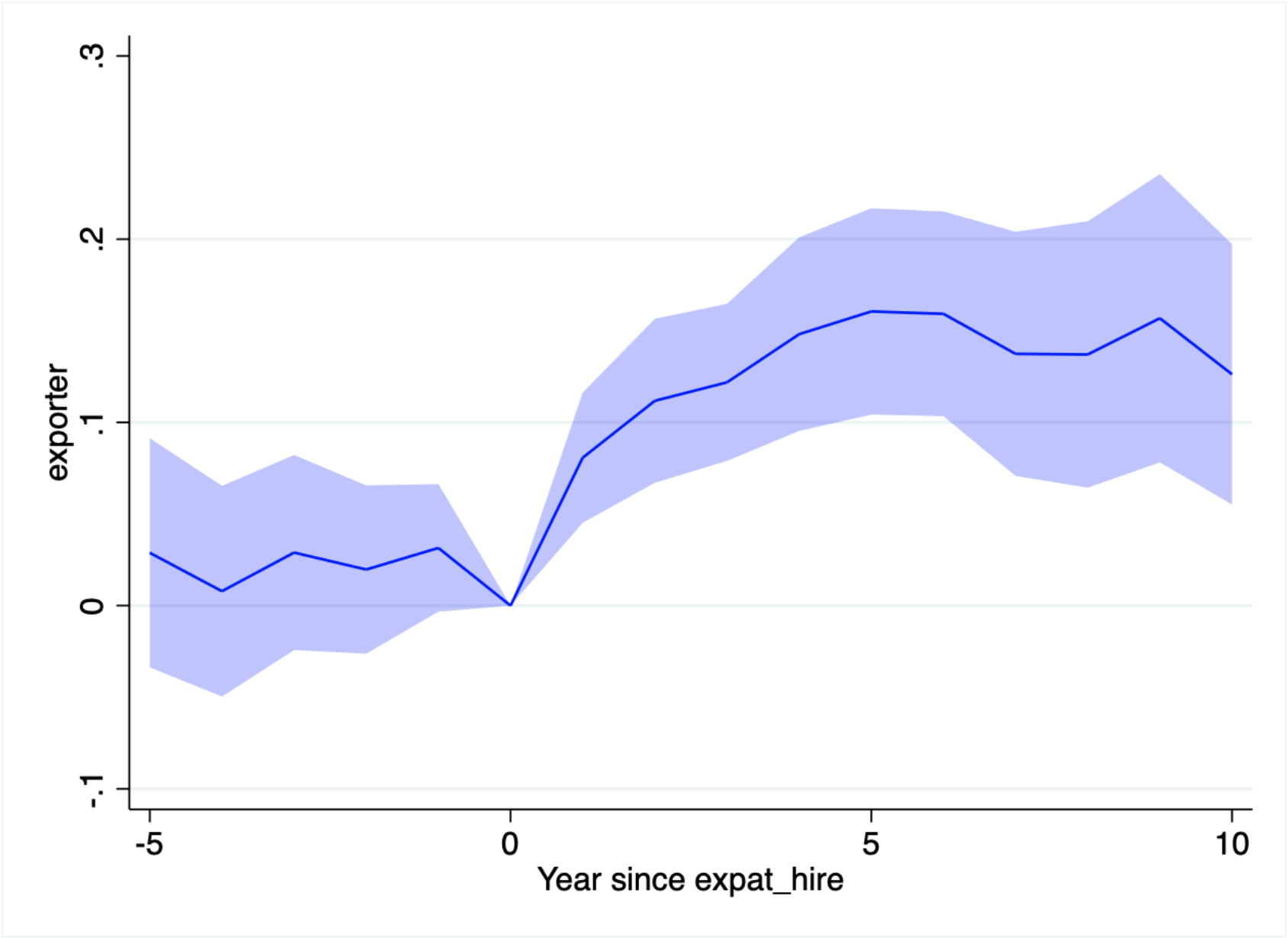
Positive capital investments after expat manager is hired



Productivity growth of same magnitude as with local manager



Large effects on exporting



Market access

Market access

Ongoing work with Krisztina Orbán and Álmos Telegdy.

Infer ethnicity from name

Address	Name	Partner	count	lang	ethn
DE	Klaudia Wolf	DE	1	1	1
DE	Klaudia Wolf	AT	0	1	1
DE	Klaudia Wolf	IT	0	0	0
DE	Enrico Mazzanti	DE	1	1	0
DE	Enrico Mazzanti	AT	0	1	0
DE	Enrico Mazzanti	IT	0	0	1
IT	Fioretta Luchesi	DE	0	0	0
IT	Fioretta Luchesi	AT	0	0	0
IT	Fioretta Luchesi	IT	1	1	1

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*?

$$\Pr(X_{ict} = 1) = \mu_{ct} + \nu_{it}$$
$$+ \beta_o \text{OWNER}_{ict} + \beta_m \text{MANAGER}_{ict} + u_{ict}$$

Managers matter for exports

export	Coefficient	std. err.	t	P>|t|
manager	.0860192	.0337138	2.55	0.011
owner	.0746909	.0228919	3.26	0.001

Even more form imports

import	Coefficient	std. err.	t	P>|t|
manager	.2418064	.0507659	4.76	0.000
owner	.1097679	.0309542	3.55	0.000

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) estimiate 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)

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

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

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

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

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)

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.