Bureaucrats and the Korean Export Miracle

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Motivation

- State capacity closely associated with economic development

  Unclear what this implies for economic policy

- Industrial policy and economic development

  Determinants of success not well-understood

- Does the effect of industrial policy depend on implementing capacity?

This Paper: Industrial Policy Needs Good Bureaucrats

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2. The bureaucrats in these offices have large effects on exports

   Bureaucrat at median vs. bottom 20th percentile: Exports increase by 40%

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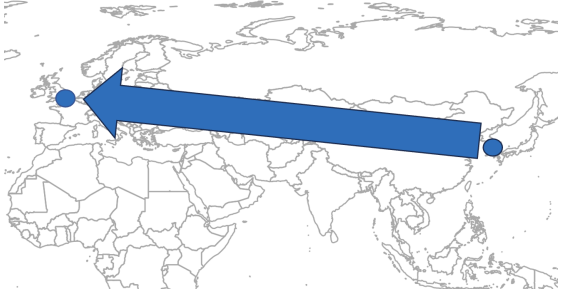

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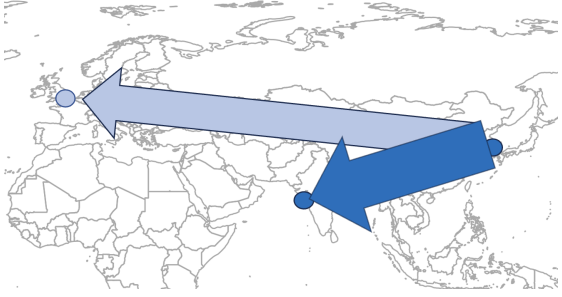

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3. Bureaucrat experience builds capacity: Exports increase by 3%

Setting to Identify how Industrial Policy Depends on Capacity

Results and Detailed Identification

1. Office Openings Increase Exports
2. Large Differences in Exports Due to Bureaucrats
3. Bureaucrat Experience Increases Exports

Summary and Conclusion

Causal Effect of Implementing Capacity – Challenges

Challenge 1: Need variation in implementing capacity holding fixed policy

- Same policy implemented in many locations

Challenge 2: Need variation in implementing capacity holding fixed location

- Variation in capacity when bureaucrats move between locations

Setting – Korean Overseas Export Promotion

Overseas Offices of Korea Trade Promotion Agency (KOTRA)

Setting – Korean Overseas Export Promotion

Overseas Offices of Korea Trade Promotion Agency (KOTRA)

The Setting Allows Us to Identify 3 Effects

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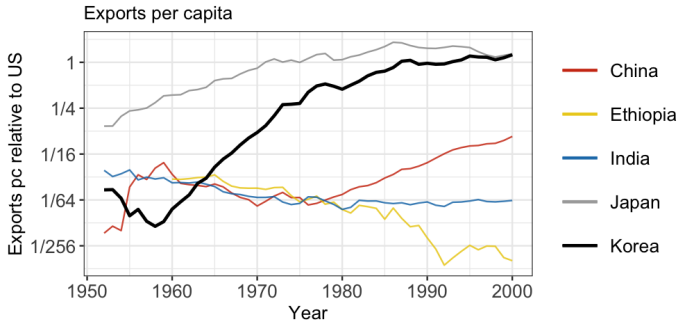
   Uses: Import demand shocks in 1st appointment

South Korea 1960–2000: Exports Key During Escape From Poverty



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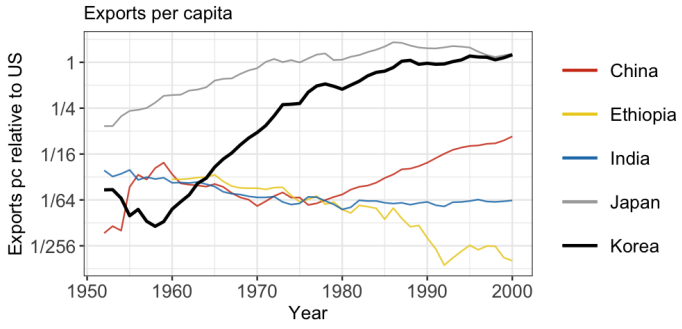
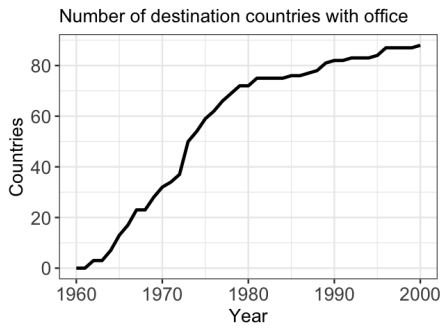




- Exports – central policy target from 1961
- Overseas offices of KOTRA
  - Single goal: "increases of exports"
  - Activities: Reports on demand Find new trade partners Trade fairs

Setting to Identify how Industrial Policy Depends on Capacity

Results and Detailed Identification

1. **Office Openings Increase Exports** – 1 Slide
2. Large Differences in Exports Due to Bureaucrats
3. Bureaucrat Experience Increases Exports

Summary and Conclusion

Identification – Effect of Office Opening on Exports

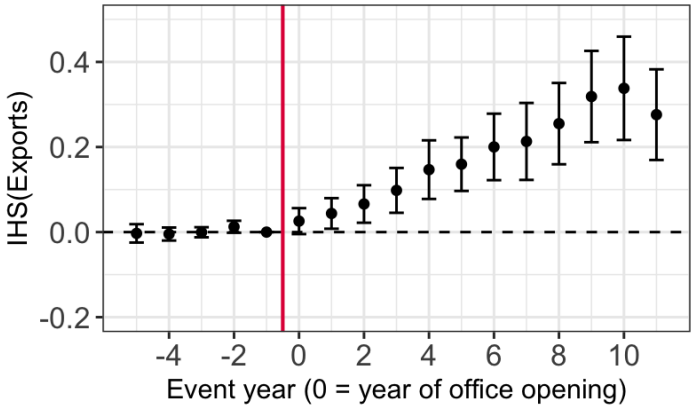
- Main specification – Control group "never" treated (or after 1993)

$$\text{IHS}(\text{exports}_{cpt}) = \lambda_{pt} + \gamma_{cp} + X_{cpt}^{T} + \sum_{k \neq -1} \theta_k D_{ct}^{k} + \epsilon_{cpt}$$

- Exports 1962-2000 at 4-digit SITC-level (Feenstra and Romalis, 2014)
- SUTVA / no spillovers: Office affects exports only to one country
- PTA: No divergence in counterfactual outcomes around opening

  i.e., office openings not timed to coincide with increases in import demand

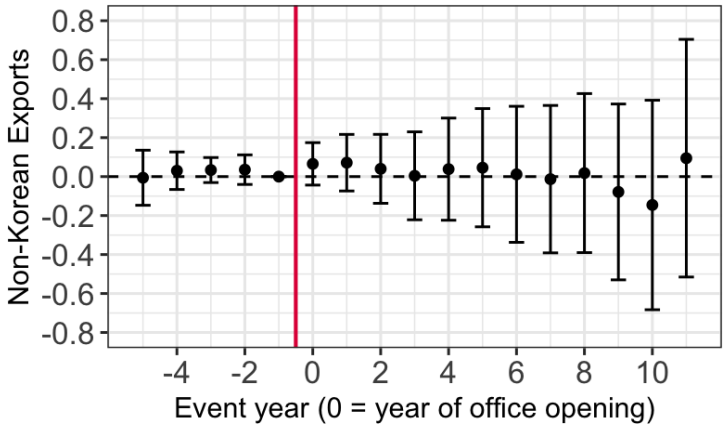
Openings: 40% Increase in Korean Exports



Key assumption: Openings don't occur when exports would have gone up anyways

- non-Korean exports as control
- Include openings 1964-1966
- Include openings 1964-1966
- Beyond IHS: extensive margin
- "Not-yet" control *and* sensitivity to PT violations
- "Not-yet" control *and* anticipation
- KOTRA activity

Openings Not Timed With Increasing Import Demand



Year of Office Opening Largely Determined by Static Gravity

- First offices: Geographic vicinity
  Taiwan, Thailand, Japan
  Singapore, Indonesia, S VN
- Europe: Distance $\approx$ constant
  Predetermined imports predict openings
- Limits to strategic timing

	Opening	Non-Korean imports 1962	Predicted	Predicted (Omit own)
UK	1965	1	1965	1966
Italy	1966	4	1967	1967
Netherlands	1966	5	1967	1969
W Germany	1967	2	1966	1966
Switzerland	1967	8	1970	1972
France	1969	3	1966	1966
Sweden	1969	7	1969	1970
Austria	1970	12	1973	1973
Belgium	1972	6	1969	1969
Spain	1972	10	1972	1972
Denmark	1973	9	1972	1972
Norway	1973	11	1973	1973
Finland	1973	13	1973	1973
Greece	1973	15	1973	1973
Turkey	1973	16	1973	1974
Ireland	1973	14	1973	1973
Portugal	1974	17	1974	NA

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2. **Large Differences in Exports Due to Bureaucrats**
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Summary and Conclusion

Identification: How much do exports vary between bureaucrats?

$$\text{IHS}(\text{exports}_{cpt}) = \lambda_{pt} + \beta_{b(c,t)} + \gamma_c + \epsilon_{cpt}$$

- Exports 1962-2000 at 4-digit SITC-level (Feenstra and Romalis, 2014)
- Key assumption: $\beta_{b(c,t)} \perp$ trends in exports

  Not violated if $Cov(\beta_{b(c,t)}, \gamma_c) \neq 0$
- $\beta_{b(c,t)}$ and γ_c identified within connected set

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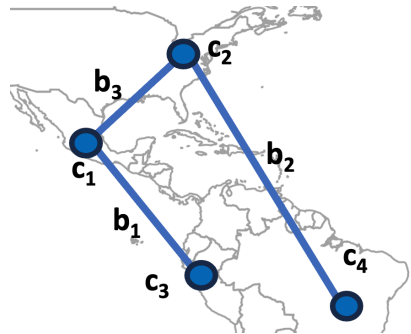

Appointments

- Data from major Korean newspapers ▸ more
- Median and modal duration: 36 months ▸ more

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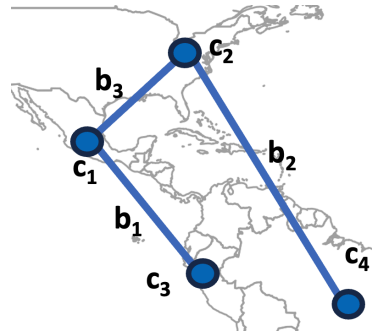

	All	Leave-1-Out
Countries	86	75
Directors	397	380
Appointments	728	676

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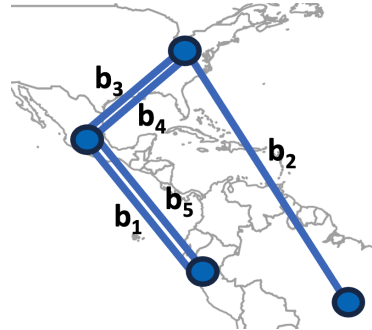

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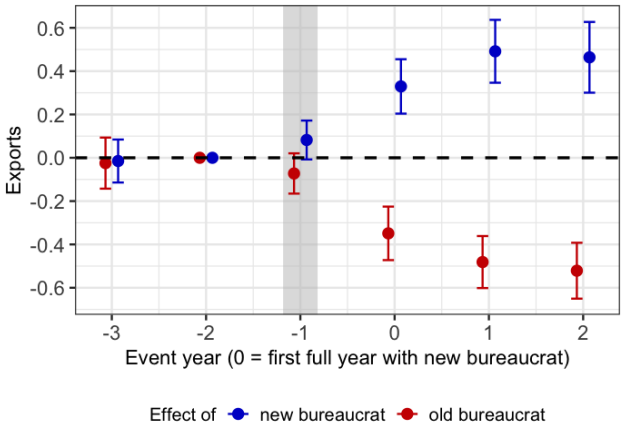
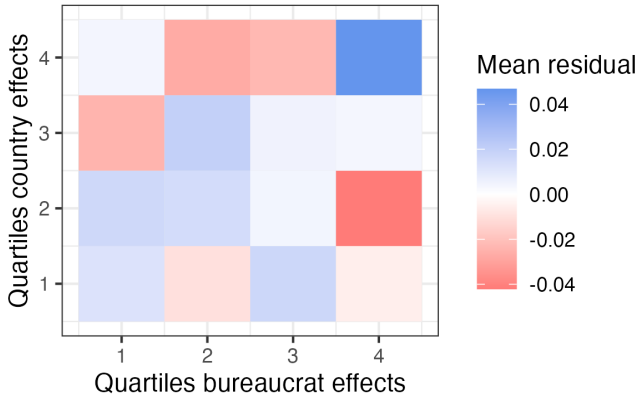
Event Study around Switch in Bureaucrats



- No pre-trend in new bureaucrat's FE
- In year 0, exports move in line with new bureaucrat's FE ...
- ... and against old bureaucrat's FE
- $\hat{\theta}_0 \approx \hat{\theta}_1 \approx \hat{\theta}_2 >> \hat{\theta}_{-1}$
  - Consistent effects by terciles of new and old ability

$$\text{IHS}(\text{exports}_{ept}) = \eta_{ep} + \lambda_{pt} + \sum_{k \neq -2} (\boldsymbol{\theta_k} \hat{\beta}_e^{new} + \boldsymbol{\delta_k} \hat{\beta}_e^{old}) D_t^k + \epsilon_{ept}$$

No Sign of Misspecification

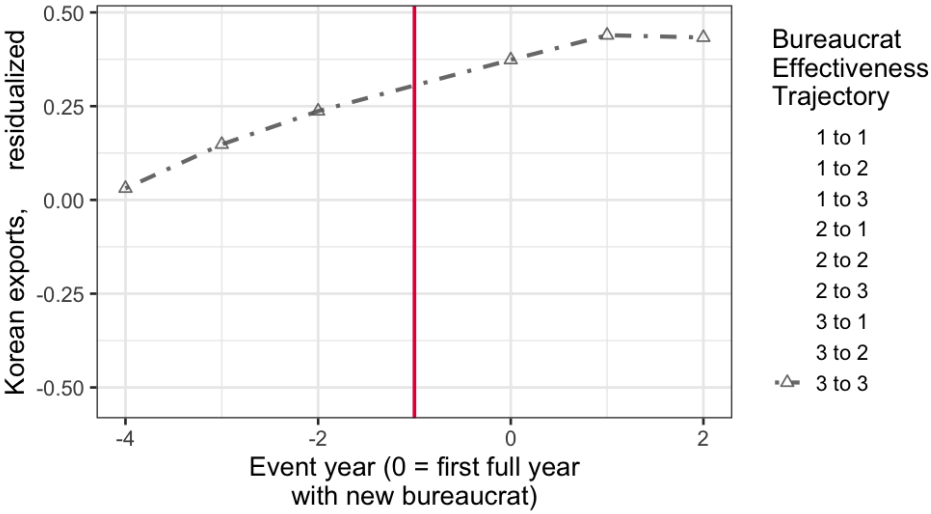


Example of misspecification: Bureaucrats only have effect in small countries

$\Rightarrow$ Bottom left quadrant: Very negative

In each quadrant: mean residuals much smaller than SD(bureaucrats)

Point 2: Consistent effects from changes in bureaucrat effects



▸ Out of sample checks ▸ New vs old fixed effects ▸ Bureaucrat effects constant across appointments ▸ Back to main result

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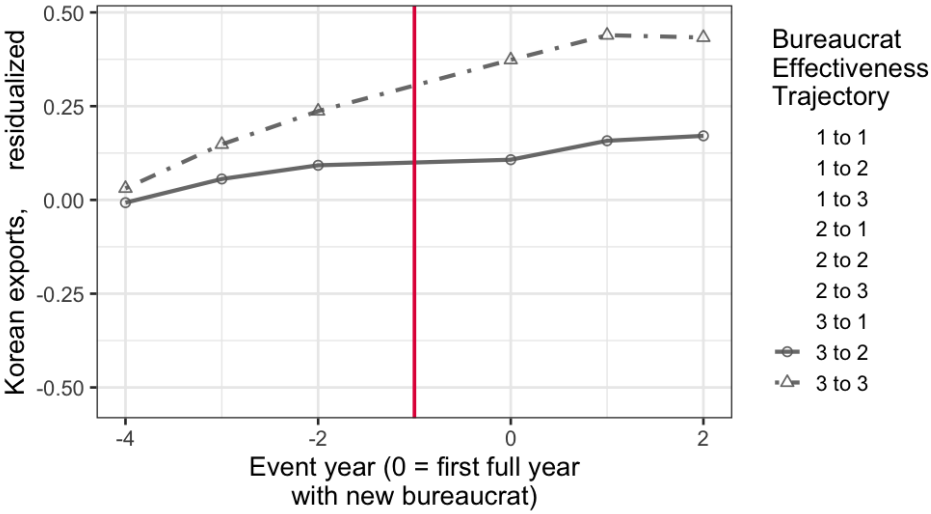

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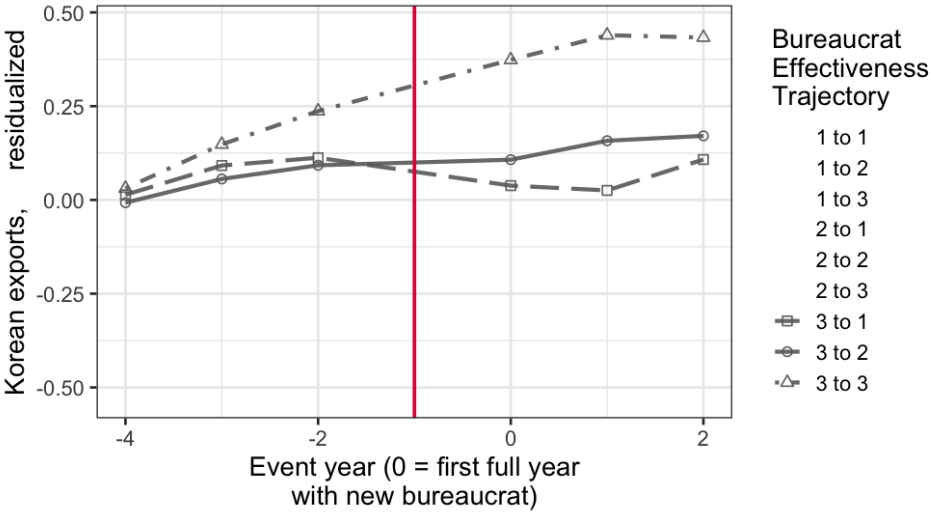

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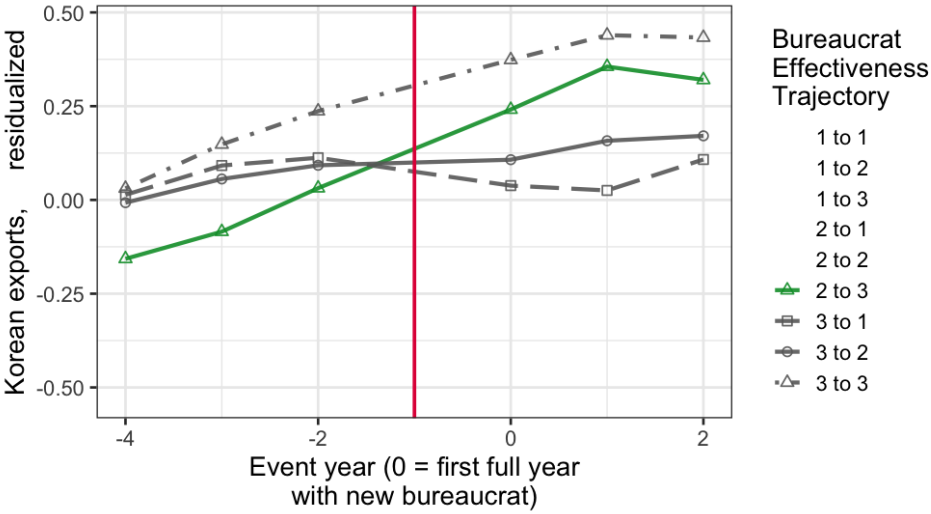

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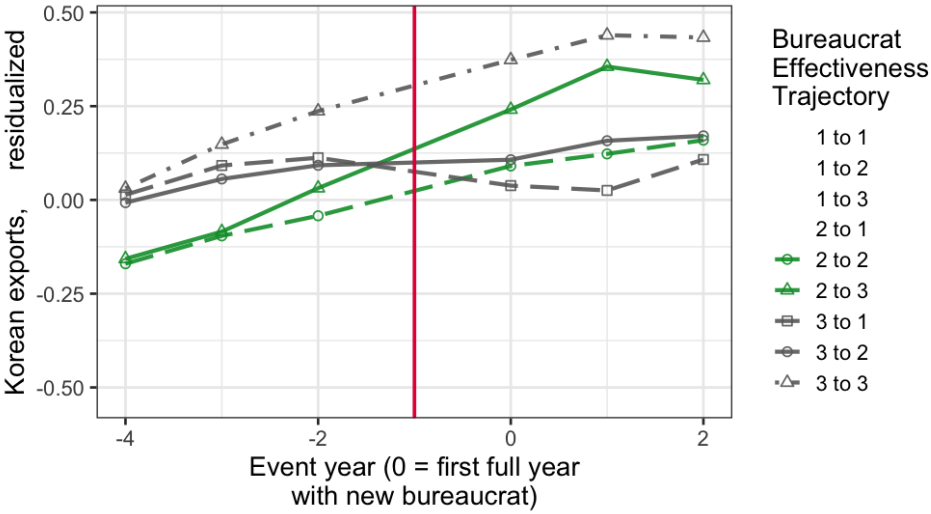

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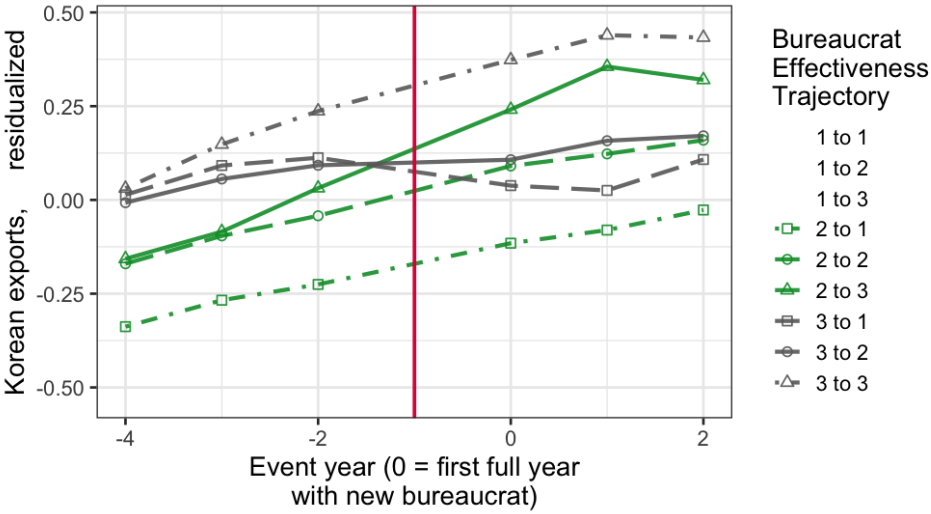

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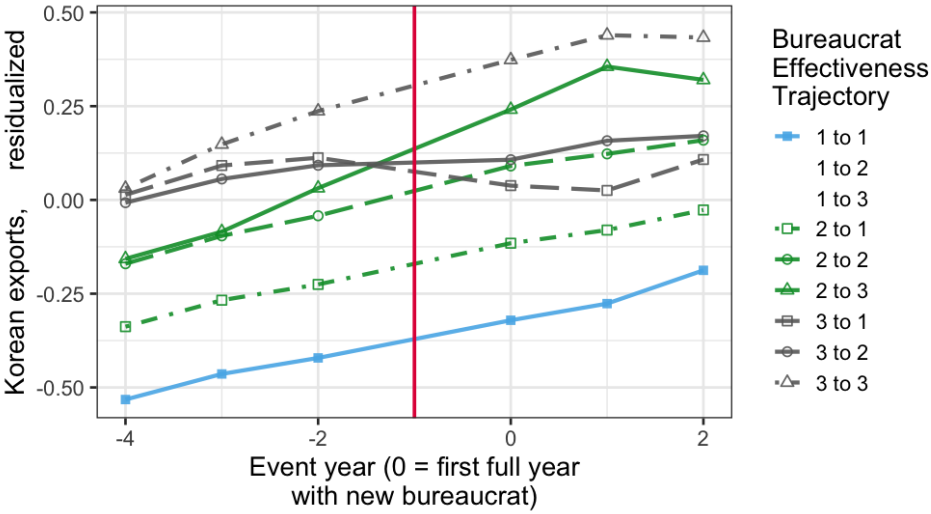

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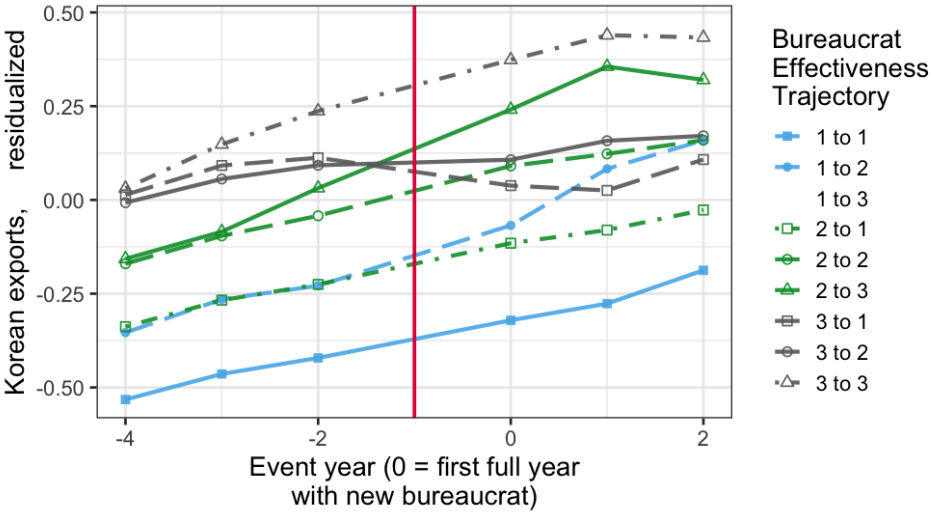

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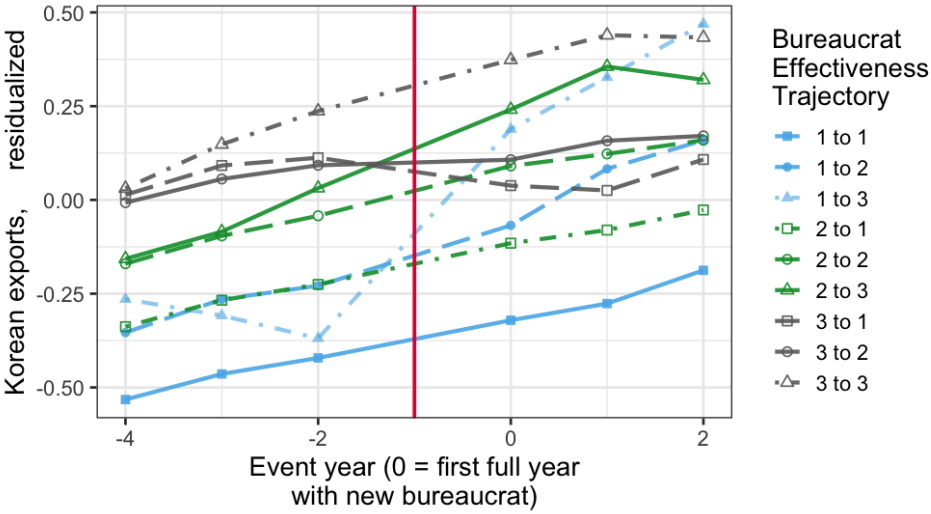

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Exports Vary Widely Between Bureaucrats

- 50p bureaucrat vs 20p : Exports increase by 42%

  Raw FE shrunk by $\hat{\sigma}^2_\beta/(\hat{\sigma}^2_\beta + s^2_b)$

  s^2_b: bootstrap-estimated sampling error in each bureaucrat effect

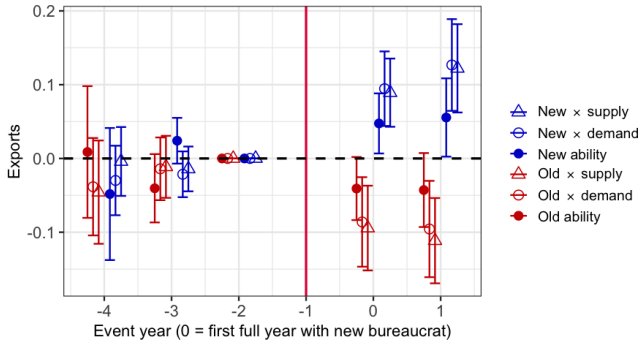
  $\hat{\sigma}^2_\beta$: signal variance of the bureaucrat effect (Best et al., 2023)

- Increasing bureaucrat ability by 1 SD: Exports increase by 37%

  Leave-out estimation correcting for limited mobility bias (Kline et al., 2020)

▸ CDF of bureaucrat FE ▸ Mechanism – Import Demand ▸ Bureaucrat careers
▸ Bureaucrat effects across appointments ▸ Out of sample ▸ Extensive and intensive margin ▸ Variance Decomposition incl. Placebo

Offices' Main Task: Information about Market Conditions

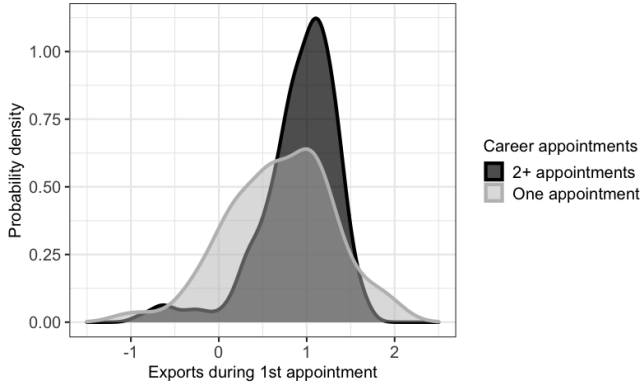


Do bureaucrat effects interact with demand?

Moving from 20p to 50p: Effect of market conditions increases by 18%

▸ Back to main result ▸ Regression equation ▸ Bureaucrat effects and careers

Point 2: Ineffective bureaucrats are not reappointed



Regression, effect on no. appointments – within year of first appointment

- Residualized exports during first appointment – continuous: 0.240 (0.112)
- Above 25th percentile of residualized exports ... – dummy: 0.430 (0.109)

‣ Back to main result slide ‣ Back to main diagnostics slide ‣ Back to main mechanism slide

Setting to Identify how Industrial Policy Depends on Capacity

Results and Detailed Identification

1. Office Openings Increase Exports ▸ more
2. Large Differences in Exports Due to Bureaucrats
3. **Bureaucrat Experience Increases Exports**

Summary and Conclusion

Identifying the Effect of Experience

Identification idea: Instrument for experience

- Change in import demand during bureaucrat's first appointment
- Import demand: scaled non-Korean exports ▸ Instrument Definition

$$\text{exports}_{ept} = \eta_{ep} + \tau_{et} + \lambda_{T(e),pt} + \sum_{k \neq -2} \left[\boldsymbol{\theta_k}\ \text{increase}_{ep}\right] \mathbf{1}\{t = T + k\} + \epsilon_{ecpt}$$

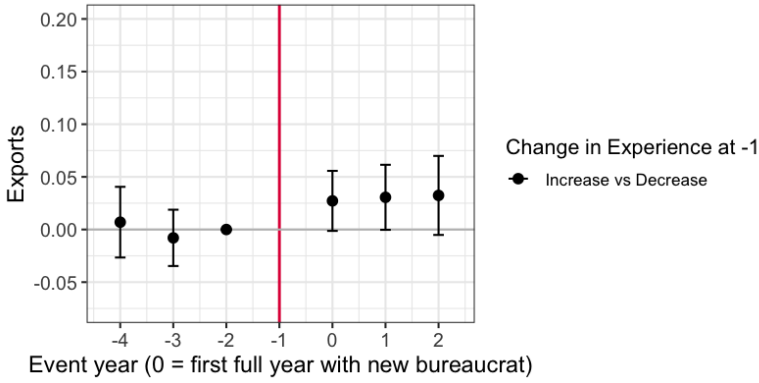
Assumptions:

- Instrument exogenous to latent bureaucrat ability
- Later appointment exogenous to instrument

Why: the Effect of Experience

- Further evidence that bureaucrats matter
- Potential to build capacity endogenously
- But: channel for path dependence

Event study – Effect of Increase in Product-Specific Experience

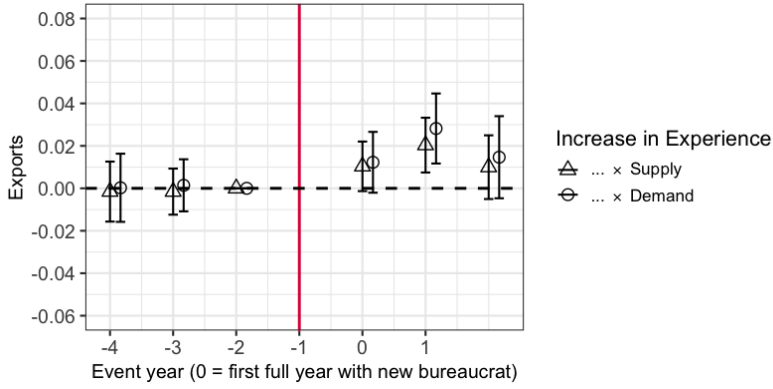


increase_{ep}: dummy indicates $\text{experience}_p^{new} > \text{experience}_p^{old}$

$\text{increase}_{ep} \times post$: 0.030 (0.0147)

▸ Alternative Experience Measures: Similar Estimates

Experience Mechanism: Transmit Information about Market Conditions



Coefficient on increase$_{ep}$ × demand$_{cpt}$ × *post*: **0.0114 (0.0052)**

Coefficient on increase$_{ep}$ × supply$_{cpt}$ × *post*: **0.0158 (0.0065)**

≈ 6-10% increase relative to base elasticity

▸ Back to Main Result ▸ Regression equation

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Summary and Conclusion

This Industrial Policy Only Has an Effect Under High Capacity

- Uniform industrial policy with decentralized implementation
- Bureaucrats move regularly
  - Variation in capacity to implement an industrial policy
  - Long period: 1 connected set
- Outcome important to economic development
- Finding 1: Office opening $\approx$ 40 % increase in exports
- Finding 2: The same policy does little with bad bureaucrats
- Finding 3: Experience only bridges some of the gap between bureaucrats

Conclusion

- Effect of industrial policy depends on implementation capacity
- Good (bad) potential bureaucrats exist everywhere

  Putting the good ones in key positions matters for economic growth
- Build capacity from exposure to opportunities and problems (Hirschmann, 1958)
  - Potential path for building state capacity endogenously
  - Path dependence in state capacity

Future Work

- Korean export promotion
  1. Does it lower fixed costs, increase demand, improve information?
  2. Trade fairs: 30,000 bureaucrat-firm interactions

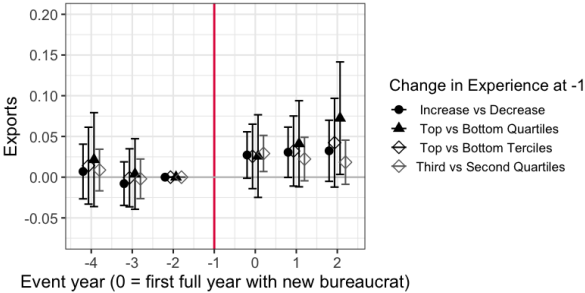
- India: industrial regulation prominent explanation of misallocation

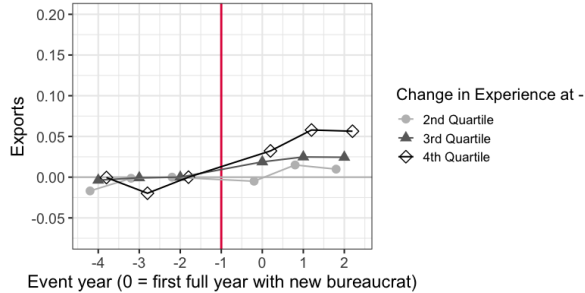
  Misallocation caused by policy itself or its implementation?

- Haiti: bureaucrats in a fragile state
  - Patronage or Weberian networks?
  - Bureaucrats who risk kidnappings to go to work?

Appendix

Point 3: Alternative Experience Measures: Similar Estimates





▸ Back to Main Experience Measure

Definition: Measure of Exogenous Experience

b's 1st country: $C_1(b)$ b's 1st start year: $T_1(b)$

Sources of endogeneity:

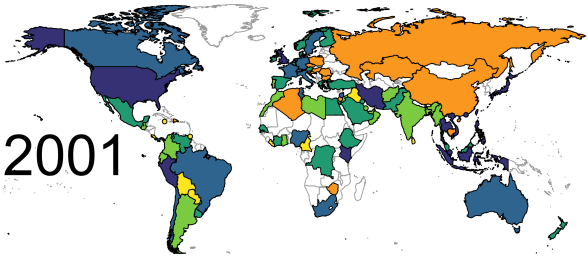
1. $C_1(b)$, $T_1(b)$ endogenous to existing $\text{exports}_{p,C_1(b),T_1(b)-k}$
2. Exports during 1st appointment endogenous to bureaucrat actions

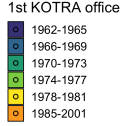
$$\text{instrument}_{b(c,t),pt} = \sum_{k=0}^{2} \widehat{\text{exports}}_{p,b(c,t),C_1(b),T_1(b)+k} - \sum_{k=-3}^{-1} \widehat{\text{exports}}_{p,b(c,t),C_1(b),T_1(b)+k}$$

$$\widehat{\text{exports}}_{cpt} = \text{IHS}\left(exports_{cpt}^{non-Korean} \frac{exports_{-c,pt}}{exports_{-c,pt}^{non-Korean}}\right)$$

▸ Back to identification idea

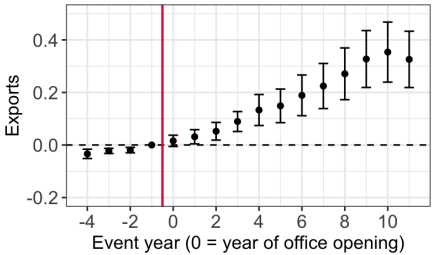
Point 1: Identification – Staggered roll-out of offices to countries

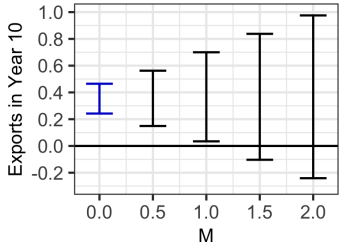


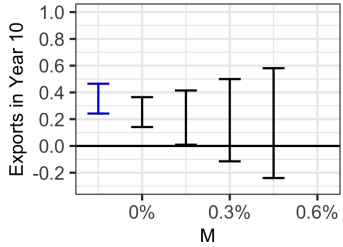


▸ Back to identification

Point 1: Effect robust to not-yet-treated control group

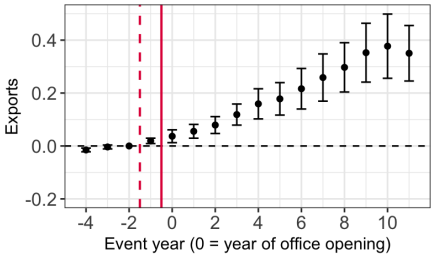


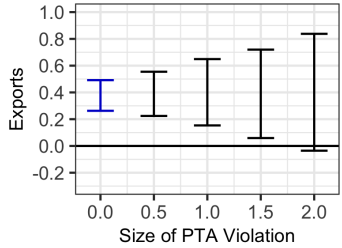


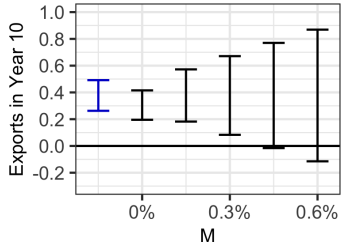


▸ Allow for 1 year anticipation ▸ Back to identification ▸ Back to main result

Point 1: Effect robust to not-yet-treated control group

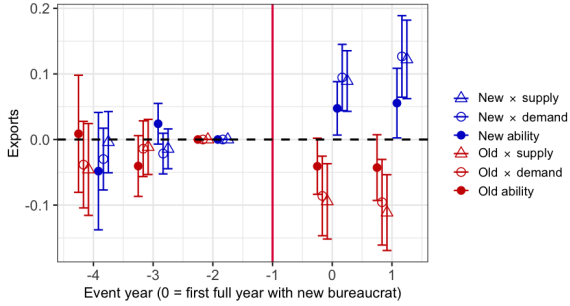






- Allow for 1 year anticipation
- Back to identification
- Back to main result

Point 2: Effect of market conditions on exports jumps upon appointment

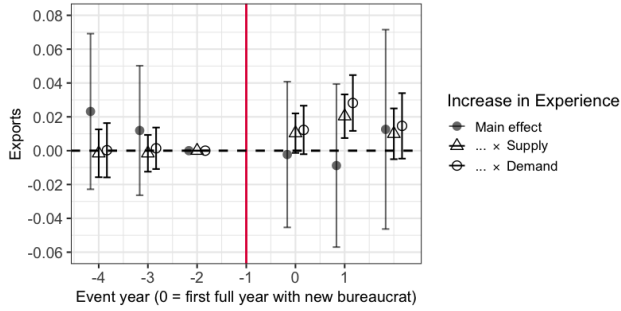


$$y_{ecpt} = \eta_{ep} + \lambda_{pt} + \psi_d^0 \text{demand}_{cpt} + \psi_{d,new}^0 \text{demand}_{cpt} \times \hat{\beta}_e^{new} + \psi_s^0 \text{supply}_{cpt} + \psi_{s,new}^0 \text{supply}_{cpt} \times \hat{\beta}_e^{new} +$$
$$\psi_{d,old}^0 \text{demand}_{cpt} \times \hat{\beta}_e^{old} + \psi_{s,old}^0 \text{supply}_{cpt} \times \hat{\beta}_e^{old} + \sum_{k \neq -2} \Big[\alpha_k + \psi_{dk} \text{demand}_{cpt} + \psi_{sk} \text{supply}_{cpt} +$$
$$\boldsymbol{\theta_k}\ \hat{\beta}_e^{new} + \boldsymbol{\theta_k^{demand}}\ \text{demand}_{cpt} \times \hat{\beta}_e^{new} + \boldsymbol{\theta_k^{supply}}\ \text{supply}_{cpt} \times \hat{\beta}_e^{new} +$$
$$\boldsymbol{\delta_k}\ \hat{\beta}_e^{old} + \boldsymbol{\delta_k^{demand}}\ \text{demand}_{cpt} \times \hat{\beta}_e^{old} + \boldsymbol{\delta_k^{supply}}\ \text{supply}_{cpt} \times \hat{\beta}_{ep}^{old} \Big]\ \mathbf{1}\{t = T + k\} + \epsilon_{ecpt}$$

▸ Back to main result ▸ Mechanism without equation

Point 3: Mechanism: Transmit information about market conditions

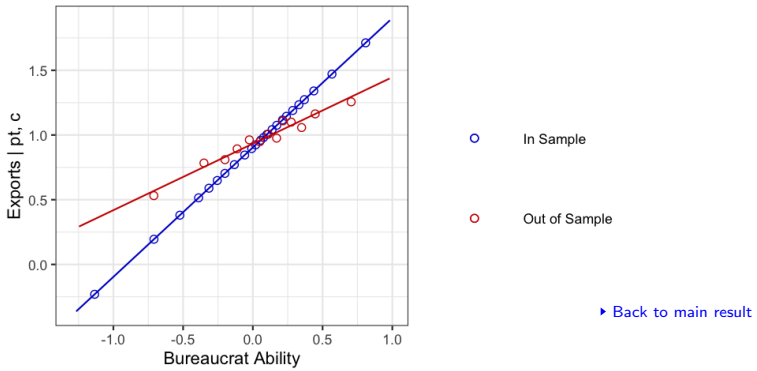
$$\text{exports}_{cpt,b(c,t)} = \eta_{ep} + \lambda_{T(e),pt} + \tau_{et} + \psi^0_d \text{demand}_{cpt} + \psi^0_s \text{supply}_{cpt} +$$
$$\psi^0_{d,\text{increase}} \text{demand}_{cpt} \times \text{increase}_{ep} + \psi^0_{s,\text{increase}} \text{supply}_{cpt} \times \text{increase}_{ep} +$$
$$\sum_{k \neq -2} \Big[\boldsymbol{\theta_k} \ \text{increase}_{ep} + \psi_{dk} \text{demand}_{cpt} + \boldsymbol{\theta^{demand}_k} \ \text{demand}_{cpt} \times \text{increase}_{ep} +$$
$$\psi_{sk} \text{supply}_{cpt} + \boldsymbol{\theta^{supply}_k} \ \text{supply}_{cpt} \times \text{increase}_{ep} \Big] \mathbf{1}\{t = T + k\} + \epsilon_{ecpt}$$



▸ Back to main figure

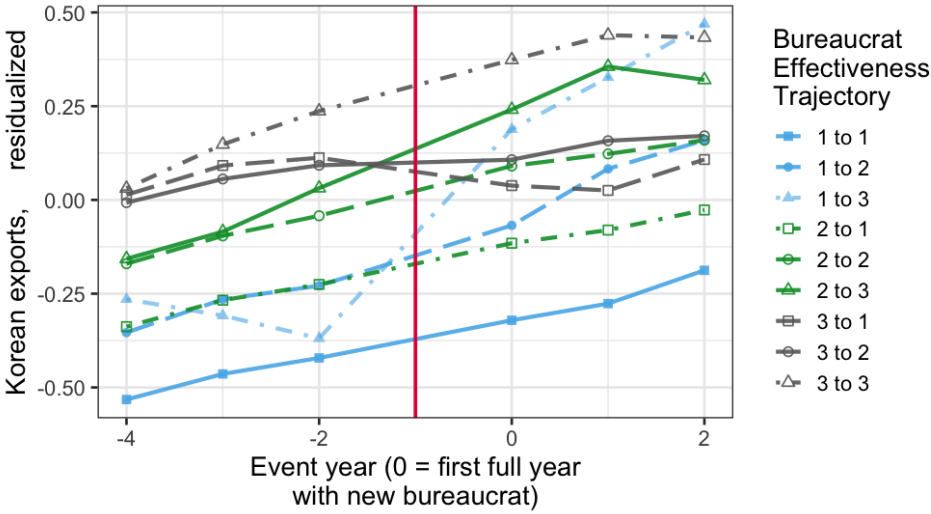
Point 2: Out-of-sample FE predictive of exports

- Out-of-sample FE estimated *only using other countries*
  Bureaucrat with n appointments: Out-of-sample FE estimated on $n-1$
- TWFE: Out of sample FE has coefficient .52 (similar to Metcalfe et al., 2023)



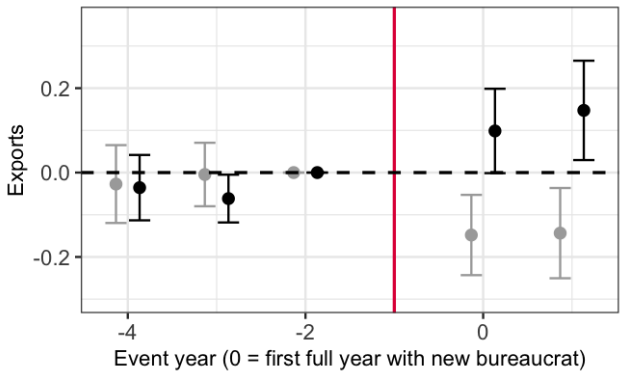
Back to main result

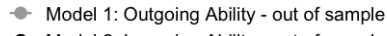
Point 2: Consistent effects from changes in bureaucrat effects



▸ Out of sample checks ▸ New vs old fixed effects ▸ Bureaucrat effects constant across appointments ▸ Back to main result

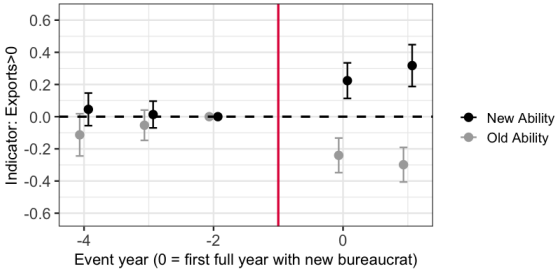
Point 2: Out-of-sample FE predictive of exports



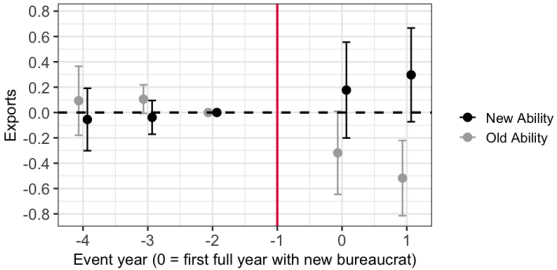


▸ Back to main result

Bureaucrat effects, extensive and intensive margin



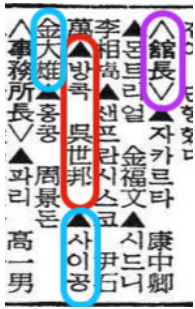
Products with extensive margin changes



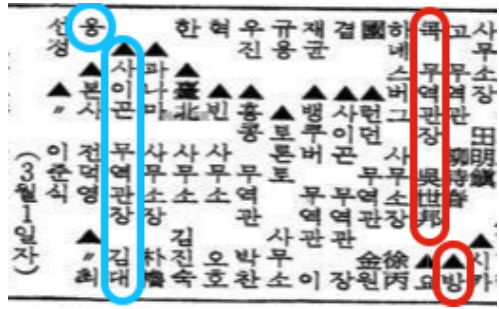
Products with exports$>$ 0 throughout

▸ Back to main result

Crucial Data: Major Newspapers Report Bureaucrat Appointments



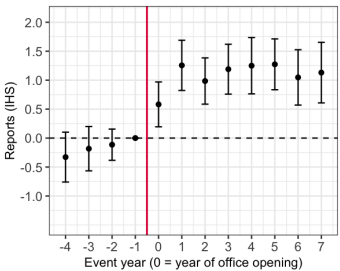
Chosun Ilbo
Feb 4, 1971

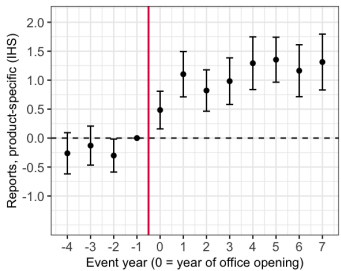


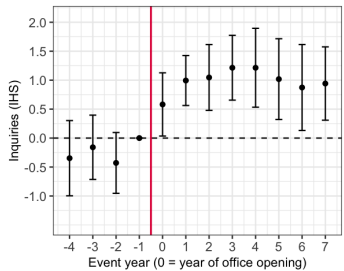
Maeil Business
Feb 4, 1971

Office Head (section heading)
Saigon (Office Head): Kim Dae-ung
Bangkok (Office Head): Oh Se-bang

Point 1: Office openings increase activity almost instantly





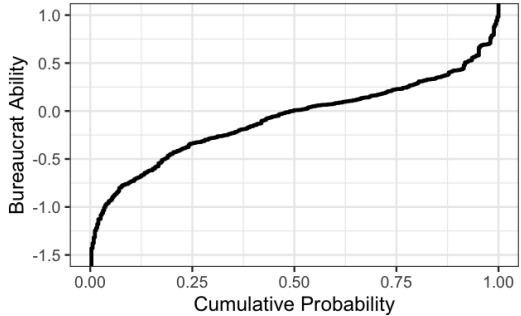


Average office opening: Multiply by 2.7 reports (8 $\rightarrow$ 21) and inquiries (26 $\rightarrow$ 70)

Data from "Market News". Reports on weekdays 1965-2001. Inquiries: 1974-1997.

▸ Back to main result office opening

Point 2: CDF of Bureaucrat Ability



For the main result, we shrink the above raw fixed effects (Best et al., 2023). The minimum-mean-squared error predictor is $\left[\hat{\sigma}_\alpha^2/(\hat{\sigma}_\alpha^2 + s_b^2)\right] = 0.76$. s_b^2 is the bootstrap-estimated sampling error in each bureaucrat effect and $\hat{\sigma}_\alpha^2$ the signal variance of the bureaucrat effect.

‣ Back to main slide (point 2)