The Economic Effects of Immigration Restriction Policies

Evidence from the Italian Mass Migration to the US, 1890-1930

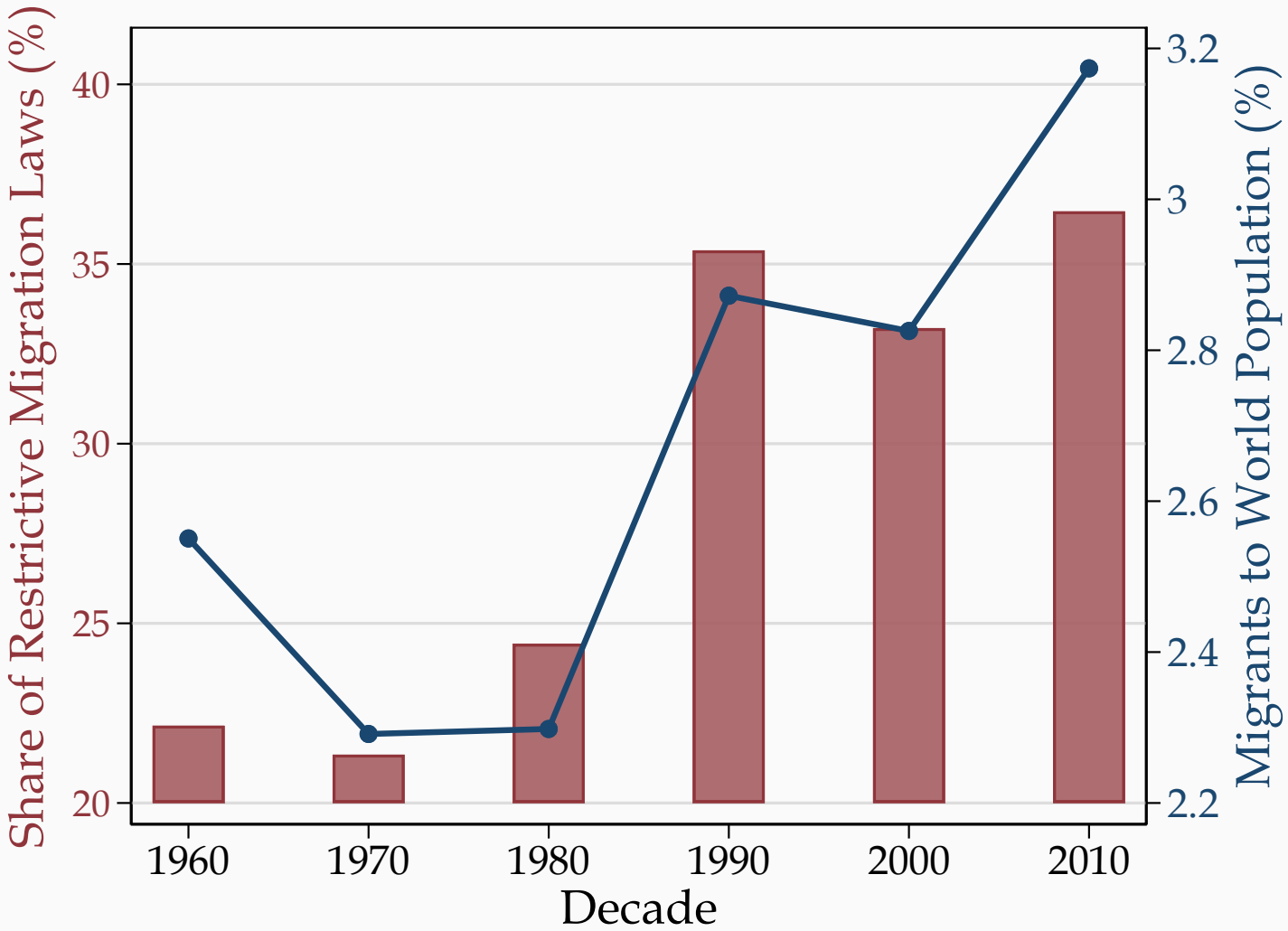
Davide M. Coluccia (Bocconi)

Lorenzo Spadavecchia (Bocconi)

August 24, 2022

EEA & ESEM Meeting

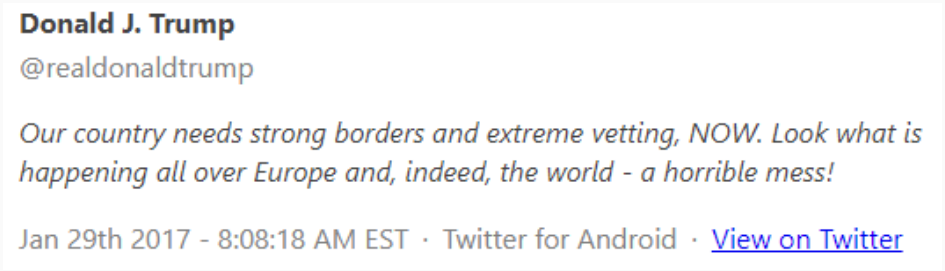
Immigration Restriction Policy Over Time



Notes. Share of restrictive migration laws (red, left-axis) from International Migration Institute (2021); share of migrants to world population (blue, right-axis) from International Organization for Migration (2020).

Immigration Restriction and Public Policy

- Immigration is at the core of a **heated** and **polarized** public debate

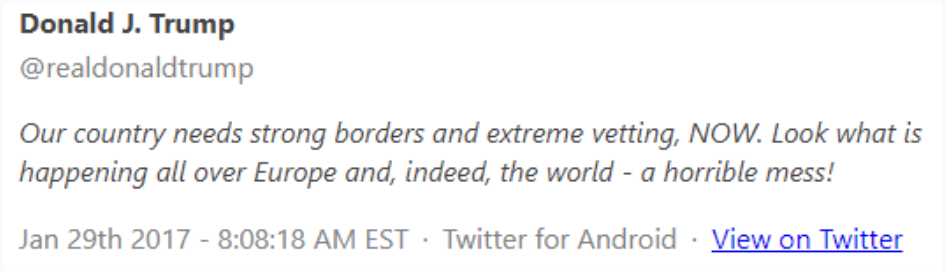


- Immigration policy is now a defining element and **tool** in political agendas

- On both sides of the spectrum, evaluated in terms of the benefits (losses) to **receiving countries**

Immigration Restriction and Public Policy

- Immigration is at the core of a **heated** and **polarized** public debate

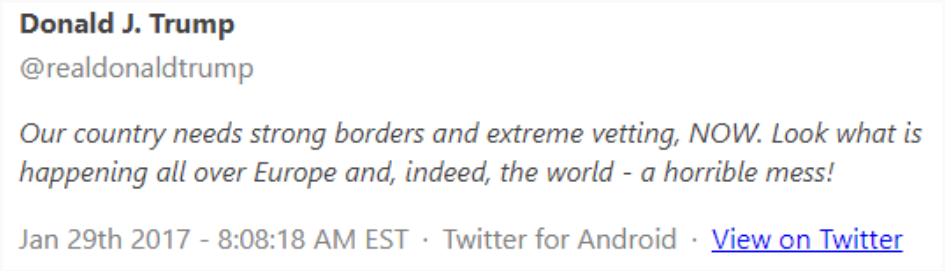


- Immigration policy is now a defining element and **tool** in political agendas

- On both sides of the spectrum, evaluated in terms of the benefits (losses) to **receiving countries**

Immigration Restriction and Public Policy

- Immigration is at the core of a **heated** and **polarized** public debate



- Immigration policy is now a defining element and **tool** in political agendas

- On both sides of the spectrum, evaluated in terms of the benefits (losses) to **receiving countries**

Research Question

- **RQ**: What are the economic effects of immigration restriction policies on countries that are *sending* migrants?
- Large literature on immigration, much less on emigration [& restriction policies]

  Clemens (2011): Emigration papers $\approx$ 25% of immigration papers (RePEc)

  Literature
- *Ex ante* ambiguous effects of emigration:
  - ↑ Remittances foster human capital
  - ↑ Increased return to education under positive selection
  - ↑ Reduced pressure on labor markets
  - ↓ Loss of human capital
  - ↓ Downward pressure on aggregate demand
- Conflicting empirical evidence, ranging from positive (*eg* Clemens, 2011) to negative, at least in short run (*eg* Fontana *et al*, 2021; Fernández-Sánchez, 2020)

Research Question

- **RQ**: What are the economic effects of immigration restriction policies on countries that are *sending* migrants?
- Large literature on immigration, much less on emigration [& restriction policies]
  Clemens (2011): Emigration papers $\approx$ 25% of immigration papers (RePEc)
  ▸ Literature
- *Ex ante* ambiguous effects of emigration:
  - ↑ Remittances foster human capital
  - ↑ Increased return to education under positive selection
  - ↑ Reduced pressure on labor markets
  - ↓ Loss of human capital
  - ↓ Downward pressure on aggregate demand
- Conflicting empirical evidence, ranging from positive (*eg* Clemens, 2011) to negative, at least in short run (*eg* Fontana *et al*, 2021; Fernández-Sánchez, 2020)

Research Question

- **RQ**: What are the economic effects of immigration restriction policies on countries that are *sending* migrants?
- Large literature on immigration, much less on emigration [& restriction policies]
  Clemens (2011): Emigration papers $\approx$ 25% of immigration papers (RePEc)
  ▸ Literature
- *Ex ante* ambiguous effects of emigration:
  - ↑ Remittances foster human capital
  - ↑ Increased return to education under positive selection
  - ↑ Reduced pressure on labor markets
  - ↓ Loss of human capital
  - ↓ Downward pressure on aggregate demand
- Conflicting empirical evidence, ranging from positive (*eg* Clemens, 2011) to negative, at least in short run (*eg* Fontana *et al*, 2021; Fernández-Sánchez, 2020)

Research Question

- **RQ**: What are the economic effects of immigration restriction policies on countries that are *sending* migrants?
- Large literature on immigration, much less on emigration [& restriction policies]
  Clemens (2011): Emigration papers $\approx$ 25% of immigration papers (RePEc)
  ▸ Literature
- *Ex ante* ambiguous effects of emigration:
  - ↑ Remittances foster human capital
  - ↑ Increased return to education under positive selection
  - ↑ Reduced pressure on labor markets
  - ↓ Loss of human capital
  - ↓ Downward pressure on aggregate demand
- Conflicting empirical evidence, ranging from positive (*eg* Clemens, 2011) to negative, at least in short run (*eg* Fontana *et al*, 2021; Fernández-Sánchez, 2020)

Research Question

- **RQ**: What are the economic effects of immigration restriction policies on countries that are *sending* migrants?
- Large literature on immigration, much less on emigration [& restriction policies]
  Clemens (2011): Emigration papers $\approx$ 25% of immigration papers (RePEc)
  ▸ Literature
- *Ex ante* ambiguous effects of emigration:
  - ↑ Remittances foster human capital
  - ↑ Increased return to education under positive selection
  - ↑ Reduced pressure on labor markets
  - ↓ Loss of human capital
  - ↓ Downward pressure on aggregate demand
- Conflicting empirical evidence, ranging from positive (*eg* Clemens, 2011) to negative, at least in short run (*eg* Fontana *et al*, 2021; Fernández-Sánchez, 2020)

Literature [not exhaustive!]

The Effects of Emigration

Kwok & Leland (1982), Beine *et al* (2008), Dustmann *et al* (2011), Dinkelmann & Mariotti (2016), Férnandez-Sánchez (2020), Fontana *et al* (2021)

- Human capital accumulation (or deprivation) typically focus
- Negative effect if migrants are positively selected, negative under brain drain
- Our contribution: novel mechanism driven by labor supply shock

The Economics of the Age of Mass Migration

Abramitzky *et al* (2017, 2021), [Andersson], Karadja & Prawitz (2019, 2022), Sequeira *et al* (2019), Spitzer & Zimran (2019, 2020), Tabellini (2020)

- Heterogeneous corpus: generally positive effect of immigration
- Our contribution: shift on sending country & data collection

Directed Technical Change Theory

Hicks (1932), Habakkuk (1962), Acemoglu (2002, 2007), Lewis (2011), Hornbeck & Naidu (2014), Hanlon (2015), Clemens *et al* (2018), San (2021)

- Technology adoption and innovation related to input (via prices & market size)
- Our contribution: supportive, more abundant labor discourages adoption of capital-intensive technologies [*à la* Zeira, 1998]

Historical Context: Italian emigration and US immigration policy

The Italian mass emigration

Emigration Maps | Emigration Time Series

- 17 mil (out of avg 26 mil) people left from all over Italy during 1890-1930
- Of these 5 mil to the US and 4 mil from Southern regions

The immigration restriction policy

US Emigration time series | (No) International substitution

- 1921-1924 Quota Acts end open border policy
- Emigration to US completely halts, that to other destinations continues

The identification scheme (in a nutshell)

- Variation: places with (conditionally) higher US emigration more treated
- Compare places with same emigration rate, but different US emigration rate

Historical Context: Italian emigration and US immigration policy

The Italian mass emigration

Emigration Maps | Emigration Time Series

- 17 mil (out of avg 26 mil) people left from all over Italy during 1890-1930
- Of these 5 mil to the US and 4 mil from Southern regions

The immigration restriction policy

US Emigration time series | (No) International substitution

- 1921-1924 Quota Acts end open border policy
- Emigration to US completely halts, that to other destinations continues

The identification scheme (in a nutshell)

- Variation: places with (conditionally) higher US emigration more treated
- Compare places with same emigration rate, but different US emigration rate

Historical Context: Italian emigration and US immigration policy

The Italian mass emigration

Emigration Maps | Emigration Time Series

- 17 mil (out of avg 26 mil) people left from all over Italy during 1890-1930
- Of these 5 mil to the US and 4 mil from Southern regions

The immigration restriction policy

US Emigration time series | (No) International substitution

- 1921-1924 Quota Acts end open border policy
- Emigration to US completely halts, that to other destinations continues

The identification scheme (in a nutshell)

- Variation: places with (conditionally) higher US emigration more treated
- Compare places with same emigration rate, but different US emigration rate

Data & Strategy

Data

Italian Emigrants to the US

- Before this paper, impossible to trace detailed origin of immigrants from official statistics

  US collected country of origin; Italy the region

- Now, individual level data from the Ellis Island foundation

  Administrative records: 95% of all immigrants; include municipality of origin

- Methodological contribution. Novel dataset w/$\approx 2.7 \times 10^6$ emigrants

  Data include: year of arrival, municipality of origin, age at arrival. Years: 1892-1930.

Outcomes & Controls

- Before this paper, little disaggregated available data for our period

- Now, large digitization effort of census data

  Population Census: population, urbanization, professional employment; Industrial Census: investment and capital goods data. District (*Circondario*) level, avg. 30,000 population

Data

Italian Emigrants to the US

- Before this paper, impossible to trace detailed origin of immigrants from official statistics

  US collected country of origin; Italy the region

- Now, individual level data from the Ellis Island foundation

  Administrative records: 95% of all immigrants; include municipality of origin

- Methodological contribution. Novel dataset w/$\approx 2.7\times10^6$ emigrants

  Data include: year of arrival, municipality of origin, age at arrival. Years: 1892-1930.

Outcomes & Controls

- Before this paper, little disaggregated available data for our period
- Now, large digitization effort of census data

  Population Census: population, urbanization, professional employment; Industrial Census: investment and capital goods data. District (*Circondario*) level, avg. 30,000 population

Data

Italian Emigrants to the US

- Before this paper, impossible to trace detailed origin of immigrants from official statistics

  US collected country of origin; Italy the region

- Now, individual level data from the Ellis Island foundation

  Administrative records: 95% of all immigrants; include municipality of origin

- Methodological contribution. Novel dataset w/$\approx 2.7 \times 10^6$ emigrants

  Data include: year of arrival, municipality of origin, age at arrival. Years: 1892-1930.

Outcomes & Controls

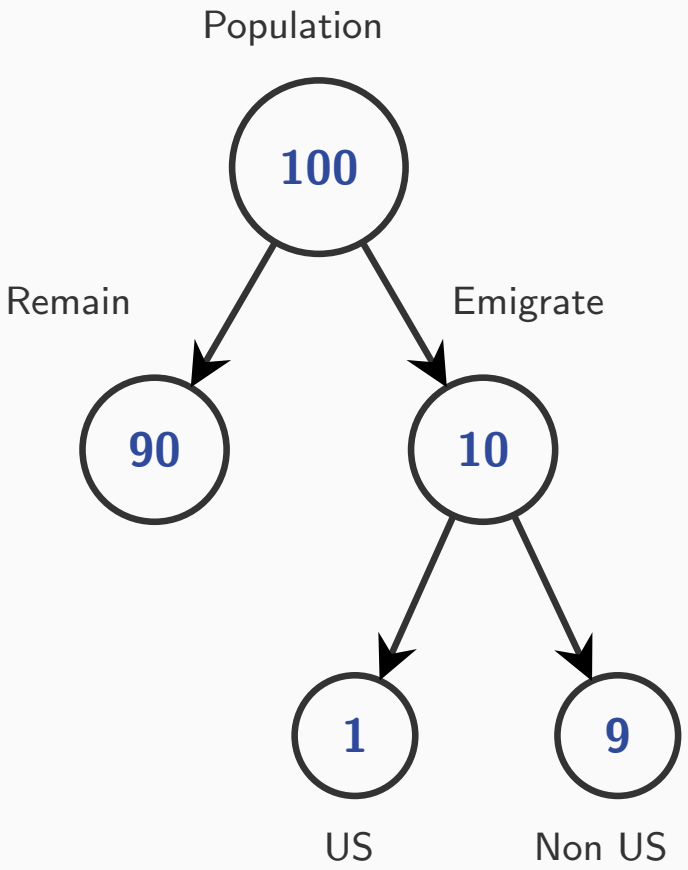
- Before this paper, little disaggregated available data for our period

- Now, large digitization effort of census data

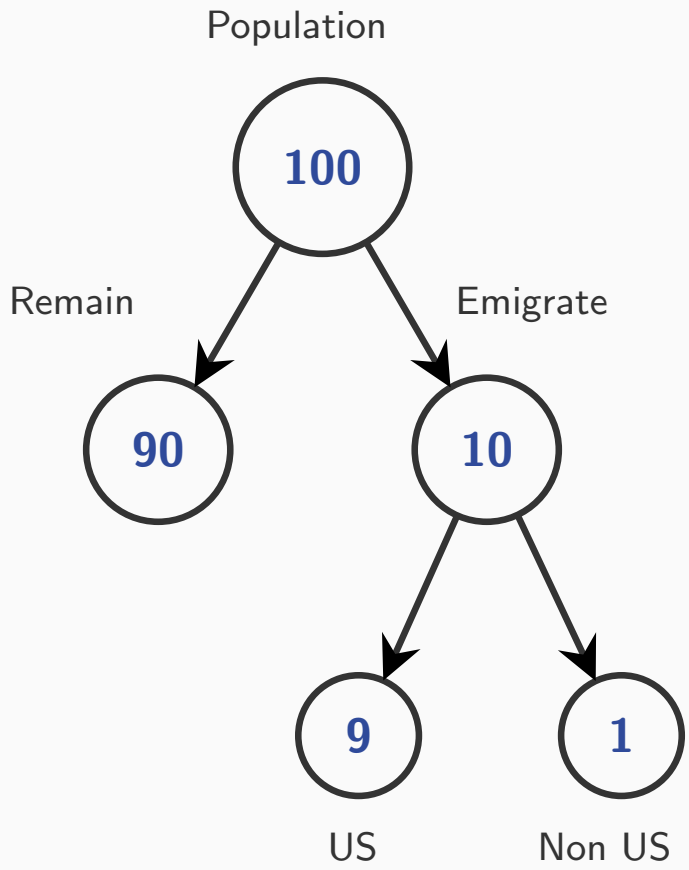
  Population Census: population, urbanization, professional employment; Industrial Census: investment and capital goods data. District (*Circondario*) level, avg. 30,000 population

Source of Variation

District A



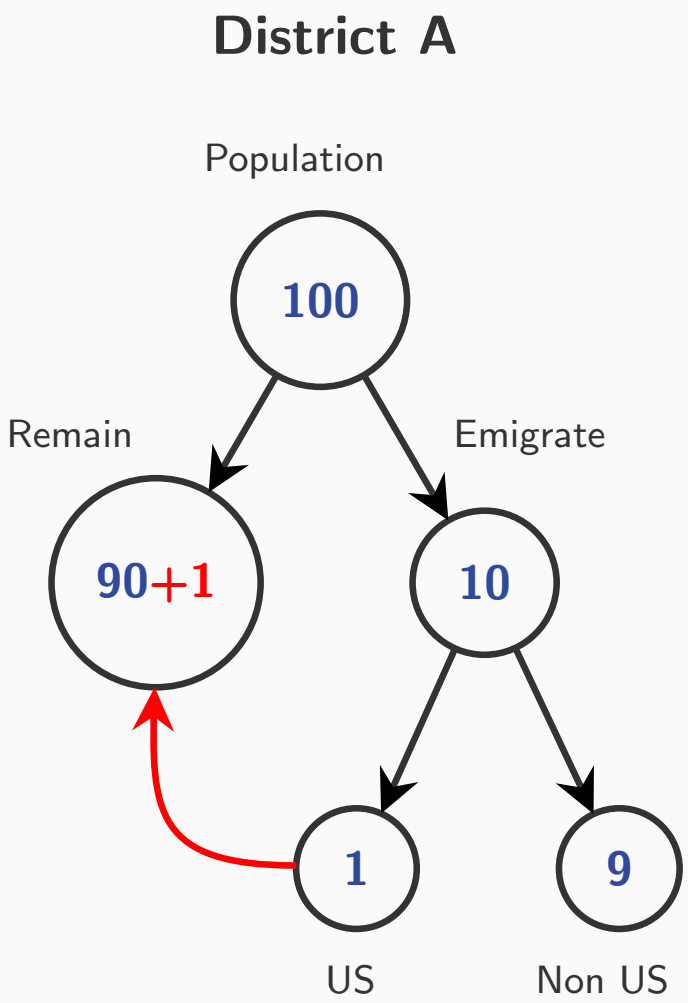
District B

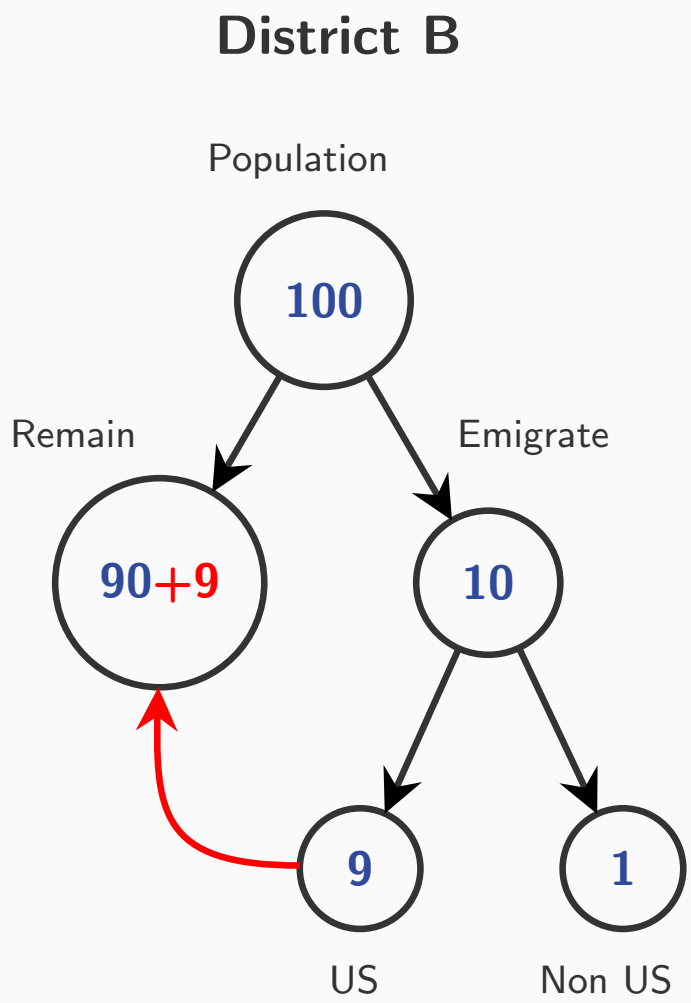


▸ Emigration Maps

▸ (No) International Substitution

Source of Variation





▸ Emigration Maps

▸ (No) International Substitution

Identification

Identification Assumption

- Leverage variation in Quota Acts exposure conditional on emigration rate
- Hence, decision to emigrate can be endogenous, destination cannot
  [to what? Economic performance]

Historical (& Econ) Evidence

- Gould (1980): Italian emigration driven by local information networks, not economic push
- Spitzer & Zimran (2021) validate this hypothesis empirically
- Fontana *et al* (2021): information networks as instrument for migration flows
  [Instrument is the distance from "information centers"]

$\Rightarrow$ Decision to emigrate is clearly **endogenous**, where to go **should not**
[Bartik IV weakens this by shortening the exogeneity time window]

▸ Example: Comparing districts ▸ Conditional Variation of Treatment ▸ Balance Tables

Identification

Identification Assumption

- Leverage variation in Quota Acts exposure conditional on emigration rate
- Hence, decision to emigrate can be endogenous, destination cannot
  [to what? Economic performance]

Historical (& Econ) Evidence

- Gould (1980): Italian emigration driven by local information networks, not economic push
- Spitzer & Zimran (2021) validate this hypothesis empirically
- Fontana *et al* (2021): information networks as instrument for migration flows
  [Instrument is the distance from "information centers"]

⇒ Decision to emigrate is clearly **endogenous**, where to go **should not**
[Bartik IV weakens this by shortening the exogeneity time window]

▸ Example: Comparing districts ▸ Conditional Variation of Treatment ▸ Balance Tables

Identification

Identification Assumption

- Leverage variation in Quota Acts exposure conditional on emigration rate
- Hence, decision to emigrate can be endogenous, destination cannot
  [to what? Economic performance]

Historical (& Econ) Evidence

- Gould (1980): Italian emigration driven by local information networks, not economic push
- Spitzer & Zimran (2021) validate this hypothesis empirically
- Fontana *et al* (2021): information networks as instrument for migration flows
  [Instrument is the distance from "information centers"]

$\Rightarrow$ Decision to emigrate is clearly **endogenous**, where to go **should not**
[Bartik IV weakens this by shortening the exogeneity time window]

▸ Example: Comparing districts ▸ Conditional Variation of Treatment ▸ Balance Tables

Empirical Model

A Measure for Treatment Exposure

- Idea: exposure entails both high emigration, and high US emigration
- To operationalize this, define

$$\text{Emigrants}_c^{US} = \sum_{t=1890}^{1914} \text{Emigrants}_{ct}^{US}$$
$$\text{Emigrants}_c = \sum_{t=1890}^{1914} \text{Emigrants}_{ct}$$
$$\Rightarrow \text{QE}_c = \underbrace{\frac{\text{Emigrants}_c^{US}}{\text{Emigrants}_c}}_{\text{IM}_c} \times \underbrace{\frac{\text{Emigrants}_c}{\text{Population}_{1880,c}}}_{\text{EM}_c}$$

Baseline Empirical Model

- Continuous difference-in-differences, time stacked at census decades
- Equation is

$$\dot{y}_{ct} = \alpha_c + \alpha_t + \boldsymbol{x}_{ct}\boldsymbol{\beta} + \delta_1 \left(\text{EM}_c \times \text{Post}_t\right) + \delta_2 \left(\text{QE}_c \times \text{Post}_t\right) + \varepsilon_{ct}$$

- Baseline controls in $\boldsymbol{x}$: population, labor market slackness

  [Additional controls: employment, industrial employment, literacy]

▸ Bartik IV ▸ Balance Table ▸ US Emigration ▸ Maps: QE and EM ▸ QE conditional on EM

Empirical Model

A Measure for Treatment Exposure

- Idea: exposure entails both high emigration, and high US emigration
- To operationalize this, define

$$\begin{aligned} \text{Emigrants}_c^{US} &= \textstyle\sum_{t=1890}^{1914} \text{Emigrants}_{ct}^{US} \\ \text{Emigrants}_c &= \textstyle\sum_{t=1890}^{1914} \text{Emigrants}_{ct} \end{aligned} \Rightarrow \text{QE}_c = \underbrace{\frac{\text{Emigrants}_c^{US}}{\text{Emigrants}_c}}_{\text{IM}_c} \times \underbrace{\frac{\text{Emigrants}_c}{\text{Population}_{1880,c}}}_{\text{EM}_c}$$

Baseline Empirical Model

- Continuous difference-in-differences, time stacked at census decades
- Equation is

$$\dot{y}_{ct} = \alpha_c + \alpha_t + \boldsymbol{x}_{ct}\boldsymbol{\beta} + \delta_1 \left(\text{EM}_c \times \text{Post}_t\right) + \delta_2 \left(\text{QE}_c \times \text{Post}_t\right) + \varepsilon_{ct}$$

- Baseline controls in $\boldsymbol{x}$: population, labor market slackness

  [Additional controls: employment, industrial employment, literacy]

▸ Bartik IV ▸ Balance Table ▸ US Emigration ▸ Maps: QE and EM ▸ QE conditional on EM

Empirical Model

A Measure for Treatment Exposure

- Idea: exposure entails both high emigration, and high US emigration
- To operationalize this, define

$$\begin{aligned} \text{Emigrants}_c^{US} &= \textstyle\sum_{t=1890}^{1914} \text{Emigrants}_{ct}^{US} \\ \text{Emigrants}_c &= \textstyle\sum_{t=1890}^{1914} \text{Emigrants}_{ct} \end{aligned} \Rightarrow \text{QE}_c = \underbrace{\frac{\text{Emigrants}_c^{US}}{\text{Emigrants}_c}}_{\text{IM}_c} \times \underbrace{\frac{\text{Emigrants}_c}{\text{Population}_{1880,c}}}_{\text{EM}_c}$$

Baseline Empirical Model

- Continuous difference-in-differences, time stacked at census decades
- Equation is

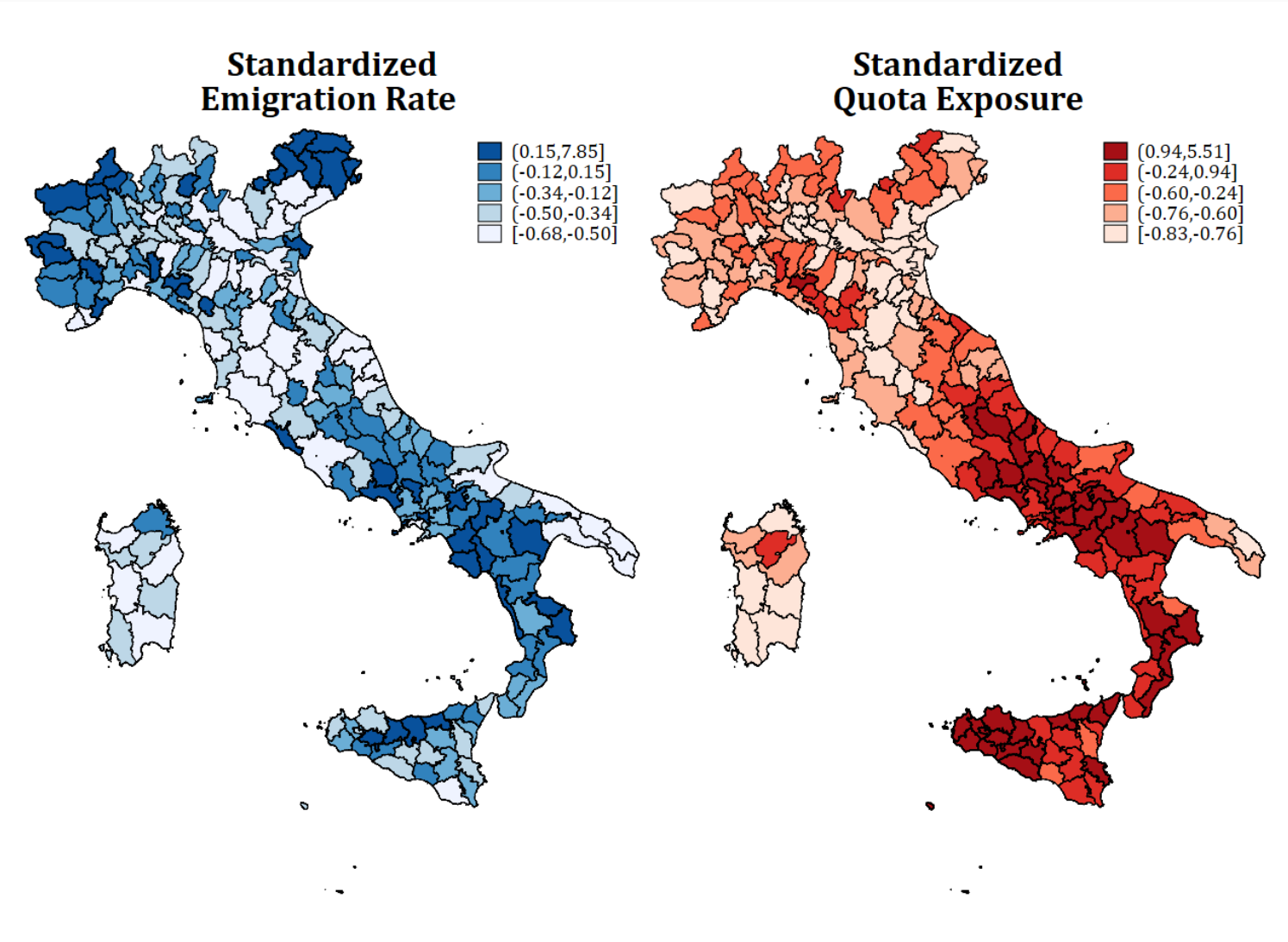
$$\dot{y}_{ct} = \alpha_c + \alpha_t + \boldsymbol{x}_{ct}\boldsymbol{\beta} + \delta_1 \left(\text{EM}_c \times \text{Post}_t\right) + \delta_2 \left(\text{QE}_c \times \text{Post}_t\right) + \varepsilon_{ct}$$

- Baseline controls in $\boldsymbol{x}$: population, labor market slackness

  [Additional controls: employment, industrial employment, literacy]

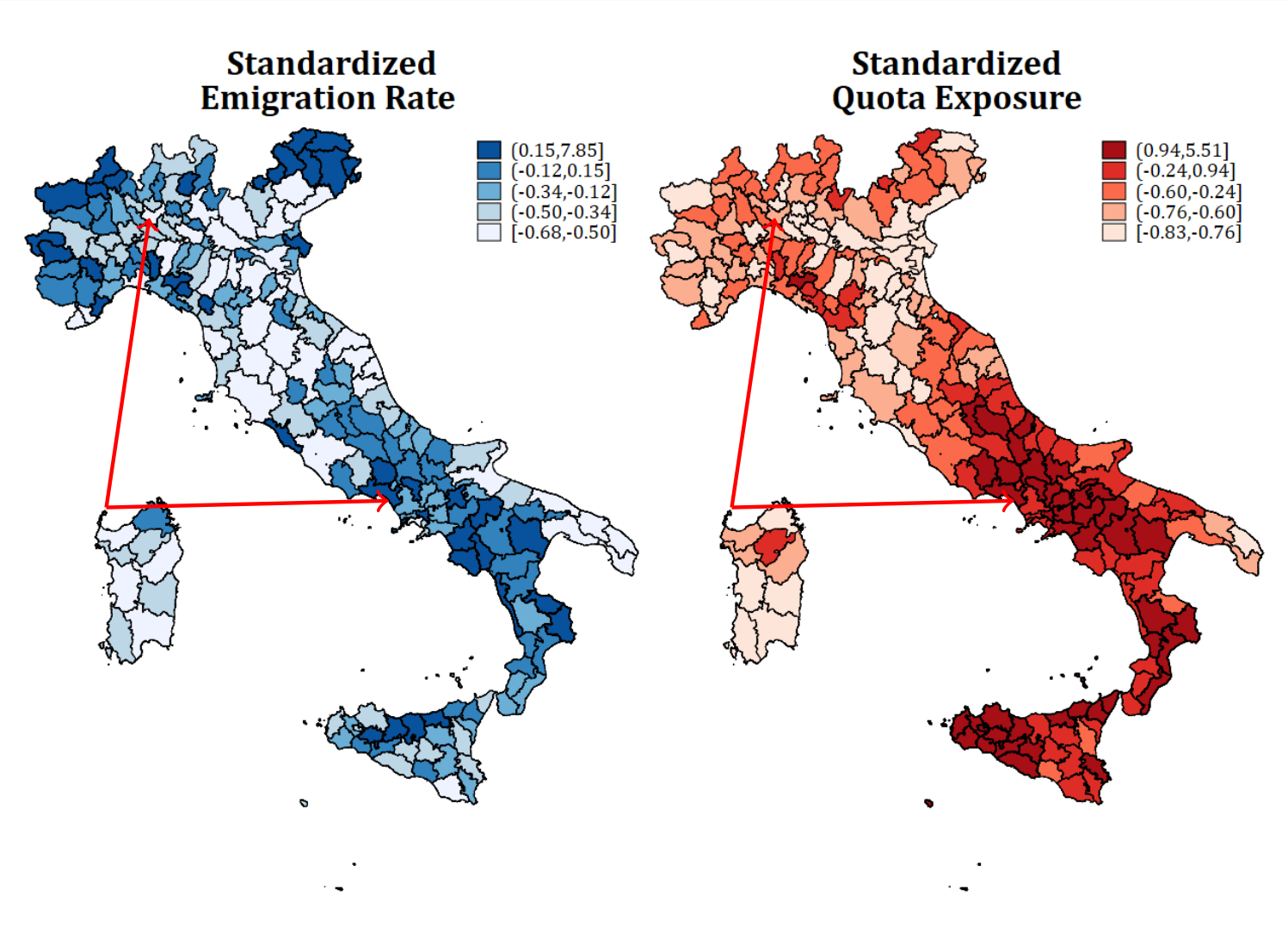
▸ Bartik IV ▸ Balance Table ▸ US Emigration ▸ Maps: QE and EM ▸ QE conditional on EM

Spatial Distribution of Identifying Variation



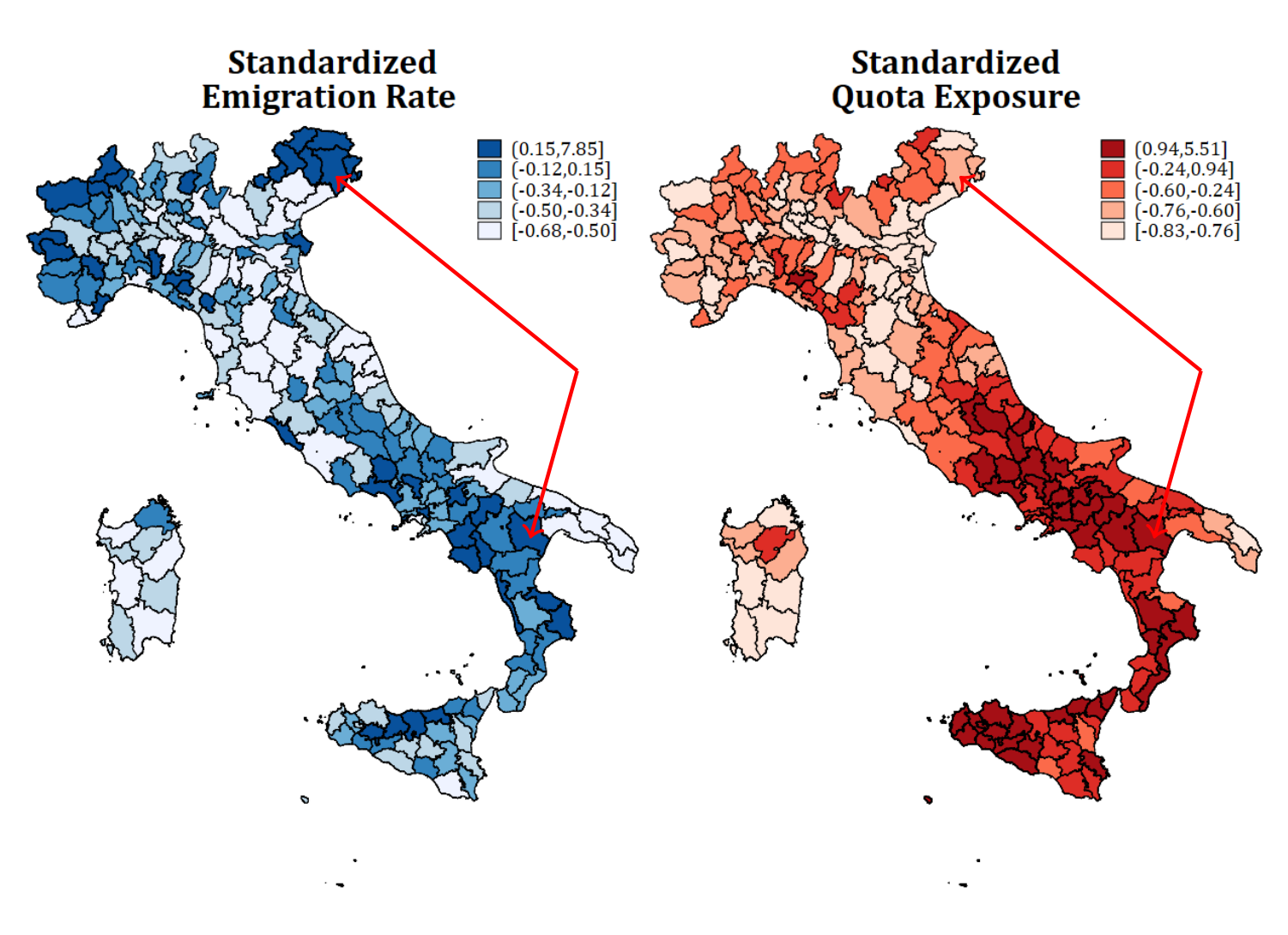
Note. Left panel reports the emigrants-to-population ratio. Right panel reports the US emigrants-to-population ratio.

Spatial Distribution of Identifying Variation



Note. Left panel reports the emigrants-to-population ratio. Right panel reports the US emigrants-to-population ratio.

Spatial Distribution of Identifying Variation



Note. Left panel reports the emigrants-to-population ratio. Right panel reports the US emigrants-to-population ratio.

Main Results

1 – Restriction policies increase population

Dep. Var.: Population Growth	Continuous QE		Categorical QE	
	(1)	(2)	(3)	(4)
Quota Exposure × Post	0.409***	0.449***		
	(0.113)	(0.124)		
			0.021***	0.023***
			(0.006)	(0.007)
Extensive Margin × Post		-0.068		-0.051
		(0.055)		(0.053)
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Number of Districts	204	204	204	204
Observations	751	751	751	751
R2	0.452	0.452	0.445	0.445
Mean Dep. Var.	1.042	1.042	1.042	1.042

- **Relevance**: missing migrants induce higher population growth
- If they join employment pool, restriction policies lead to a labor supply shock

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates

1 – Restriction policies increase population

Dep. Var.: Population Growth	Continuous QE		Categorical QE	
	(1)	(2)	(3)	(4)
Quota Exposure × Post	0.409***	0.449***		
	(0.113)	(0.124)		
			0.021***	0.023***
			(0.006)	(0.007)
Extensive Margin × Post		-0.068		-0.051
		(0.055)		(0.053)
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Number of Districts	204	204	204	204
Observations	751	751	751	751
R2	0.452	0.452	0.445	0.445
Mean Dep. Var.	1.042	1.042	1.042	1.042

- **Relevance**: missing migrants induce higher population growth
- If they join employment pool, restriction policies lead to a labor supply shock

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates

1 – Restriction policies increase population

Dep. Var.: Population Growth	Continuous QE		Categorical QE	
	(1)	(2)	(3)	(4)
Quota Exposure × Post	0.409***	0.449***		
	(0.113)	(0.124)		
			0.021***	0.023***
			(0.006)	(0.007)
Extensive Margin × Post		-0.068		-0.051
		(0.055)		(0.053)
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Number of Districts	204	204	204	204
Observations	751	751	751	751
R2	0.452	0.452	0.445	0.445
Mean Dep. Var.	1.042	1.042	1.042	1.042

- **Relevance**: missing migrants induce higher population growth
- If they join employment pool, restriction policies lead to a labor supply shock

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates

2 – Restriction policies decrease investment in capital goods

	Firm		Engine		Horsepower	
	All	Engine	Mechanic	Electric	Mechanic	Electric
Panel A: Changes in X						
Quota Exposure × Post	0.025	0.057	-0.185***	-0.515***	-0.105***	-0.317***
	(0.046)	(0.098)	(0.031)	(0.108)	(0.026)	(0.050)
Extensive Margin × Post	-0.001	0.046	0.032	0.083	-0.006	0.040
	(0.018)	(0.043)	(0.020)	(0.054)	(0.010)	(0.025)
Panel B: Changes in Workers per X						
Quota Exposure × Post	0.209	0.354*	0.551***	0.632***	0.431***	0.442***
	(0.140)	(0.164)	(0.133)	(0.123)	(0.111)	(0.122)
Extensive Margin × Post	-0.088	-0.154*	-0.144**	-0.129*	-0.096*	-0.097
	(0.049)	(0.066)	(0.045)	(0.062)	(0.040)	(0.050)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	208	209	209	208	208	209
Observations	784	785	785	785	784	785

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

2 – Restriction policies decrease investment in capital goods

	Firm		Engine		Horsepower	
	All	Engine	Mechanic	Electric	Mechanic	Electric
Panel A: Changes in X						
Quota Exposure × Post	0.025	0.057	-0.185***	-0.515***	-0.105***	-0.317***
	(0.046)	(0.098)	(0.031)	(0.108)	(0.026)	(0.050)
Extensive Margin × Post	-0.001	0.046	0.032	0.083	-0.006	0.040
	(0.018)	(0.043)	(0.020)	(0.054)	(0.010)	(0.025)
Panel B: Changes in Workers per X						
Quota Exposure × Post	0.209	0.354*	0.551***	0.632***	0.431***	0.442***
	(0.140)	(0.164)	(0.133)	(0.123)	(0.111)	(0.122)
Extensive Margin × Post	-0.088	-0.154*	-0.144**	-0.129*	-0.096*	-0.097
	(0.049)	(0.066)	(0.045)	(0.062)	(0.040)	(0.050)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	208	209	209	208	208	209
Observations	784	785	785	785	784	785

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

2 – Restriction policies decrease investment in capital goods

	Firm		Engine		Horsepower	
	All	Engine	Mechanic	Electric	Mechanic	Electric
Panel A: Changes in X						
Quota Exposure × Post	0.025	0.057	-0.185***	-0.515***	-0.105***	-0.317***
	(0.046)	(0.098)	(0.031)	(0.108)	(0.026)	(0.050)
Extensive Margin × Post	-0.001	0.046	0.032	0.083	-0.006	0.040
	(0.018)	(0.043)	(0.020)	(0.054)	(0.010)	(0.025)
Panel B: Changes in Workers per X						
Quota Exposure × Post	0.209	0.354*	0.551***	0.632***	0.431***	0.442***
	(0.140)	(0.164)	(0.133)	(0.123)	(0.111)	(0.122)
Extensive Margin × Post	-0.088	-0.154*	-0.144**	-0.129*	-0.096*	-0.097
	(0.049)	(0.066)	(0.045)	(0.062)	(0.040)	(0.050)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	208	209	209	208	208	209
Observations	784	785	785	785	784	785

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

2 – Restriction policies decrease investment in capital goods

	Firm		Engine		Horsepower	
	All	Engine	Mechanic	Electric	Mechanic	Electric
Panel A: Changes in X						
Quota Exposure × Post	0.025	0.057	-0.185***	-0.515***	-0.105***	-0.317***
	(0.046)	(0.098)	(0.031)	(0.108)	(0.026)	(0.050)
Extensive Margin × Post	-0.001	0.046	0.032	0.083	-0.006	0.040
	(0.018)	(0.043)	(0.020)	(0.054)	(0.010)	(0.025)
Panel B: Changes in Workers per X						
Quota Exposure × Post	0.209	0.354*	0.551***	0.632***	0.431***	0.442***
	(0.140)	(0.164)	(0.133)	(0.123)	(0.111)	(0.122)
Extensive Margin × Post	-0.088	-0.154*	-0.144**	-0.129*	-0.096*	-0.097
	(0.049)	(0.066)	(0.045)	(0.062)	(0.040)	(0.050)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	208	209	209	208	208	209
Observations	784	785	785	785	784	785

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

3 – Labor supply shock goes into manufacture

	Manufacture		Agriculture	
	(1)	(2)	(1)	(2)
Panel A: Changes in Number of Workers				
Quota Exposure × Post	1.827***	1.510***	-0.416	-0.483
	(0.427)	(0.475)	(0.159)	(0.176)
Extensive Margin × Post		0.637		0.154
		(0.400)		(0.149)
		(0.420)		(0.191)
Panel B: Changes in Share of Workers				
Quota Exposure × Post	1.457***	1.152***	-0.580***	-0.605***
	(0.356)	(0.410)	(0.145)	(0.156)
Extensive Margin × Post		0.598		0.066
		(0.350)		(0.085)
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Number of Districts	205	205	206	206
Observations	742	742	750	750

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

3 – Labor supply shock goes into manufacture

	Manufacture		Agriculture	
	(1)	(2)	(1)	(2)
Panel A: Changes in Number of Workers				
Quota Exposure × Post	1.827***	1.510***	-0.416	-0.483
	(0.427)	(0.475)	(0.159)	(0.176)
Extensive Margin × Post		0.637		0.154
		(0.400)		(0.149)
		(0.420)		(0.191)
Panel B: Changes in Share of Workers				
Quota Exposure × Post	1.457***	1.152***	-0.580***	-0.605***
	(0.356)	(0.410)	(0.145)	(0.156)
Extensive Margin × Post		0.598		0.066
		(0.350)		(0.085)
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Number of Districts	205	205	206	206
Observations	742	742	750	750

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

3 – Labor supply shock goes into manufacture

	Manufacture		Agriculture	
	(1)	(2)	(1)	(2)
Panel A: Changes in Number of Workers				
Quota Exposure × Post	1.827***	1.510***	-0.416	-0.483
	(0.427)	(0.475)	(0.159)	(0.176)
Extensive Margin × Post		0.637		0.154
		(0.400)		(0.149)
		(0.420)		(0.191)
Panel B: Changes in Share of Workers				
Quota Exposure × Post	1.457***	1.152***	-0.580***	-0.605***
	(0.356)	(0.410)	(0.145)	(0.156)
Extensive Margin × Post		0.598		0.066
		(0.350)		(0.085)
District FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Number of Districts	205	205	206	206
Observations	742	742	750	750

▸ Event-study ▸ Std. Error analysis ▸ Robustness regressions ▸ IV estimates ▸ Sector-level

Conclusions

Conclusions & Policy Implications

Main results

- Study effects of immigration restriction policies on emigration countries
- Restriction policy induces a labor supply shock driven by missing migrants
- Leads to a sharp drop in investment in physical capital & increase in employment

  [Effects stronger in relatively backward industries]
- Evidence in favor of **directed technical change** [à la Zeira, 1998]

Policy implication

- Restriction policies *matter* but effect is *a priori* mixed
- **Direct** (size) effect is positive: labor to modern sector

  ... even though only to relatively backward industries
- **Indirect** (incentive) effect is negative: hampered technology adoption

  ... especially in already outdated sectors

Conclusions & Policy Implications

Main results

- Study effects of immigration restriction policies on emigration countries
- Restriction policy induces a labor supply shock driven by missing migrants
- Leads to a sharp drop in investment in physical capital & increase in employment

  [Effects stronger in relatively backward industries]
- Evidence in favor of **directed technical change** [à la Zeira, 1998]

Policy implication

- Restriction policies *matter* but effect is *a priori* mixed
- **Direct** (size) effect is positive: labor to modern sector

  . . . even though only to relatively backward industries
- **Indirect** (incentive) effect is negative: hampered technology adoption

  . . . especially in already outdated sectors

Conclusions & Policy Implications

Main results

- Study effects of immigration restriction policies on emigration countries
- Restriction policy induces a labor supply shock driven by missing migrants
- Leads to a sharp drop in investment in physical capital & increase in employment

  [Effects stronger in relatively backward industries]
- Evidence in favor of **directed technical change** [à la Zeira, 1998]

Policy implication

- Restriction policies *matter* but effect is *a priori* mixed
- **Direct** (size) effect is positive: labor to modern sector

  . . . even though only to relatively backward industries
- **Indirect** (incentive) effect is negative: hampered technology adoption

  . . . especially in already outdated sectors

Appendix

Bartik IV

Identification pitfalls

- Not random geographical variation in exposure to quotas across districts
- Exclusion restriction hard to test formally
- Strategy: clean for residual correlation btw economic performance and emigration

Sources of variation

- Cross-sectional variation:

$$\omega_{cr}^{t} \equiv \frac{\sum_{\tau=0}^{t} \text{Emigrants}_{c,\tau}^{US}}{\sum_{\tau=0}^{t} \text{Emigrants}_{\tau}^{US}}$$

- Time-series variation

$$\text{Emigrants}_{-rc,T}^{US} = \sum_{\tau=1890}^{T} \sum_{c' \notin r} \text{Emigrants}_{c',\tau}^{US}$$

"Zero" Stage

$$\widehat{\text{Emigrants}}_{-rc,T}^{US} = \omega_{cr}^{t} \times \sum_{\tau=1890}^{T} \sum_{c' \notin r} \text{Emigrants}_{c',\tau}^{US}$$

- "leave-out" strategy: no correlation with the economic performance of districts in region r

First Stage

$$\begin{aligned} \text{Y}_c \times \text{Post}_t = & \alpha_c + \alpha_t + \\ & + \eta_1 \left(\text{EM}_c \times \text{Post}_t\right) \\ & + \eta_2 \left(\widehat{\text{QE}}_c \times \text{Post}_t\right) + \boldsymbol{x}_{ct}\boldsymbol{\gamma} + \varepsilon_{ct} \end{aligned}$$

where $\text{Y}_c = \text{QE}_c, \text{IM}_c$

Back: DiD

First Stage

	Dep. Var.: Quota Exposure		
	(1890-1930)	(1890-1914)	(1890-1924)
IV Quota Exposure	0.778***	0.833***	0.791***
	(0.038)	(0.038)	(0.039)
Extensive Margin × Post	0.012	-0.001	0.011
	(0.015)	(0.012)	(0.015)
District FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Number of Districts	207	207	207
Observations	754	754	754
K-P F-stat	414.366	483.861	422.069

Notes. This table reports the result of the first stage instrumental variable estimation. The first column reports the correlation between QE and its instrument over the full sample (1890-1939). Instrument in column (2) restricts the emigrant outflow to the pre-WW1 period (1890-1914). Column (3) reports the results when considering emigrants over the pre-Quota period (1890-1924). All regressions partial out district and year fixed effects. Further controls are population, the emigration rate and labor market slackness in 1901 interacted with a post-treatment dummy. K-P F-stat refers to the Kleibergen-Paap F-statistic for weak instrument.

◂ Back: DiD

Second Stage: Population & Industrialization

	Population Growth	Industry Growth	Agriculture Growth
Panel A: OLS			
Quota Exposure × Post	0.449***	1.510**	-0.483
	(0.124)	(0.475)	(0.176)
Panel B: 2SLS			
Quota Exposure × Post	0.668***	1.673**	-0.138
	(0.138)	(0.544)	(0.222)
District FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Number of Districts	207	205	209
Observations	754	742	753
F-stat	14.137	6.743	0.274
Mean Dep. Var.	0.042	0.060	-0.041

Notes. This table reports the effect of exposure to the Quota Acts on industrial and agricultural employment growth. Sector employment growth are defines as the decade-on-decade changes in employment. Panel A presents reduced form estimates. Panel B reports 2SLS estimates. All regressions include district and year fixed effects. Additional controls are log-population and labor market slackness at baseline interacted with a post-treatment dummy. Outcome variables are in growth rate. Standard errors are always clustered at the district level.

◂ Back: Population ◂ Back: Industry Employment

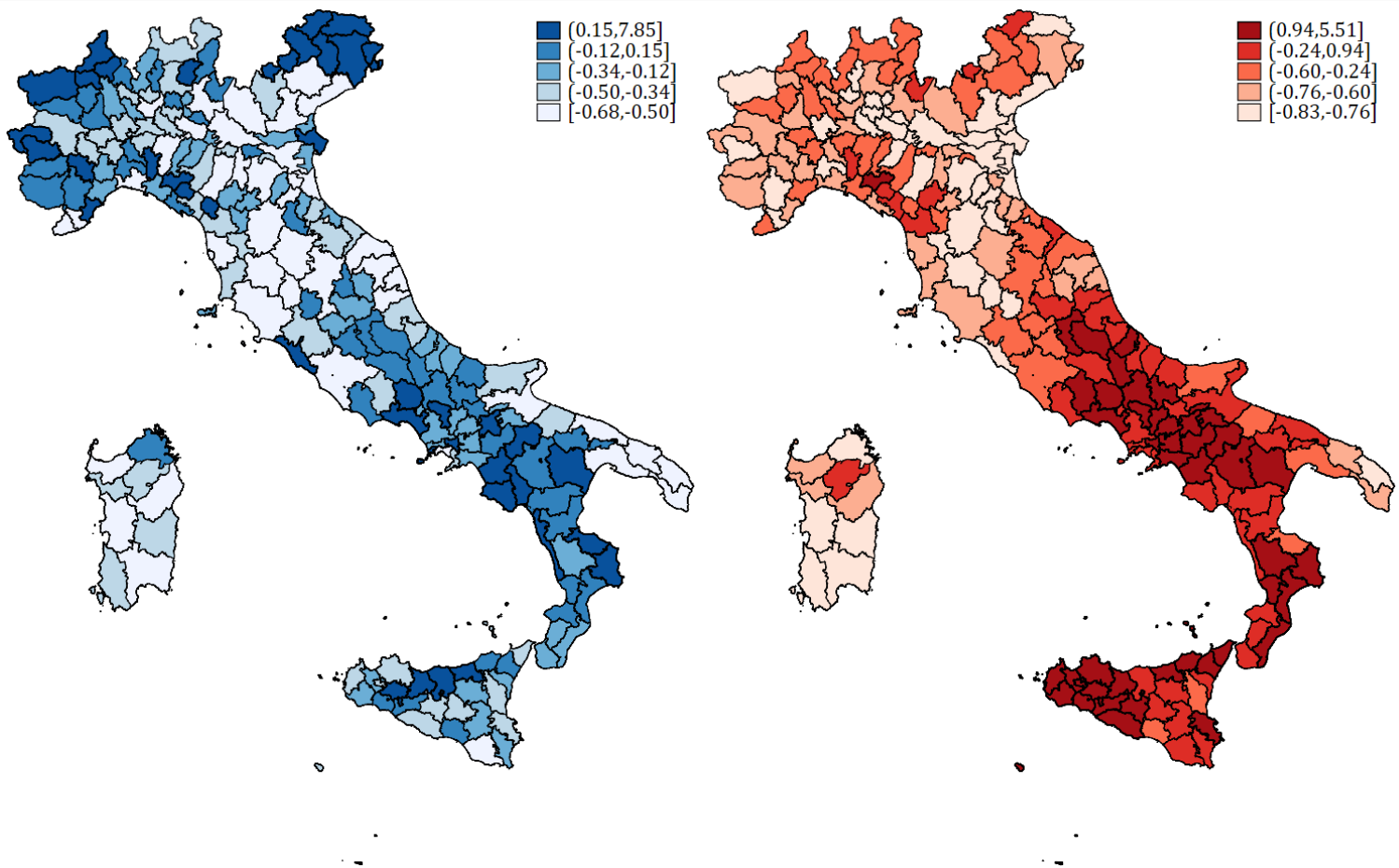
Second Stage: Technology adoption

	Firm		Engine		Horsepower	
	All	Engine	Mechanic	Electric	Mechanic	Electric
Panel A: OLS						
Quota Exposure × Post	0.025	0.057	-0.185***	-0.515***	-0.105***	-0.317***
	(0.046)	(0.098)	(0.031)	(0.108)	(0.026)	(0.050)
Panel B: 2SLS						
Quota Exposure × Post	0.054	0.094	-0.157***	-0.503***	-0.101***	-0.297***
	(0.043)	(0.095)	(0.032)	(0.115)	(0.027)	(0.048)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	209	209	209	209	209	209
Observations	786	787	786	785	785	785
F-stat	0.391	0.711	8.515	4.540	6.288	10.241
Mean Dep. Var.	0.101	0.100	0.004	0.131	0.029	0.107

Notes. This table reports the effect of Quota exposure on various measures of capital investment and technology adoption. Panel A presents reduced form estimates. Panel B reports 2SLS estimates. The first and second columns report the effect on, respectively,the number of all firms, and firms with engines. The third and fourth columns show the effect on the number of mechanical and electrical engines; the fifth and sixth display the effect on mechanical and electrical horsepower. All regressions include district and year fixed effects. Additional controls are log-population and labor market slackness at baseline interacted with a post-treatment dummy. Outcome variables are in growth rate. Standard errors are always clustered at the district level.

◂ Back: Technology Adoption

Emigration Maps



(a) Emigration Rate **(b)** Quota Exposure

Figure 1: Emigration Rate and Quota Exposure.

Note: Maps plot (a) the sum of emigrants between 1890 and 1924 relative to 1880 population, and (b) the ratio between the sum of US and 1880 population.

◂ Back: Setting ◂ Back: Identification Scheme ◂ Back: DiD

Italian Emigration: Census Data

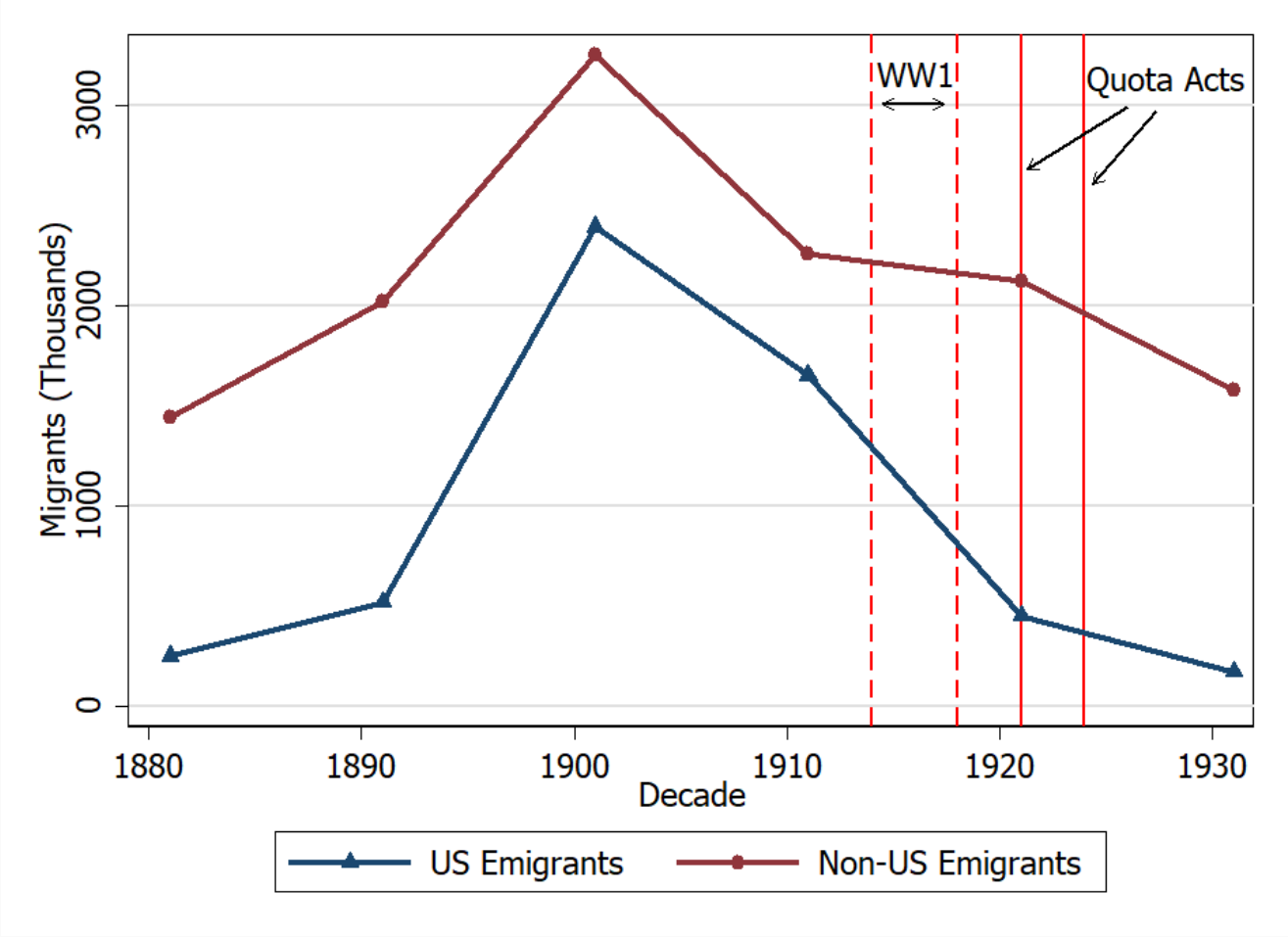


Figure 2: Italian Emigration, 1880-1930.

Note. The figure plots the aggregate Italian total and US emigration over the sample period. Source: Annuario statistico dell'emigrazione italiana dal 1876 al 1925: con notizie sull'emigrazione negli anni 1869-1875.

Back: Setting

Italian US Emigration: Ellis Island Data

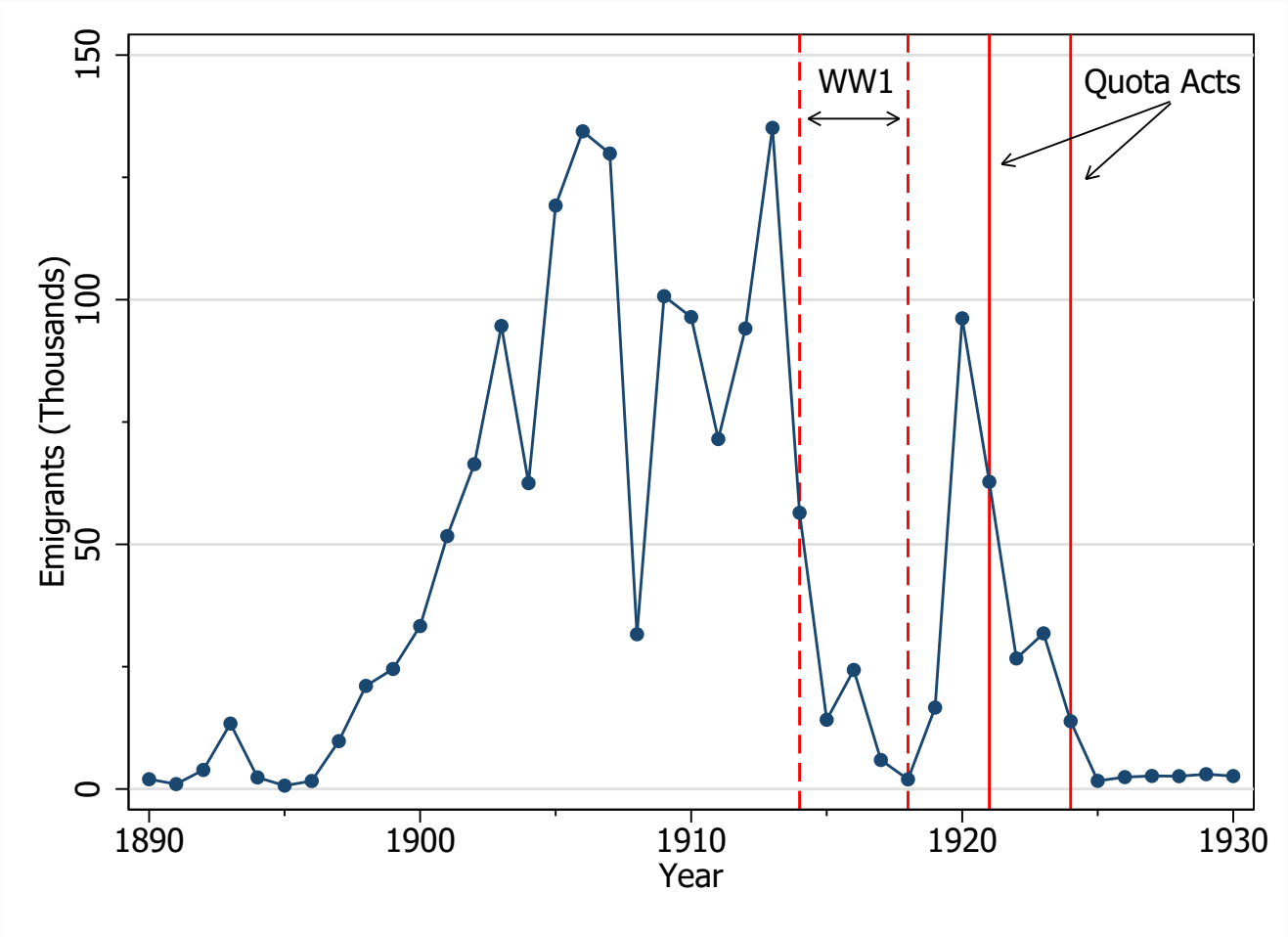


Figure 3: Italian Emigration to the US, 1890-1930.

Note. The figure plots the aggregate Italian emigration to the US, by year. Source: Data from the Ellis Island Foundation database, our elaboration.

◂ Back: Setting ◂ Back: DiD

(No) International Substitution

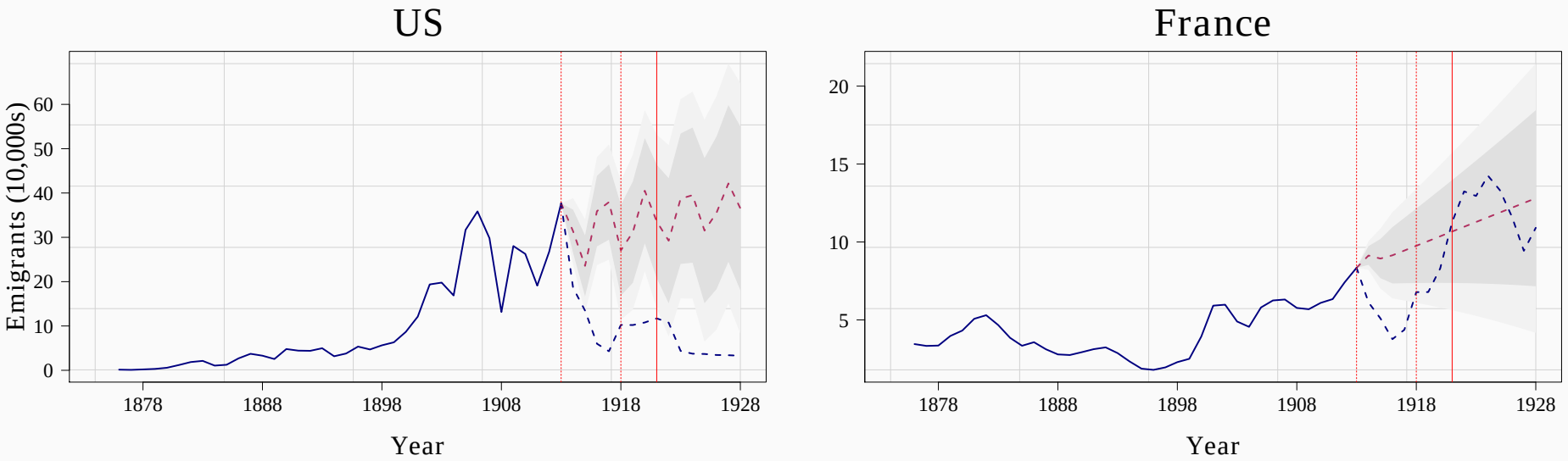


Figure 4: Cross-country aggregate emigration: Selected destinations.

Note: solid blue lines plot the aggregate number of emigrants towards the US and France before WW1, respectively the first and second destinations over 1890-1914. Dashed blue line is the actual outflow of emigrants after 1914. Dashed red line reports the predicted outflow from an ARIMA model trained on historical data (before 1914). Dashed vertical lines tag WW1 period; solid red line is the 1921 Emigration Act.

◂ Back: Setting ◂ Back: Identification Scheme

Spatial Distribution of Identifying Variation

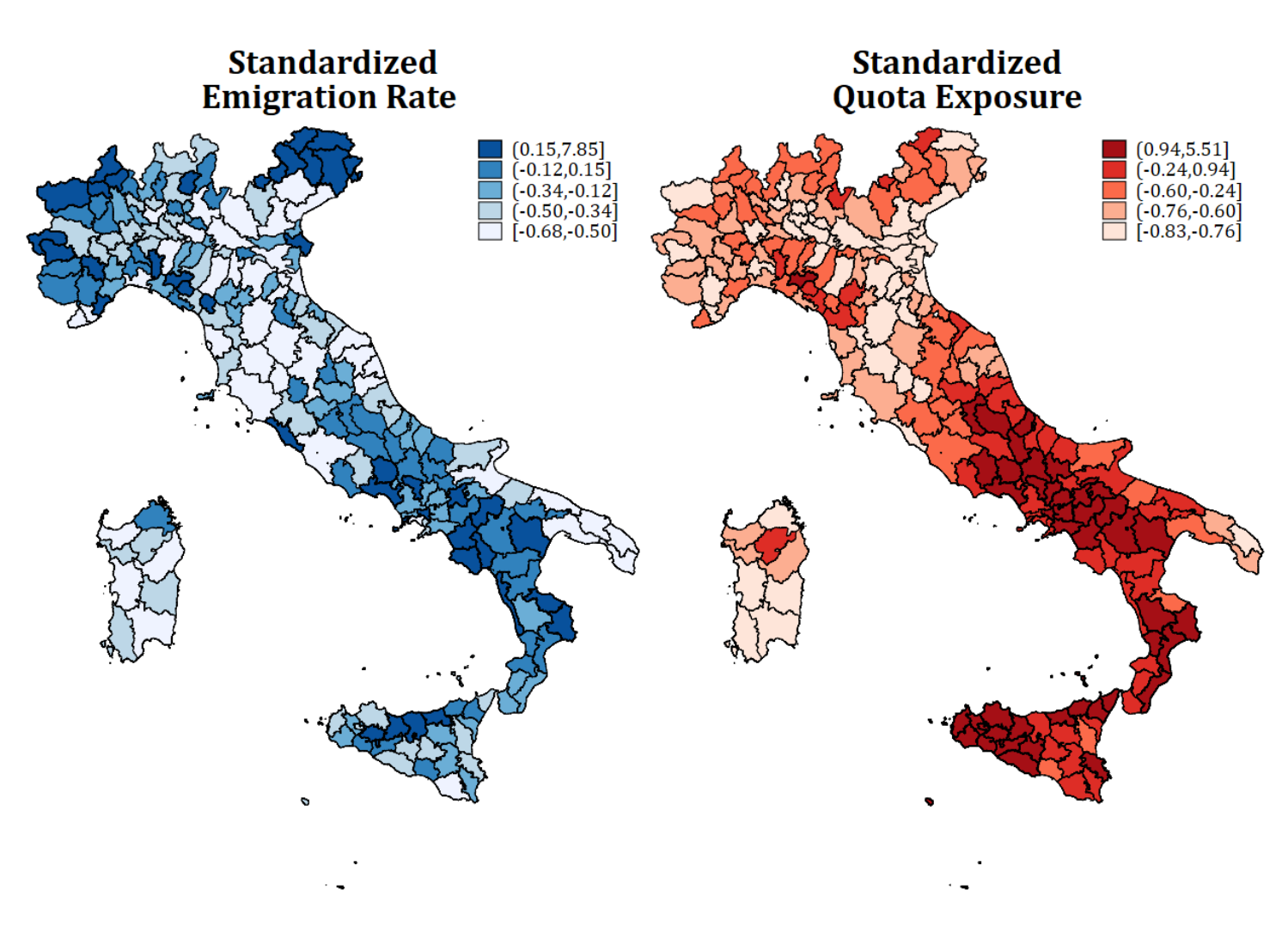


Figure 5: Spatial variation in EM and QE: Comparison of identification schemes.

Note. Left panel reports the emigrants-to-population ratio. Right panel reports the US emigrants-to-population ratio.

◂ Back: Identification ◂ Back: DiD

Spatial Distribution of Identifying Variation

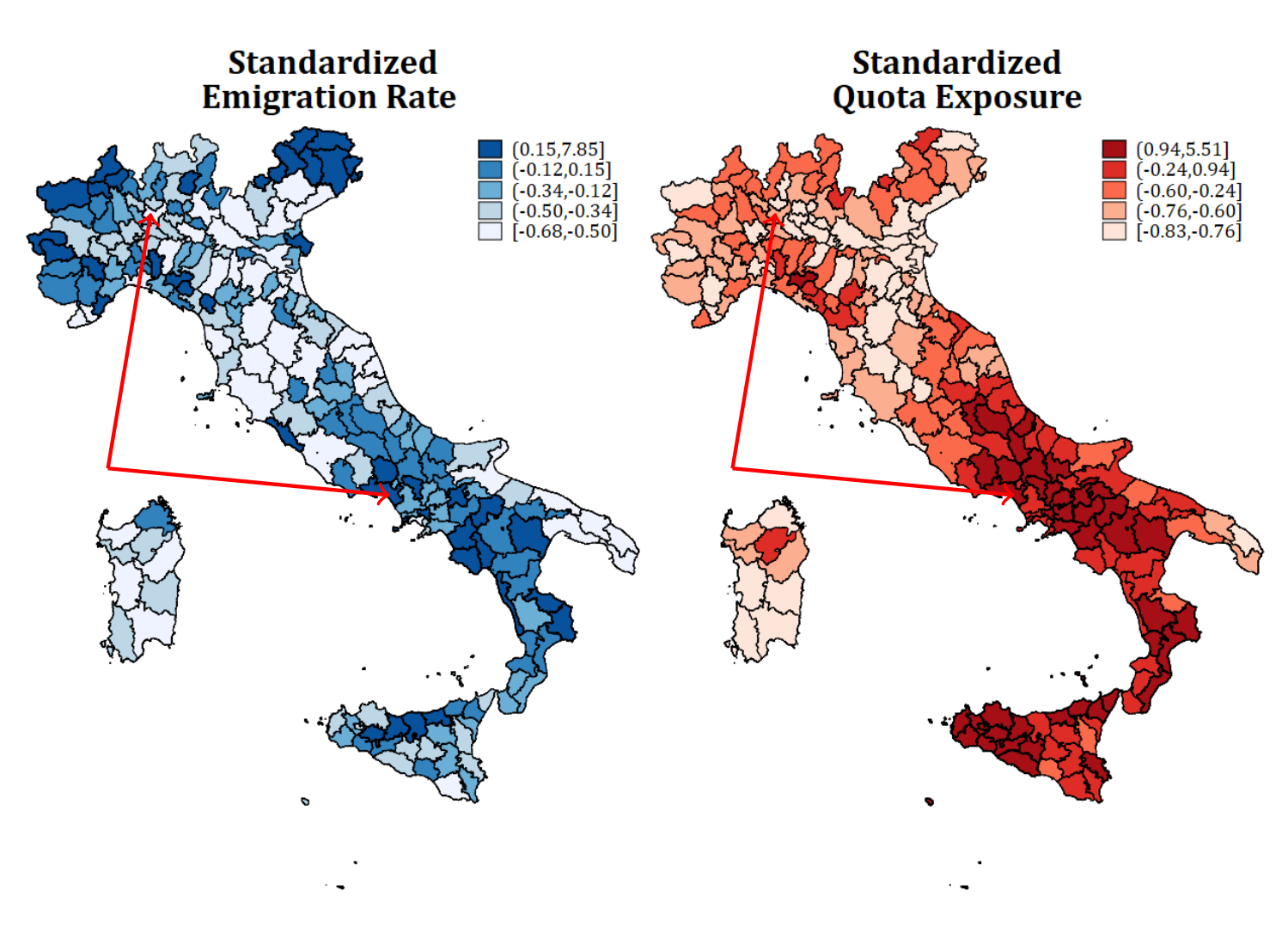


Figure 5: Spatial variation in EM and QE: Comparison of identification schemes.

Note. Left panel reports the emigrants-to-population ratio. Right panel reports the US emigrants-to-population ratio.

◂ Back: Identification ◂ Back: DiD

Spatial Distribution of Identifying Variation

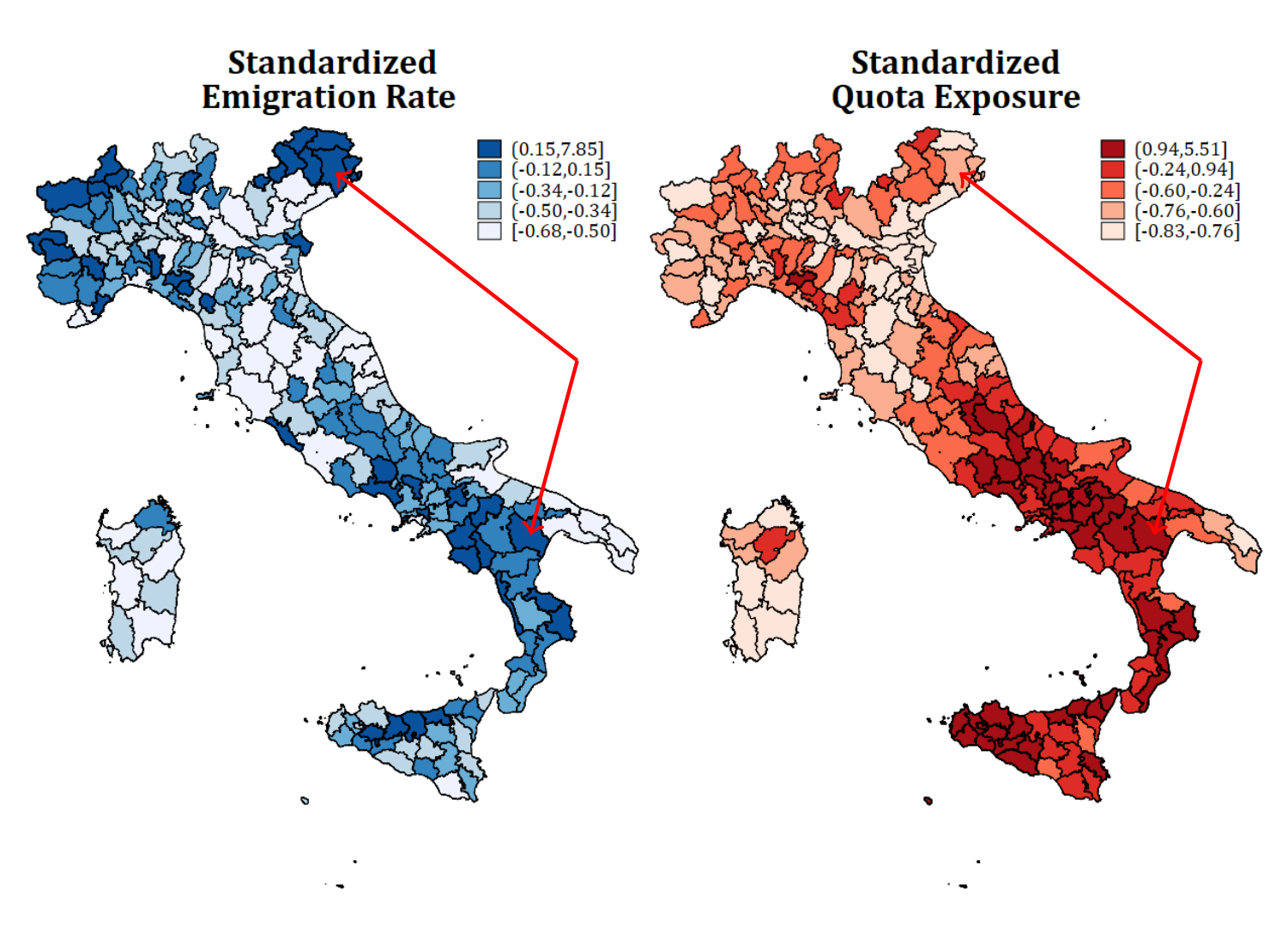


Figure 5: Spatial variation in EM and QE: Comparison of identification schemes.

Note. Left panel reports the emigrants-to-population ratio. Right panel reports the US emigrants-to-population ratio.

◂ Back: Identification ◂ Back: DiD

Distribution of QE conditional on EM

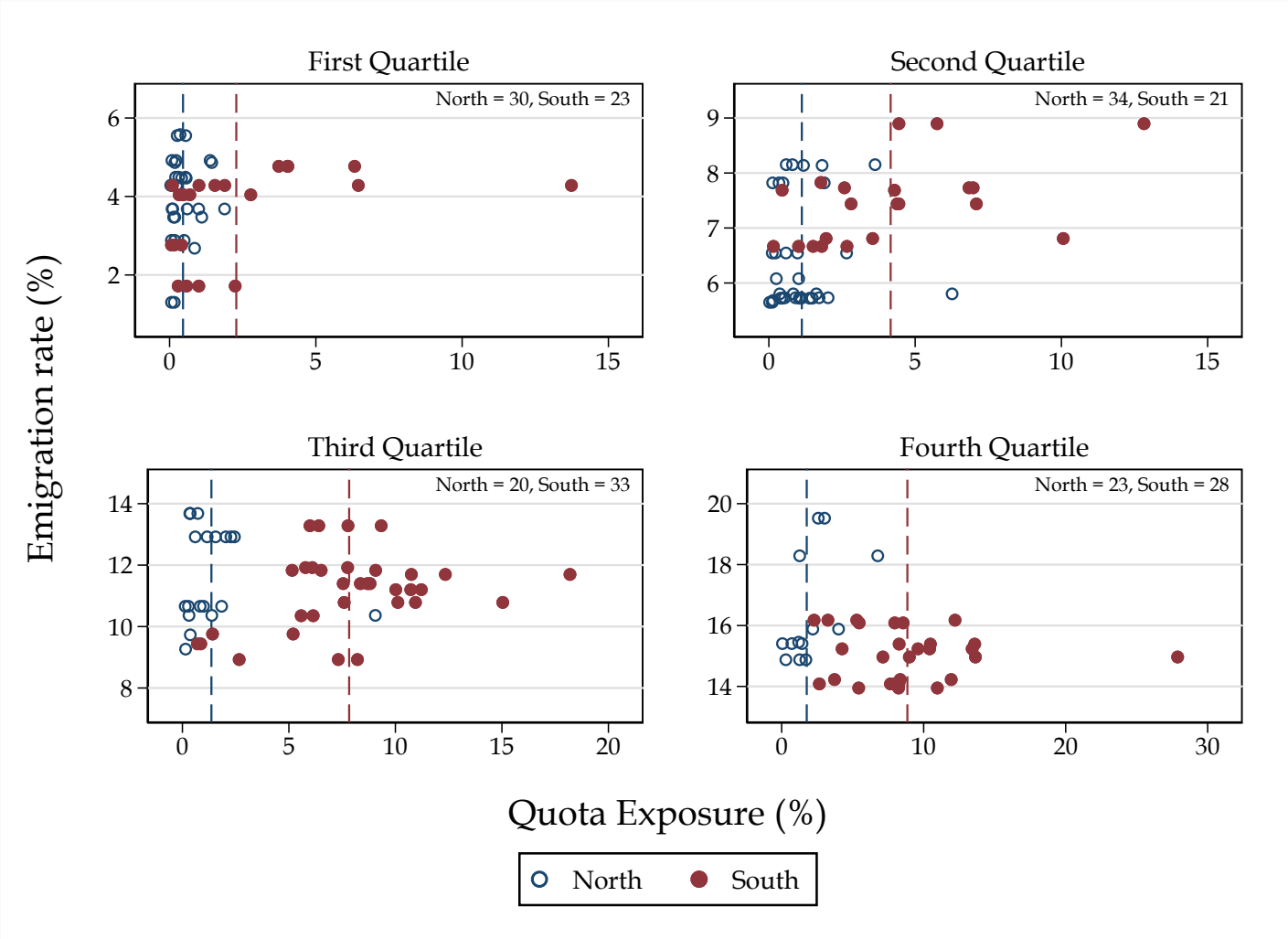


Figure 6: Variation in QE conditional on EM.

Note. Each dot represents a district and reports its emigration rate and its quota exposure. Panels are split by quartiles of the emigration rate. Blue dots are for districts in northern regions; red dots are for districts in southern regions. Red and blue vertical lines display the mean quota exposure for northern and southern regions, respectively. In each panel, on the top-right we report the number of northern and southern districts in the plot.

◂ Back: Identification ◂ Back: DiD

Event-Study: Population

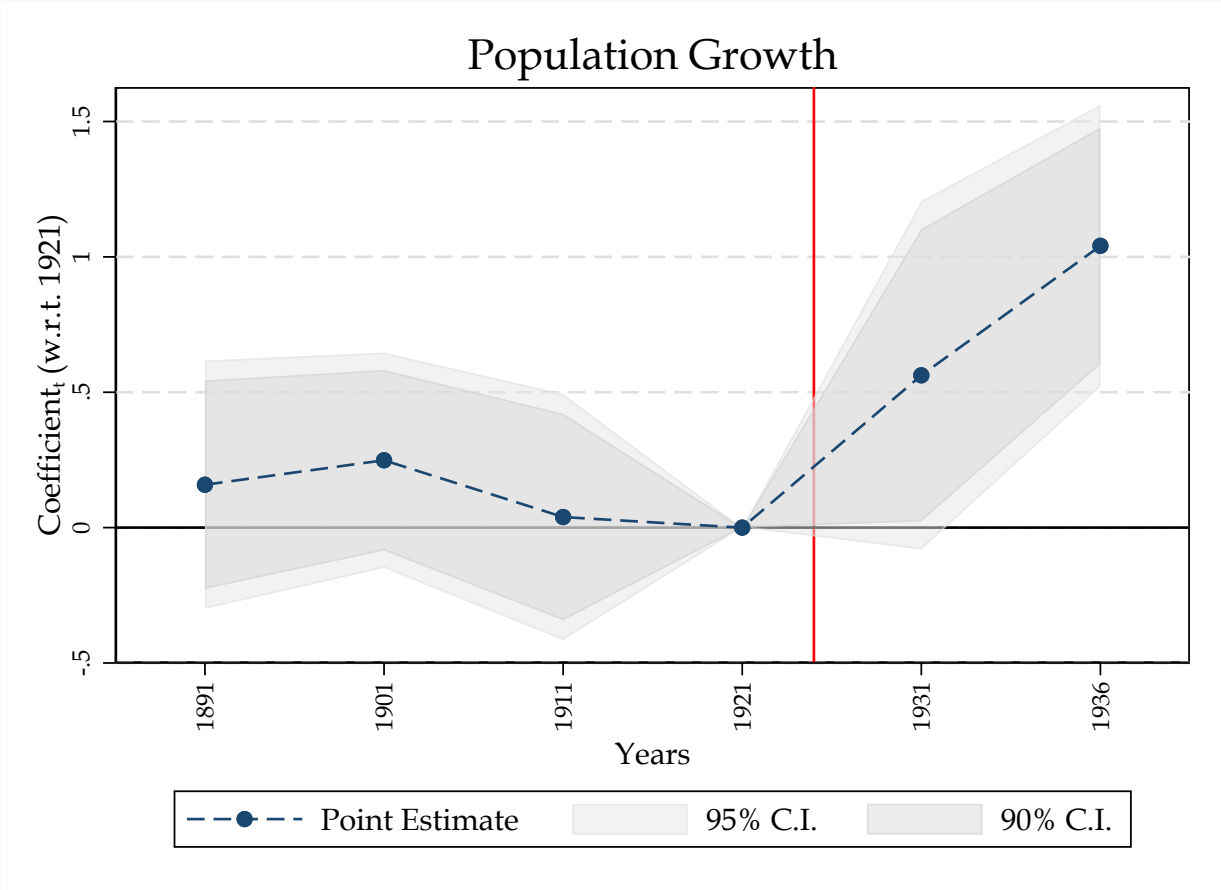
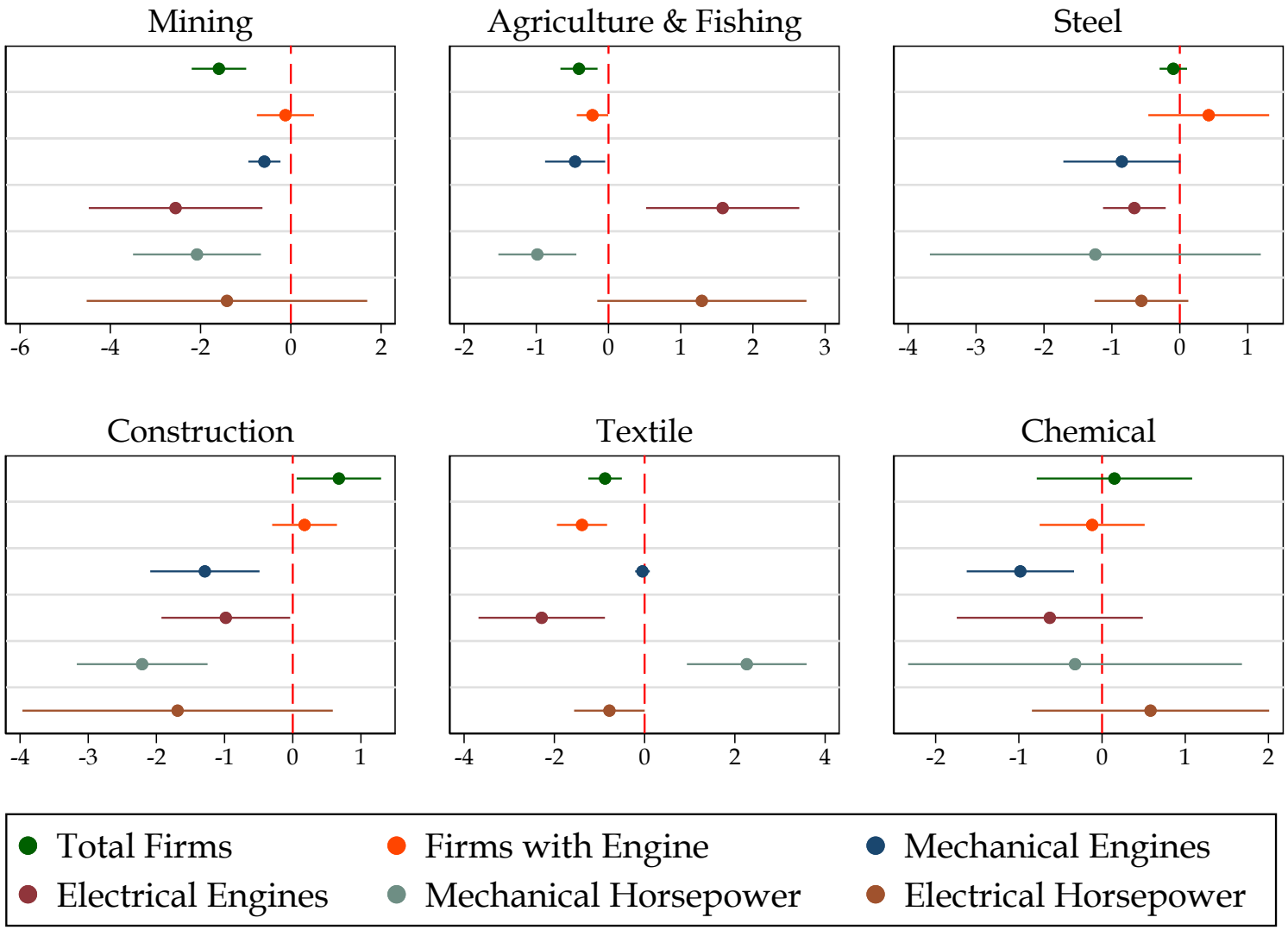


Figure 7: Event-study of Population Growth.

Notes. This figure plots the coefficient of the treatment measure (QE) interacted with census-decade time dummies. Regressions include district and year fixed effects, and region-by-year fixed effects. Further controls are the population in level, and 1901 labor market slackness interacted with census-decade dummies. Standard errors are clustered at the district-by-year level. Bands report 90% and 95% confidence levels. The red line indicates the 1924 (Johnson-Reed) Quota Act.

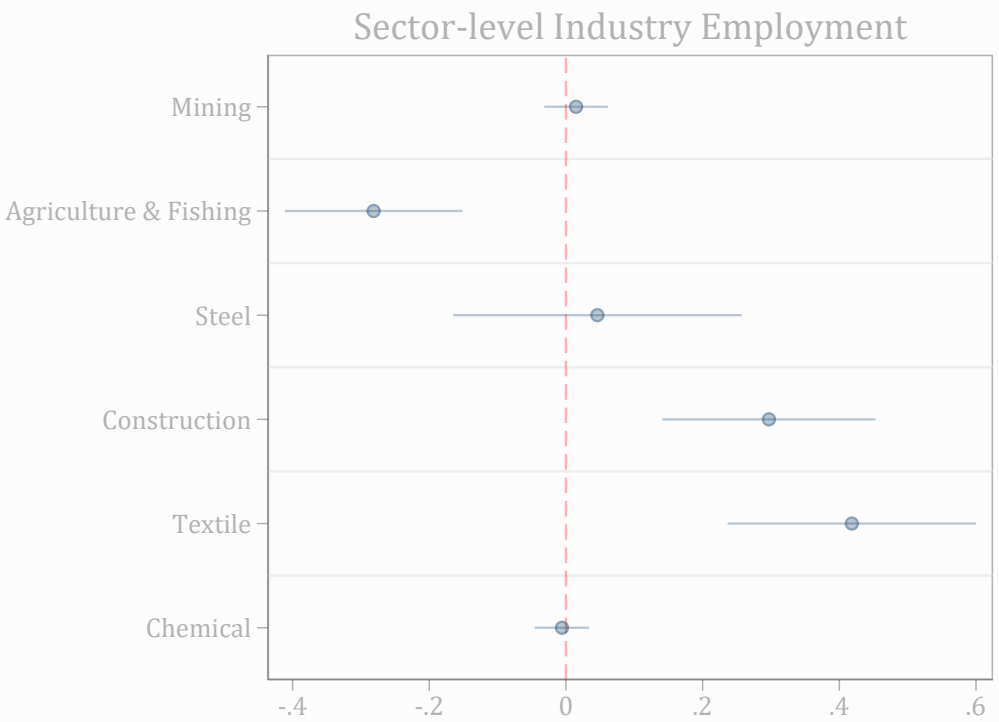
◂ Back: Results

2′ – Heterogeneous Treatment Effects Across Industrial Sectors



Back: Results

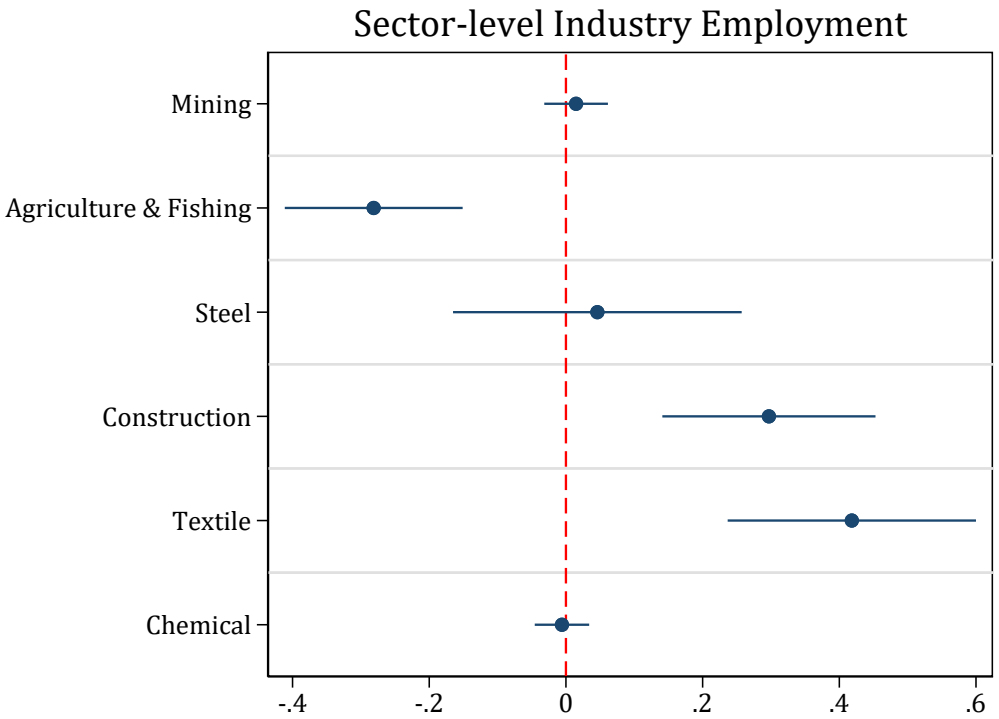
3′ – Heterogeneous Treatment Effects Across Industries



- Recall: **heterogeneity in capital** investment across industrial sectors:
  - Backward sectors: $\downarrow$
  - Modern industry: $=$
- Is employment **consistent** with these and directed technical change?
- **Yes**:
  - Large increase in FIR industry
  - No effect on modern sectors

◂ Back: Results

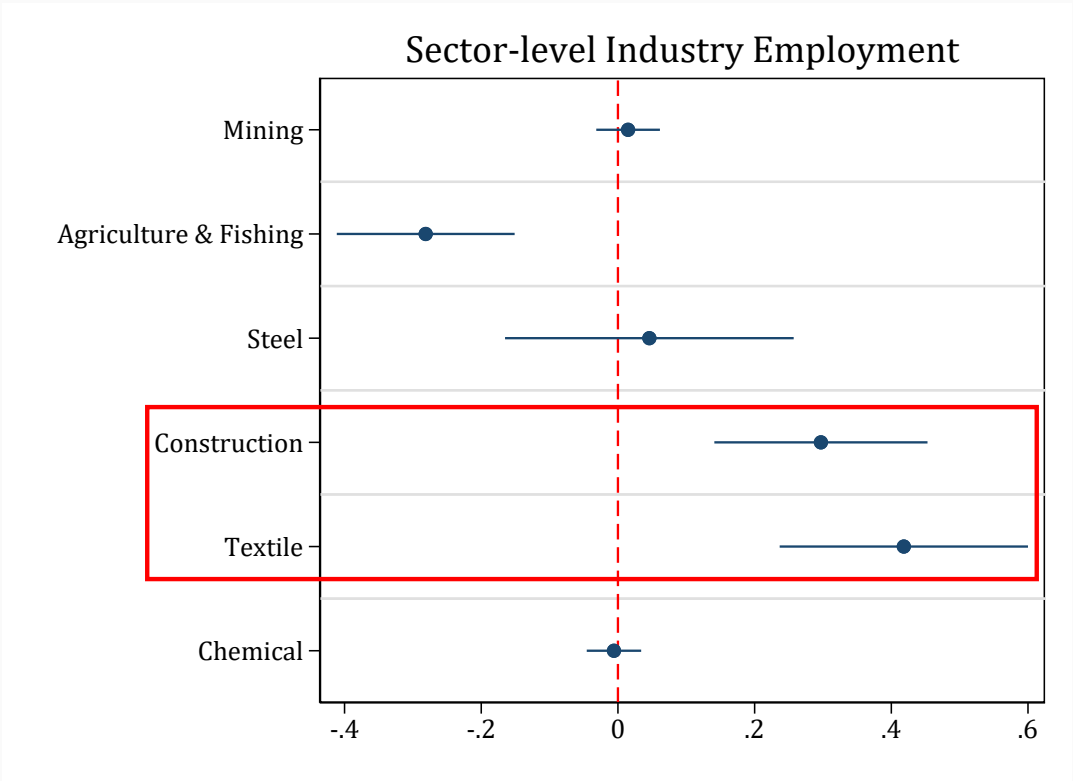
3′ – Heterogeneous Treatment Effects Across Industries



- Recall: **heterogeneity in capital** investment across industrial sectors:
  - Backward sectors: ↓
  - Modern industry: =
- Is employment **consistent** with these and directed technical change?
- Yes:
  - Large increase in FIR industry
  - No effect on modern sectors

Back: Results

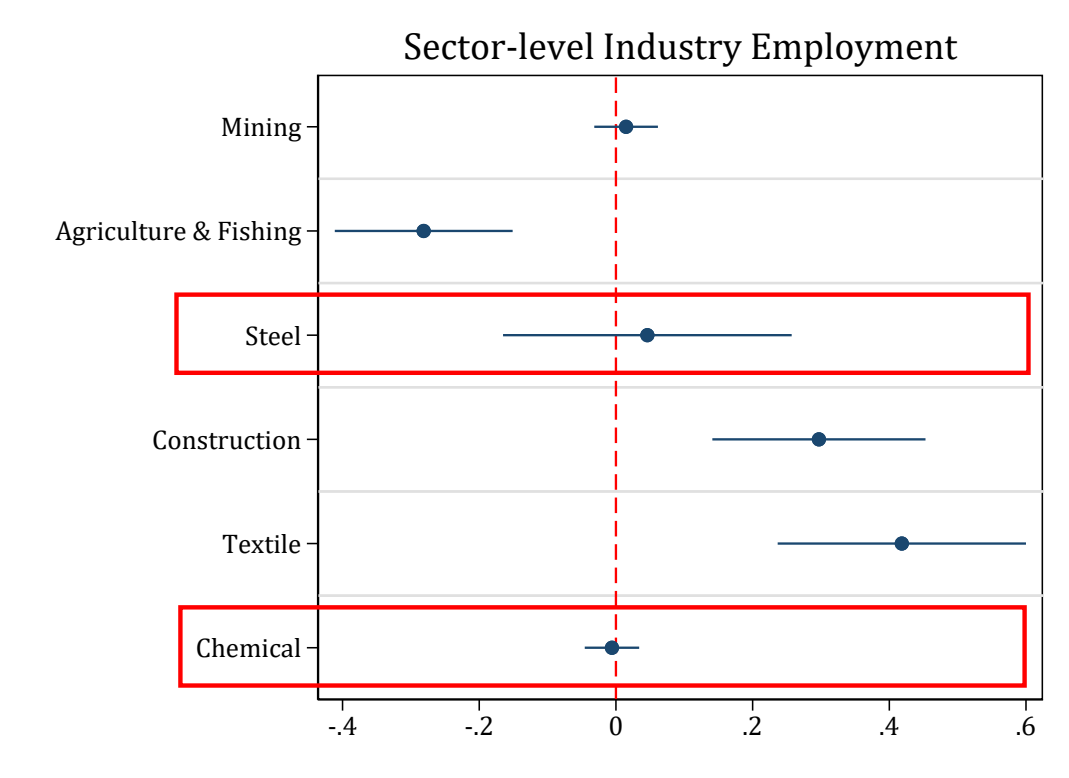
3′ – Heterogeneous Treatment Effects Across Industries



- Recall: **heterogeneity in capital** investment across industrial sectors:
  - Backward sectors: ↓
  - Modern industry: =
- Is employment **consistent** with these and directed technical change?
- **Yes**:
  - Large increase in FIR industry
  - No effect on modern sectors

Back: Results

3′ – Heterogeneous Treatment Effects Across Industries



- Recall: **heterogeneity in capital** investment across industrial sectors:
  - Backward sectors: $\downarrow$
  - Modern industry: $=$
- Is employment **consistent** with these and directed technical change?
- **Yes**:
  - Large increase in FIR industry
  - No effect on modern sectors

◂ Back: Results

Event-Study: Industrialization

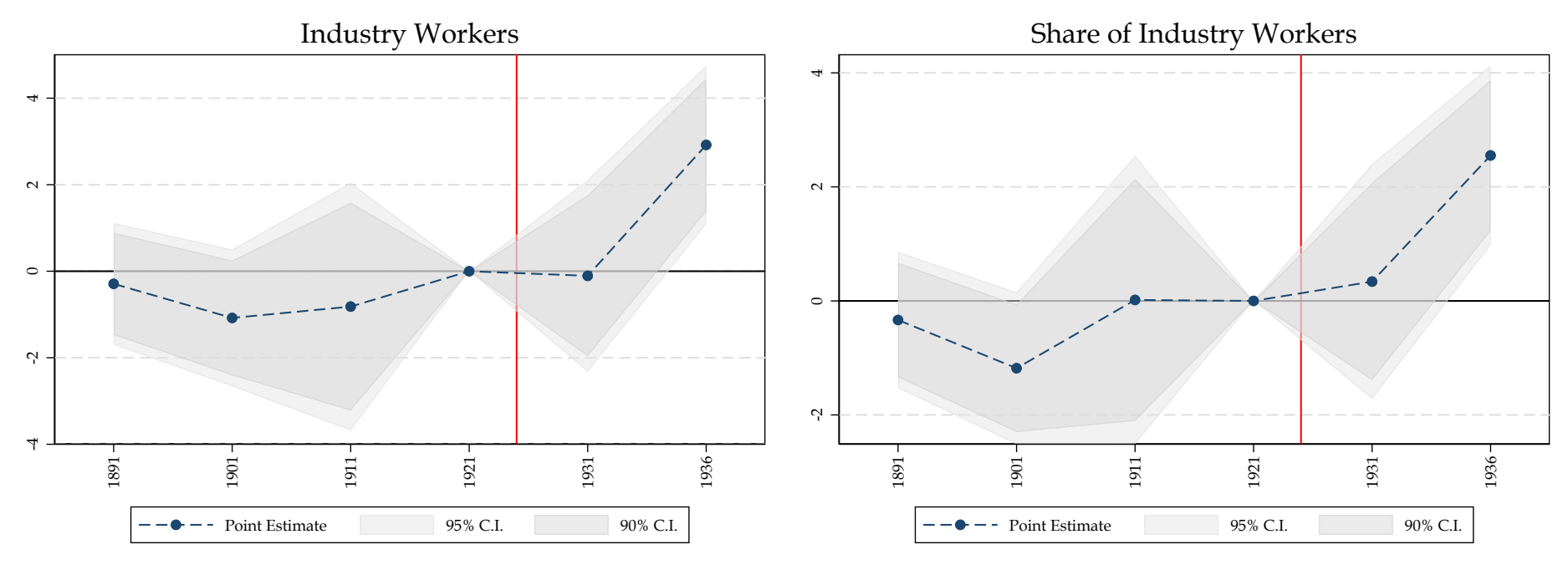


Figure 8: Event-study of Industrialization.

Notes. This figure plots the coefficient of the treatment measure (QE) interacted with census-decade time dummies. Regressions include district and year fixed effects, and region-by-year fixed effects. Further controls are the population in level, and 1901 labor market slackness interacted with census-decade dummies. Standard errors are clustered at the district-by-year level. Bands report 90% and 95% confidence levels. The red line indicates the 1924 (Johnson-Reed) Quota Act.

◂ Back: Results

Event-Study: Engines

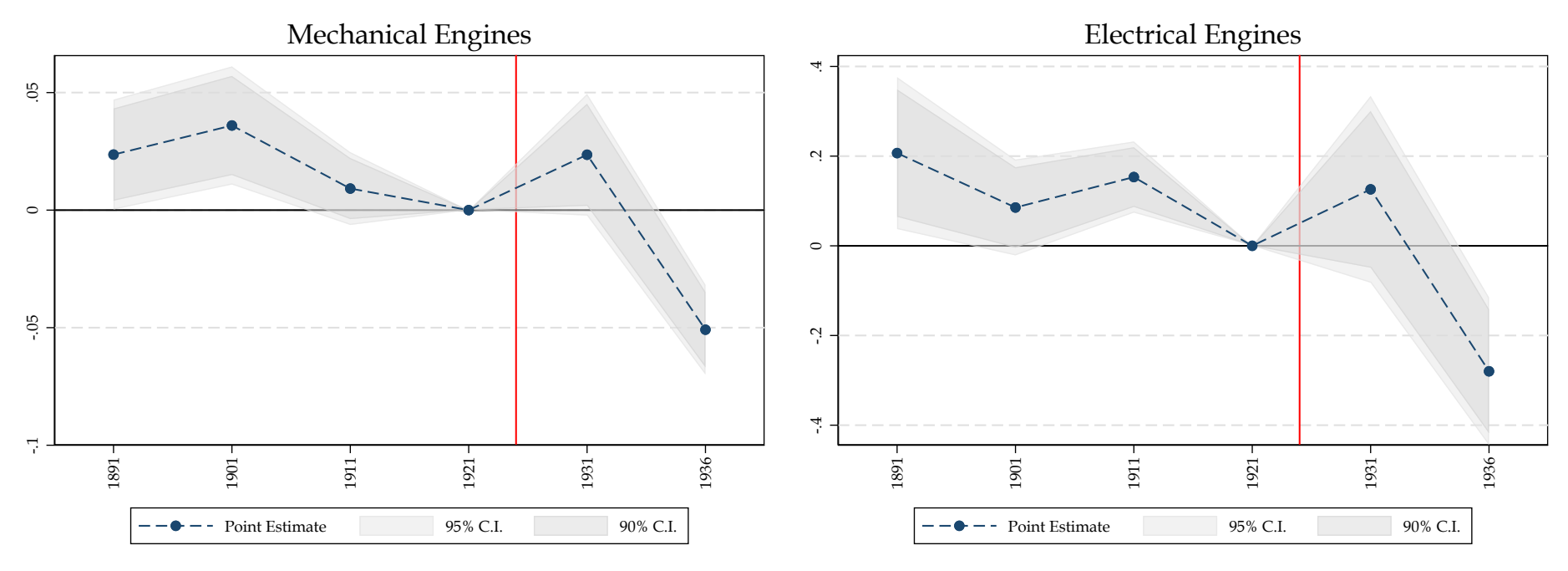


Figure 9: Event-study of Technology Adoption: Engines.

Notes. This figure plots the coefficient of the treatment measure (QE) interacted with census-decade time dummies. Regressions include district and year fixed effects, and region-by-year fixed effects. Further controls are the population in level, and 1901 labor market slackness interacted with census-decade dummies. Standard errors are clustered at the district-by-year level. Bands report 90% and 95% confidence levels. The red line indicates the 1924 (Johnson-Reed) Quota Act.

◂ Back: Results

Event-Study: Horsepower

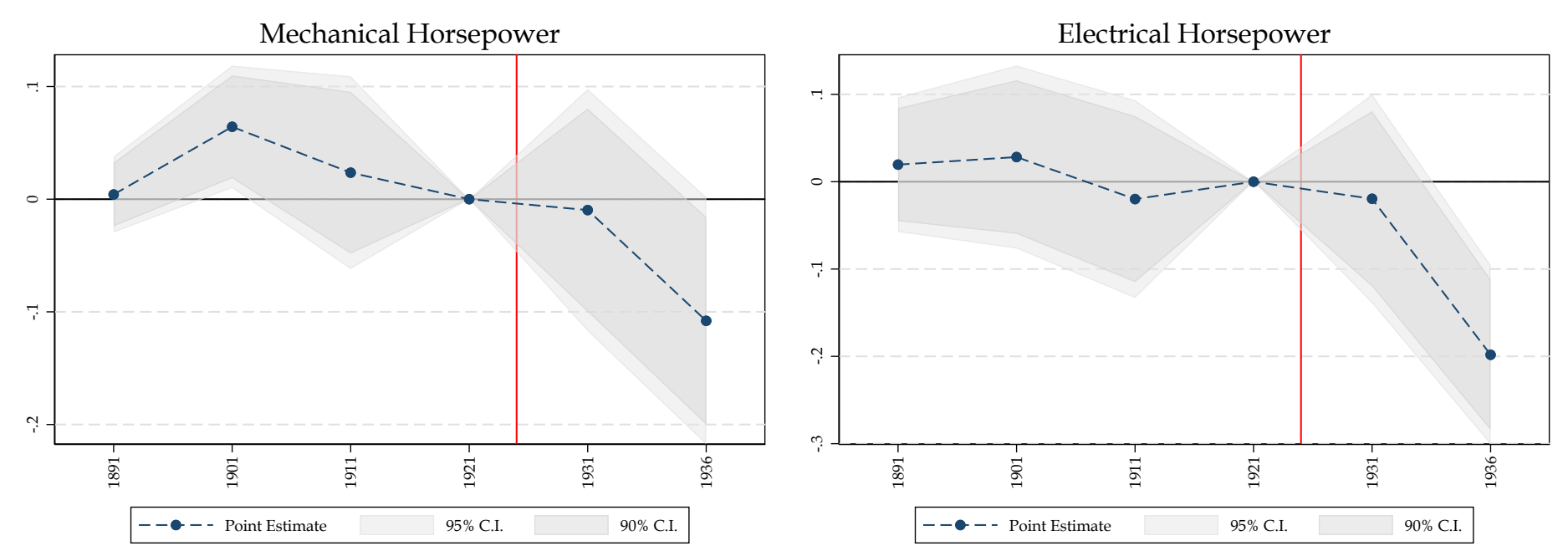


Figure 10: Event-study of Technology Adoption: Horsepower.

Notes. This figure plots the coefficient of the treatment measure (QE) interacted with census-decade time dummies. Regressions include district and year fixed effects, and region-by-year fixed effects. Further controls are the population in level, and 1901 labor market slackness interacted with census-decade dummies. Standard errors are clustered at the district-by-year level. Bands report 90% and 95% confidence levels. The red line indicates the 1924 (Johnson-Reed) Quota Act.

◂ Back: Results

Standard Error Analysis: Population

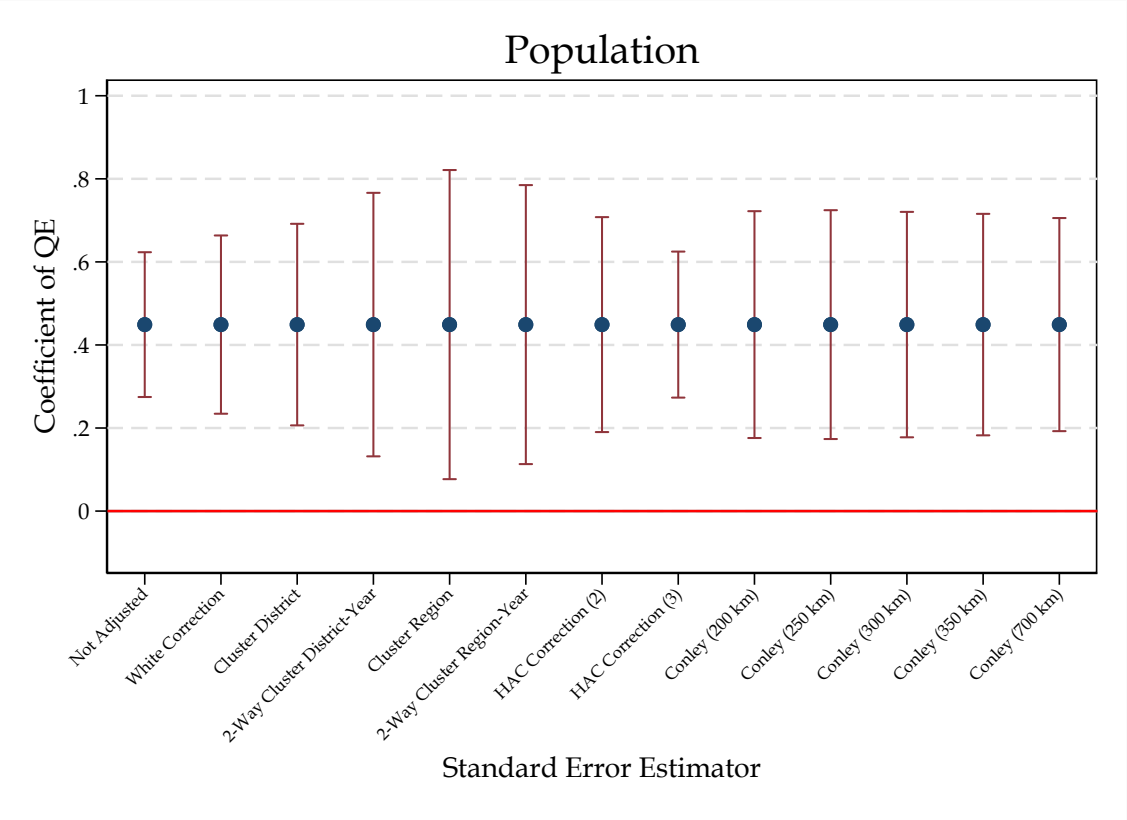


Figure 11: Standard-error analysis of population growth.

Notes. For a given outcome variable, the blue dots report the estimate of the coefficient of the treatment (QE) in the baseline difference-in-differences specification. The red bands report the 95% confidence intervals for a set of estimators for the coefficient's standard error. We include White standard errors which allow for heteroskedasticity; several clustered standard errors allowing for within-group autocorrelation; the Driscoll-Kraay correction for autocorrelation at two different time lags; several Conley estimates allowing for time and spatial autocorrelation. For the Conley SEs, we set maximal time-autocorrelation at 2 lags, and vary the radius of spatial autocorrelation.

◂ Back: Results

Standard Error Analysis: Industrialization

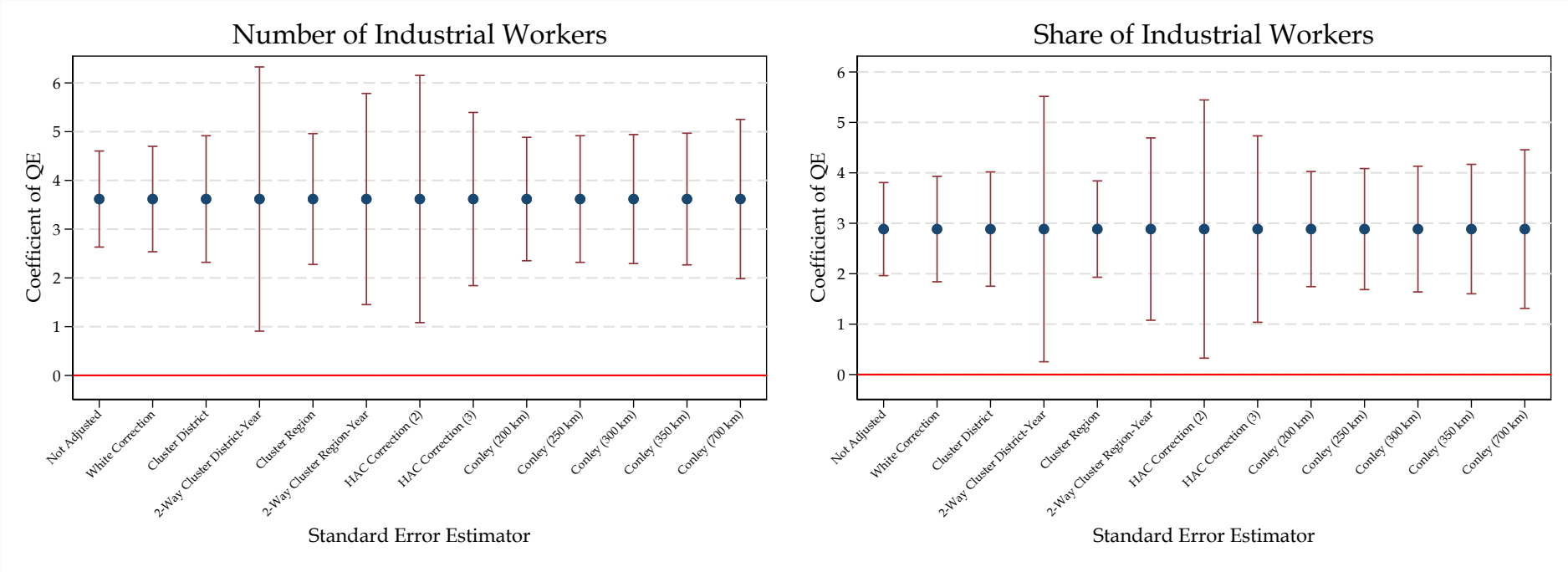


Figure 12: Standard-error analysis of Industrialization.

Notes. For a given outcome variable, the blue dots report the estimate of the coefficient of the treatment (QE) in the baseline difference-in-differences specification. The red bands report the 95% confidence intervals for a set of estimators for the coefficient's standard error. We include White standard errors which allow for heteroskedasticity; several clustered standard errors allowing for within-group autocorrelation; the Driscoll-Kraay correction for autocorrelation at two different time lags; several Conley estimates allowing for time and spatial autocorrelation. For the Conley SEs, we set maximal time-autocorrelation at 2 lags, and vary the radius of spatial autocorrelation.

◂ Back: Results

Standard Error Analysis: Engines

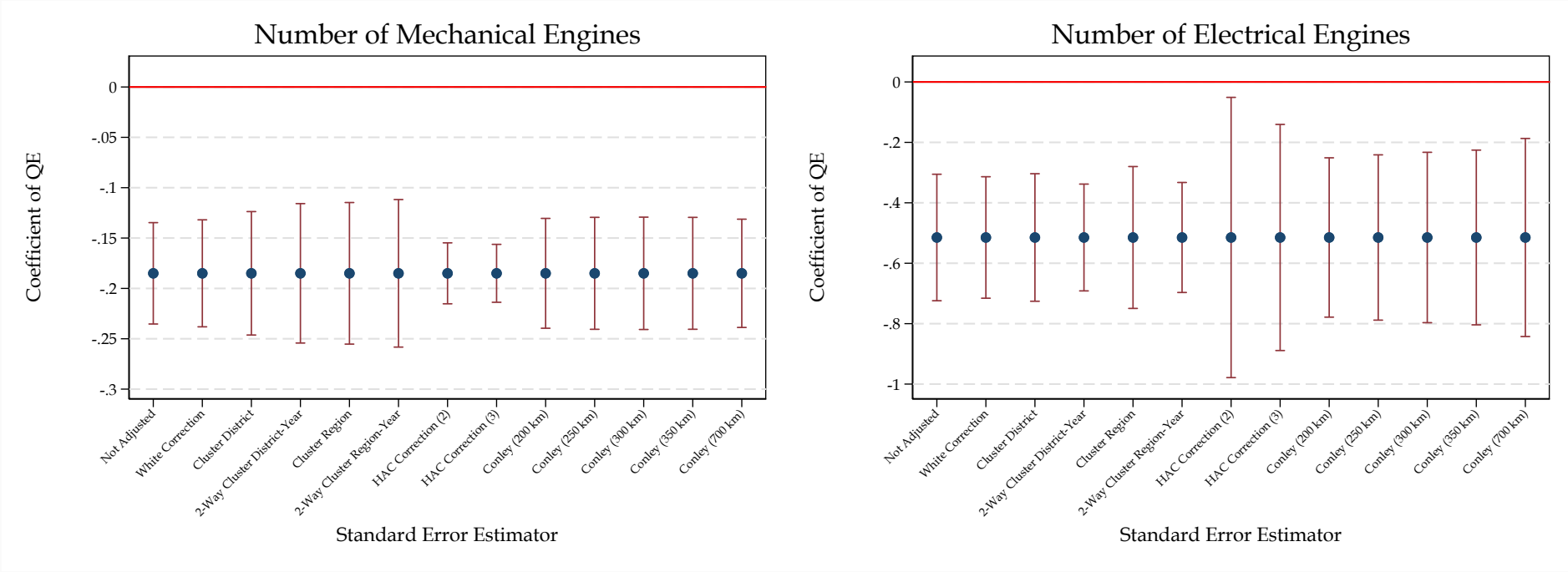


Figure 13: Standard-error analysis of Technology Adoption: Engines.

Notes. For a given outcome variable, the blue dots report the estimate of the coefficient of the treatment (QE) in the baseline difference-in-differences specification. The red bands report the 95% confidence intervals for a set of estimators for the coefficient's standard error. We include White standard errors which allow for heteroskedasticity; several clustered standard errors allowing for within-group autocorrelation; the Driscoll-Kraay correction for autocorrelation at two different time lags; several Conley estimates allowing for time and spatial autocorrelation. For the Conley SEs, we set maximal time-autocorrelation at 2 lags, and vary the radius of spatial autocorrelation.

◂ Back: Results

Standard Error Analysis: Horsepower

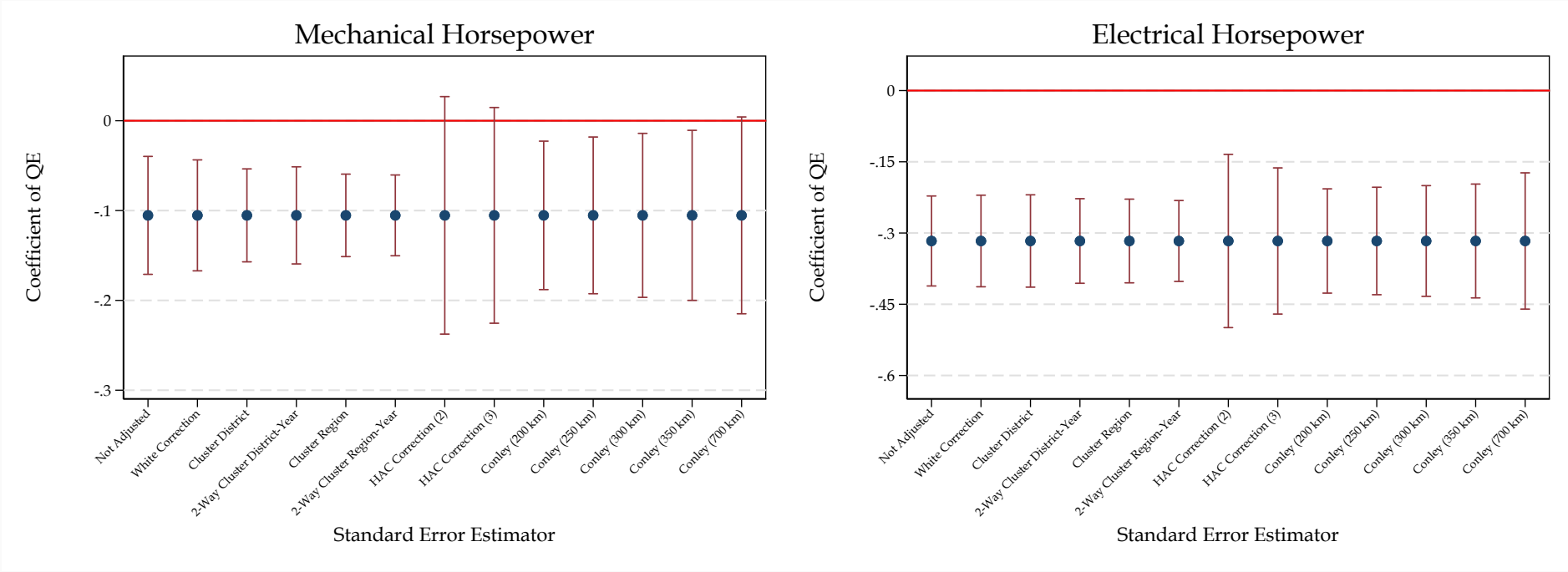


Figure 14: Standard-error analysis of Technology Adoption: Horsepower.

Notes. For a given outcome variable, the blue dots report the estimate of the coefficient of the treatment (QE) in the baseline difference-in-differences specification. The red bands report the 95% confidence intervals for a set of estimators for the coefficient's standard error. We include White standard errors which allow for heteroskedasticity; several clustered standard errors allowing for within-group autocorrelation; the Driscoll-Kraay correction for autocorrelation at two different time lags; several Conley estimates allowing for time and spatial autocorrelation. For the Conley SEs, we set maximal time-autocorrelation at 2 lags, and vary the radius of spatial autocorrelation.

◂ Back: Results

Robustness Regressions: Population Growth

	Dep. Var.: Population Growth					
	(1)	(2)	(3)	(4)	(5)	(6)
Quota Exposure × Post	0.408***	0.446***	0.422***	0.443***	0.515***	0.366**
	(0.113)	(0.124)	(0.120)	(0.120)	(0.134)	(0.134)
Population	0.146***	0.142***	0.165***	0.166***	0.180***	0.175***
	(0.030)	(0.030)	(0.031)	(0.030)	(0.032)	(0.033)
Extensive Margin × Post		-0.065	-0.091	-0.109	-0.101	-0.061
		(0.055)	(0.057)	(0.059)	(0.055)	(0.051)
Agriculture × Post			0.095***	0.072**	0.090**	0.098**
			(0.024)	(0.026)	(0.031)	(0.030)
Urbanization × Post				-0.026*	-0.020	-0.019
				(0.013)	(0.014)	(0.014)
Literacy × Post					0.024	0.065***
					(0.017)	(0.019)
South × Post						0.031***
						(0.008)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	204	204	204	204	204	204
Observations	751	751	751	751	751	751
R2	0.452	0.453	0.474	0.478	0.479	0.493
Mean Dep. Var.	1.042	1.042	1.042	1.042	1.042	1.042

◂ Back: Results

Robustness Regressions: Engines

	Dep. Var.: Changes in Number of Mechanical Engines						Dep. Var.: Changes in Number of Electrical Engines					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Quota Exposure × Post	-0.195***	-0.207***	-0.206***	-0.200***	-0.175***	-0.168***	-0.438***	-0.471***	-0.496***	-0.469***	-0.450***	-0.362**
	(0.032)	(0.032)	(0.033)	(0.032)	(0.038)	(0.042)	(0.107)	(0.110)	(0.105)	(0.105)	(0.110)	(0.113)
Population	-0.016*	-0.012	-0.013	-0.013	-0.010	-0.009	-0.085**	-0.074*	-0.053	-0.053	-0.051	-0.048
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.032)	(0.032)	(0.031)	(0.031)	(0.032)	(0.031)
Extensive Margin × Post		0.027	0.028	0.025	0.028	0.026		0.079	0.055	0.037	0.039	0.015
		(0.015)	(0.015)	(0.014)	(0.014)	(0.015)		(0.055)	(0.055)	(0.059)	(0.059)	(0.064)
Agriculture × Post			-0.004	-0.009	-0.003	-0.004			0.091***	0.065*	0.069*	0.064*
			(0.007)	(0.009)	(0.011)	(0.011)			(0.022)	(0.029)	(0.032)	(0.032)
Urbanization × Post				-0.005	-0.003	-0.003				-0.027	-0.025	-0.025
				(0.005)	(0.006)	(0.006)				(0.017)	(0.017)	(0.017)
Literacy × Post					0.008	0.006					0.006	-0.017
					(0.007)	(0.008)					(0.020)	(0.025)
South × Post						-0.001						-0.018
						(0.003)						(0.011)
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	208	208	208	208	208	208	207	207	207	207	207	207
Observations	801	801	801	801	801	801	800	800	800	800	800	800
R2	0.355	0.359	0.359	0.360	0.361	0.361	0.790	0.790	0.795	0.796	0.796	0.797
Mean Dep. Var.	0.004	0.004	0.004	0.004	0.004	0.004	0.132	0.132	0.132	0.132	0.132	0.132

◂ Back: Results

Robustness Regressions: Horsepower

	Dep. Var.: Changes in Horsepower by Mechanical Engines						Dep. Var.: Changes in Horsepower by Electrical Engines					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Quota Exposure × Post	-0.113***	-0.121***	-0.121***	-0.123***	-0.103**	-0.114**	-0.286***	-0.305***	-0.305***	-0.298***	-0.259***	-0.255***
	(0.026)	(0.029)	(0.029)	(0.029)	(0.032)	(0.037)	(0.048)	(0.051)	(0.051)	(0.052)	(0.061)	(0.067)
Population	-0.019*	-0.015	-0.016	-0.016	-0.013	-0.013	-0.044**	-0.037**	-0.037*	-0.037*	-0.031*	-0.031*
	(0.009)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
Extensive Margin × Post		0.019	0.019	0.020	0.022	0.025		0.048	0.048	0.044	0.049	0.048
		(0.020)	(0.020)	(0.020)	(0.020)	(0.020)		(0.034)	(0.034)	(0.035)	(0.034)	(0.034)
Agriculture × Post			-0.001	0.001	0.006	0.006			-0.001	-0.008	0.002	0.002
			(0.008)	(0.009)	(0.010)	(0.010)			(0.010)	(0.013)	(0.015)	(0.015)
Urbanization × Post				0.002	0.004	0.004				-0.007	-0.003	-0.003
				(0.005)	(0.005)	(0.005)				(0.008)	(0.008)	(0.008)
Literacy × Post					0.006	0.009					0.013	0.012
					(0.006)	(0.007)					(0.010)	(0.011)
South × Post						0.002						-0.001
						(0.003)						(0.005)
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	209	209	209	209	209	209	208	208	208	208	208	208
Observations	802	802	802	802	802	802	801	801	801	801	801	801
R2	0.855	0.855	0.855	0.855	0.855	0.855	0.875	0.876	0.875	0.875	0.876	0.875
Mean Dep. Var.	0.030	0.030	0.030	0.030	0.030	0.030	0.107	0.107	0.107	0.107	0.107	0.107

◂ Back: Results

Robustness Regressions: Industrialization

	Dep. Var.: Industry Workers Growth					
	(1)	(2)	(3)	(4)	(5)	(6)
Quota Exposure × Post	1.825***	1.497**	1.471**	1.469**	1.457**	1.191*
	(0.427)	(0.476)	(0.477)	(0.488)	(0.552)	(0.581)
Population	0.206	0.243*	0.262*	0.261*	0.259	0.251
	(0.123)	(0.123)	(0.126)	(0.127)	(0.137)	(0.137)
Extensive Margin × Post		0.652	0.619	0.621	0.616	0.703
		(0.403)	(0.404)	(0.409)	(0.420)	(0.417)
Agriculture × Post			0.077	0.079	0.075	0.087
			(0.082)	(0.094)	(0.108)	(0.109)
Urbanization × Post				0.001	0.000	0.001
				(0.058)	(0.061)	(0.061)
Literacy × Post					-0.004	0.056
					(0.072)	(0.081)
South × Post						0.048
						(0.036)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	205	205	205	205	205	205
Observations	742	742	742	742	742	742
R2	0.540	0.542	0.542	0.541	0.540	0.540
Mean Dep. Var.	0.060	0.060	0.060	0.060	0.060	0.060

◂ Back: Results

Robustness Regressions: Labor reallocation

	Dep. Var.: Changes in Share of Industrial Workers					
	(1)	(2)	(3)	(4)	(5)	(6)
Quota Exposure × Post	1.455***	1.139**	1.118**	1.237**	1.204*	1.181*
	(0.356)	(0.411)	(0.412)	(0.425)	(0.465)	(0.516)
Population	0.074	0.105	0.124	0.134	0.129	0.128
	(0.090)	(0.088)	(0.092)	(0.093)	(0.096)	(0.097)
Extensive Margin × Post		0.613	0.579	0.509	0.497	0.505
		(0.353)	(0.351)	(0.360)	(0.372)	(0.383)
Agriculture × Post			0.072	0.004	-0.005	-0.003
			(0.059)	(0.075)	(0.096)	(0.099)
Urbanization × Post				-0.077	-0.081	-0.081
				(0.053)	(0.061)	(0.061)
Literacy × Post					-0.012	-0.006
					(0.064)	(0.081)
South × Post						0.004
						(0.036)
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of Districts	205	205	205	205	205	205
Observations	729	729	729	729	729	729
R2	0.476	0.478	0.478	0.479	0.478	0.477
Mean Dep. Var.	0.051	0.051	0.051	0.051	0.051	0.051

◂ Back: Results

Balance Tables

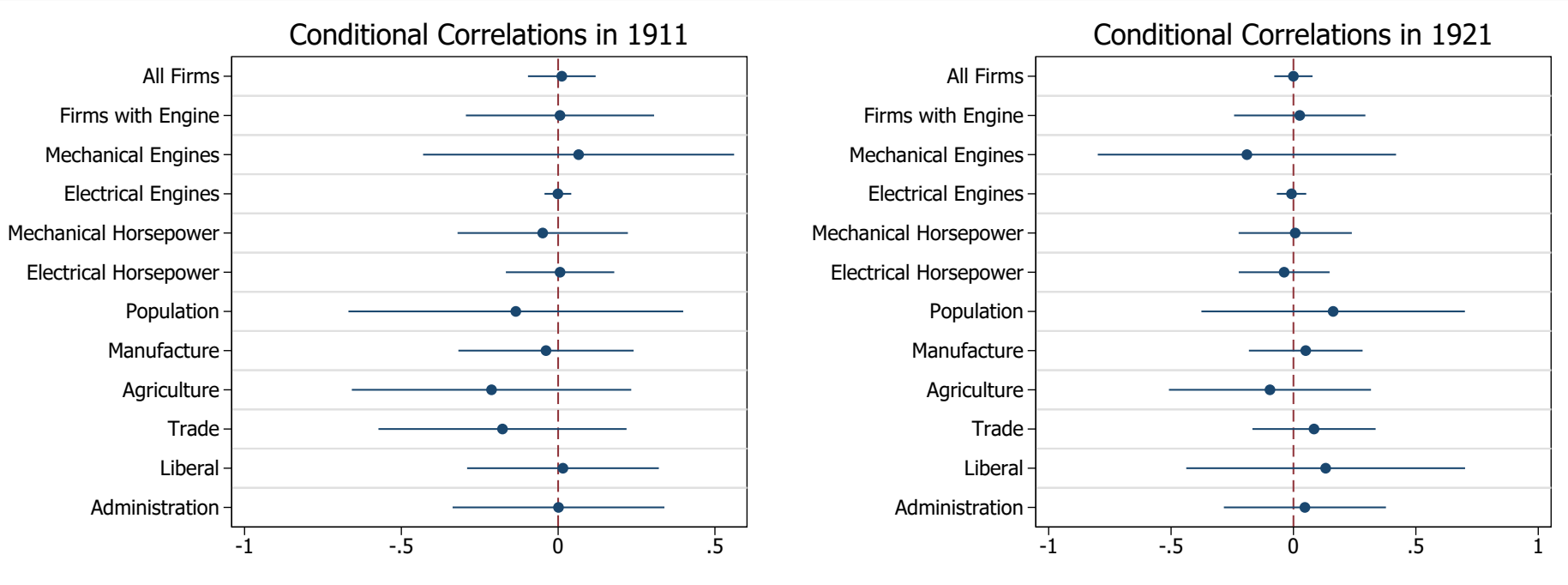


Figure 15: Balance tables for pre-treatment correlations.

Note: Each figure plots the correlation between the various standardized dependent variables and a dummy equal to 1 if Quota exposure is above the median, and 0 otherwise, conditional on population, the extensive and intensive US emigration margins. Regressions control for province FE. Bands report 95% confidence levels clustered at the province level. Under validity, we need 0 correlations to ensure comparability of treatment and control groups.

◂ Back: Identification ◂ Back: DiD

Literature

The Effects of Emigration

Kwok & Leland (1982), Beine *et al* (2008), Dustmann *et al* (2011), Dinkelmann & Mariotti (2016), Férnandez-Sánchez (2020), Fontana *et al* (2021)

- Human capital accumulation (or deprivation) typically focus
- Negative effect if migrants are positively selected, negative under brain drain
- Our contribution: novel mechanism driven by labor supply shock

The Economics of the Age of Mass Migration

Abramitzky *et al* (2017, 2019), [Andersson], Karadja & Prawitz (2020, 2021), Sequeira *et al* (2019), Spitzer & Zimran (2019, 2020), Tabellini (2020)

- Heterogeneous corpus: generally positive effect of immigration
- Our contribution: shift on sending country & data collection

Directed Technical Change Theory

Hicks (1932), Habakkuk (1962), Acemoglu (2002, 2007), Lewis (2011), Hornbeck & Naidu (2014), Hanlon (2015), Clemens *et al* (2018), San (2021)

- Technology adoption and innovation related to input (via prices & market size)
- Our contribution: supportive, more abundant labor discourages adoption of capital-intensive technologies [*à la* Zeira, 1998]

Back