Topics in Economic History
Class 6: Repression in Eastern Europe

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An overview

- During the 20th century, Eastern European countries, under autocratic systems, experienced **severe episodes of political repression**:
  - Deportations to Gulags
  - Mass surveillance of citizens
  - State-imposed policies leading to starvation ...

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  - Deportations to Gulags
  - Mass surveillance of citizens
  - State-imposed policies leading to starvation ...
- Of **interest for economic historians** because of:
  - Their **intrinsic importance** $\rightarrow$ quantify relationship and test mechanisms that non-quantitative historians have discussed
  - Settings that usually **allow to identify inter-generational transmission** of exposure to violence
  - Increasing **availability of archival data**, as restoration efforts are more and more done

An overview

- The literature covers a wide range of topics such as the effects of:
  - Spatial exposure to former gulags locations on present-day
    - trust levels (Nikolova et al., 2022)
    - anti-communist voting patterns (Kapelko and Markevich, 2014)
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- And many more, if interested have a look at Zhuravskaya et al. (2024) that provides an extensive literature review on New Russian Economic History

This class

- Two presentations:
  1. *The Long-Term Costs of Government Surveillance: Insights from Stasi Spying in East Germany*, Lichter, Loffler and Siegloch (2021) (Journal of the European Economic Association)
  2. *The Political Legacy of Violence: The Long-Term Impact of Stalin's Repression in Ukraine*, Rozenas, Schutte and Zhukov (2017) (Journal of Politics)

The Long-Term Costs of Government Surveillance: Insights from Stasi Spying in East Germany

Lichter, Loffler, and Siegloch (2021)

Journal of the European Economic Association

Motivation

- One third of the world population lives under an autocratic regime (The Economist Intelligence Unit, 2014)

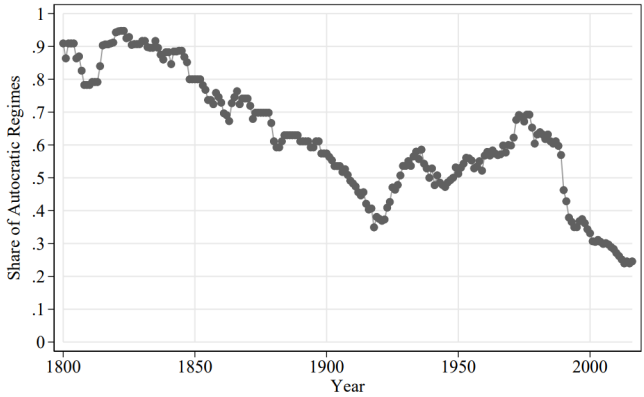


Figure 1: source Polity IV Project and Marshall et al. (2007)

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- A common characteristic of autocraties → repression of oppositional movements to maintain political stability and prevent uprisings (Gerschewski 2018; Marshall and Jaggers 2017)

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⇒ Little is known about the quantitative effect of mass surveillance on individual trust level and the resulting economic consequences

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- Exploits regional variation in surveillance intensity across districts, combined with a border discontinuity design and IV strategy

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- Studies the largest surveillance systems of all time, implemented by the socialist German Democratic Republic (GDR) in which unofficial informers spied upon colleagues, neighbors, friends & family
- Exploits regional variation in surveillance intensity across districts, combined with a border discontinuity design and IV strategy
- Finds that higher spying density leads to (i) negative effects on civic capital, i.e., lower interpersonal and institutional trust and (ii) negative economic effects

Contributions

- **Relations between institutions, culture, and economic performance** (Algan and Cahuc 2014; Alesina and Giuliano 2015; Fuchs-Schundeln and Hassan 2016)

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  - ↪ Short-run political institutions can leave lasting effects on key economic performance
- **Transformation and legacy of countries of the former Eastern Bloc** (Shleifer 1997; Alesina and Giuliano 2015; Alesina and Fuchs-Schundeln 2007)
  - ↪ Impact extends beyond individual preferences for redistribution, also influencing labor market outcomes and civic capital

Historical context

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- Official mission: combat agents and saboteurs to preserve the Constitution
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- Informers, everyday citizens, undermined trust among friends and neighbors
- Tactics included creating suspicion and discrediting individuals, damaging reputations

Historical context

- Spying enabled repression, including arrests, imprisonment, violence or denial of university access

Historical context

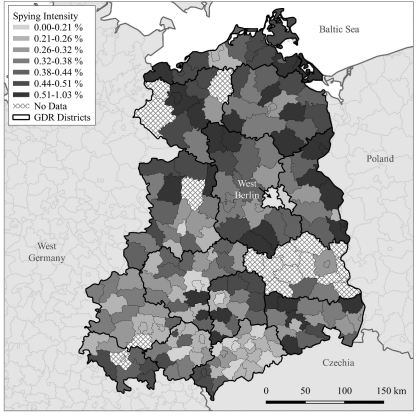
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Historical context

- Spying enabled repression, including arrests, imprisonment, violence or denial of university access
- The regime also enforced collective punishment, affecting dissidents and their families
- Informer recruitment was almost entirely demand-driven, with informers selected by Stasi officials
  - ↪ individuals who volunteered were generally not accepted

Historical context

- Despite a uniformly centralized system of governance, the GDR organized mass surveillance in a decentralized manner
  - ↪ granting substantial autonomy to district-level Stasi offices
- Important variation in surveillance strategies across GDR districts:



Data

Surveillance Measurement

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- Treatment variable → county-level share of informers in the population

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Trust and Economic Performance

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  - ↪ Include East German respondents from the first wave (1990), tracking them over time
- Trust outcomes → trust in strangers, reciprocal behavior, electoral participation, and political interest
- Economic outcomes → Log mean income, total unemployment duration, time spent in self-employment

Empirical strategy

Naive approach

$$Y_i = \alpha + \beta \cdot SPYDENSc + X_i\delta + H_c\varphi + \mu_p + \epsilon_i \quad (1)$$

- i stands for individual, c for county and p for former Weimar province
- Y is the outcome of interest, at the individual level
- $SPYDENS$ is the share of informers in the population, at the county level
- X_i is a set of covariates at the individual level (age and gender)
- H_c is a set of covariates at the county level (demography, industrial composition, pre-treatment differences in terms of economic performance and political ideology)
- μ_p is Weimar Province dummies capturing long-term cultural differences

Empirical strategy

Threat to identification

- Main threat to identification to overcome:
  - ↪ spatial variation in surveillance intensity might be not random, and potential confounder factors could bias the results

Empirical strategy

Threat to identification

- Main threat to identification to overcome:
  - ↪ spatial variation in surveillance intensity might be not random, and potential confounder factors could bias the results
- Implement a border discontinuity design
  - Restrict sample to county pairs at district borders
  - Exploit within-pair variation in spying intensity

Empirical strategy

Border Discontinuity Design

- The level of spying was determined by district offices, leading to significant variation across districts

Empirical strategy

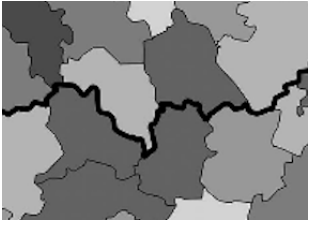
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- Create pairs of counties on either side of district borders + add county pair fixed effects (FE)

Empirical strategy

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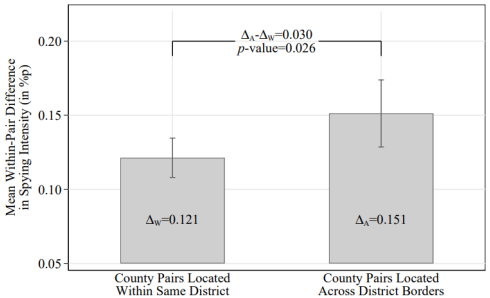
- The level of spying was determined by district offices, leading to significant variation across districts
- Create pairs of counties on either side of district borders + add county pair fixed effects (FE)
  - ↪ Exploit within-pair variation in spying intensity assuming that counties are identical, but differ systematically in spying density



Zoom in Figure 1

Empirical strategy

Border Discontinuity Design



Notes: This figure plots the average difference in the share of operative unofficial informers at the county level within (i) county pairs from the same district and (ii) county pairs divided by district borders. Additionally, we test for the difference between both estimates being zero and depict the corresponding *p*-value. County pairs are weighted by the average county-level population. Standard errors are clustered at the county-pair level, vertical bars show 95 % confidence intervals. See Online Appendix B for detailed information on all variables.

→ Differences significantly larger for pairs of counties lying on opposite sides of a district boundary than for pairs within the same district

Empirical strategy

Border Discontinuity Design

- Thus, they estimate the following equation:

$$Y_i = \alpha + \beta \cdot SPYDENSc + X_i\delta + H_c\varphi + \upsilon_b + \mu_p + \epsilon_i \quad (2)$$

- i stands for individual, c for county, b for border county pair and p for former Weimar province
- Y is the outcome of interest, at the individual level
- $SPYDENS$ is the share of informers in the population, at the county level
- X_i is a set of covariates at the individual level (age and gender)
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- υ_b is a county-pair fixed effect
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Empirical strategy
Remaining concerns

1 Within-pair **county-level confounders**

↪ if one of the counties is historically more dissident, or has a local culture of mistrust or a denser social network

Empirical strategy
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   - ↪ if one of the counties is historically more dissident, or has a local culture of mistrust or a denser social network
2. **Reverse causality**
   - ↪ pre-existing level of trust or economic conditions could explain spying intensity

Empirical strategy

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   - ↪ different industrial strategy of the district, economic priorities, or sectoral composition

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3. **Correlated district-level** discontinuities
   - ↪ different industrial strategy of the district, economic priorities, or sectoral composition
4. **Selective migration**
   - ↪ if individuals with higher level of trust or skills systematically migrate out

Empirical strategy

County-level confounders

- Identifying assumption → Counties in a pair are identical, only differ systematically in spying density

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- Main concern → Confounding variables at county level
  1. For **observable** confounders: Smoothness test whether predetermined characteristics do not vary systematically within pairs
  2. For **unobservable** confounders: District-level leave-out mean as instrument

Empirical strategy

County-level confounders: Smoothness test

	All Counties	Border County Pair Sample		
	(1)	(2)	(3)	(4)
Log Mean Population 1980–1988	-0.588***	-0.316***	-0.269**	-0.137
	(0.132)	(0.113)	(0.119)	(0.232)
Log County Size	0.300***	0.199*	0.028	-0.054
	(0.092)	(0.112)	(0.078)	(0.209)
City County	-0.387***	-0.174	-0.085	0.012
	(0.122)	(0.170)	(0.076)	(0.019)
Share of Population Aged under 15, 1989	0.353***	0.302**	0.131	-0.105
	(0.098)	(0.122)	(0.108)	(0.178)
Share of Population Aged over 64, 1989	-0.200**	-0.235**	-0.084	0.093
	(0.095)	(0.110)	(0.114)	(0.258)
Log Industrial Output 1989	-0.429***	-0.253	-0.086	-0.078
	(0.118)	(0.152)	(0.134)	(0.227)
Share Agricultural Employment 09/1989	0.417***	0.263*	0.089	-0.066
	(0.098)	(0.137)	(0.125)	(0.198)
Employment Share Energy Industry 09/1989	0.120	0.158	0.177	0.110
	(0.095)	(0.136)	(0.175)	(0.256)
Employment Share Textile and Clothing 09/1989	-0.160**	-0.205*	-0.169	0.076
	(0.065)	(0.115)	(0.120)	(0.282)
Share of Cooperative Workers 09/1989	0.404***	0.271**	0.115	-0.109
	(0.097)	(0.128)	(0.120)	(0.200)
Uprising 1953: Strike, Demonstration, Riot	-0.130*	-0.087	-0.064	0.175
	(0.076)	(0.098)	(0.093)	(0.207)
Electoral Turnout 1933	-0.260**	-0.197	-0.020	-0.075
	(0.108)	(0.132)	(0.093)	(0.189)
Vote Share Nazi Party (NSDAP) 1933	0.387***	0.214**	0.122	-0.036
	(0.108)	(0.102)	(0.105)	(0.201)
Vote Share Communist Party (KPD) 1933	-0.437***	-0.232*	-0.143	0.050
	(0.117)	(0.122)	(0.119)	(0.145)
Share Protestants 1925	0.172***	0.184***	0.215***	-0.001
	(0.053)	(0.068)	(0.079)	(0.128)
Share Jews 1925	-0.417**	-0.093	-0.068	0.225
	(0.210)	(0.136)	(0.097)	(0.193)
Share of White Collar Workers 1933	-0.448***	-0.129	-0.040	0.194
	(0.140)	(0.118)	(0.117)	(0.181)
Self-Employment Rate 1933	0.451***	0.130	0.119	0.074
	(0.094)	(0.117)	(0.114)	(0.157)
Unemployment Rate 1933	-0.555***	-0.298***	-0.106	0.122
	(0.103)	(0.110)	(0.097)	(0.217)
Weimar Province Fixed Effects			Yes	Yes
County-Pair Fixed Effects				Yes
Counties	148	78	78	78
County Pairs		51	51	51
Joint F-Test	7.883	4.316	2.835	1.240
p-value	0.000	0.000	0.002	0.265

$\rightarrow$ Identification strategy able to balance covariates

Empirical strategy

County-level confounders: IV strategy

- The instrument used is the **leave-out-average spying density** at the district level
- Compute the average spying density in a district, excluding the county being analyzed ("leave-one-out" method)

Empirical strategy

County-level confounders: IV strategy

- The instrument used is the **leave-out-average spying density** at the district level
- Compute the average spying density in a district, excluding the county being analyzed ("leave-one-out" method)
- The level of spying in other counties within the same district should correlate with the level of spying in the county of interest ...
- ... but should have an effect on the level of trust in that county only through its effect on local spying

Empirical strategy

Reverse causality

- Main concern → Pre-existing level of trust or economic performance could explain the spying intensity at the county level
- Test for differences in predetermined outcomes, measured in 1920s/1930s

TABLE 1. The effect of spying on historical outcomes.

	Share protest. (1)	Share Jews (2)	Voter turnout (3)	Extreme vote (4)	Unemp-loyment (5)	Self-employ. (6)	White collar (7)
Panel A: Without control variables							
County-level spying density	0.003	0.217	−0.057	−0.001	0.161	0.083	0.178
	(0.138)	(0.209)	(0.201)	(0.171)	(0.219)	(0.173)	(0.205)
No. obs.	102	102	102	102	102	102	102
Adjusted *R*-squared	0.611	0.931	0.904	0.768	0.923	0.918	0.771
Panel B: Including GDR control variables							
County-level spying density	−0.115	0.168	−0.047	0.006	0.143	0.076	0.048
	(0.263)	(0.197)	(0.172)	(0.211)	(0.183)	(0.166)	(0.165)
No. obs.	102	102	102	102	102	102	102
Adjusted *R*-squared	0.759	0.969	0.957	0.857	0.969	0.963	0.887

Empirical strategy

District -level confounders

- IV used to address county-level confounders cannot be employed because operates at the same level of aggregation
- The borders of the districts were determined according to industrial strategy
- In addition to basic characteristics, test smoothness based on industrial composition of the workforce
- Show that sector-specific worker shares are smooth within county pairs at district borders

Empirical strategy

Selective migration

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Selective migration

- Pre- and post-reunification mobility could bias the research design
- Pre-reunification $\rightarrow$ out-migration very limited after the Berlin Wall + residential mobility within the GDR was highly restricted
- Post-reunification $\rightarrow$ treatment assigned based on county of residence in 1989, and individuals are followed over time
- Analyzes post-reunification mobility as a potential channel for effects on civic capital and economic outcomes
  - $\hookrightarrow$ results indicate that surveillance-induced mobility responses are minimal

Main results

Civic capital

	All Counties	Border County-Pair Sample				
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A – Trust in Strangers						
County-Level Spying Density	0.066**	0.057	-0.040	-0.091***		-0.098***
	(0.032)	(0.038)	(0.028)	(0.023)		(0.034)
District-Level Spying Density					-0.094**	
					(0.038)	
Number of Observations	3,175	1,795	1,795	1,795	1,795	1,795
Adjusted R-Squared	0.008	0.031	0.117	0.149	0.147	0.149
Kleibergen-Paap F-Statistic						12.03
Panel B – Reciprocal Behavior						
County-Level Spying Density	-0.067*	-0.098**	-0.109***	-0.085**		-0.183**
	(0.034)	(0.045)	(0.038)	(0.032)		(0.069)
District-Level Spying Density					-0.178***	
					(0.044)	
Number of Observations	2,835	1,588	1,588	1,588	1,588	1,588
Adjusted R-Squared	0.053	0.065	0.141	0.185	0.187	0.181
Kleibergen-Paap F-Statistic						15.40
Border County-Pair Fixed Effects			Yes	Yes	Yes	Yes
County-Level Control Variables				Yes	Yes	Yes

All estimates are standardized. Standard errors clustered at county-pair & county level.
Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

$\rightarrow$ 1 sd increase in the spying density decreases (i) trust in strangers by 0.098 sd and (ii) reciprocal behavior by 0.183 sd

Main results - Civic capital

	All Counties	Border County-Pair Sample				
	(1)	(2)	(3)	(4)	(5)	(6)
Panel C – Attend Elections						
County-Level Spying Density	-0.009	-0.081**	-0.067***	-0.087***		-0.109**
	(0.031)	(0.036)	(0.024)	(0.032)		(0.052)
District-Level Spying Density					-0.107**	
					(0.044)	
Number of Observations	2,828	1,583	1,583	1,583	1,583	1,583
Adjusted R-Squared	0.014	0.048	0.105	0.122	0.121	0.121
Kleibergen-Paap F-Statistic						14.68
Panel D – Political Interest						
County-Level Spying Density	-0.091***	-0.078*	-0.120***	-0.179***		-0.261***
	(0.028)	(0.045)	(0.035)	(0.026)		(0.069)
District-Level Spying Density					-0.270***	
					(0.043)	
Number of Observations	2,914	1,736	1,736	1,736	1,736	1,736
Adjusted R-Squared	0.036	0.047	0.113	0.152	0.149	0.149
Kleibergen-Paap F-Statistic						19.12
Panel E – Political Engagement						
County-Level Spying Density	0.051*	0.008	-0.066**	-0.096***		-0.181***
	(0.028)	(0.041)	(0.029)	(0.022)		(0.047)
District-Level Spying Density					-0.188***	
					(0.034)	
Number of Observations	2,914	1,736	1,736	1,736	1,736	1,736
Adjusted R-Squared	0.019	0.043	0.102	0.124	0.126	0.121
Kleibergen-Paap F-Statistic						19.12
Border County-Pair Fixed Effects			Yes	Yes	Yes	Yes
County-Level Control Variables				Yes	Yes	Yes

All estimates are standardized. Standard errors clustered at county-pair & county level.
Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

$\rightarrow$ 1 sd increase in the spying density decreases individuals' (i) probability to attend elections by 0.109 sd and (ii) political interest and political engagement by 0.261 and 0.181 sd, respectively

Main results

Economic outcomes

	All Counties	Border County-Pair Sample				
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A – Unemployment Duration						
County-Level Spying Density	0.005	0.002	0.004	0.008*		0.014***
	(0.004)	(0.009)	(0.006)	(0.005)		(0.005)
District-Level Spying Density					0.014**	
					(0.006)	
Number of Observations	2,880	1,719	1,719	1,719	1,719	1,719
Adjusted R-Squared	0.041	0.049	0.135	0.161	0.161	0.161
Kleibergen-Paap F-Statistic						20.81
Panel B – Self-Employment						
County-Level Spying Density	0.000	-0.001	-0.008*	-0.008**		-0.016**
	(0.005)	(0.008)	(0.004)	(0.004)		(0.007)
District-Level Spying Density					-0.016***	
					(0.005)	
Number of Observations	2,724	1,611	1,611	1,611	1,611	1,611
Adjusted R-Squared	0.014	0.025	0.080	0.094	0.094	0.093
Kleibergen-Paap F-Statistic						18.76
Panel C – Log Mean Income						
County-Level Spying Density	-0.041***	-0.015	-0.030**	-0.044***		-0.056***
	(0.014)	(0.017)	(0.011)	(0.013)		(0.019)
District-Level Spying Density					-0.055**	
					(0.026)	
Number of Observations	2,517	1,482	1,482	1,482	1,482	1,482
Adjusted R-Squared	0.163	0.184	0.234	0.253	0.251	0.253
Kleibergen-Paap F-Statistic						16.80
Border County-Pair Fixed Effects			Yes	Yes	Yes	Yes
County-Level Control Variables				Yes	Yes	Yes

All estimates are standardized. Standard errors clustered at county-pair & county level.
Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

$\rightarrow$ 1 sd increase in the spying intensity (i) increases individual unemployment duration by five days per year, (ii) decreases individuals' time in self-employment by 1.6 percentage points and (iii) decreases monthly income by 84e

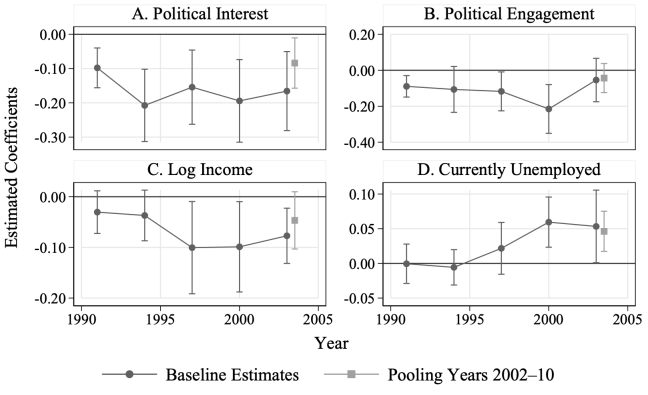
Channel - Education

TABLE 4. The effect of spying on education and job characteristics.

	Years of education (1)	Vocational education (2)	University degree (3)	In job as trained for (4)	Occup. prestige (5)
Panel A: Average effects					
County-level spying density	−0.280***	−0.029***	−0.034	−0.056***	−0.119***
	(0.092)	(0.010)	(0.021)	(0.016)	(0.041)
No. obs.	1,736	1,736	1,736	1,467	1,483
Adjusted *R*-squared	0.162	0.202	0.109	0.103	0.137
Kleibergen–Paap *F*-Statistic	19.12	19.12	19.12	16.75	16.87
Panel B: Effects by age					
District-level spying density					
× Born before 1945	−0.204	−0.033**	−0.011	−0.052**	−0.080
	(0.141)	(0.013)	(0.028)	(0.023)	(0.073)
× Born 1945–1959	−0.299**	−0.028**	−0.043	−0.061***	−0.132**
	(0.140)	(0.011)	(0.027)	(0.022)	(0.056)
× Born 1960–1973	−0.408***	−0.033***	−0.062**	−0.060**	−0.161***
	(0.125)	(0.011)	(0.026)	(0.023)	(0.049)
No. obs.	1,736	1,736	1,736	1,467	1,483
Adjusted *R*-squared	0.173	0.209	0.122	0.105	0.142
Border county-pair fixed effects	Yes	Yes	Yes	Yes	Yes
County-level control variables	Yes	Yes	Yes	Yes	Yes

→ 1 st deviation increase in county-level spying density (i) reduces years of education by 0.28 years on average, (ii) lowers probability of vocational training or university degree

Persistence



→ Effects are persistent at least until mid-2000s

But ... do you find the overall strategy fully convincing?

Comments

- The exclusion restriction assumption is discussable, i.e., the level of spying in neighboring counties should influence trust only through the level of spying in one's own county, rather than directly:
  - ↪ e.g., because silent surveillance methods may lead individuals to suspect spying activities even in counties without direct surveillance if surrounded of counties being spied (spillover effect)
  - ↪ To learn more about the limits of "leave-out mean" instrument have a look at Betz et al. (2018)

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