

# Ink and Ire: The Revolutionary Impact of Russian Literature

Vladimir Avetian    Sultan Mehmood

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## A Spark of Political Violence



- ▶ On April 4, 1866, *Dmitry Karakozov*, 26, made the first known assassination attempt on Tsar Alexander II
- ▶ This attempt marked the beginning of a new form of political violence, triggering decades of unrest in the Russian Empire



# This Paper - I

## ▶ **Key Findings:**

- ▶ Exposure to the *Sovremennik* magazine increased the emergence of revolutionaries.
- ▶ The dissemination of the magazine intensified future political violence.

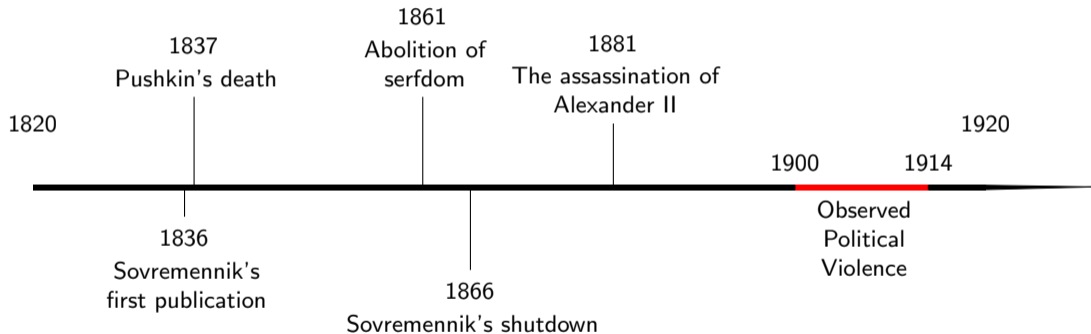
## ▶ **Mechanisms:**

- ▶ Cultivated a market for ideas: fostered a new generation of writers and readers.
- ▶ Acted as a gateway to banned underground publications.

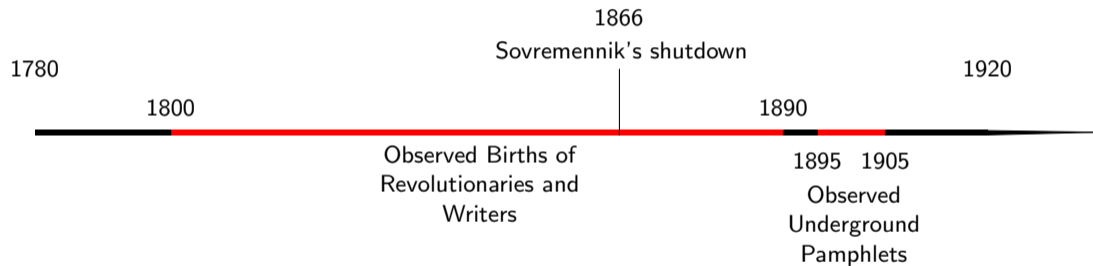
## ▶ **Empirical Strategy:**

- ▶ **Event Study:** Counties with higher exposure to the magazine saw more revolutionary births after its radicalization.
- ▶ **Instrumental Variable:** Use birthplaces of magazine founder's one-off encounters to instrument for exogenous variation in exposure.

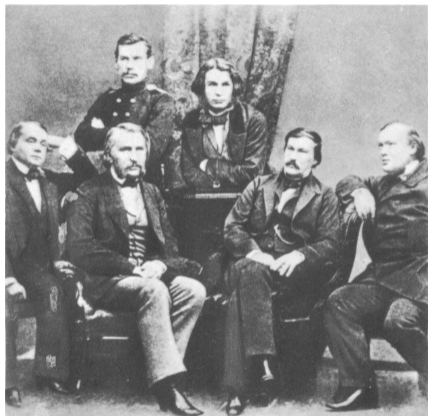
## Timeline and our setting



## Timeline of (Other) Dependent Variables



## Sovremennik Becomes Politically Engaged



- ▶ **Ideological Evolution:** The magazine shifted from a primarily literary journal to a socially and politically engaged platform
- ▶ **Competing Factions:** Older liberal-gentry writers coexisted uneasily with younger radical-democratic critics
- ▶ **Radicalization:** By the late 1850s and early 1860s, Chernyshevsky and Dobrolyubov pushed the journal toward radical-democratic and socialist ideas

*Repairing the Railroad* by Konstantin Savitsky (1874)



# Political Violence in Russian Empire



- ▶ **Origin:** Activists became disillusioned with peaceful efforts and turned to violent methods
- ▶ **Periods:** Attacks surged in two main waves – the late 19th and early 20th centuries
- ▶ **State Response:** The Empire responded with surveillance, censorship, and the establishment of the Okhrana, a secret police force

# Collecting Data on Political Violence



- ▶ *The Book of Russian Sorrow* is a series of 14 issues published by far-right monarchists between 1908 and 1914
- ▶ The series presents martyr-like life stories of civil servants who were killed in attacks by revolutionary radicals: “Russian patriots who died in the struggle against the internal enemy”
- ▶ Terror attacks in the early 20th century
- ▶ We extracted data on dates and locations, around 600 attacks.

## Main Data

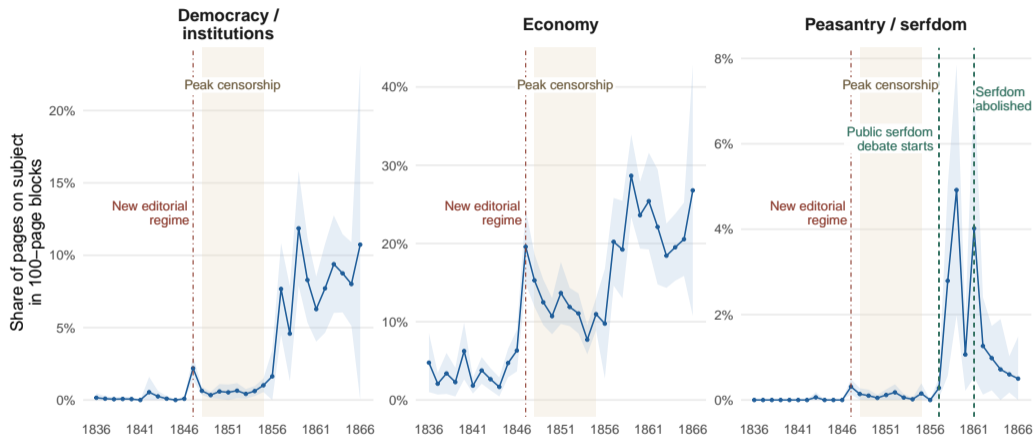
- ▶ Digitized corpus spanning 30 years of the magazine's existence
- ▶ Subscriptions by county (*uezd*) for 1859, 1860, and 1861
- ▶ Wikidata on revolutionaries and other cultural elites born in Russian Empire (with date and location of birth)
- ▶ *Pushkin and his Entourage* (Chereiskii, 1988): 2,353 interactions between the public and the poet Alexander Pushkin, the magazine's founder
- ▶ Dataset of political violence in the Russian Empire constructed from *The Book of Russian Sorrow*
- ▶ Underground revolutionary pamphlets
- ▶ Epistolary network of Catherine the Great
- ▶ Digitized cultural establishments from *Piadyshchev Atlas* (1820)
- ▶ *A writer's diary* (Dostoevsky's magazine) subscriptions

# **I. Text Analysis of the Corpus of the Magazine**

## Text Processing and Analysis of *Sovremennik* (The Contemporary)

- ▶ We reconstruct a page-level corpus from digitized magazine copies, covering 143 of 157 volumes (91.1%) from 1836–1866.
- ▶ We normalize prerevolutionary Russian spelling and train *word2vec* directly on the historical corpus.
- ▶ We score pages against pre-defined topic centroids: democracy, economy, and peasantry/serfdom.
- ▶ We calibrate thresholds with an LLM-labelled sample and report the share of pages touching each topic in 100-page blocks.

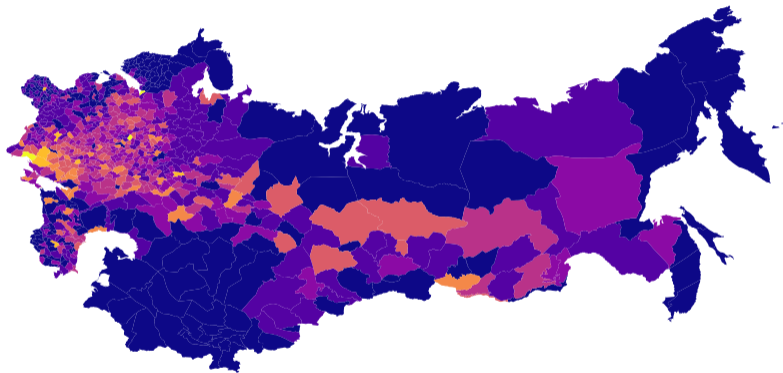
# Political Themes Rise in the Text



Topic exposure is measured as the share of pages in 100-page blocks touching democracy, economy, or peasantry/serfdom-related themes. The shaded period marks peak censorship.

## **II. The Impact of the Magazine**

# Annual Number of Subscriptions Per County (Uezd) on *Sovremennik*, 1859-61

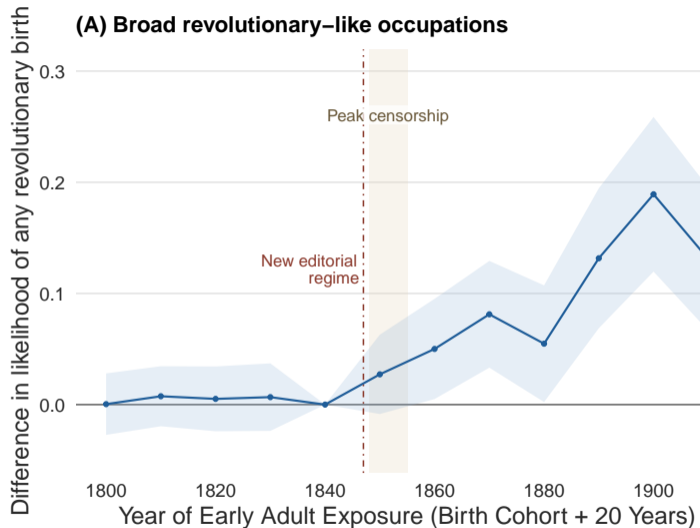


## Event Study: Revolutionary Emergence

$$Y_{i,t} = \gamma_i + \lambda_t + \sum_{k \neq 1840} \delta_k (\text{High } \textit{Sovremennik} \text{ Exposure}_i \times \mathbf{1}\{t = k\}) + \epsilon_{i,t}$$

- ▶  $Y_{i,t}$ : indicator for at least one future revolutionary-like figure born in county  $i$  and cohort cell  $t$
- ▶  $t$ : year of early adult exposure, defined as birth cohort +20 years
- ▶ High exposure: above-median *Sovremennik* subscribers, averaged over 1859–1861
- ▶ County fixed effects  $\gamma_i$  and cohort fixed effects  $\lambda_t$ ; standard errors clustered by county

# Magazine Exposure Predicts Revolutionary Emergence



## From Revolutionary Emergence to Later Political Violence

- ▶ The event study links *Sovremennik's* political turn to the emergence of future revolutionaries.
- ▶ We next ask whether magazine exposure translated into later anti-state violence (and mobilization) after *Sovremennik* was shut down in 1866.
- ▶ These later outcomes are observed strictly after closure, so we turn to cross-sectional IV estimates across counties.

## Pushkin Encounters Predict Diffusion



▶ Composition

▶ First stage

▶ Letters

- ▶ Source: Chereiskii's *Pushkin and His Entourage* (1988), an encyclopedic dictionary of people recorded as having encountered Pushkin.
- ▶ Pushkin founded *Sovremennik* and personally promoted the magazine through his social circle.
- ▶ We geocode birthplaces of one-off Pushkin encounters: brief contacts less likely to reflect persistent local elite networks.
- ▶ These encounters predict early magazine diffusion.

# Pushkin Encounter Entry: From Biography to Labels

## (A) Original Russian entry

**ГАННИБАЛ** Павел Исаакович (ок. 1776—до 1841) — родственник Пушкина со стороны матери, внук «арапа Петра Великого», участник Отечественной войны, ротмистр Лубенского пехотного полка, в 1824 подполковник Изюмского гусарского полка; причастен к движению декабристов (2). В 1817 Пушкин посетил Г. в с. Воскресенском Опочецкого у. (1). Пушкин, по-видимому, знал жену Г. — Варвару Тихоновну, урожд. Ланге (ум. 21 VI 1866).

1. Павлицев, по указ.; 2. Дела и дни, 1920, № 1, с. 260—271; 3. РС, 1899, № 5, с. 333—334; 4. Портрет Г.: «Приют, сияньем муз одетый». М., 1979, с. 56.

## (B) English rendering with evidence

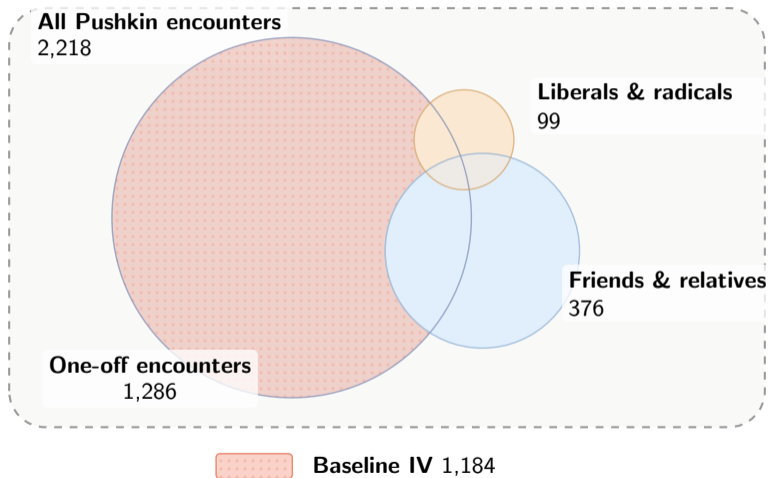
**HANNIBAL Pavel Isaakovich** (ca. 1776—before 1841) was a maternal relative of Pushkin, a grandson of the “Moor of Peter the Great,” a participant in the Patriotic War, a rotmistr in the Lubny Infantry Regiment, and by 1824 a lieutenant colonel of the Izyum Hussar Regiment; he was involved in the Decembrist movement. In 1817, Pushkin visited him in the village of Voskresenskoe, Opochka district. Pushkin apparently also knew his wife, Varvara Tikhonovna, née Lange (d. 21 June 1866).

*Sources cited in the entry:* Pavlyshchev; *Dela i dni*; *Russkaia Starina*; “Portrait of H.” Translation and highlighting are our own.

Legend: Relative Military Decembrist

# Constructing the One-Off Encounter Instrument

## (C) Constructing the baseline IV sample



## IV Strategy: Later Political Violence

$$\text{At least one attack}_{1900-1914,i} = \beta_0 + \beta_1 \widehat{\text{Log Sovremennik Exposure}}_{1859-1861,i} + \beta_2 \mathbf{X}_i + \gamma_p + \epsilon_i$$

- ▶  $\text{At least one attack}_{1900-1914,i}$ : indicator for whether a violent attack occurred in county  $i$
- ▶  $\widehat{\text{Log Sovremennik Exposure}}_{1859-1861,i}$ : instrumented with log of one-off Pushkin encounter birthplaces
- ▶  $\mathbf{X}_i$ : population density (1858), distance to Moscow and St. Petersburg, number of factories, military facilities, post offices, universities, taverns, monasteries, share of serfs before emancipation, share of Jews and Orthodox Christians, number of Decembrists born, log number of writers born prior to *Sovremennik*
- ▶  $\gamma_p$ : province fixed effects
- ▶ Robust to Conley spatial correction

# Magazine Exposure Predicts Political Violence

	(1)	(2)	(3)	(4)
<b>Panel A. OLS results</b>				
<i>Dep. Var.:</i>	Political Violence			
	<i>N</i> Attacks > 0		<i>N</i> Attacks	
Subscribers (log), 1859–61	0.0988*** (0.0104)	0.0755*** (0.0123)	0.5036*** (0.1071)	0.3372*** (0.0836)
<b>Panel B. Second stage</b>				
Subscribers (log), 1859–61	0.2277*** (0.0503)	0.3163** (0.1342)	1.4367*** (0.3535)	1.7484** (0.8230)
Geographic controls	✓	✓	✓	✓
Main controls		✓		✓
Province FEs	✓	✓	✓	✓
Observations	824	824	824	824
Mean dep. var.	0.28	0.28	0.70	0.70
F-stat (KP)	45.0989	11.3162	45.0989	11.3162
Anderson–Rubin CI	[0.128, 0.327]	[0.050, 0.583]	[0.735, 2.138]	[0.115, 3.382]

# Robustness

- ▶ Placebos: Catherine's II Network and Roads Network ▶ Placebo ▶ Road maps
- ▶ Balance Test ▶ Balance Test
- ▶ Alternative Instruments ▶ Libraries
- ▶ No Effect on Pretreatment Violence ▶ Pretreatment Violence
- ▶ Excluding One Province at a Time ▶ Excluding Province
- ▶ Robustness According to Chen and Roth (2024) ▶ Chen & Roth
- ▶ Dependent and Independent Variable ▶ Alternative Definitions
- ▶ Controlling for Elites of Various Occupations ▶ Elites
- ▶ Alternate Definitions of Exposure to Magazine ▶ Subscribers by 1859, 1860, 1861
- ▶ Attacks by Time Periods ▶ Attacks by Time Periods
- ▶ Conley Spatial Correlation ▶ Conley
- ▶ Robustness to Alternate Fixed Effects ▶ Alternate Fixed Effects

# Mechanism

- ▶ What explains the link between subscriptions and political violence?

# Mechanisms

## Literature Demand

	OLS		2SLS, second stage	
	(1)	(2)	(3)	(4)
<i>Dep. Var.:</i>	<i>A Writer's Diary</i> subscribers, 1881			
Subscribers (log), 1859–61	0.0848*** (0.0128)	0.0681*** (0.0137)	0.2506*** (0.0471)	0.3730*** (0.1173)
Geo controls	✓	✓	✓	✓
Main controls		✓		✓
Province FEs	✓	✓	✓	✓
Observations	824	824	824	824
Mean dep. var.	0.38	0.38	0.38	0.38
F-stat (KP)			45.099	11.3162
Anderson–Rubin CI			[0.157, 0.344]	[0.140, 0.606]

# Mechanisms

## Literature Supply

	OLS		2SLS, second stage	
	(1)	(2)	(3)	(4)
<i>Dep. Var.:</i>	Writers born after 1866 (log)			
Subscribers (log), 1859–61	0.3823*** (0.0483)	0.2252*** (0.0505)	1.0388*** (0.1582)	0.9421** (0.4042)
Geo controls	✓	✓	✓	✓
Main controls		✓		✓
Province FEs	✓	✓	✓	✓
Observations	824	824	824	824
Mean dep. var.	-0.60	-0.60	-0.60	-0.60
F-stat (KP)			45.099	11.3162
Anderson–Rubin CI			[0.725, 1.353]	[0.140, 1.744]

# Mechanisms

## *Sovremennik* and Underground Revolutionary Pamphlets

	OLS		2SLS, second stage	
	(1)	(2)	(3)	(4)
	<i>Dep. Var.: Revolutionary Publications</i>			
Number of subscribers, average 1859-61, log	0.0726*** (0.0114)	0.0427*** (0.0094)	0.2457*** (0.0540)	0.3018** (0.1231)
Geographic controls	✓	✓	✓	✓
Main controls		✓		✓
Province FEs	✓	✓	✓	✓
F statistics (Kleibergen-Paap)			45.0989	11.3162
Anderson-Rubin CI			[0.138, 0.353]	[0.058, 0.546]
Observations	824	824	824	824
Mean of dependent variable	0.131	0.131	0.131	0.131

# Alternative Mechanisms

## Human Capital

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)
<i>Dep. Var.:</i>				
	Literacy, 1897		Schools per 1,000, 1911	
Subscribers (log), 1859–61	0.0103 (0.1989)	1.595 (1.775)	-0.0044 (0.0037)	-0.0533 (0.0333)
F-stat (KP)		10.240		10.174
Anderson–Rubin CI		[-1.927, 5.117]		[-0.119, 0.013]
Mean dep. var.	19.410	19.410	0.03	0.03
Geo controls	✓	✓	✓	✓
Main controls	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓

No evidence that *Sovremennik* exposure mechanically proxies for later human-capital accumulation.

# Alternative Mechanisms

Effect of *Sovremennik* on Peasant Unrest



## Conclusion

- ▶ *Sovremennik* shaped both the emergence of revolutionaries and the spread of anti-Tsarist violence
- ▶ Event study: counties exposed to the magazine saw a sharp rise in revolutionary births after its politicization
- ▶ IV results: instrumenting exposure with Pushkin's one-off encounters, we find a persistent effect on violent attacks against the state
- ▶ The magazine cultivated a market for radical ideas – fueling underground publications and new literary generations
- ▶ Literature can function not just as mirror, but as motor of political transformation

## Final Thought

“I read everything printed in *Sovremennik* to the last line, more than once...”

*Vladimir Lenin*

# Appendix

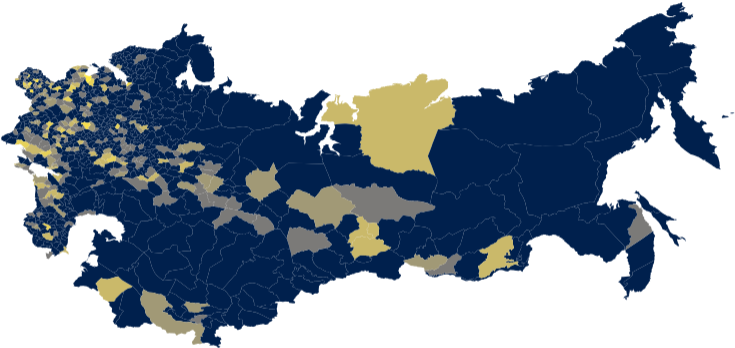
# *On the Movement of Magazine Literature*

By Nikolai Gogol



*"Magazine literature, this lively, fresh, talkative, sensitive literature, is as necessary for the sciences and the arts as communication routes are for the state, as fairs and exchanges are for merchants and trade. [...] Its voice is the faithful representative of the opinions of the whole epoch and century, opinions that without it would have disappeared without a voice."*

# Dispersion of Political Violence in the Russian Empire



# Example of Raw Data in the “Book of Russian Sorrow”

## КНИГА I 1908 г.

Император Александр II  
Убит в С.-Петербурге 1 марта 1881 г.

18 апреля 1818 г. Первопрестольная Москва пушечными выстрелами была оповещена о рождении у Великого князя Николая Павловича сына-первенца.

Поэт В. А. Жуковский приветствовал рождение Августейшего Младенца, нареченного при крещении в Чудовом монастыре Александром, стихами, заключившими пророчество его будущего величия и славы:

С душой, на все прекрасное готовой,  
Наставленный: достойным счастья быть,  
Великое с величием сносить,  
Не трепетать, встречая рок суровой,  
И быть в делах времен своих красой.  
Лета пройдут, подвиги молодой,  
Откинувши младенчества забавы,  
Он полетит в путь опыта и славы...  
Да встретит он обильный чеством век!  
Да славного участник славный будет!  
Да на чреде высокой не забудет  
Святейшего из званий: человек!

Как бы предугадывая великие дела будущего Государя и его самоотвержение, поэт желал ему:

Жить для веков в величии народном,  
Для блага всех свое позабывать.

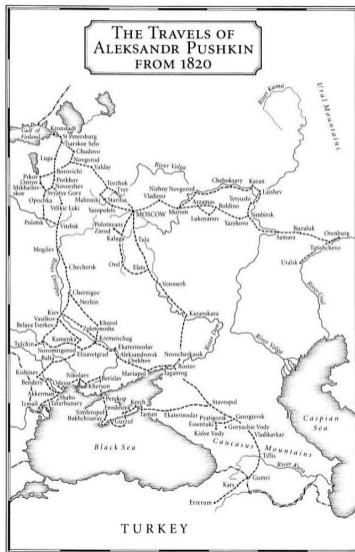
25 ноября 1825 г. с кончиной Императора Александра I на Престоле вступил Великий князь Николай Павлович, а Великий князь Александр Николаевич был объявлен Наследником.

Воспитание и образование Наследника было поручено капитану Мерксеру, Санты Его Величества генерал-майору Кавелину и поэту В. А. Жуковскому. Под этим непрестанным, строгим и неуклонным наблюдением верных своему долгу людей протекала жизнь будущего Императора до 20-летнего возраста. Основанием к воспитанию и образованию лежало твердое желание Августейшего Отца «воспитать в своем сыне человека, прежде чем сделать из него Государя», а «план учения», утвержденный Императором Николаем Павловичем, мог способствовать тому, чтобы из царственного ученика вышел не ученый, а просвещенный человек. И действительно, к концу назначенного для учения срока семена добра и правды, твердости характера и рыцарского взгляда, любви к ближнему, к «малым сим» и глубокого сознания долга и ответственности перед Богом за будущее царствование над могучим русским народом, — эти семена уткали на добрую почву ясного и здорового ума Наследника.

Сопровождая отца в путешествиях по государству, а также проехав по всей России в 1837 г. со специальной целью пополнить свое книжное образование и воспитание наглядным изучением раз-



# Pushkin's Travels



# Composition of Pushkin's Circle

Variables:	Hard to Tell	No	Unlikely	Likely	Yes
<b>One-off Encounters</b>	34 (1.55%)	356 (16.2%)	586 (26.67%)	545 (24.81%)	676 (30.77%)
<b>Relatives</b>	546 (24.85%)	1397 (63.59%)	72 (3.28%)	42 (1.91%)	140 (6.37%)
<b>Friends &amp; Acquaintances</b>	135 (6.14%)	244 (11.11%)	608 (27.67%)	959 (43.65%)	251 (11.42%)
<b>Nobles</b>	931 (42.38%)	204 (9.29%)	214 (9.74%)	136 (6.19%)	712 (32.41%)
<b>Peasants</b>	601 (27.36%)	1529 (69.59%)	5 (0.23%)	5 (0.23%)	57 (2.59%)
<b>Liberals</b>	1889 (85.98%)	37 (1.68%)	127 (5.78%)	121 (5.51%)	23 (1.05%)
<b>Conservatives</b>	1930 (87.85%)	88 (4.01%)	115 (5.23%)	45 (2.05%)	19 (0.86%)
<b>Radicals</b>	1907 (86.8%)	158 (7.19%)	43 (1.96%)	65 (2.96%)	24 (1.09%)
<b>Loyalists</b>	2010 (91.49%)	92 (4.19%)	35 (1.59%)	43 (1.96%)	17 (0.77%)
<b>Military</b>	154 (7.01%)	1366 (62.18%)	18 (0.82%)	25 (1.14%)	634 (28.86%)
<b>Creatives</b>	189 (8.6%)	1236 (56.26%)	55 (2.5%)	141 (6.42%)	576 (26.22%)

## Excerpts from Pushkin's Letters

- ▶ **To A. A. Fuks, 20/02/1836 (Kazan):** "Allow me to present to you, gracious lady, a subscription ticket for The Contemporary, which I am publishing."
- ▶ **To V. D. Sukhorukov, 14/03/1836 (Novocherkassk):** "You know that I have become a journalist (which reminds me, I haven't sent you The Contemporary; please excuse me—I shall try to make up for my negligence)."
- ▶ **To S. N. Glinka, 26/03/1836 (Smolensk oblast):** "My edition of The Contemporary has not yet been published — but it will come out in due time. You will be the first to receive it immediately."
- ▶ **To M. P. Pogodin, 14/04/1836 (Moscow oblast):** "If you see Nadezhdin, thank him from me for The Telescope. I will send him The Contemporary."
- ▶ **To N. M. Yazykov, 14/04/1836 (Ulyanovsk):** "You will receive my edition of The Contemporary; I hope it will earn your approval."

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## *One-off* Encounters of Pushkin

- ▶ **Larin, Ilya (Illarion) Ivanovich** — retired low-rank artillery officer in Kishinev; a marginal but socially visible figure in the officers' milieu where Pushkin was present.
- ▶ **Peterson** — piano tuner in St. Petersburg; on Feb. 12, 1837, the guardianship settled a debt of 85 rubles owed by the poet.

## First Stage, Political Violence

<i>Dep. Var.:</i>	Number of subscribers, log	
Number of Pushkin one-off encounters, log	0.3083*** (0.0459)	0.1411*** (0.0420)
Geographic controls	✓	✓
Main controls		✓
Province FEs	✓	✓
F-stat (KP)	45.0989	11.3162

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# “One-off” Encounters IV

## Text Analysis of Circle-Pushkin Relationship

	(1)	(2)	(3)	(4)	(5)
	<i>Dep. Var.: Political Violence</i>				
Subscribers, 1859-61, log	0.2105*** (0.0760)	0.2365*** (0.0730)	0.1742** (0.0668)	0.1855** (0.0724)	0.1890*** (0.0690)
Geographic controls	✓	✓	✓	✓	✓
Main controls	✓	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓	✓
<b>Instruments:</b>	<b>One-off encounters</b>	<b>No friends</b>	<b>No relatives</b>	<b>No liberals</b>	<b>No revolu- tionaries</b>
F statistics	30.552	26.899	33.896	27.457	29.212

▶ Reduced Form

▶ First Stage

## Placebo #1: Catherine II Correspondence and Road Centrality

	(1)	(2)
<i>Dep. Var.:</i>		
Pushkin one-off encounters (log)	0.0057 (0.0106)	1385.5531* (715.1083)
Geographic controls	✓	✓
Main controls	✓	✓
Province FEs	✓	✓
Obs.	824	356
Mean dep. var.	0.10	11541.85

▶ Road maps

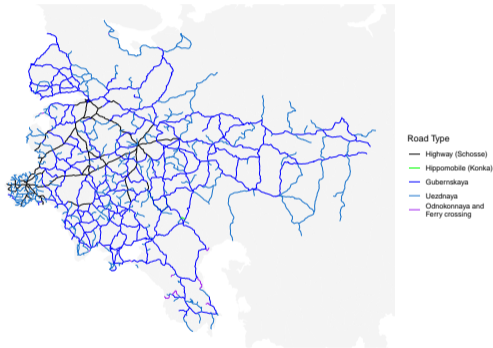
# Road Centrality Placebo

## Historical Source and Digitized Network

### Historical road map source



### Digitized road network



The road-network placebo uses digitized roads from the historical map source to compute road-network centrality.

▶ [Back to placebo](#)

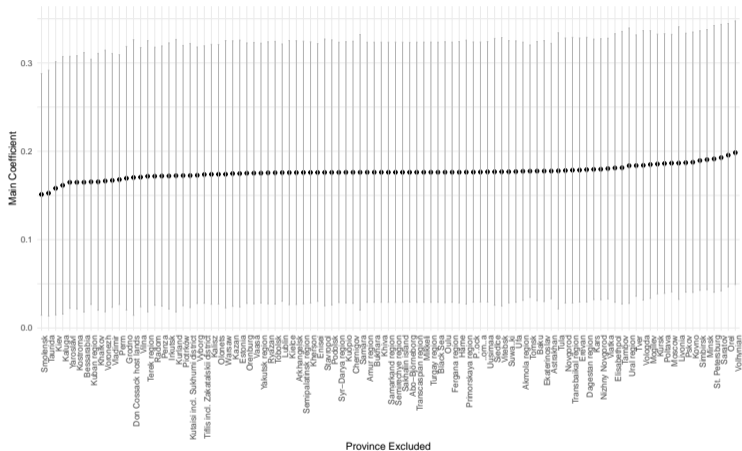
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## Placebo #2

Pre-treatment Establishments from Piadyshev Atlas (1820)

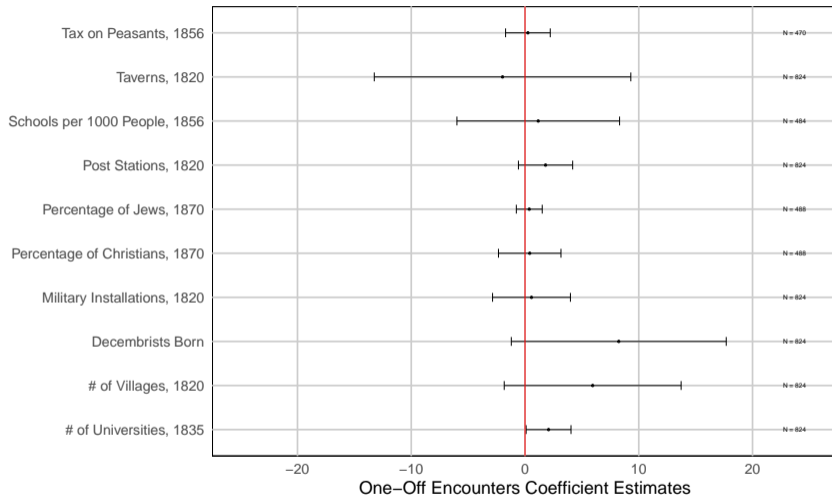
	(1)	(2)	(3)	(4)
<i>Dep. Var.:</i>	# of tavernas	# of monasteries	# of Factories	Has military installations
Number of Pushkin one-off encounters, log	-0.0397 (0.0482)	0.1027 (0.0863)	-0.2871* (0.1554)	0.0781 (0.0491)
Geographic controls	✓	✓	✓	✓
Main controls	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓
F statistics (Kleibergen-Paap)	10.9884	10.9884	10.9884	10.9884
Anderson-Rubin CI	[-0.1354, 0.0559]	[-0.0686, 0.274]	[-0.5956, 0.0213]	[-0.0192, 0.1755]
Observations	824	824	824	824
Mean of dependent variable	0.04	0.09	0.18	0.09

# Excluding One Province at a Time



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# Balance Test



## Alternative Instrument

	OLS		2SLS, second stage	
	(1)	(2)	(3)	(4)
<b>Panel A. Main effect</b>				
<i>Dep. Var.:</i>				
	Political Violence			
Subscribers, avg. 1859–61 (log)	0.0988*** (0.0104)	0.0755*** (0.0123)	0.1924*** (0.0488)	0.2119** (0.0913)
<b>Panel B. First stage</b>				
<i>Dep. Var.:</i>				
	Subscribers, avg. 1859–61 (log)			
Library before 1846			1.413*** (0.2445)	0.7696*** (0.2082)
Geo controls	✓	✓	✓	✓
Main controls		✓		✓
Province FEs	✓	✓	✓	✓
Obs.	824	824	824	824
Mean dep. var.	0.28	0.28	0.28	0.28
F-stat (KP)			33.421	13.668
Anderson–Rubin CI			[0.096, 0.289]	[0.031, 0.393]

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## Pre-treatment Violence

	<i>Dep. Var.: Pretreatment Political Violence</i>			
	IV: One-off Encounters		IV: Libraries	
	2SLS (1)	RF (2)	2SLS (3)	RF (4)
Subscribers, avg. 1859–61 (log)	0.1645 (0.1881)		1.071 (1.143)	
Pushkin one-off encounters (log)		0.0559 (0.0642)		
Number of libraries				0.2627 (0.1788)
Geo controls	✓	✓	✓	✓
Main controls	✓	✓	✓	✓
F-stat (KP)	11.819		1.0682	
Anderson–Rubin CI	[-0.210, 0.539]		[-1.202, 3.344]	
Obs.	99	99	99	99
Mean dep. var.	0.667	0.667	0.667	0.667

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## Robustness According to Chen and Roth (2024)

	(1)	(2)	(3)	(4)
<i>Value assigned if # attacks = 0:</i>	<i>X = 0</i>	<i>X = -0.1</i>	<i>X = -1</i>	<i>X = -5</i>
Subscribers, avg. 1859–61 (log)	0.3163*** (0.1206)	0.3479*** (0.1327)	0.6325*** (0.2412)	1.898*** (0.7237)
Geo controls	✓	✓	✓	✓
Main controls	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓
Obs.	824	824	824	824

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# Alternative Definitions

## Dependent and Independent Variables

	(1)	(2)	(3)	(4)
<b>Panel A. Alternative dependent variables</b>				
<i>Dep. Var.:</i>	# attacks	log(attacks + 1)	IHS(attacks)	Poisson
Subscribers, avg. 1859–61 (log)	1.748*** (0.5956)	0.4382*** (0.1517)	0.5516*** (0.1925)	1.226*** (0.2715)
<b>Panel B. Alternative independent variables</b>				
<i>Dep. Var.:</i>	$N \text{ Attacks} > 0$			
log(subscribers + 0.01)	0.2809** (0.1282)			
log(subscribers + 1)		0.3894*** (0.1309)		
IHS(subscribers)			0.3435*** (0.1178)	
Subscribers above median				1.834* (1.013)
Geo controls	✓	✓	✓	✓
Main controls	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓
Obs.	824	824	824	824

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## Controlling for Elites of Various Occupations

<i>2SLS, second stage</i>	(1)	(2)	(3)	(4)	(5)
	<i>Dep. Var.: Political Violence</i>				
Subscribers, avg. 1859–61 (log)	0.3095** (0.1381)	0.3050** (0.1183)	0.3271** (0.1446)	0.3308** (0.1587)	0.3295** (0.1625)
All prominent individuals	✓				
Politicians		✓	✓	✓	✓
Military			✓	✓	✓
Scientists				✓	✓
University teachers					✓
Geo controls	✓	✓	✓	✓	✓
Main controls	✓	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓	✓
F-stat (KP)	10.5668	11.9841	10.4511	9.3643	8.7633
Anderson–Rubin CI	[0.035, 0.583]	[0.070, 0.540]	[0.040, 0.614]	[0.016, 0.646]	[0.007, 0.652]
Obs.	824	824	824	824	824

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## Robustness to Subscribers by 1859, 1860, 1861

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)
<i>Dep. Var.:</i>	Political Violence					
Subscribers 1859 (log)	0.0494*** (0.0126)	0.3061** (0.1319)				
Subscribers 1860 (log)			0.0603*** (0.0113)	0.3156** (0.1333)		
Subscribers 1861 (log)					0.0714*** (0.0105)	0.2887** (0.1276)
Geo controls	✓	✓	✓	✓	✓	✓
Main controls	✓	✓	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓	✓	✓
F-stat (KP)		9.6517		11.4500		11.2235
Anderson–Rubin CI		[0.044, 0.568]		[0.051, 0.580]		[0.036, 0.542]
Obs.	824	824	824	824	824	824

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## Robustness by Different Samples: Attacks by Time Periods

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)
<i>Sample:</i>	First half		Second half		Excluding peak days	
<i>Dep. Var.:</i>			Political Violence			
Subscribers, avg. 1859–61 (log)	0.0581*** (0.0095)	0.2811** (0.1161)	0.0560*** (0.0118)	0.2107** (0.0970)	0.0768*** (0.0110)	0.2795** (0.1189)
Geo controls	✓	✓	✓	✓	✓	✓
Main controls	✓	✓	✓	✓	✓	✓
Province FEs	✓	✓	✓	✓	✓	✓
F-stat (KP)		11.3162		11.3162		11.3162
Anderson–Rubin CI		[0.051, 0.511]		[0.018, 0.403]		[0.043, 0.516]
Obs.	824	824	824	824	824	824

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## Robustness to Conley Spatial Correlation

Approach and cutoff	OLS	OLS	2SLS	2SLS
Baseline p-val.	< 0.001	< 0.001	< 0.001	0.013
Conley, 50 km, p-val.	< 0.001	< 0.001	< 0.001	0.006
Conley, 100 km, p-val.	< 0.001	< 0.001	< 0.001	0.005
Conley, 300 km, p-val.	< 0.001	< 0.001	< 0.001	0.002
Conley, 500 km, p-val.	< 0.001	< 0.001	< 0.001	0.004
Muller-Watson, $\rho = 0.01$	< 0.001	< 0.001	< 0.001	0.022
Muller-Watson, $\rho = 0.02$	< 0.001	< 0.001	0.004	0.053
Muller-Watson, $\rho = 0.03$	< 0.001	< 0.001	0.012	0.094
Moran's I, 1000 km, p-val.	0.145	0.168	0.200	0.107
Moran's I, 1500 km, p-val.	0.207	0.258	0.162	0.120
Province FEs	✓	✓	✓	✓
Geo controls	✓	✓	✓	✓
Main controls	✓	✓	✓	✓
Obs.	824	824	824	824

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## Robustness to Alternate Fixed Effects

	(1)	(2)	(3)
<b>Panel A. Cell 333x333 km fixed effects</b>			
<i>Dep. Var.:</i>	Political Violence		
Subscribers (log)	0.1038*** (0.0110)	0.1024*** (0.0112)	0.0790*** (0.0133)
Cell FEs	✓	✓	✓
Geo controls		✓	✓
Main controls			✓
<b>Panel B. Cell 444x444 km fixed effects</b>			
Subscribers (log)	0.0921*** (0.0086)	0.0917*** (0.0085)	0.0640*** (0.0102)
Cell FEs	✓	✓	✓
Geo controls		✓	✓
Main controls			✓
Mean dep. var.	0.282	0.282	0.282
Obs.	824	824	824

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