

Ink and Ire: The Revolutionary Impact of Russian Literature

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'Text-as-Data in Economics' workshop

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Motivation

- ▶ The written word – literature – has historically been believed to inspire and move societies
- ▶ Even today, literature hopes to inspire political movements and society at large
- ▶ Does literature simply reflect the evolving currents of culture, or does it actually drive societies toward political action and even violence?
- ▶ Can art create change?

Research Questions

- ▶ Can literature precipitate political radicalization and violence against the autocratic State?
- ▶ What explains the link between literature and political radicalization?

This Paper - I

We digitize and construct novel data on one of the most significant literary journals in the 19th century – “*Sovremennik*”.

What is the “Sovremennik” (The Contemporary)?:

- ▶ “*Sovremennik*” magazine started by legendary Russian Poet, Alexander Pushkin
- ▶ Introduced what are now considered literary giants in Russia and beyond: Turgenev, Gogol, Dostoevsky, Tolstoy

This Paper - II

1. We analyze all texts of the journal issues spanning a third of the 19th century and give the first glimpse of how Russian intelligentsia thought in its “Golden Age”
2. How and when the Russian literature moved from an ideology of “art for art's sake” to “art for political change”
3. Link journal subscription at the local level to political violence.
 - ▶ Magazine subscription positively correlated with political violence against the State.
 - ▶ Instrumental variable strategy using “Pushkin's circle” and chance meetings between Puskin and the public suggest the relationship is causal

Applications of Text-as-Data in this Project

1. Extracting data from the biographies of the victims of revolutionary terror (*gpt-4 API*)
2. Describing the evolution of themes in the magazine over time (*word2vec + dictionary, LDA*)
3. Improving IV: Analyze the biographies of individuals Pushkin encountered (*CBOW, pre-trained on Russian Wiki*)

What was “The Contemporary”?

- ▶ Literary magazine published from 1836 to 1866
- ▶ Established by **Alexander Pushkin**



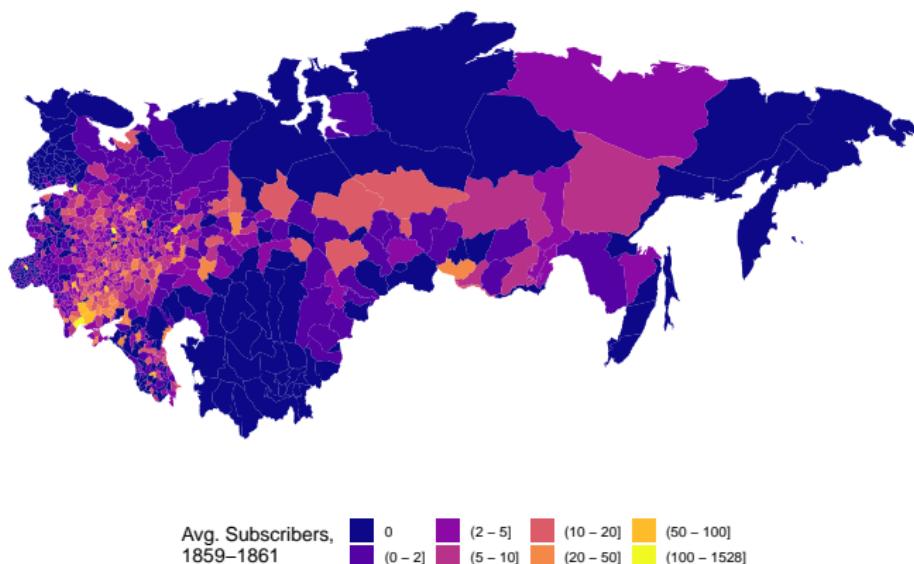
- ▶ Published and introduced prominent Russian writers of the time, including Gogol, Turgenev, Tolstoy, and Dostoevsky
- ▶ Published Russian literary works, journalism, translations, selected scientific articles, as well as lifestyle and fashion pieces
- ▶ Gradually shifted from art (and fashion) to social change and politics

Art for Social Change



Figure 1: *Repairing the Railroad* by Konstantin Savitsky (1874)

The Average Number of Subscriptions on “Sovremennik”, 1859–61



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.

Instrumental Variable: Pushkin's Circle



- ▶ “Pushkin and his Entourage” (Chereiskii, 1988) meticulously records and authenticates over **2,500 encounters** between the public and the poet Alexander Pushkin, the magazine’s founder
- ▶ We geolocalized Pushkin contacts (places of birth/living/meeting Pushkin) to trace early diffusion of magazine
- ▶ We analyse biographies of Pushkin’s contacts to identify “one-off” or spontaneous meetings

Instrumental Variable: Removing “Endogenous” Encounters

- ▶ We use a CBOW model pre-trained on Russian Wikipedia to proxy the semantics of the biographies of Pushkin’s contacts.
- ▶ We construct distances between the centroids of biographies and two small “dictionaries”: one related to **friends** and one related to **family**.
- ▶ We remove those contacts whose distance is below a certain threshold and use it again as our IV.

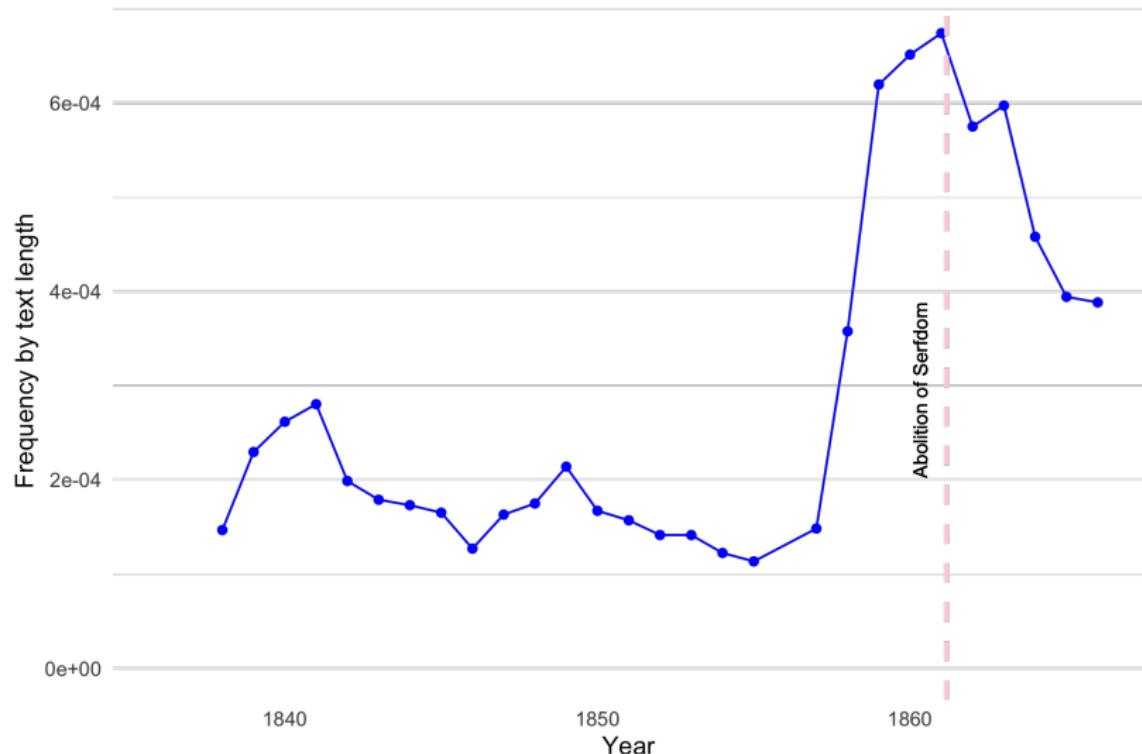
One-off Meetings with Pushkin

- ▶ LARIN Ilya (Illarion) Ivanovich - a retired feuerwerker in Kishinev. Played the role of a buffoon in the society of officers, among whom Pushkin was also present

Text Processing and Analysis of “The Contemporary”

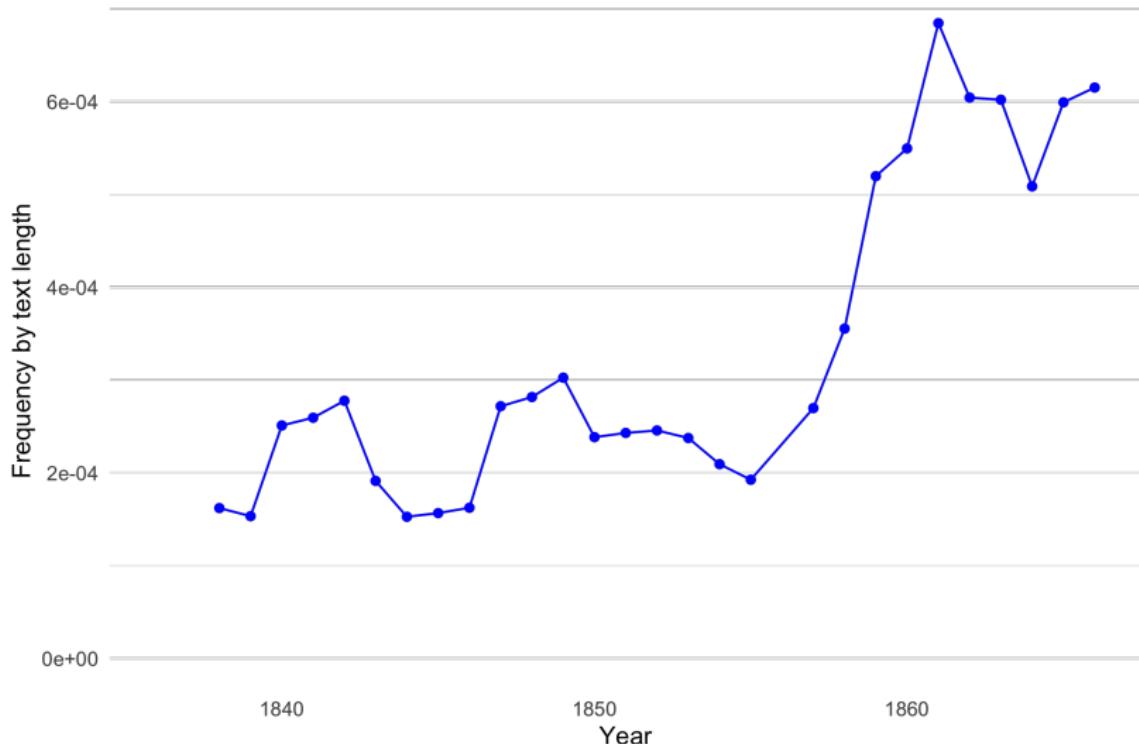
- ▶ We extracted and pre-processed an almost complete set of magazine texts spanning 30 years, from 1836 to 1866.
- ▶ The texts are grouped by year.
- ▶ We trained *word2vec* on this corpus to enrich dictionaries related to topics of our interest.
- ▶ We validate our results by considering a "political" topic defined by LDA

Discussion on Peasant / Serfdom



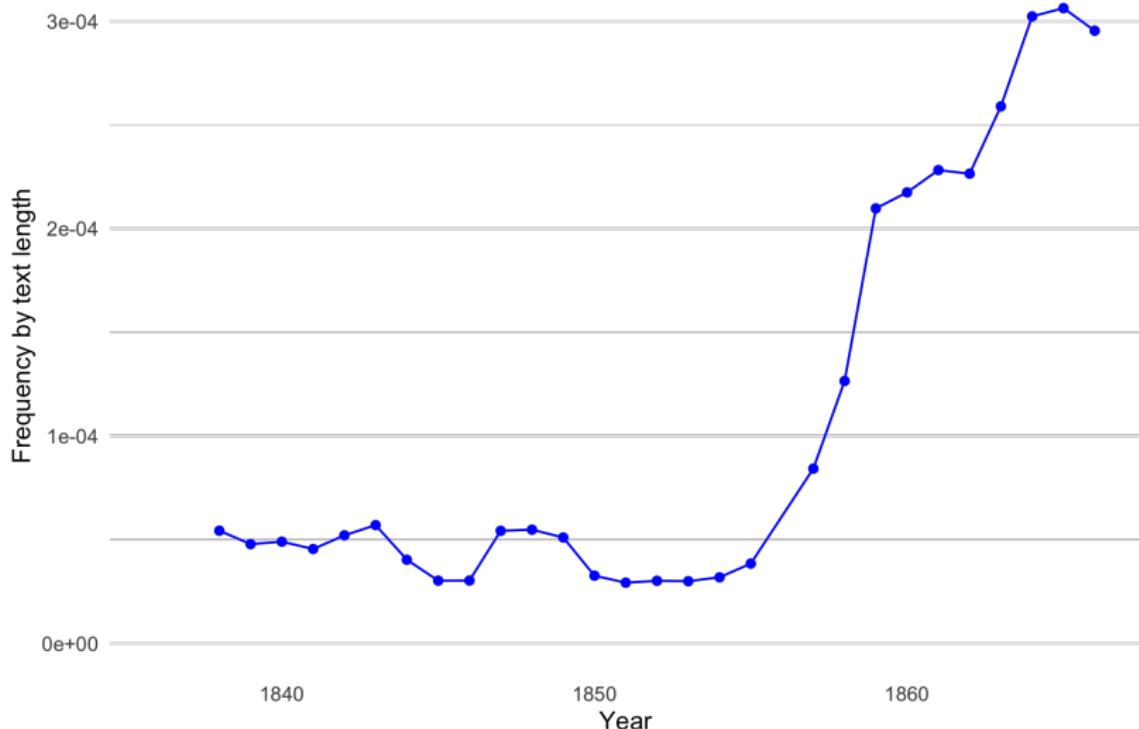
*Dictionary includes: peasant, serf, muzhik, elder, redemption, corvée, bread, quitrent, cattle, farmer, owner, landowner, harvest, tithe, buyout, settler

Discussion on Economy



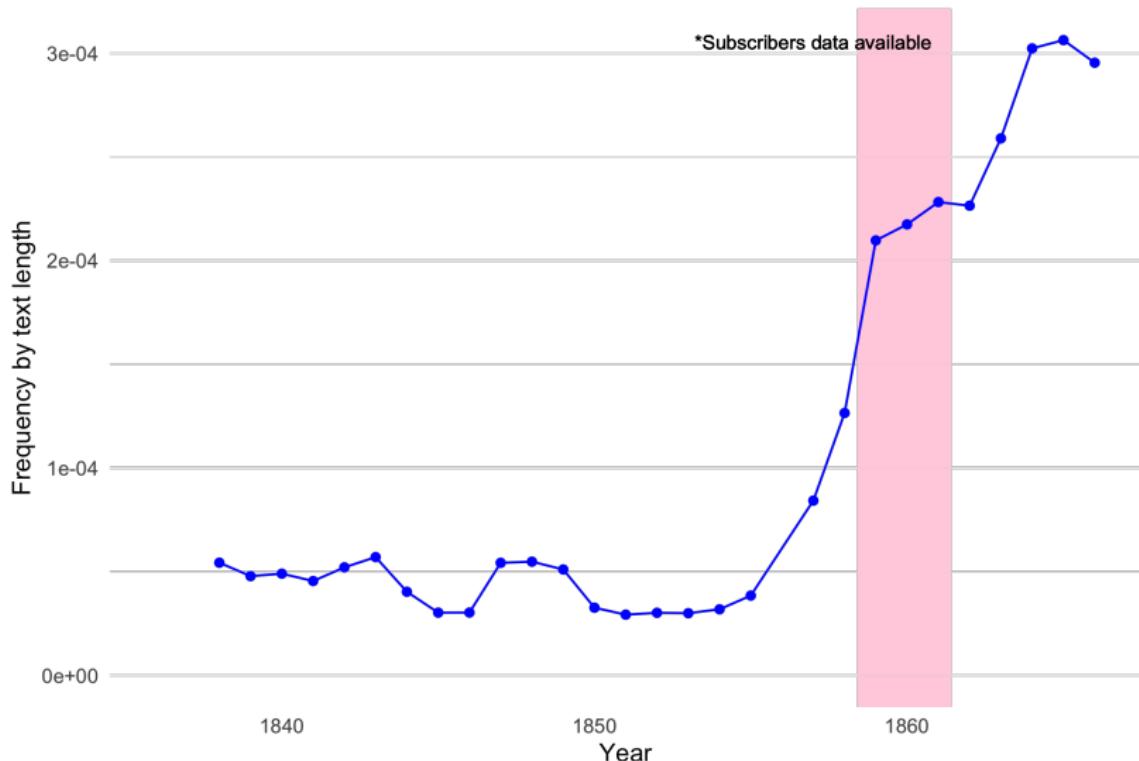
Terms like: *economy, finance, household, treasury, rent, value, sum, fee, cost, duty, amount, profit, product, income, monetary*

Discussion on Democracy



Terms like: *democrat, constitutional, parliament, opposition, sejm, election, republic, reforms, congress, sessions, president, elections, transformed, liberal*

Discussion on Democracy



Terms like: *democrat, constitutional, parliament, opposition, sejm, election, republic, reforms, congress, sessions, president, elections, transformed, liberal*

Main Specification

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

- ▶ At least one attack_{1900-1914,i} is the dummy for having at least one violent attack against the state
- ▶ Log of Sovremennik Exposure_{1859-1861,i} is the logarithm of the number of Sovremennik plus 0.1, instrumented with the log of number of Pushkin contacts plus 0.1
- ▶ \mathbf{X}_i is a vector of control variables that includes distance to Moscow, distance from Saint Petersburg, linear controls for latitude and longitude, share of serfs prior to the abolition, the logarithm of the population density, the logarithm of the number of writers born before Sovremennik existence
- ▶ Γ_p is province fixed effects

Magazine Subscription and Violence Against the State

	(1)	OLS (2)	2SLS, second stage (3)	2SLS, second stage (4)
At least one attack				
Number of subscribers, average 1859-61, log	0.0976*** (0.0102)	0.0821*** (0.0120)	0.1797*** (0.0392)	0.1711** (0.0689)
<i>Controls</i>				
Geographic controls	Yes	Yes	Yes	Yes
Share of serfs		Yes		Yes
Writers born pre-treatment		Yes		Yes
Population density (1858)		Yes		Yes
<i>Fixed-effects</i>				
Province FEs	Yes	Yes	Yes	Yes
Observations	828	828	828	828
F statistics (Kleibergen-Paap)			70.382	33.065
Mean of dependent variable	0.28	0.28	0.28	0.28

IV: “One-off” Encounters

	No Friends IV (1)	No Relatives IV (2)	"One-off" Encounters IV (3)	"One-off" Encounters IV (4)
At least one attack				
Number of subscribers, average 1859-61, log	0.2313*** (0.0860)	0.1877* (0.0946)	0.1831*** (0.0487)	0.1788** (0.0875)
<i>Controls</i>				
Geographic controls	Yes	Yes	Yes	Yes
Share of serfs	Yes	Yes		Yes
Writers born pre-treatment	Yes	Yes		Yes
Population density (1858)	Yes	Yes		Yes
<i>Fixed-effects</i>				
Province FEs	Yes	Yes	Yes	Yes
Observations	828	828	828	828
F statistics (Kleibergen-Paap)	51.634	20.462	35.956	16.514
Mean of dependent variable	0.28	0.28	0.28	0.28

Magazine Subscriptions and Future Human Capital

	OLS (1)	2SLS (2)	OLS (3)	2SLS (4)	OLS (5)	2SLS (6)
	Literacy		Total district number of schools per 1000, 1894		Total number of schools per 1000, 1911	
Number of subscribers, average 1859-61, log	-0.0026 (0.4457)	-0.2291 (2.052)	-0.0156* (0.0090)	-0.0383 (0.0470)	-0.0007 (0.0216)	0.1100 (0.1209)
<i>Controls</i>						
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Share of serfs	Yes	Yes	Yes	Yes	Yes	Yes
Writers born pre-treatment, log	Yes	Yes	Yes	Yes	Yes	Yes
Population density (1858), log	Yes	Yes	Yes	Yes	Yes	Yes
<i>Fixed-effects</i>						
Province FEs	Yes	Yes	Yes	Yes	Yes	Yes
F statistics (Kleibergen-Paap)		11.691		11.691		11.467
Observations	490	490	490	490	486	486

Conclusion

- ▶ During the period of Sovremennik existence Russian literature shifts its ideology from “art for art's sake” to “art for change.”
- ▶ Radical literature correlates with violence against the State
- ▶ Instrumental variables using Pushkin's circle suggests the relationship may be causal

Final Thought

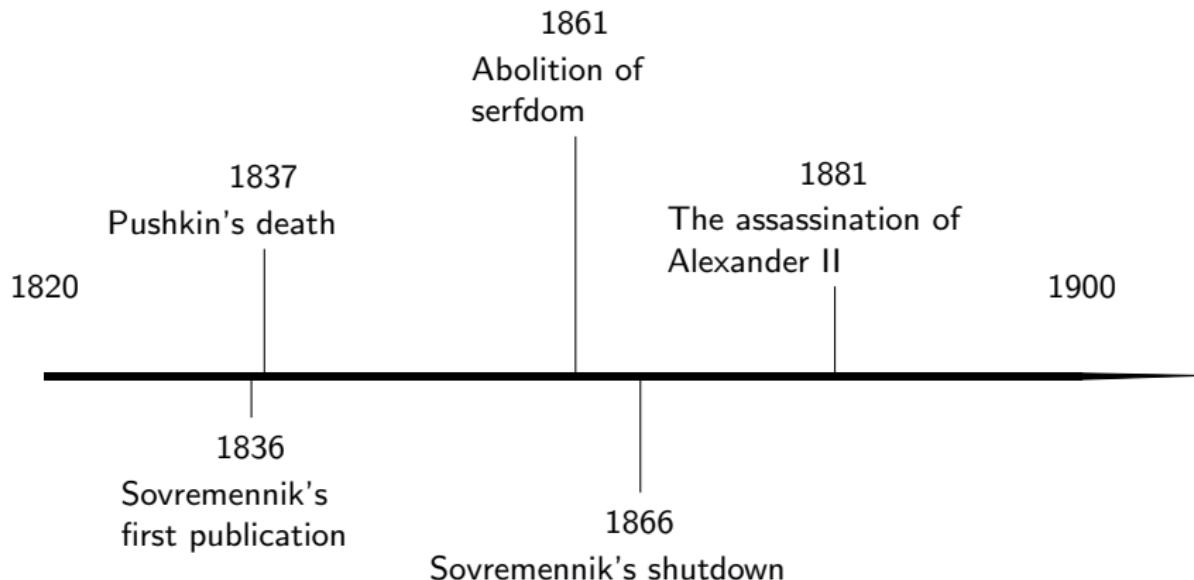
“I read everything printed in Sovremennik to the last line, more than once...” *Vladimir Lenin*

Appendix

Related Literature

- ▶ **Culture, Knowledge and Economic Development**
 - ▶ Ideas matter (Azoulay, 2010; Mokyr, 2011; Squicciarini & Voigtländer, 2015; Cantoni et al., 2017; Iaria et al. 2018; Ash et al., 2022)
 - ▶ We contribute to this literature by showing how the spread of Russian 19th-century Literature – one of the most productive periods in the history of ideas – to political violence and development
- ▶ **Institutions and Development**
 - ▶ Origins of social norms and institutions (Blattman et al., 2017; Bursztyn et al., 2020; Lowe, 2021; Bisin and Verdier, 2022)
 - ▶ Ideas may generate resistance against an autocratic state
- ▶ **Russian Economic History**
 - ▶ Short and long-term impact of pre-Revolution institutions (Zhuravksaya et al., 2021; Markevich, Zhuravskaya, 2018; Boggle & Nafziger, 2021)

Timeline and our setting



Golden Age of Russian Literature

A short spark of Genius

- ▶ **Our data covers a brief Yet Very Productive Era:** The Golden Age of Russian literature unfolded within Tolstoy's lifespan (1828 - 1910)
 1. "Eugene Onegin" by Alexander Pushkin (1833)
 2. "Crime and Punishment" by Fyodor Dostoevsky (1866)
 3. "War and Peace" by Leo Tolstoy (1869)

"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."

Socially-Conscious Poetry: "Railway" by Nekrasov

*A straight road: narrow embankments,
Pillars, rails, bridges.
And on the sides are Russian bones...
How many there are! Vanechka, do you
know?*



- ▶ Published in "Sovremennik", this poem is regarded as one of the most powerful anti-capitalist statements in 19th-century Russian literature.

Political Leaning of Magazine



- ▶ **Ideological Evolution:** The magazine underwent an ideological shift from liberal to socialist over its publication period
- ▶ **Competing Factions:** Two primary factions of authors were present: the liberal gentry and the radical democrats
- ▶ **Last Years:** The radical faction took over in the magazine's last period

The Abrupt Shutdown of the Magazine



- ▶ Dmitri Karakozov attempted the first revolutionary-assassination attempt in Russia, targeting Emperor Alexander II in 1866 (with no success)
- ▶ An issue of "Sovremennik" was found with Karakozov
- ▶ As a result, Alexander II personally decreed the closure of the magazine on May 28, 1866

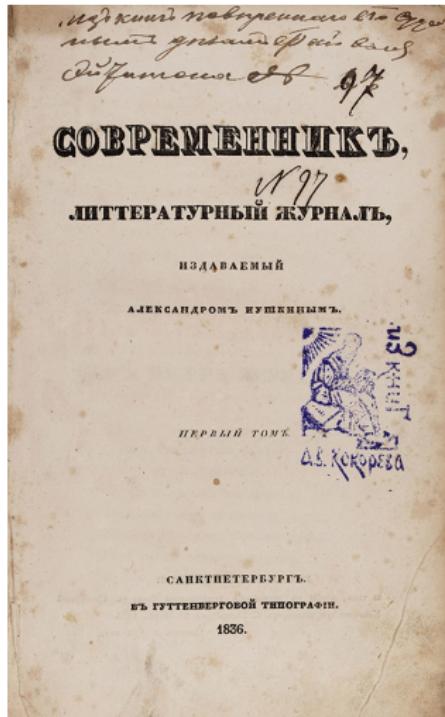
Violence against the State in the Russian Empire



► **State Response:** The empire responded with strict surveillance, censorship, and the establishment of the Okhrana, a secret police force.

- **Origin:** Early progressives became disillusioned with peaceful efforts and turned to more direct and violent methods to achieve their goals.
- **The People's Will:** A radical organization that believed in using terrorism against the autocratic regime. They notably assassinated Tsar Alexander II in 1881.
- **Periods:** Terrorism surged in two main waves - the late 19th and early 20th centuries.

Example of Raw Data in the Magazine



"Sovremennik"

ПОСЛѢДНІЯ МИНУТЫ ПУШКИНА.

Россія потеряла Пушкина въ ту минуту когда гений его, созрѣвъ въ опытахъ жизни, размышеніемъ и наукой, готовыся дѣйствовать полнouю силою — потеря неизвратная и ничѣмъ не вознаградимая. Что бы онъ написалъ, еслибы судьба такъ незапно не сорвала его со славной, едва начатой имъ дороги? Въ бумагахъ, послѣ него оставшихся, найдено много начатаго, весьма мало конченаго; съ благоговѣйною любовью къ его памяти мы сохранимъ все, что можно будетъ сохранить изъ сихъ драгоцѣйныхъ остатковъ; и они въ свое время будутъ изданиемъ въ свѣтѣ (*). Здѣсь сообща-

(*) Вскрѣзъ за полными изданиемъ сочиненій, уже издаваемыхъ въ шести частяхъ по подпискѣ. Если напечатать все найденное въ рукописяхъ Пушкина, то конечно составится два хорошихъ тома; или и паче если присоединить къ литературнымъ отрывкамъ все матеріалы, приготовленные для Исторіи Петра Бережного. Ж.

Современникъ. 1857, № 4.

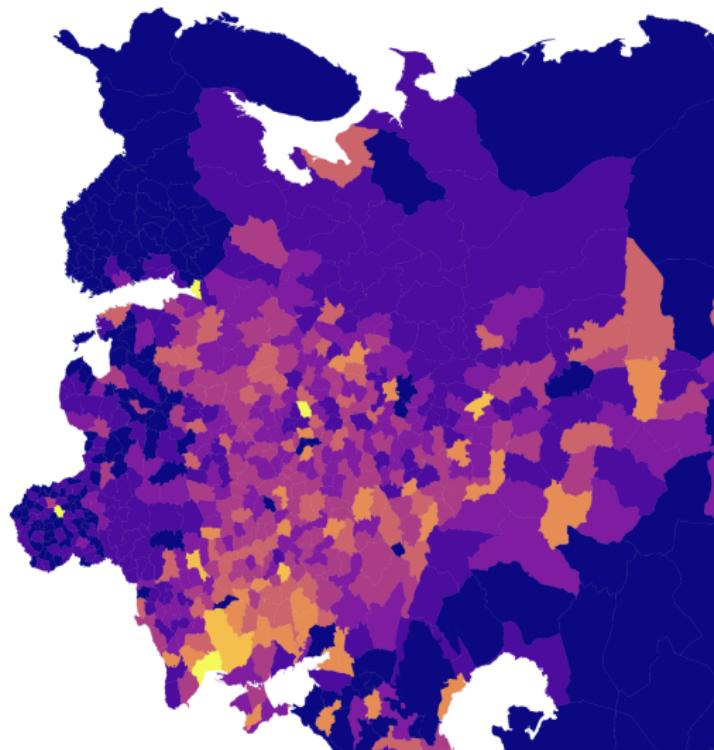
Digitized by Google

Inside the "Sovremennik"

Main Data

- ▶ Subscription numbers by district for 1859, 1860, and 1861
- ▶ Complete digitized corpus spanning 30 years of the magazine's existence
- ▶ "Pushkin and his Entourage" (Chereiskii, 1988): over 2,500 interactions between the public and the poet Alexander Pushkin, the magazine's founder
- ▶ Wikipedia data on writers born in Russian Empire (with date and location of birth)
- ▶ Dataset of political violence in the Russian Empire constructed from a book: "The Book of Russian Sorrow"
- ▶ First Russian Census (1897)

Subscriptions Map: European Part



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, заключавшими пророчество его будущего величия и славы:

С душой, на все прекрасное готовой,
Наставенный: достойным счастья быть,
Великое с величем сносить,
Не трепетать, встречая рок суворый,
И быть в делах времен своих красой.
Лета пройдут, поднявшись молодой,
Откинувши младенчества забавы,
Он полетит в путь опыта и славы...
Да встретит он обильный честы век!
Да славного участник славный будет!
Да на чред 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.

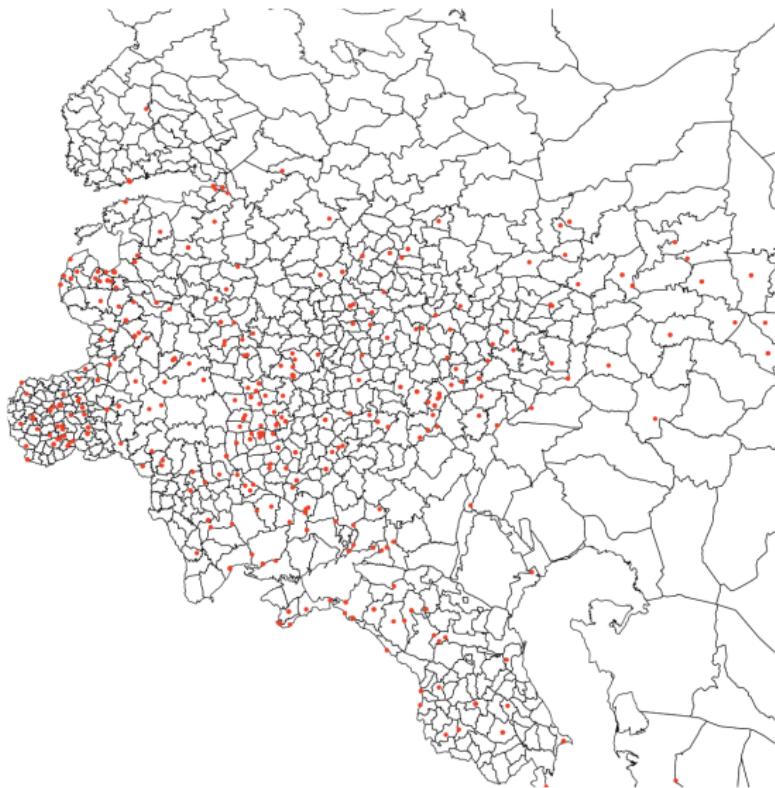
25 ноября 1825 г. с кончиной Императора Александра I на Престол вступил Великий князь Николай Павлович, а Великий князь Александр Николаевич был объявлен Наследником.

Воспитание и образование Наследника было поручено капитану Мердеру, Святы Его Величества генерал-майору Кавалерину 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 легло 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 ученик, а просвещенный человек. И действительно, к концу назначенного для учения срока семена добра и правды, твердости характера и рыцарского взгляда, конку ближнему, к «малым сим» и глубокое сознание долга и ответственности перед Богом за будущее царствование над могучим русским народом, – эти семена упали на добрую почву исконного и здравого ума Наследника.

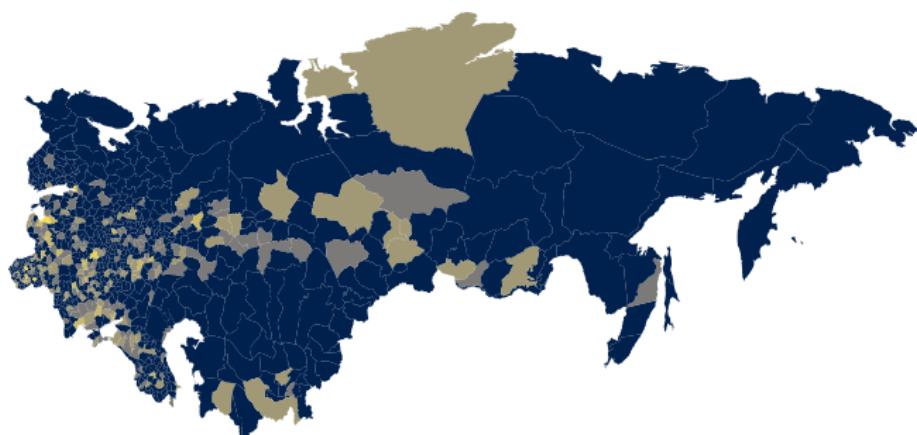
Сопровождая отца в путешествиях по государству, а также проехав по всей России в 1837 г. со специальной целью пополнить свое книжное образование и воспитание наглядным изучением раз-



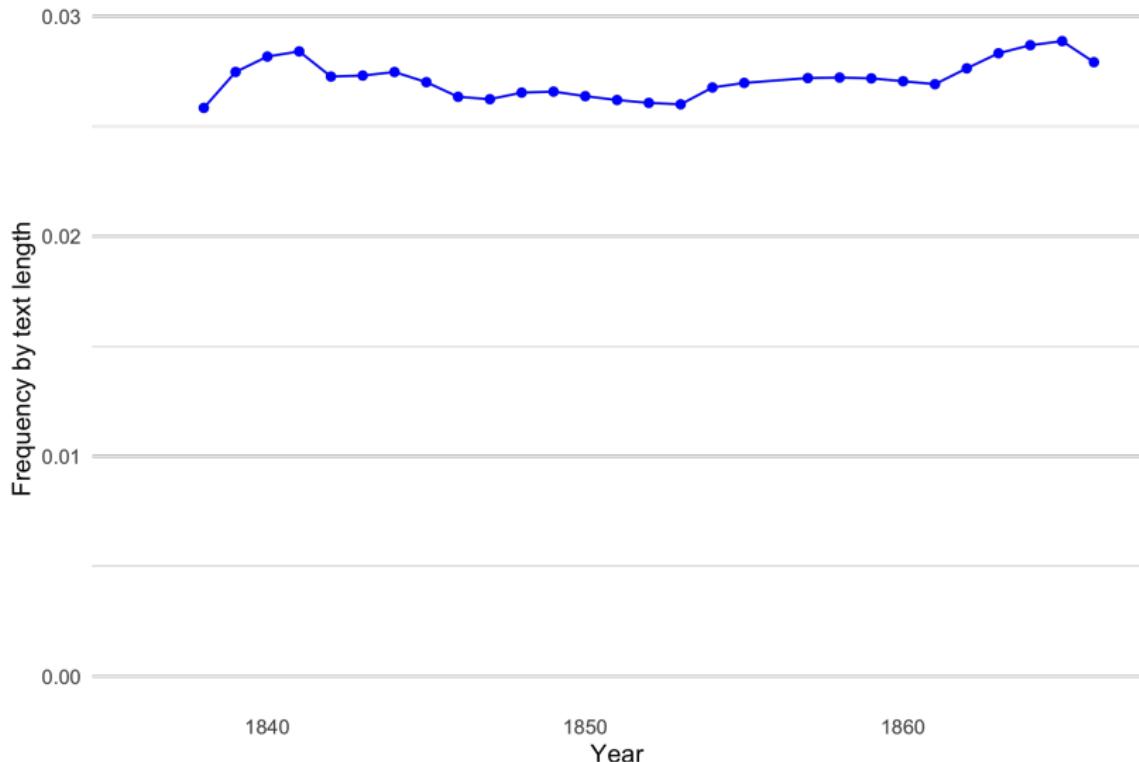
Dispersion of Political Violence in the Russian Empire



Dispersion of Political Violence in the Russian Empire

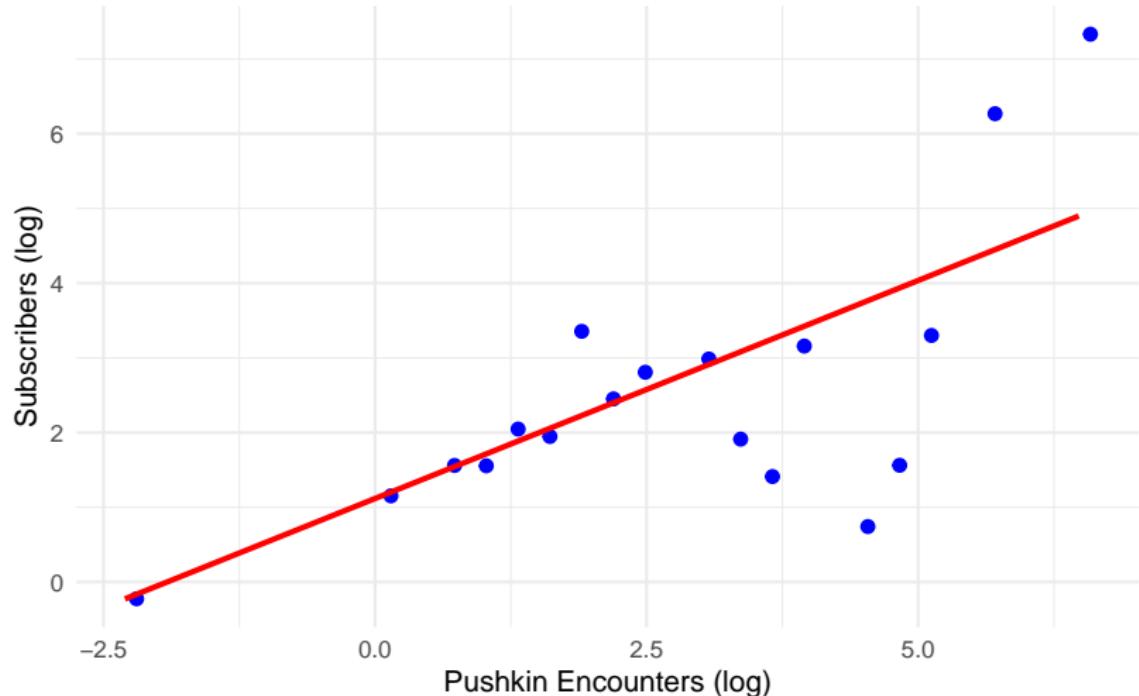


Validation: 150 Most Common Russian Stop (Function) Words

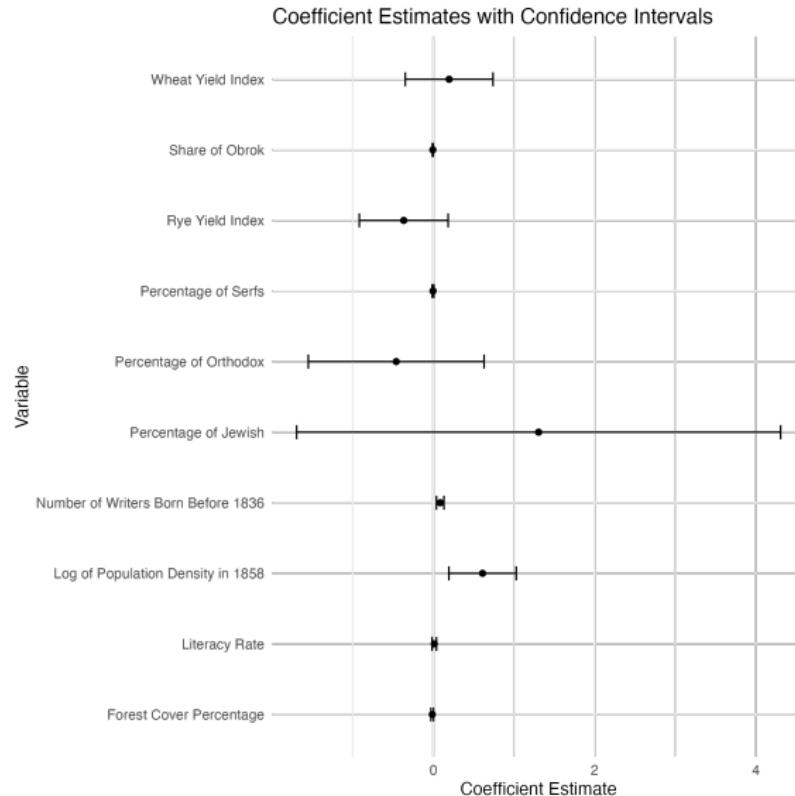


*Example of Functional Words: *and, of, to, in, for, with, on, at, by, from, about, as, into, like, through, over, before, between, out, while, where, when, it, this, that, these*

First Stage: Pushkin's Contacts and Magazine Subscription



Balance: Instrument Exogeneity?



Other IV Robustness

- ▶ Number of Pushkin contacts by districts excluding Decembrists (*liberal conspirators*) ▶ No Decembrists
- ▶ Plausibility of exclusion restriction: Additional Balance checks
 - ▶ Exclusion restriction

IV Robustness, Decembrists Excluded: Magazine Subscription and Violence Against the State

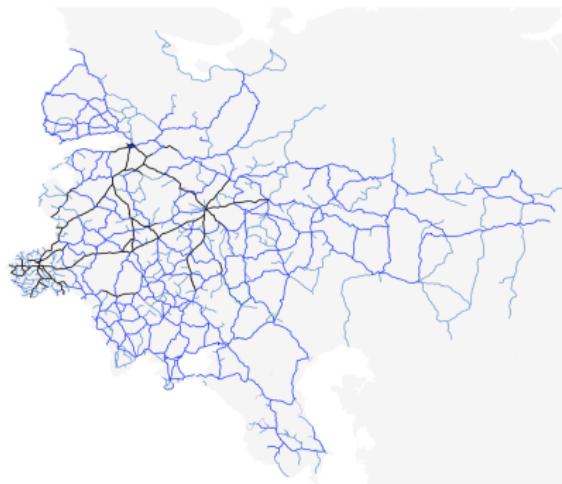
	(1)	OLS (2)	2SLS, second stage (3)	2SLS, second stage (4)
At least one attack				
Number of subscribers, average 1859-61, log	0.0962*** (0.0102)	0.0805*** (0.0120)	0.1791*** (0.0379)	0.1677** (0.0660)
<i>Controls</i>				
Geographic controls	Yes	Yes	Yes	Yes
Share of serfs		Yes		Yes
Writers born pre-treatment		Yes		Yes
Population density (1858)		Yes		Yes
<i>Fixed-effects</i>				
Province FEs	Yes	Yes	Yes	Yes
Observations	828	828	828	828
F statistics (Kleibergen-Paap)			69.790	34.533
Mean of dependent variable	0.28	0.28	0.28	0.28

Vectorization of Post Road Map

In search of identification...



*Historical Map



*Vectorized Map

City growth

Log City Population	1897	1926		1939	
	(1)	(2)	(3)	(4)	(5)
<i>Variables</i>					
log(Subscribers, 1859-61)	0.0202 (0.0161)	0.0347* (0.0175)	0.0160** (0.0060)	0.0379 (0.0230)	0.0166 (0.0115)
Log City Population 1897			0.9255*** (0.0289)		1.057*** (0.0290)
<i>Controls</i>					
Share of serfs	✓	✓	✓	✓	✓
Distance to Moscow and S-P	✓	✓	✓	✓	✓
District demographic controls	✓	✓	✓	✓	✓
Linear controls (lat/lon)	✓	✓	✓	✓	✓
<i>Fixed-effects</i>					
Province	✓	✓	✓	✓	✓
<i>Fit statistics</i>					
Observations	630	630	630	630	630
R ²	0.32383	0.30205	0.84903	0.25668	0.75249

Clustered (gub) standard-errors in parentheses

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1

Does the Magazine subscribers correlate with economic development?

Log Light Density in:	1994 (1)	1999 (2)	2005 (3)	2008 (4)	2012 (5)
<i>Variables</i>					
log(Subscribers, 1859-61)	0.0197 (0.0181)	0.0301 (0.0201)	0.0369* (0.0191)	0.0268 (0.0205)	0.0299 (0.0188)
<i>Controls</i>					
Share of serfs	✓	✓	✓	✓	✓
Distance to Moscow and S-P	✓	✓	✓	✓	✓
District demographic controls	✓	✓	✓	✓	✓
Linear controls (lat/lon)	✓	✓	✓	✓	✓
<i>Fixed-effects</i>					
Province	✓	✓	✓	✓	✓
<i>Fit statistics</i>					
Observations	447	447	447	447	447
R ²	0.67906	0.65950	0.61929	0.61633	0.61632

Clustered (Province) standard-errors in parentheses

Signif. Codes: ***: 0.01, **: 0.05, *: 0.1