SUPPLEMENT TO "SOCIAL MEDIA AND PROTEST PARTICIPATION: EVIDENCE FROM RUSSIA"

A.1 The Cross Partial Derivative of Protest Participation with Respect to Social Media and Baseline Coordination Signal

The cross partial derivative of the effect of social media on protests via coordination channel with respect to baseline coordination signal can be obtained by differentiating equation (2) with respect to the precision of the baseline coordination signal, β_0:

$$\frac{\partial^2 \hat{c}_p}{\partial \beta_s \partial \beta_0} = -\frac{2k}{(\beta_0 + \beta_s)^3 \left(1 - \frac{\lambda_p}{\sigma_{pc}}\phi\left[\frac{1}{\sigma_{pc}}(\hat{c}_p - \mu_{pc})\right]\right)} + \frac{k^2 \lambda_p \phi'\left[\frac{1}{\sigma_{pc}}(\hat{c}_p - \mu_{pc})\right]}{\sigma^2 (\beta_0 + \beta_s)^4 \left(1 - \frac{\lambda_p}{\sigma_{pc}}\phi\left[\frac{1}{\sigma_{pc}}(\hat{c}_p - \mu_{pc})\right]\right)^3}$$

We would like to derive the sign of this expression. First, note that, under the assumption that lambda is small enough to ensure that the denominator in (6)–(8) is positive, — more precisely, if $\lambda < \sigma_{pc}/\phi[(\hat{c}_p - \mu_{pc})/\sigma_{pc}])$ — the first part of the above expression is negative.

Second, observe that whenever the equilibrium threshold, $\hat{c}_p$, exceeds the average cost of protest participation, μ_{pc}, the second part of that expression becomes negative too (since $\phi'(x) < 0$ when $x > 0$). Thus, in this case, the cross partial derivative has a negative sign. However, the condition that $\hat{c}_p > \mu_{pc}$ is fairly restrictive and unlikely to hold in our data, as it means that more than 50% of population decide to take part in a protest.

However, we can show that, even if $\hat{c}_p < \mu_{pc}$, the cross partial derivative is negative as long as λ_p is small enough. To see this, note that, when λ_p approches zero, the second part of the expression goes to zero as well, while the first one survives and remains negative. We search for the condition on lambda more formally below. Getting rid of common multipliers and using simplified notation, the condition becomes:

$$\frac{k\lambda\phi'}{\sigma^2 (\beta_0 + \beta_s)\left(1 - \frac{\lambda}{\sigma}\phi\right)^2} - 2 < 0$$

After a few algebraic transformations, one obtains the following inequality:

$$\lambda^2 \left[-2(\beta_0 + \beta_s)\phi^2\right] + \lambda \left[k\phi' + 4(\beta_0 + \beta_s)\phi\sigma\right] - 2(\beta_0 + \beta_s)\sigma^2 < 0$$

Under the existing restriction on lambda, $\lambda < \sigma/\phi$, there remain some values of lambda for which the above inequality does not hold. To see this, note that, when inserting $\lambda = \sigma/\phi$, the above

expression becomes strictly positive:

$$-2(\beta_0+\beta_s)\sigma^2 - 2(\beta_0+\beta_s)\sigma^2 + k\sigma\frac{\phi'}{\phi} + 4(\beta_0+\beta_s)\sigma^2 = k\sigma\frac{\phi'}{\phi} > 0$$

, where $\phi' > 0$ comes from the fact that we are considering the case with $\hat{c}_p < \mu_{pc}$, and from the fact that $\phi'(x) > 0$ when $x < 0$.

Thus, the new condition on lambda is a subset of the existing condition and comes from solving the quadratic inequality above. After solving this inequality, one obtains the following condition:

$$\lambda < \frac{k\phi' + 4(\beta_0+\beta_s)\phi\sigma - \sqrt{(k\phi')^2 + 8(\beta_0+\beta_s)\phi\phi'k\sigma}}{2(\beta_0+\beta_s)\phi^2} \tag{16}$$

To conclude, if lambda is small enough, i.e., complies with condition (16), the cross partial derivative of the social media coordination effect on protest participation by precision of the baseline coordination signal has a negative sign. As a result, our theoretical framework predicts that social media should be more important in places with higher β_0^i where coordination is harder to achieve in the absence of public signals, e.g., in larger cities. Thus, if social media increases protest participation due to coordination channel, one would expect the magnitude of the effect to be increasing with city size.

A.2 Fractionalization with Arbitrary Overlap

In this section, we derive a fractionalization index formula for the case of overlapping groups. In our particular case, these are VK and Facebook users. Let us denote the number of VK users as n_1, the number of Facebook users as n_2, and their interaction as m (see Figure A12 for illustration).

The usual fractionalization index measures the probability that two randomly chosen objects happen to be in different groups:

$$I = 1 - \frac{n_1^2 + n_2^2}{(n_1 + n_2)^2}$$

Suppose now that there is a non-zero overlap between the two groups, meaning that mass m now has accounts in both VK and Facebook. The probability of
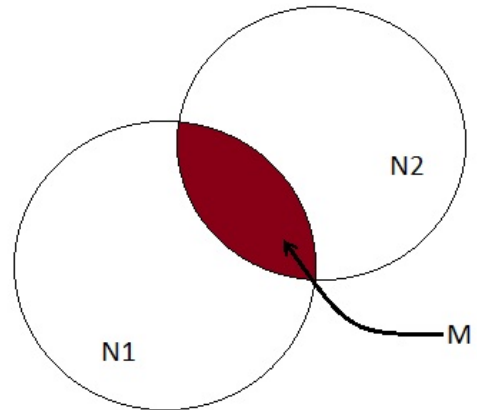

Figure A12. Overlapping groups

two randomly chosen people being from distinct social media networks is now equal to the chance that one person is drawn from n_1 but not m and the other one is drawn from n_2 but not m:[63]

$$I_1 = \frac{2(n_1 - m)(n_2 - m)}{(n_1 + n_2 - m)^2} \tag{17}$$

Now that we derived the formula for fractionalization with arbitrary overlap between groups, we can apply it to our analysis. The main issue with applying it directly is that we do not immediately observe m. However, since we want to see how a change in m affects the results of our fractionalization specification, we re-calculate our fractionalization index for 9 cases: $m = 0.1n_2, m = 0.2n_2, m = 0.3n_2, m = 0.4n_2, m = 0.5n_2$, etc. That is, we assume that 10% (20%, 30%, etc.) of Facebook users have a VKontakte account.[64] In Table A18 in the Online Appendix, we provide the results of the estimation for a subset of cities with large population (above 100,000). Note that the results are robust to a very high degree of overlap between the VK and Facebook users.

A.3. Consequences for Policy Outcomes: Details

This part of the Online Appendix discusses in detail our results on the consequences of social media for policy outcomes, introduced in Section 6.5. As mentioned in Section 6.5, Table A21 in the Online Appendix presents the effects of VK penetration on municipal revenue, spending, and federal transfers. In all specifications, we control for the 2008 values of the dependent variables, thus effectively focusing on the changes in the policy outcomes as opposed to their levels. Moreover, we condition on the 2007-2008 election results as they may influence the allocation of resources.

Panel A of Table A21 tests how federal transfers to municipalities over different years depend on the level of VK penetration. We find that higher VK penetration does not translate into any significant changes in transfers before 2012, but it leads to a decrease in federal transfers in the

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[63]Similarly, one can derive this formula by computing the inverse of the probability that two randomly selected people are in the same social media platform. There could be such three cases. If one of the people is from m, they will surely be from the same platform. If the first person is from n_1 but not m, they can meet only if the other person is from n_1. Similarly, if the first person belongs to n_2 but not m, they can meet only if the other person is from n_2. Combining the probabilities of these three events, we get:

$$I_2 = 1 - \frac{m}{n_1 + n_2 - m} - \frac{(n_1 - m)n_1}{(n_1 + n_2 - m)^2} - \frac{(n_2 - m)n_2}{(n_1 + n_2 - m)^2}$$

One can show that $I_1 = I_2$, so we can use either formula.

[64]In a survey from Enikolopov et al. (2017), we find that around 47% of regular Facebook users also use VK regularly. However, these estimates should be interpreted with caution as it heavily oversamples Moscow residents and, as such, is not representative at the city level.

years of 2012–2014. The magnitudes of these effects are fairly large, with a 10% increase in VK penetration leading to a 31% reduction in federal transfers in 2014. A potential explanation for this effect is that the national government punished cities for allowing protests to take place.

Panel B of Table A21 looks at a similar specification with the municipality tax revenue as an outcome variable. We find that VK penetration has a negative effect on municipal tax revenues in 2012–2014, but it becomes statistically significant only in 2014. One potential explanation for this result is that a consistent lack of transfers in previous years had reduced the tax collection capacity of the municipalities. Finally, Panel C of Table A21 checks whether a similar pattern holds for total municipal spending. Although the coefficients for VK penetration are not statistically significant, they are also consistently negative with relatively large magnitudes after 2011.

These results are consistent with the existing anecdotal evidence that federal and regional government often use municipal transfers as a political tool. A few months prior to the 2011 Parliamentary elections, several government officials were spotted arguing that their cities' municipal finances would be cut if United Russia did not receive a sufficient number of votes.[65] Furthermore, an independent mayor of Yaroslavl, Yevgeny Urlashov, after winning the 2012 elections against a United Russia candidate, faced a lack of regional funding for teacher wages. In this context, it would not be entirely surprising if cities indeed received less transfers from the federal government as a result of political protests.

A serious limitation of these results, however, is that they do not distinguish between the effect of political protests caused by higher VK penetration and the effect of other channels through which VK penetration could affect policy outcomes. A potential way to identify the effect of political protests would be to use weather shocks as an instrument for protest participation (as in Madestam et al., 2013). Unfortunately, despite using all the available weather information, we were not able to find a specification with a sufficiently high predictive power in the first-stage regression even using sophisticated machine learning techniques.

Overall, the results in Table A21 indicate that higher VK penetration led to lower federal transfers to municipal budgets starting from 2012, the first year after the onset of the protests, which suggests that the national government punished cities for allowing the protests to occur.

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[65]"Sarapul received 30 mln on roads and sidewalks this summer. Glazov received only 10 mln. We ourselves, Glazov residents, refused these extra 20 mln in the previous elections. (You) refused the good roads you could have been driving on. [. . .] Because United Russia oversees many various projects across the country. And they determine how to work with each city." – said the head of the presidential and government administration of Udmurtia Alexander Goriyanov on 5 Nov 2011 (http://bit.ly/2ofpOKa).

ONLINE APPENDIX

Figure A1. VK penetration over time. Number of users (vertical axis, in 100 mln accounts) and the date of the first post (horizontal axis) are shown.
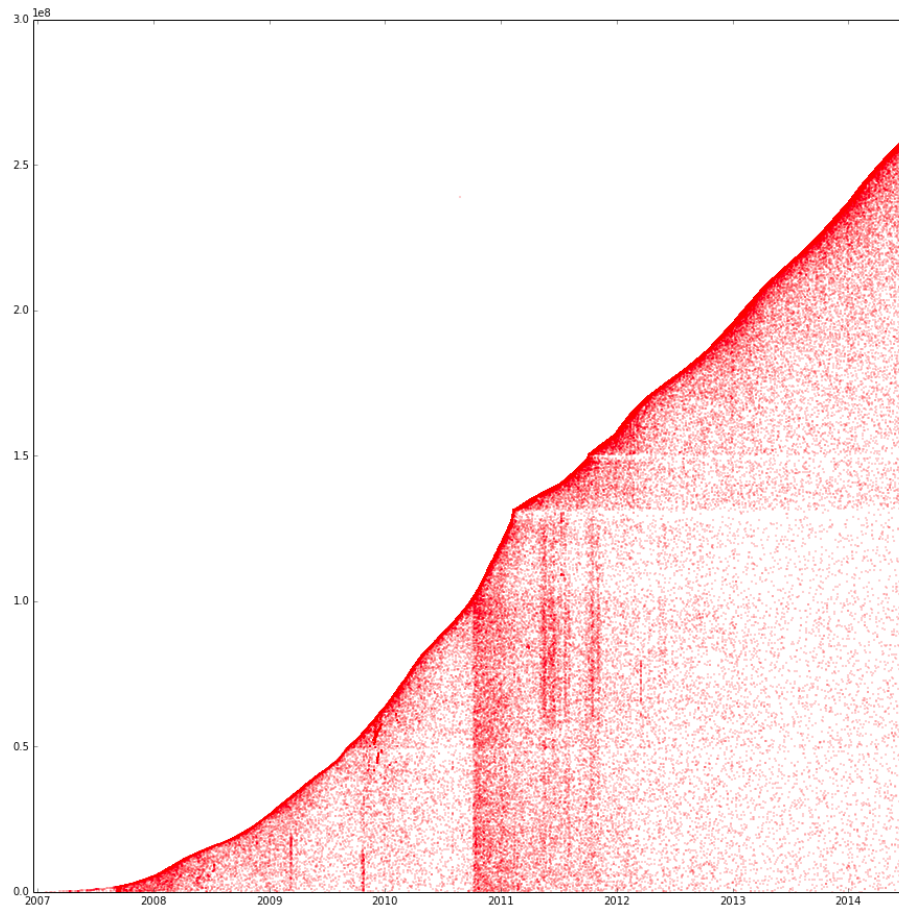
Figure A2. Map of Protests across Russian Territory, Dec 10-11, 2011
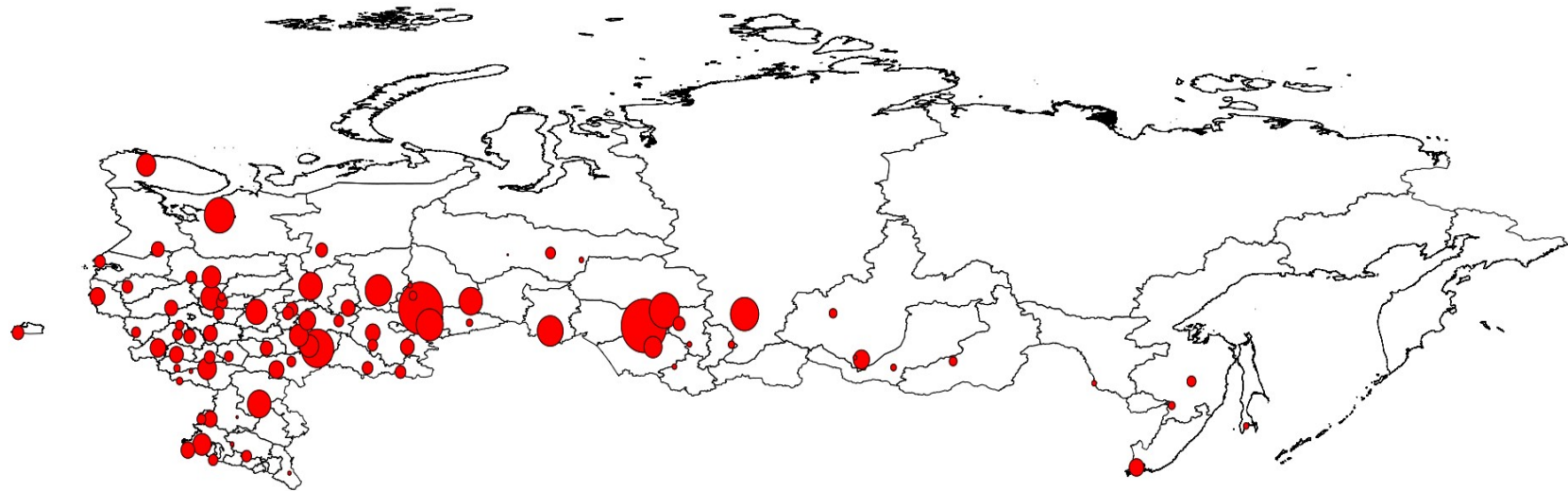
Notes: The graph displays the geographic location of the Russian cities that held protests on Dec 10-11, 2011. The size of the markers reflects the number of protest participants in each city. The number of protest participants in each city can be found in Table A23.

Figure A3. Fluctuations of City Ranks Across Cohorts.

Panel A: VK founder's (Durov's) cohort and one cohort older
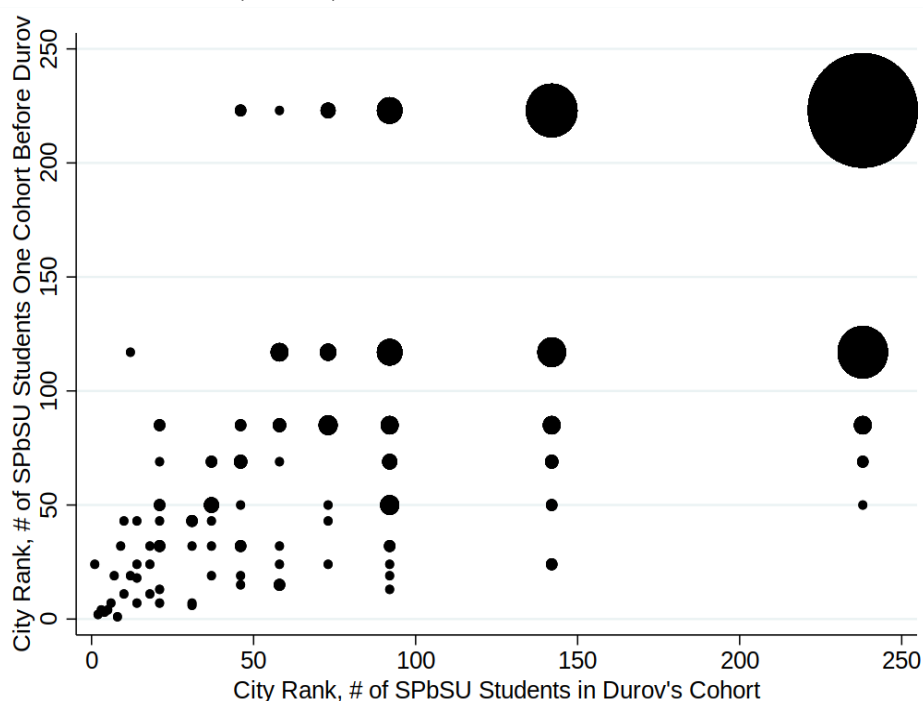
Panel B: VK founder's (Durov's) cohort and one cohort younger
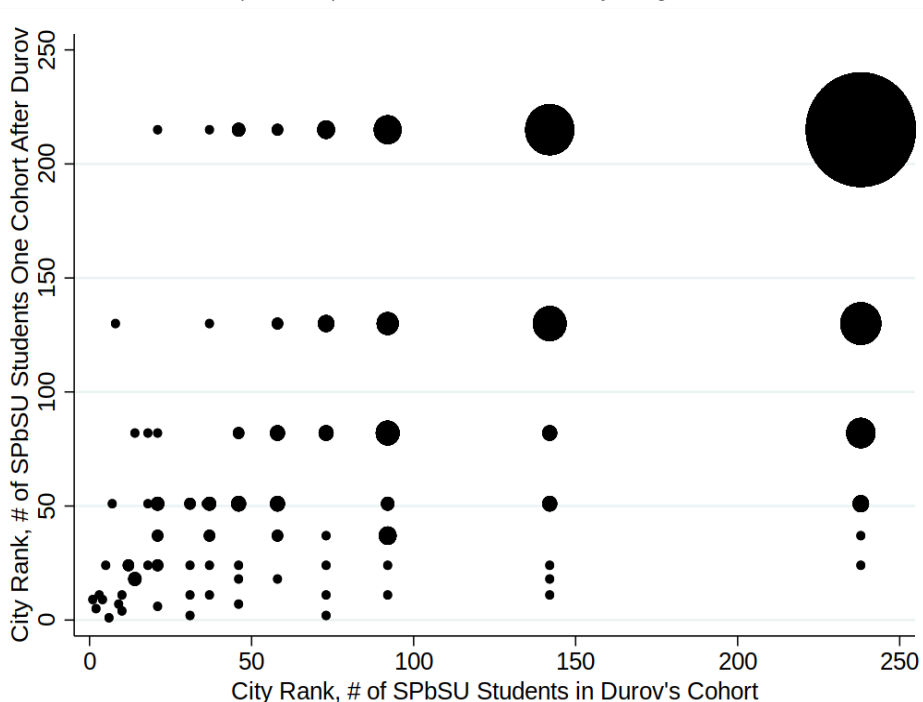
Notes: City rank is calculated with the highest value ranked 1 and assigning the same average rank in case of ties. The size of the dots reflects the number of cities with a given combination of ranks across cohorts.

Figure A4. VK Penetration in November 2006 and SPbSU student cohorts.
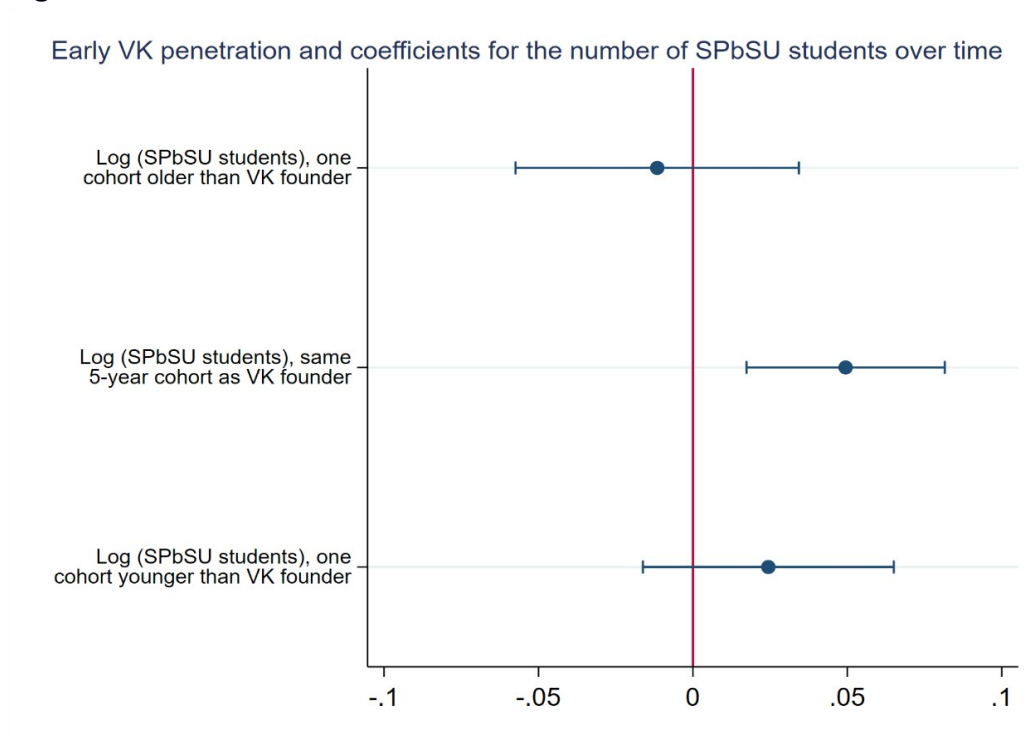
Notes: This figure presents the coefficients from column (5) of Table A5, reflecting the association between the log of the number of VK users in each city in November 2006 and the log of the number of SPbSU students who are one 5-year cohort older, of the same cohort, or one cohort younger than VK founder, respectively. Standard errors are clustered at the region level. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. For further details about this specification, see notes to Table A5.

Figure A5. Nonparametric Relationship between VK Penetration and Number of Protesters (in shares).
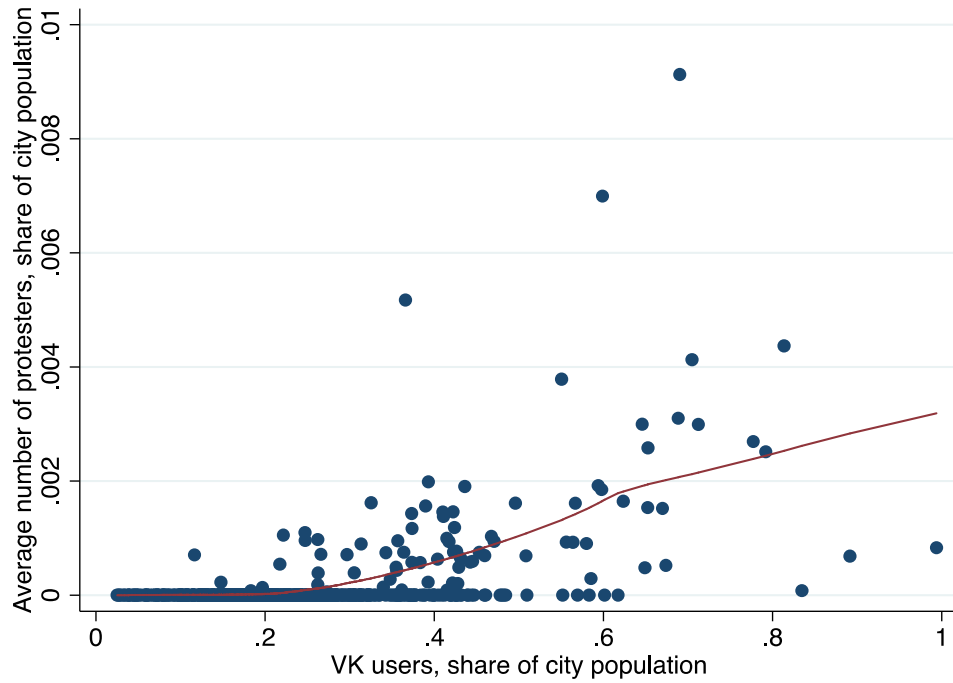
Notes: This figure displays the association between the average number of protesters in each city during the first week of protests in December 2011 and the number of VK users in these cities as of June 2011, both variables are per capita. Logarithm of any variable is calculated with 1 added inside. Blue dots illustrate raw city-level data. Red line represents a non-parametric relationship between the two variables.

Figure A6. Nonparametric Relationship between VK Penetration and Pro-Government Vote

Panel A: Vote Share for United Russia on December 4, 2011
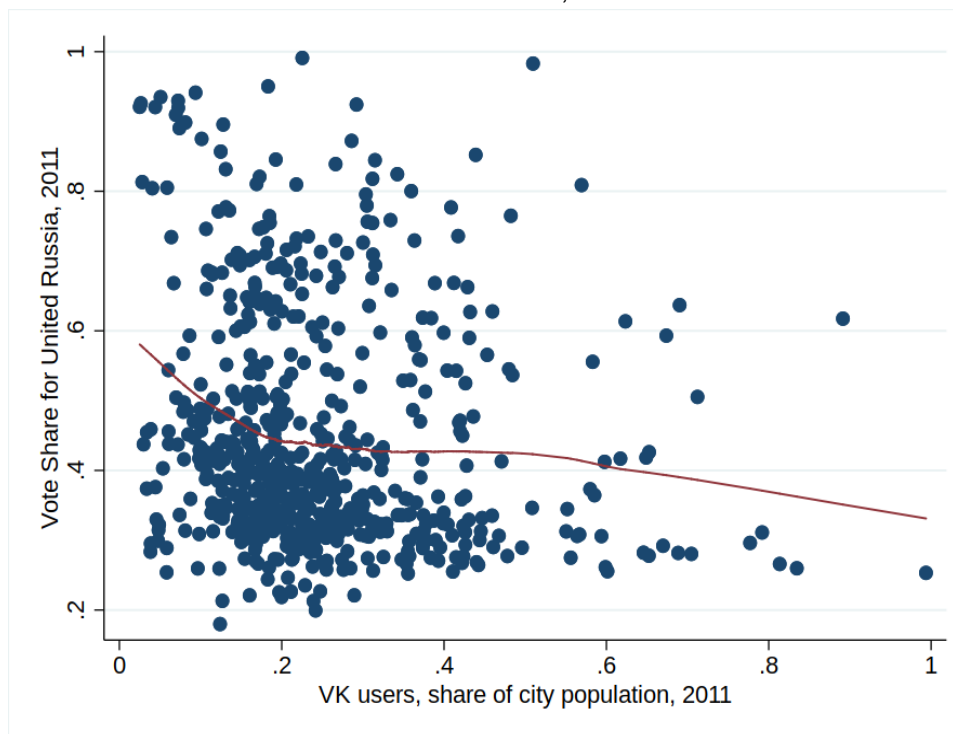
Panel B: Vote Share for Vladimir Putin on March 4, 2012
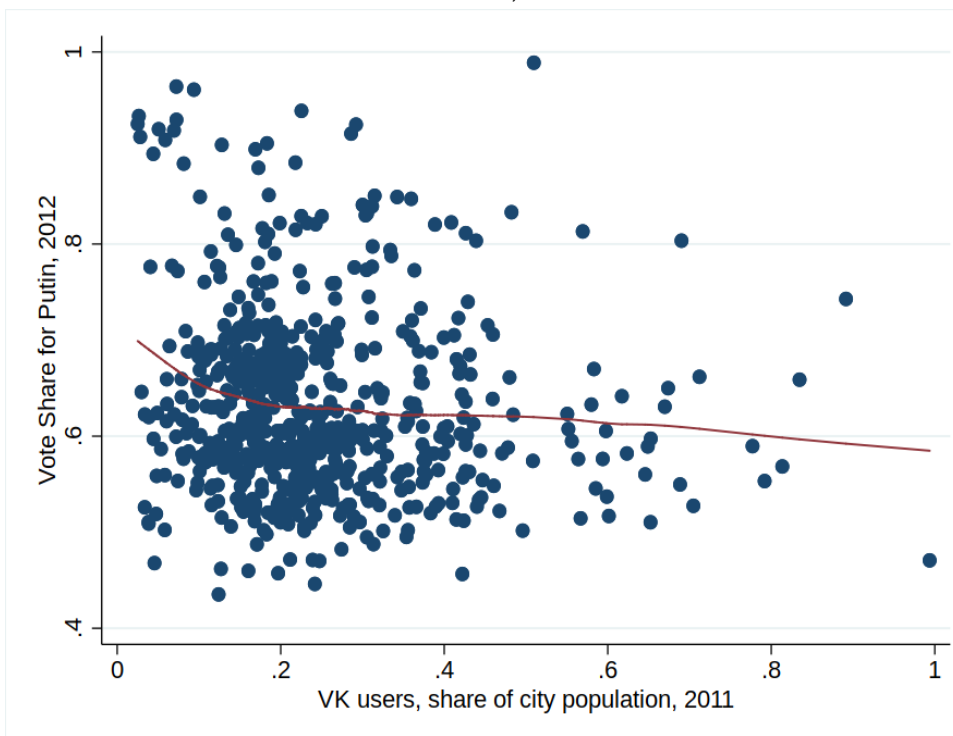
Notes: This figure displays the association between the pro-government vote share in each city in 2011 and 2012 and VK penetration in these cities as of June 2011. Blue dots illustrate the raw city-level data. The red line represents a non-parametric relationship between the two variables.

Figure A7. Reduced Form Coefficients for 65 Universities in Russia.

Panel A: Distribution of students in Durov's cohort (+- 2 years from Durov).
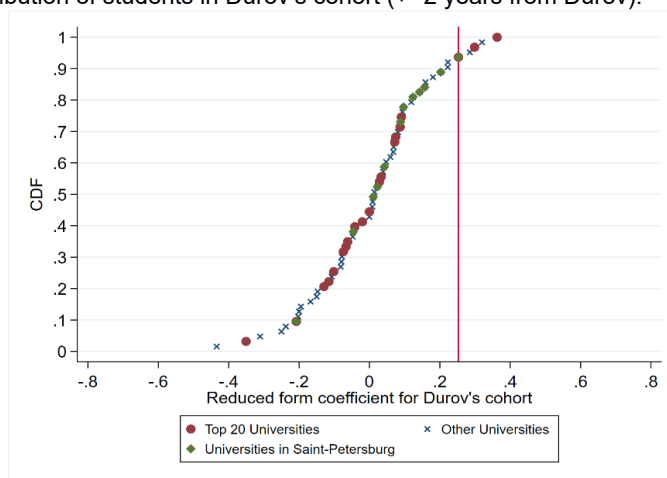
Panel B: Distribution of students in younger cohort
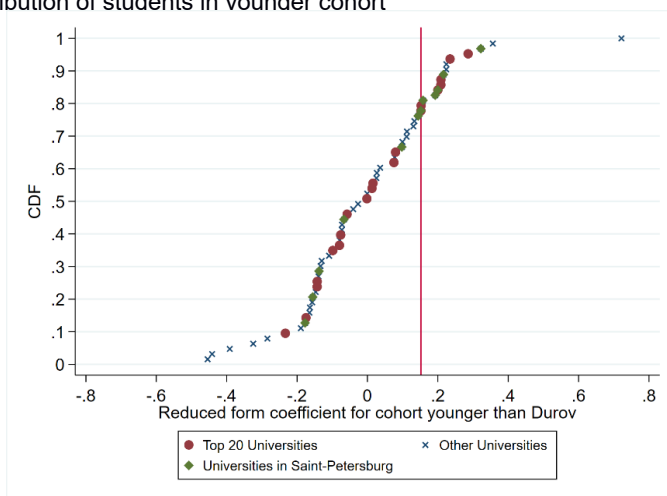
Panel C: Distribution of students in older cohort
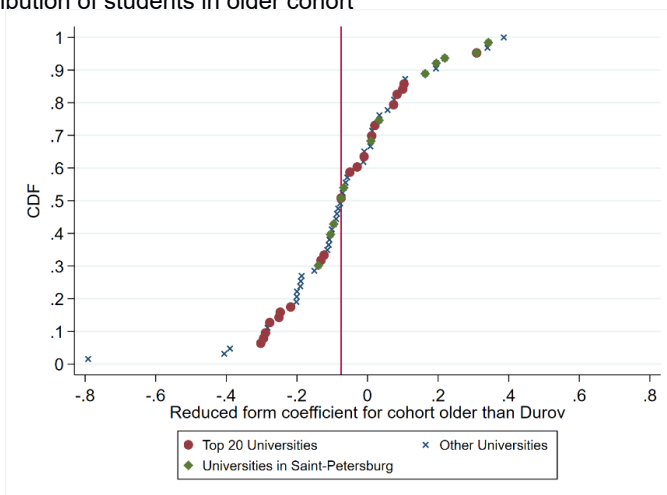
Notes: These figures draw comparisons between the reduce form coefficients displayed on Figure 2B and the coefficients from the same specification, but estimated with the log of the number of students from other 62 top Russian universities, as opposed to SPbSU. Red vertical lines indicate the SPbSU coefficients from Figure 2B. Red dots represent the first stage coefficients for the top-20 universities, such as MSU, SPbSPU, etc. Green dots represent the first stage coefficients for the top-63 Russian universities that are located in St. Petersburg. Blue crosses represent the first stage coefficients for the other top-63 universities.

Figure A8. Mentions of Politicians and Parties on VK in November 2011
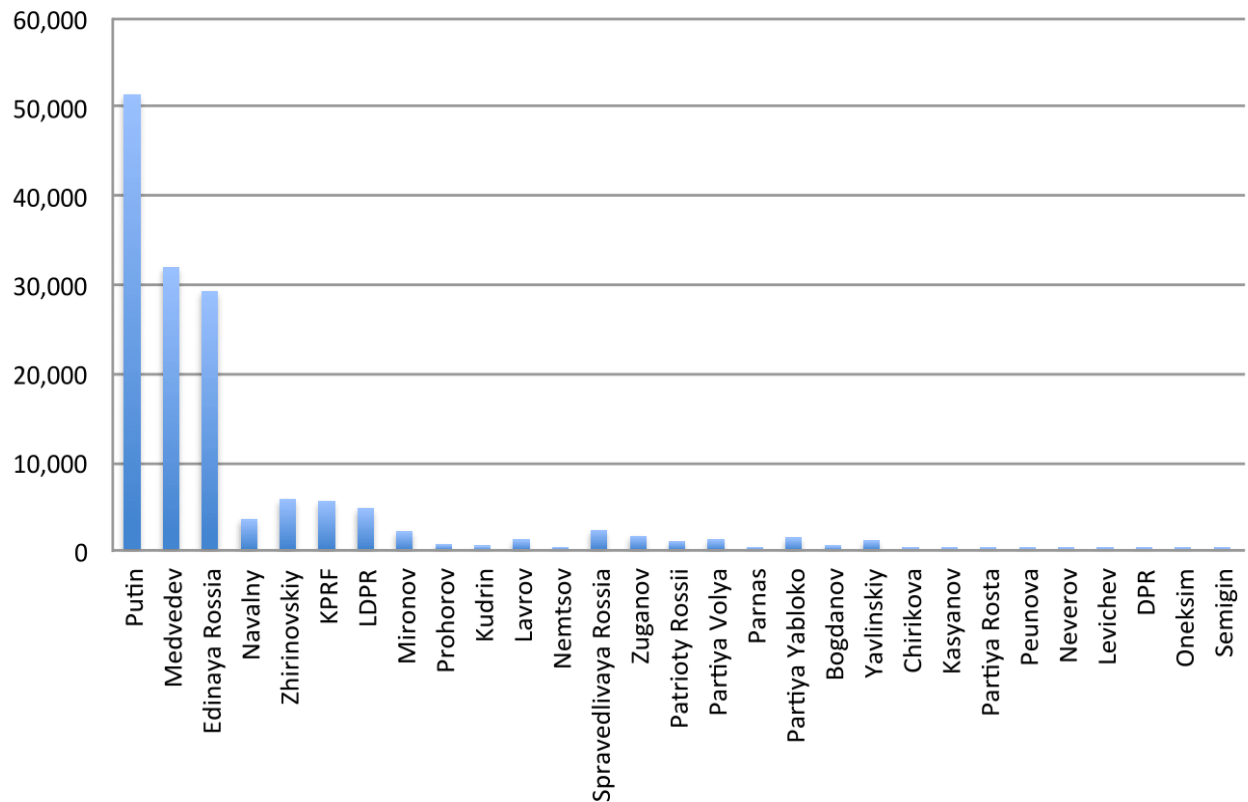
Notes: The graph displays the raw number of politician mentions in the universe of posts on VK in November 2011, the month before the protests. Vladimir Putin, Dmitry Medvedev, and Political Party "Edinaya Rossia" ("United Russia") represented the status quo government. Alexey Navalny, Political Party "Parnas" with its leaders Boris Nemtsov and Mikhail Kasyanov, and Political Party "Yabloko" with its leader Grigory Yavlinskiy were in strong opposition to the government and were one of the most important figures during the protests. KPRF (Communist Party of Russia) with its leader Zuganov, LDPR with its leader Zhirinovskiy, Spravedlivaya Rossia with its leader Mironov, and a few others were the official opposition parties and candidates during the December 2011 Parliamentary elections but had limited importance during the protests. Data were retrieved on March 2017.

Figure A9. Mentions of Putin and Protests on VK in 2011
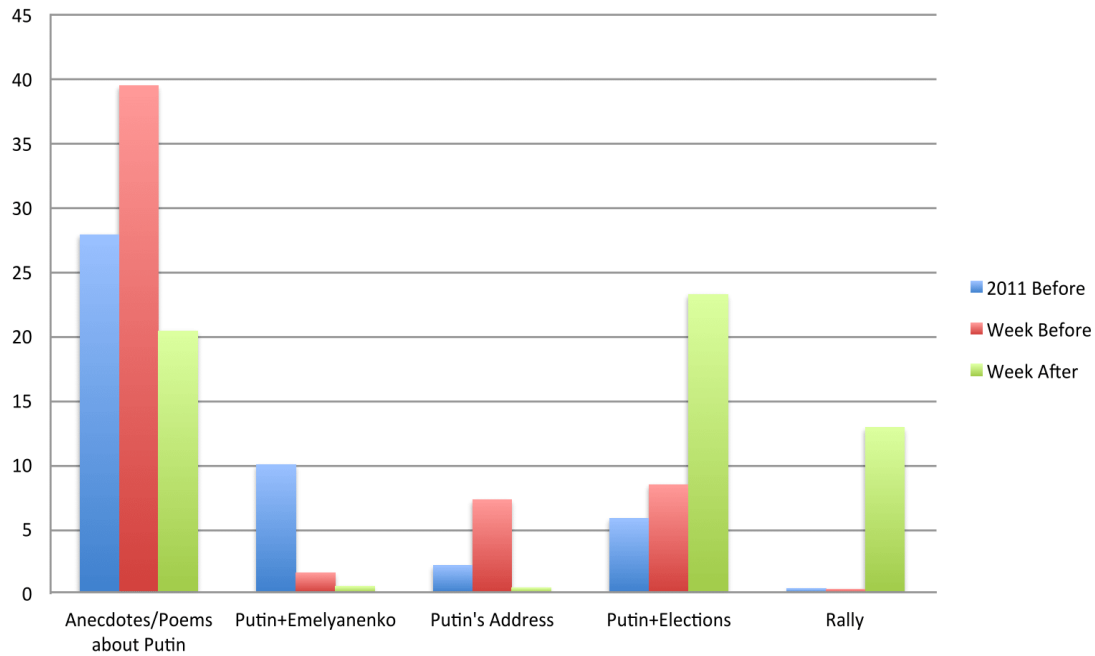
Notes: The graph analyzes the universe of all posts on VK mentioning Vladimir Putin, grouping them by date and topic. Blue bars (to the left) present data for all posts written in 2011 before the legislative elections on December 4, 2011; red bars (center) display data for all posts written a week before December 4, 2011; and green bars (to the right) represent all posts written a week after December 4, 2011. The bar height represents the percentages of all posts devoted to a given topic. "Putin+Emelyanenko" topic refers to an incident on November 20, 2011, when Putin was booed during an award ceremony of the MMA fighter Fedor Emelyanenko. "Putin's Address" refers to the Putin's pre-election address on Dec 1, 2011, in which he calls to vote for United Russia. "Putin+Elections" category refers to all posts that include words "Putin" and "elections" but which are not anecdotes/poems, are not about Putin's address, and do not include mentions of Emelyanenko. Finally, the "Rally" category includes posts that mention both Putin and protest demonstrations. Data were retrieved on March 2017.

Figure A10. Density of City Population
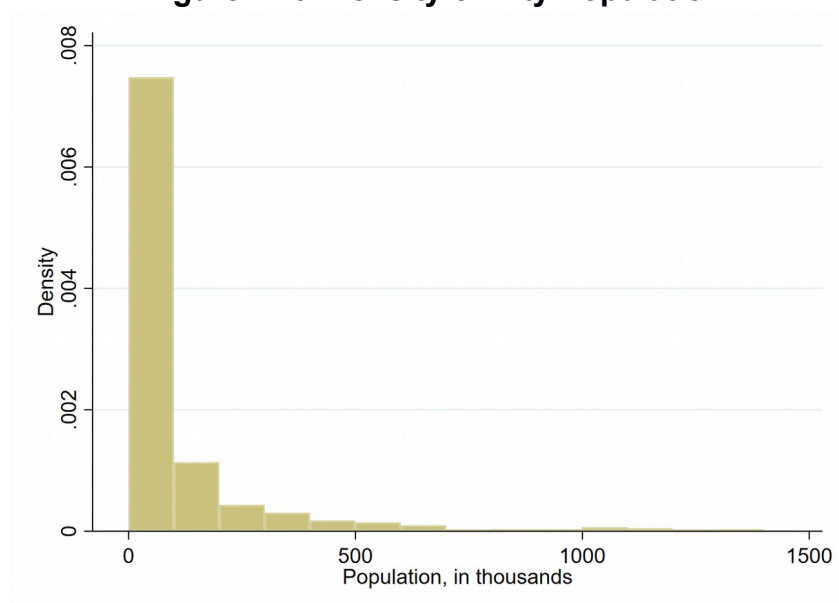
Notes: The graph displays the distribution of population across the 626 cities in our sample. Moscow and St. Petersburg are excluded from our analysis.

Table A1. Summary statistics.

	Observations	Mean	Standard deviation	Median	Min	Max
Incidence of protests, Dec 2011	625	0.13	0.34	0	0	1
Incidence of protests, USSR, 1987-1992	625	0.22	0.41	0	0	1
Incidence of pro-democratic protests, USSR, 1987-1992	625	0.18	0.38	0	0	1
Incidence of anti-monetization protests, 2005	625	0.19	0.39	0	0	1
Incidence of labor protests, 1997-2000	625	0.61	0.49	1	0	1
Log (number of protest participants), Dec 2011	625	0.77	2.02	0	0	8.66
Log (number of protest participants), USSR, 1987-1992	625	1.41	2.77	0	0	12.99
Log (number of participants in pro-democratic protests), USSR, 1987-1992	625	1.38	3.08	0	0	13.93
Log (number of participants in anti-monetization protests), 2005	625	1.28	2.7	0	0	9.21
Log (number of participants in labor protests), 1997-2000	625	3.8	3.42	4.39	0	11.76
Log (number of VK users), June 2011	625	9.54	1.33	9.31	6.61	13.84
Log (number of early VK users), Nov 2006	625	0.08	0.3	0	0	3.5
Log (number of VK users), 2013	625	10.13	1.27	9.84	7.65	14.3
Log (number of Odnoklassniki users), 2014	625	10.72	1.12	10.45	7.94	14.36
Log (number of Facebook users), 2013	625	6.9	2.06	6.76	0	12.3
Log (SPbSU students, same 5-year cohort as VK founder)	625	0.49	0.75	0	0	4.64
Log (SPbSU students, one cohort younger than VK founder)	625	0.4	0.63	0	0	2.77
Log (SPbSU students, one cohort older than VK founder)	625	0.44	0.7	0	0	3.53
Internet penetration, region-level, 2011	625	0.27	0.17	0.22	0.01	0.63
Population, in thousands, 2010	625	117.68	189.63	52.7	20	1393.5
Regional center	625	0.12	0.32	0	0	1
Rayon center (county seat)	625	0.79	0.41	1	0	1
Distance to Saint Petersburg, km	625	1481.62	839.41	1419	21.7	4646
Distance to Moscow, km	625	1152.76	875.97	1014	15.75	4174
Log (average wage), 2011	625	9.89	0.35	9.83	9.08	11.19
Log (number of people with age 20-24), 2010	625	8.46	1.07	8.19	6.79	11.83
Log (number of people with age 25-29), 2010	625	8.53	1.02	8.28	6.83	11.84
Log (number of people with age 30-34), 2010	625	8.47	1	8.21	6.8	11.69
Log (number of people with age 35-39), 2010	625	8.41	0.99	8.16	6.84	11.59
Log (number of people with age 40-44), 2010	625	8.27	0.99	8.03	6.78	11.41
Log (number of people with age 45-49), 2010	625	8.42	0.97	8.21	6.79	11.52
Log (number of people with age 50 and older), 2010	625	9.93	0.97	9.71	8.27	13.08
% with higher education, 2002	625	0.15	0.06	0.13	0.05	0.45
% with higher education among age 20-24, 2010	625	0.18	0.06	0.17	0.05	0.37
% with higher education among age 25-29, 2010	625	0.34	0.1	0.33	0.11	0.67
% with higher education among age 30-34, 2010	625	0.31	0.1	0.3	0.12	0.67
% with higher education among age 35-39, 2010	625	0.28	0.08	0.26	0.13	0.58
% with higher education among age 40-44, 2010	625	0.25	0.08	0.23	0.12	0.6
% with higher education among age 45-49, 2010	625	0.23	0.08	0.21	0.09	0.62
% with higher education among age 50-54, 2010	625	0.17	0.07	0.15	0.07	0.55
Presence of a university in a city, 2011	625	0.15	0.35	0	0	1
Ethnic fractionalization, 2010	625	0.2	0.17	0.14	0.01	0.85

Table A1 (cont'd). Summary statistics. Voting outcomes.

Vote share for "Our Home – Russia" party, 1995	625	0.09	0.05	0.08	0.02	0.46
Vote share for "Unity" party, 1999	625	0.25	0.1	0.25	0	0.56
Vote share for "United Russia" party, 2003	625	0.36	0.1	0.34	0.16	0.92
Vote share for "United Russia" party, 2007	625	0.63	0.1	0.61	0.42	1
Vote share for "United Russia" party, 2011	625	0.45	0.17	0.4	0.18	0.99
Vote share for "United Russia" party, 2016	625	0.49	0.15	0.44	0.26	0.97
Vote share for Eltsin, 1996	625	0.33	0.12	0.31	0.1	0.7
Vote share for Eltsin, 1996 (2nd round)	625	0.53	0.14	0.52	0.21	0.89
Vote share for Putin, 2000	625	0.53	0.12	0.52	0.17	0.95
Vote share for Putin, 2004	625	0.69	0.09	0.68	0.42	0.99
Vote share for Medvedev, 2008	625	0.68	0.09	0.67	0.49	0.99
Vote share for Putin, 2012	625	0.63	0.1	0.61	0.44	0.99
Vote share for "Yabloko" party, 1995	625	0.06	0.04	0.05	0	0.23
Vote share for "Yabloko" party, 1999	625	0.06	0.03	0.05	0	0.19
Vote share for "Yabloko" party, 2003	625	0.04	0.02	0.04	0	0.14
Vote share for Communist party, 1995	625	0.23	0.11	0.21	0.03	0.72
Vote share for Communist party, 1999	625	0.25	0.08	0.24	0	0.51
Vote share for Communist party, 2003	625	0.13	0.05	0.12	0	0.31
Vote share for "LDPR" party, 1995	625	0.13	0.06	0.12	0	0.37
Vote share for "LDPR" party, 1999	625	0.07	0.02	0.06	0	0.16
Vote share for "LDPR" party, 2003	625	0.13	0.04	0.13	0	0.26
Vote share for Yavlinsky, 1996	625	0.07	0.03	0.07	0.01	0.21
Vote share for Yavlinsky, 2000	625	0.05	0.03	0.04	0	0.17
Vote share for Hakamada, 2004	625	0.03	0.02	0.03	0	0.14
Vote share for Zyuganov, 1996	625	0.32	0.14	0.31	0.05	0.83
Vote share for Zyuganov, 1996 (2nd round)	625	0.41	0.14	0.42	0.06	0.76
Vote share for Zyuganov, 2000	625	0.3	0.1	0.3	0.02	0.58
Vote share for Haritonov, 2004	625	0.15	0.07	0.14	0	0.38
Vote share for Lebed, 1996	625	0.16	0.06	0.15	0	0.39
Vote share for Tuleev, 2000	625	0.04	0.09	0.02	0	0.6
Vote share for Glaziev, 2004	625	0.04	0.03	0.04	0	0.28
Vote share against all parties/candidates, 1995	625	0.03	0.01	0.03	0	0.07
Vote share against all parties/candidates, 1996	625	0.02	0	0.02	0	0.04
Vote share against all parties/candidates, 1996 (2nd round)	625	0.05	0.02	0.05	0	0.1
Vote share against all parties/candidates, 1999	625	0.03	0.01	0.03	0	0.13
Vote share against all parties/candidates, 2000	625	0.02	0.01	0.02	0	0.06
Vote share against all parties/candidates, 2003	625	0.05	0.02	0.05	0	0.12
Turnout, 1995	625	0.63	0.07	0.63	0.41	0.98
Turnout, 1996	625	0.69	0.06	0.7	0.5	0.96
Turnout, 1996 (2nd round)	625	0.68	0.06	0.68	0.49	0.99
Turnout, 1999	625	0.6	0.07	0.6	0.28	0.93
Turnout, 2000	625	0.68	0.06	0.67	0.54	0.97
Turnout, 2003	625	0.54	0.1	0.52	0.33	0.95
Turnout, 2004	625	0.54	0.1	0.52	0.33	0.95

Table A2. Variable Means by Quartile of VK Penetration.

	VK users, share of population, Aug 2011			
	Q1 (lowest)	Q2	Q3	Q4 (highest)
Incidence of protests, Dec 2011	0.01	0.01	0.06	0.45
Incidence of protests, USSR, 1987-1992	0.1	0.12	0.16	0.48
Incidence of pro-democratic protests, USSR, 1987-1992	0.07	0.1	0.12	0.41
Incidence of anti-monetization protests, 2005	0.06	0.12	0.16	0.42
Incidence of labor protests, 1997-2000	0.63	0.56	0.51	0.73
Log (number of protest participants), Dec 2011	0.06	0.04	0.32	2.66
Log (number of protest participants), USSR, 1987-1992	0.77	0.78	1.01	3.08
Log (number of participants in pro-democratic protests), USSR, 1987-1992	0.57	0.76	0.84	3.34
Log (number of participants in anti-monetization protests), 2005	0.38	0.76	1.07	2.89
Log (number of participants in labor protests), 1997-2000	3.98	3.23	3.1	4.91
Log (number of VK users), June 2011	8.29	9.19	9.65	11.01
Log (number of early VK users), Nov 2006	0	0.02	0.06	0.23
Log (number of VK users), 2013	9.04	9.77	10.19	11.49
Log (number of Odnoklassniki users), 2014	10.22	10.49	10.61	11.54
Log (number of Facebook users), 2013	5.8	6.4	6.81	8.59
Log (SPbSU students, same 5-year cohort as VK founder)	0.18	0.2	0.43	1.13
Log (SPbSU students, one cohort younger than VK founder)	0.2	0.22	0.3	0.89
Log (SPbSU students, one cohort older than VK founder)	0.16	0.2	0.36	1.01
Internet penetration, region-level, 2011	0.23	0.29	0.28	0.26
Population, in thousands, 2010	46.67	66.41	87.79	268.87
Regional center	0.02	0.03	0.03	0.38
Rayon center (county seat)	0.74	0.72	0.8	0.92
Distance to Saint Petersburg, km	1711.24	1493.21	1435.87	1287.41
Distance to Moscow, km	1423.68	1057.1	1081.88	1049.04
Log (average wage), 2011	9.79	9.8	9.9	10.06
Log (number of people with age 20-24), 2010	7.89	8.19	8.4	9.37
Log (number of people with age 25-29), 2010	7.97	8.27	8.48	9.4
Log (number of people with age 30-34), 2010	7.92	8.23	8.42	9.31
Log (number of people with age 35-39), 2010	7.86	8.17	8.36	9.22
Log (number of people with age 40-44), 2010	7.72	8.03	8.23	9.09
Log (number of people with age 45-49), 2010	7.86	8.18	8.4	9.25
Log (number of people with age 50 and older), 2010	9.38	9.76	9.9	10.69
% with higher education, 2002	0.13	0.14	0.14	0.18
% with higher education among age 20-24, 2010	0.16	0.17	0.18	0.2
% with higher education among age 25-29, 2010	0.29	0.33	0.34	0.4
% with higher education among age 30-34, 2010	0.26	0.3	0.31	0.38
% with higher education among age 35-39, 2010	0.23	0.27	0.28	0.33
% with higher education among age 40-44, 2010	0.22	0.24	0.25	0.3
% with higher education among age 45-49, 2010	0.2	0.22	0.23	0.27
% with higher education among age 50-54, 2010	0.15	0.16	0.17	0.21
Presence of a university in a city, 2011	0.02	0.06	0.06	0.45
Ethnic fractionalization, 2010	0.18	0.15	0.21	0.27

Table A2 (cont'd). Variable Means by Quartile of VK Penetration. Voting Outcomes.

	VK users, share of population, Aug 2011			
	Q1 (lowest)	Q2	Q3	Q4 (highest)
Vote share for "Our Home – Russia" party, 1995	0.08	0.08	0.1	0.12
Vote share for "Unity" party, 1999	0.27	0.24	0.25	0.24
Vote share for "United Russia" party, 2003	0.37	0.35	0.36	0.37
Vote share for "United Russia" party, 2007	0.66	0.63	0.62	0.62
Vote share for "United Russia" party, 2011	0.49	0.45	0.42	0.43
Vote share for "United Russia" party, 2016	0.49	0.5	0.48	0.48
Vote share for Eltsin, 1996	0.29	0.32	0.34	0.37
Vote share for Eltsin, 1996 (2nd round)	0.48	0.51	0.53	0.58
Vote share for Putin, 2000	0.52	0.51	0.53	0.55
Vote share for Putin, 2004	0.68	0.67	0.68	0.71
Vote share for Medvedev, 2008	0.68	0.67	0.68	0.69
Vote share for Putin, 2012	0.65	0.64	0.62	0.62
Vote share for "Yabloko" party, 1995	0.05	0.06	0.07	0.07
Vote share for "Yabloko" party, 1999	0.05	0.06	0.06	0.07
Vote share for "Yabloko" party, 2003	0.03	0.04	0.04	0.05
Vote share for Communist party, 1995	0.26	0.24	0.22	0.19
Vote share for Communist party, 1999	0.28	0.26	0.24	0.21
Vote share for Communist party, 2003	0.15	0.14	0.13	0.11
Vote share for "LDPR" party, 1995	0.14	0.13	0.12	0.1
Vote share for "LDPR" party, 1999	0.07	0.06	0.07	0.06
Vote share for "LDPR" party, 2003	0.14	0.13	0.13	0.12
Vote share for Yavlinsky, 1996	0.06	0.06	0.07	0.09
Vote share for Yavlinsky, 2000	0.04	0.05	0.05	0.06
Vote share for Hakamada, 2004	0.03	0.03	0.03	0.04
Vote share for Zyuganov, 1996	0.37	0.34	0.32	0.27
Vote share for Zyuganov, 1996 (2nd round)	0.46	0.43	0.41	0.35
Vote share for Zyuganov, 2000	0.33	0.31	0.29	0.27
Vote share for Haritonov, 2004	0.16	0.16	0.14	0.12
Vote share for Lebed, 1996	0.15	0.17	0.16	0.16
Vote share for Tuleev, 2000	0.03	0.05	0.04	0.03
Vote share for Glaziev, 2004	0.04	0.04	0.05	0.04
Vote share against all parties/candidates, 1995	0.03	0.03	0.03	0.03
Vote share against all parties/candidates, 1996	0.02	0.01	0.02	0.02
Vote share against all parties/candidates, 1996 (2nd round)	0.05	0.05	0.05	0.06
Vote share against all parties/candidates, 1999	0.03	0.03	0.03	0.03
Vote share against all parties/candidates, 2000	0.01	0.02	0.02	0.02
Vote share against all parties/candidates, 2003	0.04	0.05	0.05	0.05
Turnout, 1995	0.63	0.64	0.64	0.62
Turnout, 1996	0.69	0.69	0.7	0.69
Turnout, 1996 (2nd round)	0.68	0.68	0.69	0.68
Turnout, 1999	0.6	0.59	0.61	0.61
Turnout, 2000	0.68	0.67	0.68	0.68
Turnout, 2003	0.53	0.52	0.54	0.56
Turnout, 2004	0.53	0.52	0.54	0.56

Table A3. Distribution of Size of SPbSU Student Cohorts

Number of SPbSU students from a city in VK founder's cohort	Frequency	Number of SPbSU students from a city one cohort older than VK founder	Frequency	Number of SPbSU students from a city one cohort younger than VK founder	Frequency
0	388	0	403	0	411
1	96	1	106	1	85
2	50	2	32	2	48
3	19	3	16	3	31
4	15	4	19	4	14
5	12	5	7	5	13
6	9	6	11	6	6
7	1	7	8	7	7
8	5	8	5	8	2
9	10	9	1	9	2
10	3	10	3	10	1
11	4	11	2	12	1
12	2	12	2	13	1
13	2	13	4	14	2
14	1	14	1	15	1
15	1	20	2		
16	1	21	1		
17	1	29	1		
20	1	33	1		
23	1				
25	1				
29	1				
103	1				

Note: all the results in the paper are robust to exclusion of a city with 103 people in VK founder cohorts (if anything, results get stronger without this outlier).

Table A4. Correlation Between City Ranks across Cohorts

		City Rank in # of SPbSU Students		
		One Cohort After Durov	In Durov's Cohort	One Cohort Before Durov
City Rank in # of SPbSU Students	One Cohort After Durov	1		
	In Durov's Cohort	0.4217	1	
	One Cohort Before Durov	0.3860	0.4645	1

Note: City rank is calculated with the highest value ranked 1 and no correction for ties.

Table A5. Determinants of Early VK Penetration.

	Log (number of early VK users), Nov 2006							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (SPbSU students), same 5-year cohort as VK founder	0.0925	0.0523	0.0510	0.0517	0.0495	0.0512	0.0485	0.0504
	[0.0206]	[0.0191]	[0.0190]	[0.0182]	[0.0193]	[0.0186]	[0.0193]	[0.0189]
Log (SPbSU students), one cohort younger than VK founder	0.0756	0.0147	0.0170	0.0194	0.0244	0.0275	0.0216	0.0246
	[0.0378]	[0.0246]	[0.0247]	[0.0228]	[0.0244]	[0.0247]	[0.0242]	[0.0242]
Log (SPbSU students), one cohort older than VK founder	0.0343	-0.0152	-0.0113	-0.0071	-0.0116	-0.0142	-0.0134	-0.0148
	[0.0324]	[0.0211]	[0.0223]	[0.0276]	[0.0275]	[0.0272]	[0.0279]	[0.0278]
Regional center			-0.0806	-0.1068	-0.1348	-0.1195	-0.1285	-0.1431
			[0.0619]	[0.0706]	[0.0874]	[0.0887]	[0.0867]	[0.0865]
Distance to Saint Petersburg, km				0.0001	0.0001	0.0001	0.0001	0.0000
				[0.0000]	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Distance to Moscow, km				-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
				[0.0000]	[0.0000]	[0.0000]	[0.0001]	[0.0000]
Rayon center (county seat)				-0.0132	-0.0088	-0.0146	-0.0170	-0.0076
				[0.0131]	[0.0120]	[0.0138]	[0.0124]	[0.0131]
Log (average wage), city-level, 2011				0.0523	0.0365	0.0036	0.0183	0.0503
				[0.0323]	[0.0315]	[0.0309]	[0.0302]	[0.0341]
Presence of a university in a city, 2011					0.0951	0.1034	0.0959	0.1009
					[0.0631]	[0.0635]	[0.0615]	[0.0630]
Internet penetration, region-level, 2011					0.0341	0.0241	0.0201	0.0243
					[0.0456]	[0.0440]	[0.0473]	[0.0468]
Log (number of Odnoklassniki users), 2014					-0.0194	-0.0051	-0.0102	-0.0093
					[0.0200]	[0.0181]	[0.0213]	[0.0198]
Ethnic fractionalization, 2010					-0.0862	-0.0740	-0.0814	-0.0841
					[0.0816]	[0.0880]	[0.0806]	[0.0784]
Observations	625	625	625	625	625	625	625	625
R-squared	0.1805	0.5159	0.5185	0.5333	0.5387	0.5470	0.5427	0.5452
Mean of the dependent variable	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
SD of the dependent variable	0.301	0.301	0.301	0.301	0.301	0.301	0.301	0.301
Population controls		Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls				Yes	Yes	Yes	Yes	Yes
Education controls				Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995						Yes		
Electoral controls, 1999							Yes	
Electoral controls, 2003								Yes
p-value for equality of coefficients for three cohorts	0.298	0.113	0.175	0.288	0.220	0.163	0.215	0.178
p-value for equality of coefficients of Durov's and younger cohort	0.726	0.313	0.364	0.354	0.495	0.508	0.460	0.478
p-value for equality of coefficients of Durov's and older cohort	0.122	0.050	0.080	0.117	0.099	0.068	0.093	0.077

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year.

Table A6. Baseline Results for Saturday, December 10, 2011, Protests Only.

	Incidence of protests, dummy, Dec 2011				Log (number of protesters), Dec 2011			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.494	0.480	0.483	0.507	2.275	2.231	2.237	2.363
	[0.193]	[0.182]	[0.176]	[0.184]	[0.989]	[0.934]	[0.917]	[0.951]
Log (SPbSU students), one cohort younger than VK founder	0.030	0.029	0.030	0.032	0.243	0.237	0.242	0.256
	[0.026]	[0.025]	[0.026]	[0.026]	[0.126]	[0.123]	[0.127]	[0.128]
Log (SPbSU students), one cohort older than VK founder	-0.035	-0.031	-0.030	-0.028	-0.170	-0.151	-0.147	-0.141
	[0.032]	[0.030]	[0.028]	[0.030]	[0.162]	[0.155]	[0.143]	[0.155]
Population, Age cohorts, Education, and Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	621	621	621	621	621	621	621	621
Kleibergen-Paap F-stat	6.560	6.746	7.777	7.013	6.560	6.746	7.777	7.013
Effective F-statistics (Olea Montiel and Pflueger 2013)	11.37	12.39	12.93	12.44	11.37	12.39	12.93	12.44

Standard errors in brackets are adjusted by clusters within regions. Protests that happened on Sunday, December 11, 2011, are excluded from the sample. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A7. VK Penetration and Protest Participation in 2011 with Spatial Standard Errors.

	Incidence of protests, dummy, Dec 2011				Log (number of protesters), Dec 2011			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.466	0.451	0.458	0.479	1.911	1.872	1.894	2.013
	[0.200]	[0.190]	[0.190]	[0.202]	[0.911]	[0.850]	[0.863]	[0.928]
Log (SPbSU students), one cohort younger than VK founder	0.027	0.026	0.028	0.030	0.216	0.209	0.213	0.230
	[0.023]	[0.022]	[0.022]	[0.022]	[0.136]	[0.134]	[0.135]	[0.137]
Log (SPbSU students), one cohort older than VK founder	-0.033	-0.029	-0.028	-0.026	-0.141	-0.127	-0.124	-0.115
	[0.025]	[0.025]	[0.024]	[0.025]	[0.123]	[0.122]	[0.119]	[0.126]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625
Kleibergen-Paap F-stat	9.002	9.041	10.78	9.146	9.002	9.041	10.78	9.146

Standard errors in brackets are adjusted for spatial correlations as in Konig, Rohner, Thoenig, and Zilibotti (2017). Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A8. IV Probit and Negative Binomial Models.

	Incidence of protests, dummy, Dec 2011				Number of protesters in '000s, Dec 2011			
	IV Probit	IV Probit	IV Probit	IV Probit	IV Neg Bin	IV Neg Bin	IV Neg Bin	IV Neg Bin
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.055	0.063	0.062	0.171	2.324	2.557	2.898	2.687
	[0.030]	[0.025]	[0.026]	[0.077]	[0.961]	[0.940]	[0.874]	[1.088]
Log (SPbSU students), one cohort younger than VK founder	0.008	0.005	0.009	0.066	0.342	0.356	0.494	0.375
	[0.007]	[0.009]	[0.009]	[0.023]	[0.099]	[0.103]	[0.119]	[0.114]
Log (SPbSU students), one cohort older than VK founder	-0.02	-0.024	-0.035	-0.038	-0.304	-0.362	-0.564	-0.358
	[0.011]	[0.010]	[0.011]	[0.012]	[0.222]	[0.216]	[0.185]	[0.223]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625

Standard errors in Columns (1)-(4) are clustered at the region level. Standard errors in Columns (5)-(8) are obtained with a bootstrap procedure. The IV negative binomial model in Columns (5)-(8) is estimated using a control function approach. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" indicates inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A9. Weak IV Robust Confidence Intervals.

Panel A. Protest Participation

	Incidence of protests, Dec 2011				Log (# of protesters), Dec 2011			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.466	0.451	0.458	0.479	1.911	1.872	1.894	2.013
	[0.189]	[0.177]	[0.175]	[0.181]	[0.924]	[0.872]	[0.872]	[0.889]
95% CIs Robust to Weak IV								
Chernozhukov and Hansen (2008)	(0.19; 1.58)	(0.19; 1.45)	(0.20; 1.31)	(0.22; 1.45)	(0.33; 6.61)	(0.37; 6.07)	(0.38; 5.61)	(0.50; 6.18)
Finlay and Magnusson (2009)	(0.18; 1.77)	(0.18; 1.57)	(0.18; 1.42)	(0.20; 1.53)	(0.24; 7.30)	(0.28; 6.56)	(0.30; 6.09)	(0.42; 6.47)
Mikusheva (2010)	(0.22; 1.13)	(0.22; 1.03)	(0.22; 1.04)	(0.24; 1.08)	(0.70; 4.68)	(0.71; 4.37)	(0.75; 4.36)	(0.84; 4.59)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625

Panel B. Pro-Government Voting

	Voting share for United Russia, 2011				Voting Share for Putin, 2012			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.257	0.217	0.259	0.198	0.152	0.144	0.155	0.114
	[0.152]	[0.131]	[0.147]	[0.128]	[0.088]	[0.085]	[0.084]	[0.073]
95% CIs Robust to Weak IV								
Chernozhukov and Hansen (2008)	(0.06; 1.27)	(0.04; 1.02)	(0.07; 1.11)	(0.03; 0.96)	(0.04; 0.73)	(0.03; 0.67)	(0.05; 0.63)	(0.02; 0.55)
Finlay and Magnusson (2009)	(0.04; 1.40)	(0.04; 1.12)	(0.06; 1.20)	(0.02; 1.00)	(0.04; 0.80)	(0.02; 0.72)	(0.04; 0.68)	(0.02; 0.58)
Mikusheva (2010)	(0.07; 0.74)	(0.05; 0.60)	(0.08; 0.66)	(0.04; 0.56)	(0.04; 0.43)	(0.04; 0.38)	(0.05; 0.39)	(0.02; 0.32)
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625

Robust standard errors in brackets are adjusted for clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" indicates inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A10. Threshold Model. Protest Participation as a Function of VK Penetration.

PANEL A. Threshold model with VK penetration as a share of city population

	Incidence of protests, dummy, Dec 2011				Log (number of protesters), Dec 2011			
	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Share of city population with VK accounts, before the threshold	-0.027	-0.066	-0.053	0.021	-0.126	-0.532	-0.263	0.029
	(0.144)	(0.154)	(0.146)	(0.148)	(0.705)	(0.657)	(0.721)	(0.769)
Share of city population with VK accounts, extra effect after the threshold	0.550	0.608	0.555	0.510	3.637	4.064	3.653	3.484
	(0.191)	(0.205)	(0.185)	(0.190)	(0.974)	(0.976)	(0.950)	(0.982)
Threshold, share of city population with VK accounts	0.233	0.233	0.233	0.231	0.251	0.239	0.251	0.250
	(0.045)	(0.042)	(0.046)	(0.047)	(0.035)	(0.028)	(0.036)	(0.036)

PANEL B. Threshold model with VK penetration as a share of city population

	Incidence of protests, dummy, Dec 2011				Log (number of protesters), Dec 2011			
	NLS	NLS	NLS	NLS	NLS	NLS	NLS	NLS
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Share of city population with VK accounts, before the threshold	0.026	0.022	0.021	0.029	0.158	0.135	0.128	0.171
	(0.012)	(0.013)	(0.013)	(0.013)	(0.076)	(0.081)	(0.078)	(0.080)
Share of city population with VK accounts, extra effect after the threshold	0.227	0.232	0.223	0.233	1.758	1.787	1.741	1.785
	(0.078)	(0.076)	(0.075)	(0.075)	(0.430)	(0.428)	(0.420)	(0.419)
Threshold, share of city population with VK accounts	10.058	10.058	10.050	10.039	10.293	10.300	10.293	10.290
	(0.173)	(0.167)	(0.180)	(0.163)	(0.149)	(0.150)	(0.151)	(0.148)
Population controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625

Standard errors in brackets are clustered at the region level. The threshold model is estimated using non-linear least squares. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" indicates inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A11. VK penetration, Turnout, and Invalid Votes

	Turnout, 2007				Invalid Ballots, 2007			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	-0.121	-0.119	-0.083	-0.128	-0.159	-0.189	-0.174	-0.146
	[0.066]	[0.059]	[0.056]	[0.056]	[0.250]	[0.237]	[0.225]	[0.233]
Log (SPbSU students), one cohort younger than VK founder	-0.011	-0.008	-0.012	-0.008	-0.037	-0.042	-0.038	-0.037
	[0.010]	[0.008]	[0.008]	[0.009]	[0.034]	[0.033]	[0.034]	[0.032]
Log (SPbSU students), one cohort older than VK founder	0.012	0.010	0.003	0.005	0.007	0.017	0.013	0.008
	[0.012]	[0.012]	[0.010]	[0.010]	[0.033]	[0.031]	[0.033]	[0.030]
	Turnout, 2008				Invalid Ballots, 2008			
	IV	IV	IV	IV	IV	IV	IV	IV
Log (number of VK users), June 2011	0.088	0.060	0.098	0.054	-1.166	-1.302	-1.274	-1.245
	[0.093]	[0.087]	[0.087]	[0.076]	[0.819]	[0.876]	[0.844]	[0.872]
Log (SPbSU students), one cohort younger than VK founder	-0.001	0.002	0.001	0.002	-0.021	-0.009	-0.031	-0.027
	[0.011]	[0.009]	[0.011]	[0.009]	[0.054]	[0.061]	[0.059]	[0.059]
Log (SPbSU students), one cohort older than VK founder	-0.018	-0.013	-0.019	-0.017	0.065	0.086	0.063	0.038
	[0.010]	[0.009]	[0.010]	[0.008]	[0.105]	[0.111]	[0.099]	[0.096]
	Turnout, 2011				Invalid Ballots, 2011			
	IV	IV	IV	IV	IV	IV	IV	IV
Log (number of VK users), June 2011	0.072	0.051	0.083	0.047	-0.640	-0.608	-0.563	-0.565
	[0.097]	[0.088]	[0.094]	[0.083]	[0.272]	[0.248]	[0.268]	[0.253]
Log (SPbSU students), one cohort younger than VK founder	-0.003	0.001	-0.004	0.002	-0.032	-0.037	-0.027	-0.035
	[0.011]	[0.010]	[0.011]	[0.009]	[0.045]	[0.045]	[0.046]	[0.044]
Log (SPbSU students), one cohort older than VK founder	0.007	0.010	0.003	0.004	0.038	0.031	0.030	0.021
	[0.013]	[0.012]	[0.012]	[0.011]	[0.053]	[0.050]	[0.045]	[0.046]
	Turnout, 2012				Invalid Ballots, 2012			
	IV	IV	IV	IV	IV	IV	IV	IV
Log (number of VK users), June 2011	0.068	0.044	0.074	0.039	-0.313	-0.314	-0.316	-0.253
	[0.079]	[0.073]	[0.076]	[0.063]	[0.203]	[0.195]	[0.194]	[0.181]
Log (SPbSU students), one cohort younger than VK founder	-0.005	-0.002	-0.004	-0.002	-0.004	-0.007	-0.007	-0.005
	[0.009]	[0.009]	[0.009]	[0.008]	[0.018]	[0.018]	[0.019]	[0.016]
Log (SPbSU students), one cohort older than VK founder	0.001	0.005	-0.001	-0.001	0.001	0.003	0.002	-0.004
	[0.011]	[0.011]	[0.011]	[0.010]	[0.026]	[0.024]	[0.024]	[0.022]
	Turnout, 2016				Invalid Ballots, 2016			
	IV	IV	IV	IV	IV	IV	IV	IV
Log (number of VK users), June 2011	0.180	0.137	0.195	0.110	-0.231	-0.197	-0.264	-0.117
	[0.130]	[0.117]	[0.125]	[0.091]	[0.316]	[0.296]	[0.301]	[0.267]
Log (SPbSU students), one cohort younger than VK founder	-0.010	-0.004	-0.006	-0.006	0.016	0.001	0.008	0.012
	[0.015]	[0.013]	[0.015]	[0.012]	[0.034]	[0.032]	[0.033]	[0.028]
Log (SPbSU students), one cohort older than VK founder	0.006	0.012	0.003	0.004	0.016	0.017	0.024	0.024
	[0.016]	[0.015]	[0.015]	[0.012]	[0.033]	[0.031]	[0.034]	[0.031]
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625
Kleibergen-Paap F-stat	6.442	6.619	7.242	6.902	6.442	6.619	7.242	6.902
Effective F-statistics (Olea Montiel and Pflueger 2013)	10.25	11.29	11.15	11.53	10.25	11.29	11.15	11.53

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Since the outcomes are shares of population, population weights are applied. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A12. VK and Penetration of Odnoklassniki

	\(1\)	\(2\)	\(3\)	\(4\)	\(5\)	\(6\)	\(7\)	\(8\)
	Log (number of Odnoklassniki users), 2014							
Log (early VK users, from first 5,000 users)	-0.042 [0.059]							
Log (early VK users, from first 50,000 users)		-0.045 [0.034]						
Log (early VK users, from first 100,000 users)			-0.024 [0.037]					
Log (number of VK users), June 2011				0.074 [0.074]				
Log (SPbSU students), same 5-year cohort as VK founder					0.028 [0.048]	0.018 [0.045]	0.015 [0.043]	0.017 [0.045]
Log (SPbSU students), one cohort younger than VK founder					0.084 [0.052]	0.072 [0.050]	0.073 [0.052]	0.068 [0.051]
Log (SPbSU students), one cohort older than VK founder					-0.049 [0.043]	-0.032 [0.042]	-0.034 [0.042]	-0.028 [0.040]
Regional center	0.259 [0.123]	0.269 [0.119]	0.267 [0.119]	0.252 [0.115]	0.261 [0.116]	0.221 [0.113]	0.237 [0.112]	0.260 [0.103]
Distance to Saint Petersburg, km	0.001 [0.000]	0.001 [0.000]	0.001 [0.000]	0.001 [0.000]	0.001 [0.000]	0.001 [0.000]	0.001 [0.000]	0.001 [0.000]
Distance to Moscow, km	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.000 [0.000]	-0.001 [0.000]	-0.001 [0.000]	-0.001 [0.000]
Rayon center (county seat)	0.053 [0.077]	0.051 [0.078]	0.053 [0.078]	0.054 [0.075]	0.046 [0.078]	0.070 [0.080]	0.077 [0.084]	0.067 [0.077]
Log (average wage), city-level, 2011	0.111 [0.106]	0.115 [0.105]	0.115 [0.106]	0.104 [0.105]	0.124 [0.104]	0.239 [0.101]	0.196 [0.103]	0.175 [0.103]
Presence of a university in a city, 2011	0.029 [0.097]	0.042 [0.098]	0.035 [0.097]	0.011 [0.097]	0.026 [0.095]	-0.007 [0.089]	-0.017 [0.085]	-0.021 [0.079]
Internet penetration, region-level, 2011	-0.479 [0.204]	-0.469 [0.204]	-0.467 [0.205]	-0.492 [0.211]	-0.471 [0.203]	-0.365 [0.190]	-0.286 [0.192]	-0.334 [0.190]
Ethnic fractionalization, 2010	-0.231 [0.166]	-0.237 [0.167]	-0.231 [0.167]	-0.261 [0.162]	-0.259 [0.168]	-0.190 [0.161]	-0.186 [0.167]	-0.260 [0.149]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	625	625	625	625	625	625	625	625
R-squared	0.892	0.892	0.892	0.892	0.893	0.899	0.902	0.902

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Results in columns (1)-(4) are robust to inclusion of electoral controls, but the corresponding specifications are not shown to save space.

Table A13. Baseline Results with Alternative Cohort Definitions.

							Incidence of protests, dummy, Dec 2011								
	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	**(5)**	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Cohort Definition	(-1,+2)	(-1,+3)	(-1,+4)	(-2,+1)	**(-2,+2)**	(-2,+3)	(-2,+4)	(-3,+1)	(-3,+2)	(-3,+3)	(-3,+4)	(-4,+1)	(-4,+2)	(-4,+3)	(-4,+4)
Log (number of VK users), June 2011	0.687	0.385	0.579	0.547	**0.466**	0.357	0.415	0.562	0.535	0.365	0.381	0.452	0.442	0.269	0.374
	[0.383]	[0.210]	[0.312]	[0.241]	**[0.189]**	[0.171]	[0.173]	[0.312]	[0.239]	[0.201]	[0.188]	[0.261]	[0.229]	[0.174]	[0.187]
Log (SPbSU students), one cohort younger than VK founder	-0.006	0.008	0.015	0.033	**0.027**	0.023	0.029	0.016	0.023	0.028	0.047	0.036	0.054	0.044	0.054
	[0.031]	[0.020]	[0.025]	[0.026]	**[0.024]**	[0.021]	[0.020]	[0.027]	[0.023]	[0.019]	[0.018]	[0.024]	[0.022]	[0.019]	[0.019]
Log (SPbSU students), one cohort older than VK founder	-0.036	-0.008	-0.063	-0.041	**-0.033**	-0.024	-0.043	-0.028	-0.042	-0.026	-0.039	-0.025	-0.047	-0.016	-0.042
	[0.044]	[0.030]	[0.044]	[0.037]	**[0.031]**	[0.029]	[0.030]	[0.040]	[0.036]	[0.032]	[0.032]	[0.036]	[0.036]	[0.028]	[0.033]
Observations	625	625	625	625	**625**	625	625	625	625	625	625	625	625	625	625
Mean of the dependent variable	0.134	0.134	0.134	0.134	**0.134**	0.134	0.134	0.134	0.134	0.134	0.134	0.134	0.134	0.134	0.134
SD of the dependent variable	0.341	0.341	0.341	0.341	**0.341**	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341	0.341
Population controls	Yes	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kleibergen-Paap F-stat	2.882	4.838	3.351	5.097	**6.554**	7.062	8.492	3.211	5.183	5.801	6.960	3.979	4.902	5.806	6.375
Effective F-statistics (Olea Montiel and Pflueger 2013)	4.788	7.585	3.720	6.439	**10.97**	10.18	9.354	4.053	8.045	8.399	7.588	5.365	7.559	9.094	6.817

Standard errors in brackets are adjusted by clusters within regions. Cohort definition changes across columns according to the following rule: (-x, +y) means that VK founder cohort is defined as all SPbSU graduates who were born x years earlier or y years later than VK founder. A cohort younger and a cohort older are defined with the same length. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A14. Baseline Results with Cohorts Defined Based on Starting Year of Study at SpbSU.

	Incidence of protests, dummy, Dec 2011				Log (number of protesters), Dec 2011			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.513	0.496	0.494	0.542	2.087	2.036	1.970	2.225
	[0.199]	[0.188]	[0.195]	[0.197]	[1.017]	[0.973]	[0.989]	[1.008]
Log (SPbSU students), one cohort younger than VK founder	0.054	0.053	0.056	0.055	0.365	0.364	0.377	0.381
	[0.029]	[0.029]	[0.028]	[0.029]	[0.140]	[0.138]	[0.136]	[0.138]
Log (SPbSU students), one cohort older than VK founder	-0.070	-0.065	-0.064	-0.063	-0.333	-0.318	-0.307	-0.312
	[0.036]	[0.034]	[0.033]	[0.034]	[0.172]	[0.164]	[0.157]	[0.159]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	625	625	625	625
Kleibergen-Paap F-stat	9.819	11.28	10.15	10.25	9.819	11.28	10.15	10.25
Effective F-statistics (Olea Montiel and Pflueger 2013)	9.536	10.46	9.559	9.807	9.536	10.46	9.559	9.807

Standard errors in brackets are adjusted by clusters within regions. The VK founder's cohort includes all SPbSU students in our sample who started studying at SPbSU at some point from 2000 to 2004. A cohort younger and a cohort older are defined accordingly with the same length. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A15. Online Protest Communities and Protest Participation. OLS Estimates.

	Log (number of protesters), Dec 2011				Incidence of protests, dummy, Dec 2011			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (# of members in VK protest community in a city)	0.121	0.119	0.118	0.120	0.030	0.029	0.029	0.030
	[0.050]	[0.051]	[0.050]	[0.050]	[0.009]	[0.010]	[0.009]	[0.009]
Observations	625	625	625	625	625	625	625	625
R-squared	0.824	0.827	0.829	0.826	0.783	0.786	0.787	0.786
Population controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers , distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A16. Baseline Results with Population Weights

	Incidence of protests, dummy, Dec 2011				Log (number of protesters), Dec 2011			
	IV	IV	IV	IV	IV	IV	IV	IV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (number of VK users), June 2011	0.569	0.551	0.565	0.576	2.282	2.232	2.280	2.381
	[0.238]	[0.222]	[0.223]	[0.223]	[1.173]	[1.107]	[1.121]	[1.115]
Log (SPbSU students), one cohort younger than VK founder	0.025	0.024	0.026	0.029	0.231	0.225	0.230	0.253
	[0.027]	[0.026]	[0.028]	[0.027]	[0.129]	[0.126]	[0.131]	[0.129]
Log (SPbSU students), one cohort older than VK founder	-0.045	-0.039	-0.040	-0.035	-0.189	-0.171	-0.170	-0.158
	[0.037]	[0.036]	[0.033]	[0.035]	[0.187]	[0.177]	[0.165]	[0.176]
Observations	625	625	625	625	625	625	625	625
Population, age cohort, education, and other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Kleibergen-Paap F-stat	6.442	6.619	7.242	6.902	6.442	6.619	7.242	6.902
Effective F-stat (Montiel Olea and Pflueger 2013)	10.25	11.29	11.15	11.53	10.25	11.29	11.15	11.53

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Observations are weighted by city population. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A17. Heterogeneity of the VK Penetration Effect on Protests.

	Log (number of protesters), Dec 2011					
	Wage lower than median	Wage higher than median	Trust lower than median	Trust higher than median	Education lower than median	Education higher than median
	(1)	(2)	(3)	(4)	(5)	(6)
Log (number of VK users), June 2011	1.252	2.021	0.144	3.843	0.139	4.448
	[1.602]	[0.995]	[1.830]	[1.558]	[0.210]	[2.789]
Log (SPbSU students), one cohort younger than VK founder	0.031	0.314	0.152	-0.076	-0.032	0.117
	[0.159]	[0.158]	[0.141]	[0.335]	[0.049]	[0.275]
Log (SPbSU students), one cohort older than VK founder	-0.094	-0.210	0.213	-0.675	-0.040	-0.348
	[0.171]	[0.210]	[0.237]	[0.362]	[0.045]	[0.344]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	315	310	231	231	313	312
Effective F-statistics (Olea Montiel and Pflueger 2013)	3.753	6.492	1.333	6.918	9.959	2.527

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. Specification is the same as Table 2A, column (1) (only baseline controls included). "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A18. Robustness of Fractionalization Results to Partial Overlap

Panel A. Network fractionalization and the incidence of protests (in cities with population > 100,000).

					Incidence of protests, dummy, Dec 2011					
% of FB users who have a VK account	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fractionalization of social media networks (Facebook+VK)	-0.983	-0.851	-0.703	-0.561	-0.439	-0.341	-0.267	-0.211	-0.172	-0.158
	[0.435]	[0.380]	[0.322]	[0.266]	[0.217]	[0.174]	[0.139]	[0.111]	[0.090]	[0.081]
Log (number of users in both networks)	0.072	0.096	0.119	0.137	0.151	0.160	0.166	0.170	0.171	0.171
	[0.122]	[0.119]	[0.117]	[0.117]	[0.117]	[0.117]	[0.118]	[0.118]	[0.118]	[0.118]
Population, Age cohorts, Education, and Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	158	158	158	158	158	158	158	158	158	158
R-squared	0.768	0.768	0.767	0.766	0.765	0.765	0.764	0.764	0.764	0.763

Panel B. Network fractionalization and protest participation (in cities with population > 100,000).

					Log (number of protesters), Dec 2011					
% of FB users who have a VK account	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fractionalization of social media networks (Facebook+VK)	-4.797	-4.209	-3.518	-2.834	-2.233	-1.742	-1.356	-1.062	-0.847	-0.746
	[2.140]	[1.864]	[1.589]	[1.335]	[1.108]	[0.910]	[0.741]	[0.602]	[0.497]	[0.454]
Log (number of users in both networks)	1.233	1.348	1.457	1.548	1.616	1.663	1.694	1.712	1.719	1.717
	[0.618]	[0.599]	[0.585]	[0.578]	[0.575]	[0.575]	[0.576]	[0.577]	[0.578]	[0.578]
Population, Age cohorts, Education, and Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	158	158	158	158	158	158	158	158	158	158
R-squared	0.821	0.821	0.820	0.820	0.820	0.819	0.819	0.819	0.818	0.818

Standard errors in brackets are adjusted for clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. Only cities with population greater than 100,000 are in the sample. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A19. Fractionalization of Networks and Protest Participation. Controlling for VK and FB separately.

Panel A. Network fractionalization and the incidence of protest

	Incidence of protests, dummy, Dec 2011							
	Whole sample				Cities with more than 100 000 inhabitants			
Fractionalization of social media networks (Facebook+Vkontakte)	-0.727	-0.726	-0.712	-0.742	-0.992	-0.948	-0.948	-1.079
	[0.239]	[0.238]	[0.233]	[0.233]	[0.440]	[0.416]	[0.416]	[0.434]
Log (number of FB users), predicted, 2011	-0.037	-0.034	-0.043	-0.065	-0.033	-0.019	-0.038	-0.067
	[0.052]	[0.052]	[0.053]	[0.050]	[0.118]	[0.123]	[0.121]	[0.110]
Log (number of VK users), 2011	0.135	0.132	0.128	0.143	0.077	0.083	0.107	0.145
	[0.033]	[0.032]	[0.033]	[0.032]	[0.077]	[0.074]	[0.080]	[0.083]
Population, Age cohorts, Education, and Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	158	158	158	158
R-squared	0.785	0.788	0.788	0.789	0.769	0.788	0.787	0.794

Panel B. Network fractionalization and protest participation.

	Log (number of protesters), Dec 2011							
	Whole sample				Cities with more than 100 000 inhabitants			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fractionalization of social media networks (Facebook+Vkontakte)	-4.734	-4.730	-4.647	-4.792	-6.380	-6.435	-6.229	-6.876
	[1.183]	[1.186]	[1.155]	[1.168]	[2.073]	[2.059]	[1.980]	[2.025]
Log (number of FB users), predicted, 2011	0.293	0.306	0.261	0.177	0.296	0.316	0.247	0.098
	[0.298]	[0.303]	[0.309]	[0.302]	[0.644]	[0.731]	[0.662]	[0.626]
Log (number of VK users), 2011	0.839	0.819	0.801	0.866	0.782	0.762	1.004	1.080
	[0.160]	[0.158]	[0.162]	[0.160]	[0.412]	[0.388]	[0.412]	[0.453]
Population, Age cohorts, Education, and Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes
Observations	625	625	625	625	158	158	158	158
R-squared	0.837	0.839	0.840	0.839	0.822	0.836	0.839	0.838

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A20. Fractionalization of Networks and Voting Outcomes.

Panel A. Voting share for United Russia, 2011

	Voting share for United Russia, 2011							
	Whole sample				Cities with more than 100 000 inhabitants			
Fractionalization of social media networks (Facebook+Vkontakte)	-0.113	-0.130	-0.087	-0.160	-0.046	-0.004	0.000	-0.065
	[0.087]	[0.075]	[0.083]	[0.068]	[0.205]	[0.210]	[0.201]	[0.200]
Log (number of users in both networks)	-0.047	-0.049	-0.030	-0.045	-0.027	-0.029	-0.043	-0.052
	[0.042]	[0.044]	[0.039]	[0.037]	[0.045]	[0.048]	[0.046]	[0.039]
Observations	625	625	625	625	158	158	158	158

Panel B. Voting Share for Putin, 2012

	Voting Share for Putin, 2012							
	Whole sample				Cities with more than 100 000 inhabitants			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fractionalization of social media networks (Facebook+Vkontakte)	-0.007	-0.021	-0.014	-0.062	-0.027	-0.006	-0.030	-0.047
	[0.061]	[0.053]	[0.057]	[0.045]	[0.127]	[0.127]	[0.112]	[0.127]
Log (number of users in both networks)	-0.022	-0.023	-0.011	-0.023	-0.014	-0.011	-0.026	-0.033
	[0.023]	[0.023]	[0.022]	[0.018]	[0.022]	[0.026]	[0.029]	[0.021]
Observations	625	625	625	625	158	158	158	158

Panel C. Voting share for United Russia, 2016

	Voting share for United Russia, 2016							
	Whole sample				Cities with more than 100 000 inhabitants			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fractionalization of social media networks (Facebook+VK)	0.021	0.022	0.065	-0.015	-0.203	-0.140	-0.164	-0.208
	[0.102]	[0.088]	[0.098]	[0.060]	[0.187]	[0.196]	[0.219]	[0.146]
Log (number of users in both networks)	0.008	0.013	0.036	0.017	0.014	0.031	-0.000	0.000
	[0.037]	[0.037]	[0.034]	[0.026]	[0.044]	[0.045]	[0.050]	[0.031]
Observations	625	625	625	625	158	158	158	158
Population, Age cohorts, Education, and Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Electoral controls, 1995		Yes				Yes		
Electoral controls, 1999			Yes				Yes	
Electoral controls, 2003				Yes				Yes

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls for all specifications in the respected columns. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Electoral controls include vote for Yabloko party, Communist Party (KPRF), LDPR party, the ruling party (Our Home is Russia in 1995, Unity in 1999, United Russia in 2003), and electoral turnout for a corresponding year. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014).

Table A21. VK Penetration and Municipal Budgets.

Panel A. VK penetration and federal transfers to municipalities

	2009	2010	2011	2012	2013	2014
	Log (transfers to municipality)					
Log (number of VK users), June 2011	-0.133	-0.979	-1.399	-3.596	-2.903	-3.087
	[0.859]	[0.951]	[1.038]	[1.503]	[1.438]	[1.486]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	325	347	347	351	352	323
Effective F-statistics (Olea Montiel and Pflueger 2013)	12.94	13.87	14.45	13.39	11.56	11.49

Panel B. VK penetration and municipality's tax revenues

	2009	2010	2011	2012	2013	2014
	Log (municipal tax revenues)					
Log (number of VK users), June 2011	-0.181	-0.129	0.004	-0.378	-0.516	-0.688
	[0.212]	[0.284]	[0.254]	[0.275]	[0.308]	[0.326]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	496	513	502	501	499	483
Effective F-statistics (Olea Montiel and Pflueger 2013)	13.18	14.67	14.99	14.45	12.94	12.69

Panel C. VK penetration and municipal spending

	2009	2010	2011	2012	2013	2014
	Log (municipal total spending)					
Log (number of VK users), June 2011	-0.129	0.100	-0.049	-0.282	-0.313	-0.392
	[0.211]	[0.224]	[0.188]	[0.245]	[0.275]	[0.274]
Population controls	Yes	Yes	Yes	Yes	Yes	Yes
Age cohort controls	Yes	Yes	Yes	Yes	Yes	Yes
Education controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	436	448	467	458	477	456
Effective F-statistics (Olea Montiel and Pflueger 2013)	17.71	20.91	24.26	23.04	18.62	17.82

Robust standard errors in brackets are adjusted by clusters within regions. Unit of observation is a city. IV estimates are reported. Logarithm of any variable is calculated with 1 added inside. "Yes" is added to indicate inclusion of a group of controls. Flexible controls for population (5th polynomial) are included in all specifications. Age cohort controls include the number of people aged 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50 and older years, in each city according to 2010 Russian Census. Education controls include the share of population with higher education overall according to 2002 Russian Census and separately in each of the age cohorts according to 2010 Russian Census, to account for both the levels and the change in education. Other controls include dummy for regional and county centers, distances to Moscow and St Petersburg, log (average wage), share of people with higher education in 2002, internet penetration in 2011, log (Odnoklassniki users in 2014). All specifications control for the initial 2008 values of the corresponding dependent variable and election results of 2007 parliamentary elections.

Table A22. Data Description and Sources

Variable	Description
Protest participation in December 2011	The number of people in a given city participating in protests against electoral fraud in December 10-16, 2011, i.e., during the first wave of massive protests after the legislative elections of December 4, 2011. Data were gathered manually from open sources on the Internet. Where possible, three estimates of the number of protest participants were collected - an estimate from the Ministry of Internal Affairs, an estimate from the activists themselves, and an estimate from journalists. Whenever more than one estimate was present, an average estimate was used. See Table A27 for all of our collected data.
Incidence of protests in December 2011	1 = at least one protest occurred in a city in December 10-16, 2011; 0 = no protests that week
Protest participation in USSR in 1987-1992	The number of people who participated in protests in the USSR in 1987-1992. Data were obtained from Mark Beissenger's website (http://www.princeton.edu/~mbeissin/research1.htm). This variable does not distinguish between different protest agendas — e.g., pro-democratic and pro-communist protests are treated equally. For protests with more than one estimate, an average number of participants was taken. For cities with multiple protests during that period, we use median participation.
Incidence of protests in USSR in 1987-1992	1 = at least one protest occurred in the city in 1987-1992, regardless of the protest's agenda; 0 = no protests occurred in 1987-1992
Participation in pro-democratic protests in USSR in 1987-1992	The number of people who participated in anti-Soviet or pro-democratic protests in the USSR in 1987-1992. Data were obtained from Mark Beissenger's website (http://www.princeton.edu/~mbeissin/research1.htm). We identified 75 various demands in the dataset which we considered either anti-Soviet or pro-democratic. Examples of such demands are "Against Communist Party Privileges", "Decentralize Economic Administration", "Democratization of Political institutions", etc. A full list of anti-Soviet/pro-democratic demands is available upon request. For protests with more than one estimate of participation, an average number of participants was taken. For cities with multiple protests during that period, we use median participation.
Incidence of pro-democratic protests in USSR in 1987-1992	1 = at least one anti-Soviet or pro-democratic protest occurred in the city in 1987-1992; 0 = no anti-Soviet or pro-democratic protests occurred in 1987-1992
Number of VK users in 2013	The number of registered VK users living in a given city, as of 2013. Manually collected data.
Number of VK users in 2011	The number of valid and active VK users in 2011, who picked a given city as their hometown. By "valid," we mean "not blocked." By "active," we mean that they were seen online at least once between June 21 and July 7, 2011. Data were collected by a professional programmer. Full description of the gathering process can be found at http://habrahabr.ru/post/123856/ (in Russian).
Number of early 5,000 VK users	The number of VK users with id<5,000, who picked a given city as their hometown. In other words, those were the first 5,000 users ever registered in VK. They were registered within less than a month in November 2006.
Number of Odnoklassniki users in 2014	Number of all registered Odnoklassniki users living in a given city, as of 2014. Manually collected data.
Number of Facebook users in 2013	Number of all registered Facebook users living in a given city, as of 2013. Manually collected data.

Population in 2001, in thousands	Collected from mojgorod.ru, which in turn stores data collected from Russian Federal State Statistics Service.
Distance to Saint Petersburg	Spherical distance from a given city to Saint Petersburg, in km
Distance to Moscow	Spherical distance from a given city to Moscow, in km
Administrative center	1 = city is the administrative center of its region; 0 = not. Data collected from Wikipedia.
Rayon center (county seat, dummy)	1 = city is the administrative center of its district (rayon); 0 = not. Data collected from Wikipedia.
Average wage in 2011	Data gathered from Russian Federal State Statistics Service.
Number of people with age xx-xx in 2010	Data gathered from Russian Federal State Statistics Service. Based on Russian census in 2010.
Presence of university	1 = city has at least one university; 0 = not. Data collected from Wikipedia.
Percentage with higher education in 2010	Percentage of adults with at least one university degree. Data gathered from Russian Federal State Statistics Service. Based on Russian census in 2010.
Internet penetration in 2011, region-level	Number of unique users in a region divided by its population according to the 2010 census. Data collected from liveinternet.com
Number of SPbSU students, same 5-year cohort as VK founder	Number of Odnoklassniki users who studied in Saint Petersburg State University in classes of 2004-2008, i.e. in the same age 5-year cohort together with Pavel Durov, former CEO of VK. Data manually collected from OK.ru.
Number of SPbSU students, one cohort younger than VK founder	Number of Odnoklassniki users who studied in Saint Petersburg State University in classes of 1999-2003, i.e. one 5-year cohort earlier than Pavel Durov, former CEO of VK. Data manually collected from OK.ru.
Number of SPbSU students, one cohort older than VK founder	Number of Odnoklassniki users who studied in Saint Petersburg State University in classes of 2009-2013, i.e. one 5-year cohort after Pavel Durov, former CEO of VK. Data manually collected from OK.ru.

Table A23. Data on Protest Participation across Russian Cities

Date	City	OKATO	# according to police	# according to organizers	# according to journalists	Average # of protesters
12/10/2011	Barnaul	01401	300	1500	.	900
12/10/2011	Krasnodar	03401	250	1500	1000	917
12/10/2011	Anapa	03403	.	500	.	500
12/10/2011	Sochi	03426	150	300	.	225
12/10/2011	Krasnoyarsk	04401	400	4000	.	2,200
12/10/2011	Vladivostok	05401	150	1000	.	575
12/11/2011	Stavropol	07401	.	.	30	30
12/10/2011	Pyatigorsk	07427	150	300	300	250
12/10/2011	Khabarovsk	08401	70	150	.	110
12/10/2011	Komsomolsk-on-Amur	08409	80	100	430	203
12/10/2011	Blagoveshchensk	10401	.	50	.	50
12/10/2011	Arkhangelsk	11401	.	3000	2000	2,500
12/10/2011	Belgorod	14401	100	.	.	100
12/10/2011	Stary Oskol	14440	.	.	30	30
12/10/2011	Bryansk	15401	300	1000	.	650
12/10/2011	Vladimir	17401	.	.	300	300
12/10/2011	Volgograd	18401	1000	2000	.	1,500
12/10/2011	Vologda	19401	500	1300	1000	933
12/11/2011	Cherepovets	19430	.	.	300	300
12/10/2011	Voronezh	20401	300	1500	1000	933
12/10/2011	Nizhny Novgorod	22401	500	2000	.	1,250
12/10/2011	Ivanovo	24401	250	400	.	325
12/10/2011	Irkutsk	25401	400	1000	.	700
12/10/2011	Angarsk	25405	15	60	30	35
12/10/2011	Bratsk	25414	.	.	150	150
12/10/2011	Kaliningrad	27401	200	500	.	350
12/10/2011	Tver	28401	400	500	.	450
12/10/2011	Kaluga	29401	.	.	250	250
12/10/2011	Obninsk	29415	50	300	.	175
12/10/2011	Kemerovo	32401	200	500	400	367
12/10/2011	Novokuznetsk	32431	.	50	.	50
12/10/2011	Kostroma	34401	50	200	.	125
12/10/2011	Samara	36401	900	5000	.	2,950
12/10/2011	Tolyatti	36440	.	.	1000	1,000
12/10/2011	Mound	37401	.	100	.	100
12/10/2011	Kursk	38401	.	.	100	100
12/10/2011	Vyborg	41417	.	300	.	300
12/10/2011	Lipetsk	42401	.	300	.	300
12/10/2011	Murmansk	47401	500	1500	.	1,000
12/10/2011	Velikiy Novgorod	49401	.	400	200	300
12/10/2011	Novosibirsk	50401	3500	8000	.	5,750
12/10/2011	Omsk	52401	1000	2500	2000	1,833
12/10/2011	Orenburg	53401	.	300	.	300
12/11/2011	Orsk	53423	.	.	300	300
12/10/2011	Orel	54401	300	700	.	500
12/10/2011	Penza	56401	300	500	.	400
12/11/2011	Permian	57401	850	3000	.	1,925
12/10/2011	Pskov	58401	.	.	600	600
12/10/2011	Rostov-na-Donu	60401	250	700	500	483
12/10/2011	Volgodonsk	60412	.	.	10	10
12/10/2011	Taganrog	60437	.	.	200	200
12/10/2011	Ryazan	61401	.	500	.	500
12/10/2011	Saratov	63401	200	1000	.	600
12/10/2011	Balakovo	63407	200	200	.	200
12/10/2011	Yuzhno-Sakhalinsk	64401	.	70	.	70
12/10/2011	Ekaterinburg	65401	1500	10000	5000	5,500
12/10/2011	Kachkanar	65448	.	.	50	50
12/10/2011	Nizhny Tagil	65476	.	.	150	150
12/10/2011	Smolensk	66401	.	.	200	200
12/10/2011	Tambov	68401	150	250	.	200
12/10/2011	Tomsk	69401	1500	4000	2000	2,500
12/10/2011	Tula	70401	250	500	.	375
12/10/2011	Khanty-Mansiysk*	71131	.	.	3	3

Table A23 (cont'd). Data on Protest Participation across Russian Cities

Date	City	OKATO	# according to police	# according to organizers	# according to journalists	Average # of protesters
12/10/2011	Nizhnevartovsk	71135	.	.	50	50
12/10/2011	Surgut	71136	.	.	250	250
12/10/2011	Tyumen	71401	.	1500	.	1,500
12/10/2011	Ulyanovsk	73401	400	1500	1000	967
12/10/2011	Chelyabinsk	75401	1000	3000	.	2,000
12/10/2011	Magnitogorsk	75438	.	.	500	500
12/10/2011	Chita	76401	100	200	.	150
12/10/2011	Yaroslavl	78401	650	2000	1000	1,217
12/10/2011	Ufa	80401	200	1000	500	567
12/10/2011	Sterlitamak	80445	.	.	250	250
12/10/2011	Ulan-Ude	81401	50	100	.	75
12/10/2011	Makhachkala	82401	.	25	.	25
12/10/2011	Gorno-Altaisk	84401	.	50	.	50
12/10/2011	Petrozavodsk	86401	300	600	400	433
12/10/2011	Syktyvkar	87401	250	500	.	375
12/10/2011	Yoshkar-Ola	88401	.	.	400	400
12/10/2011	Kazan	92401	500	1000	.	750
12/10/2011	Naberezhnye Chelny	92430	.	350	150	250
12/10/2011	Izhevsk	94401	.	500	.	500
12/10/2011	Abakan	95401	.	100	.	100
12/10/2011	Cheboksary	97401	230	420	300	317

* Removing this small-scale protest from our sample does not change our results. For geographic distribution of protests across Russian territory, see Figure A2. Sources include, but are not limited to, an independent business newspaper Kommersant, a government owned new agency RIA Novosti, and an opposition-leaning independent online newspaper Ridus, various regional newspapers, etc. OKATO is the official all-Russian classifier of cities and other populated localities.