ONLINE APPENDIX to "Corruption in Procurement and the Political Cycle in Tunneling: Evidence from Financial Transactions Data"

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A Appendix Tables and Figures

Table A.1: Sample construction out of the banking transactions data

Panel A	Number of legal entities	% of total number of legal entities	% of total value of all transactions
Entire banking transactions data base	1,721,890	100.00%	100.00%
After dropping IDs with fewer than 10 transactions or less than 100,000 RUR per month in revenue	479,169	27.83%	99.23%
After dropping financial legal entities	460,156	26.72%	31.18%
After dropping government and municipal legal entities	443,196	25.74%	24.28%
After dropping foreign legal entities	435,288	25.28%	23.88%
After dropping individual entrepreneurs	411,494	23.90%	19.20%
Panel B			
Out of the 411,494 remaining domestic, non-financial, non-individual business legal entities:			
Legitimate firms	168,009	9.76%	9.94%
Fly-by-night firms	99,925	5.80%	2.11%
"Semi-legal" (intermediate) firms	143,560	8.34%	7.15%

Table A.2: Intersection of the Rosstat and banking transactions data sets

	Number of firms	Average revenue per firm in the sample, $1000	Percentage of revenue of firms in the sample to all firms in Rosstat, $1000
All firms in Rosstat with revenue in 2003 > $100,000	193,399	4,281	100.0%
All firms in Rosstat with revenue in 2003 > $1 million	63,478	12,522	96.0%
Our sample of legitimate firms	45,275	14,246	77.9%

Note: Our sample of legitimate firms consists of all firms that satisfy the following criteria: had revenue in 2003 > $1 million, are present among legitimate firms in the banking transactions data, have some transactions in the interval +/- one year from regional elections.

Table A.3: Summary statistics

Sample: firms × elections					
	Mean	Median	St. dev.	N of obs	N of firms
	(1)	(2)	(3)	(4)	(5)
Revenue 2003, $000's	$14,246	$ 2,852	$ 105,660	63021	45275
Assets 2003, $000's	$13,113	$ 1,317	$ 173,933	63008	45264
Net Income 2003, $000's	$ 784	$ 26	$ 21,760	62804	45102
Net Income / Revenue 2003, %	1.95	0.81	9.38	63021	45275
Debt / Assets 2003, %	4.37	0.00	14.83	63021	45275
Annualized transfers to fly-by-night firms 1999-2004, $000's	$ 272	$ 36	$ 5,909	63021	45275
Annualized transfers to fly-by-night firms 1999-2004 / Revenue 2003, %	4.75	1.36	8.38	63021	45275
Annualized revenue from procurement 1999-2004, $000's	$ 58	$ -	$ 1,548	63021	45275
Annualized revenue from procurement 1999-2004 / Revenue 2003, %	0.37	0.00	1.99	63021	45275
Log(1+procurement revenue)	0.572	0.000	1.602	63021	45275
Proc. Rev >0, %	17.11	0.00	37.66	63021	45275
Proc. Rev >1% of revenue, %	5.02	0.00	21.84	63021	45275
Proc. Rev >5% of revenue, %	2.24	0.00	14.78	63021	45275
L(Tunneling / week, election window), 1999-2004	0.758	0.000	1.313	63021	45275
L(Tunneling / week, outside election window), 1999-2004	0.828	0.125	1.232	63021	45275
TI CPI Corruption	0.000	0.457	1.000	54115	38044
Labor productivity (revenue per employee)	32.551	15.008	58.625	44532	31101
Log labor productivity	2.873	2.709	0.966	44532	31101
Sample: firms × weeks					
	Mean	Median	St. dev.	N of obs	N of firms
	(1)	(2)	(3)	(4)	(5)
Tunneling per week / Revenue	0.001	0.000	0.003	6286011	45275
Procurement revenue / Revenue, %	0.530	0.000	3.386	6286011	45275
Proc. Rev >1% of revenue, %	5.747	0.000	23.274	6286011	45275
Proc. Rev >5% of revenue, %	2.387	0.000	15.265	6286011	45275

Table A.4: Summary statistics by region

Region	Election Date 1 (1)	Election Date 2 (2)	N of obs (3)	N of firms (4)	Revenue, $000's (5)	Paym. to sp. / Revenue, % (6)	Gov orders / Revenue, % (7)	Gov01, % (8)	Gov05, % (9)
Adygeya republic	2002-01-13		38	38	4,099	0.83	0.00	0.00	0.00
Bashkortostan republic	2003-12-07		932	932	15,678	2.10	0.09	1.29	0.54
Buryat republic	2002-06-23		125	125	8,717	2.02	0.09	0.80	0.80
Altai republic	2001-12-16		201	201	23,178	6.04	0.31	3.48	1.99
Ingush republic	2002-04-07		11	11	47,930	2.97	0.00	0.00	0.00
Kabardino-Balkar republic	2002-01-13		44	44	4,984	2.07	0.00	0.00	0.00
Kalmyk republic	2002-10-20		48	48	20,906	9.59	0.45	4.17	2.08
Karachaevo-Cherkess republic	1999-04-25	2003-08-17	76	53	7,224	2.87	0.05	1.32	0.00
Karelia republic	2002-04-28		209	209	6,544	0.93	0.04	0.96	0.48
Komi republic	2001-12-16		205	205	17,385	2.88	0.00	0.00	0.00
Mari-El republic	2000-12-03	2004-12-19	236	148	4,430	1.93	0.11	1.27	0.42
Mordovia republic	2003-02-16		173	173	8,005	1.48	0.13	2.31	0.58
Sakha (Yakutia) republic	2001-12-23		202	202	18,535	2.81	0.16	1.49	0.99
North Osetiya republic	2002-01-20		60	60	6,876	5.23	0.00	0.00	0.00
Tatarstan republic	2001-03-25		578	578	20,799	2.71	0.23	2.25	1.21
Tuva republic	2002-03-17		15	15	3,473	1.19	0.00	0.00	0.00
Udmurtia Republic	2000-10-15	2004-03-14	622	429	10,478	1.49	0.20	2.25	1.29
Khakasia republic	2000-12-24	2004-12-26	133	88	9,736	1.14	0.00	0.00	0.00
Chuvash republic	2001-12-16		215	215	6,603	1.86	0.15	1.40	1.40
Altai krai	2000-03-26	2004-03-14	603	483	6,771	1.62	0.25	2.32	1.66
Krasnodar krai	2000-12-03	2004-03-14	2,440	1,589	8,523	3.00	0.13	1.52	0.90
Krasnoyarsk krai	2002-09-08		564	564	8,813	2.57	0.10	1.06	0.53
Primorskii krai	1999-12-19	2001-05-27	697	435	9,700	1.52	0.13	1.15	0.72
Stavropol krai	2000-12-03		379	379	7,685	2.37	0.19	2.37	1.06
Khabarovsk krai	2000-12-10	2004-12-19	827	532	9,009	2.09	0.14	1.57	0.85
Amur oblast	2001-03-25		117	117	9,200	3.23	0.01	0.00	0.00
Arkhangelsk oblast	2000-12-03	2004-03-14	431	288	8,350	2.19	0.11	0.70	0.70
Astrakhan oblast	2000-12-03	2004-12-05	253	147	9,142	2.08	0.09	1.58	0.79
Belgorod oblast	1999-05-30	2003-05-25	577	439	12,281	2.65	0.12	1.39	0.69
Bryansk oblast	2000-12-10	2004-12-05	442	262	6,978	3.25	0.32	2.94	2.04
Vladimir oblast	2000-12-10		295	295	8,596	2.30	0.52	5.42	3.73
Volgograd oblast	2000-12-24	2004-12-05	823	513	12,001	2.52	0.05	0.73	0.24
Vologda oblast	1999-12-19	2003-12-07	591	403	18,131	1.87	0.06	0.85	0.34
Voronezh oblast	2000-12-24	2004-03-14	900	685	6,306	2.20	0.16	1.33	0.89
Ivanovo oblast	2000-12-03		147	147	6,317	1.67	0.98	8.16	6.12
Irkutsk oblast	2001-07-29		552	552	9,928	2.31	0.08	0.91	0.54
Kaliningrad oblast	2000-11-05		129	129	13,540	1.79	0.15	3.88	0.78
Kaluga oblast	2000-11-12	2004-03-14	584	324	7,670	4.07	0.52	5.31	3.08
Kamchatka oblast	2000-12-03	2004-12-05	207	125	7,706	1.47	0.17	1.93	1.45
Kemerovo oblast	2001-04-22		395	395	18,723	1.86	0.05	0.51	0.25
Kirov oblast	2000-03-26	2003-12-07	506	334	6,636	1.61	0.14	2.17	0.99
Kostroma oblast	2000-12-10		99	99	7,315	2.23	0.47	4.04	4.04
Kurgan oblast	2000-11-26	2004-11-28	146	102	9,790	1.37	0.35	2.05	2.05
Kursk oblast	2000-10-22		147	147	10,561	1.97	0.26	3.40	2.04
Leningrad oblast	1999-09-19	2003-09-21	760	546	13,045	1.13	0.03	0.79	0.00
Lipetsk oblast	2002-04-12		288	288	18,278	2.18	0.09	1.39	0.35
Magadan oblast	2000-11-05	2003-02-02	167	108	6,402	2.21	0.19	2.40	1.20
Moscow oblast	1999-12-19	2003-12-07	5,271	3,176	11,006	6.76	0.64	10.09	3.76
Murmansk oblast	2000-03-26	2004-03-14	381	277	14,717	1.70	0.15	1.57	0.79
Nizhny Novgorod oblast	2001-07-15		855	855	14,124	2.65	0.28	3.16	1.64
Novgorod oblast	1999-09-05	2003-09-07	266	164	9,120	1.53	0.13	0.75	0.75
Novosibirsk oblast	1999-12-19	2003-12-07	1,215	881	11,071	2.36	0.16	1.89	0.99
Omsk oblast	1999-09-05	2003-09-07	605	428	21,003	2.26	0.10	0.83	0.50
Orenburg oblast	1999-12-19	2003-12-07	446	311	16,233	1.76	0.04	0.45	0.45
Oryol oblast	2001-10-28		199	199	14,016	2.26	0.24	5.53	1.51
Penza oblast	2002-04-12		243	243	5,002	2.32	0.20	3.70	1.65
Perm oblast	2000-12-03		343	343	18,899	1.80	0.14	2.33	0.58
Pskov oblast	2000-11-12	2004-11-14	237	155	6,844	2.66	0.37	3.38	2.11
Rostov oblast	2001-09-23		957	957	8,156	2.91	0.19	2.30	1.78
Ryazan oblast	2000-12-03	2004-03-14	494	284	9,575	2.51	0.28	2.23	2.02
Samara oblast	2000-07-02		508	508	25,800	1.65	0.14	1.38	0.79
Saratov oblast	2000-03-26		253	253	14,651	2.62	0.25	2.77	1.58
Sakhalin oblast	2000-10-22	2003-12-07	404	252	5,866	1.78	0.02	0.50	0.00
Sverdlovsk oblast	1999-08-29	2003-09-07	1,993	1,387	14,089	1.78	0.09	1.25	0.50
Smolensk oblast	2002-05-19		234	234	8,932	4.00	0.25	2.99	1.28
Tambov oblast	1999-12-19	2003-12-07	238	172	6,081	1.43	0.51	5.04	3.36
Tver oblast	1999-12-19	2003-12-07	482	331	7,244	3.46	0.29	3.11	1.87
Tomsk oblast	1999-09-19	2003-09-21	371	319	13,391	2.40	0.00	0.00	0.00
Tula oblast	2001-04-08		337	337	9,795	3.06	0.36	4.75	2.08
Tyumen oblast	2001-01-14		259	259	24,286	2.46	0.07	1.93	0.39
Ulyanovsk oblast	2000-12-24	2004-12-05	445	291	18,284	2.57	0.11	1.35	0.90
Chelyabinsk oblast	2000-12-24		496	496	20,278	1.94	0.22	2.02	1.41
Chita oblast	2000-10-29	2004-03-14	169	109	7,750	2.23	0.10	1.78	1.18
Yaroslavl oblast	1999-12-19	2003-12-07	807	560	8,957	2.06	0.23	3.35	1.24
Moscow city	1999-12-19	2003-12-07	21,321	13,783	17,592	8.38	0.62	8.86	3.75
St. Petersburg city	2000-05-14	2003-09-21	4,362	2,890	11,810	2.42	0.30	3.26	1.90
Evrei autonomous oblast	2000-03-26		10	10	4,127	1.29	0.18	10.00	0.00
o/w Aginsk Buryat autonomous	2000-10-29		11	11	27,739	4.59	0.23	18.18	0.00
o/w Komi-Permyak autonomous	2000-12-03		6	6	3,683	0.73	0.00	0.00	0.00
o/w Koryak autonomous okrug	2000-12-03	2004-03-14	16	10	20,500	1.86	0.09	0.00	0.00
o/w Nenets autonomous okrug	2001-01-14		13	13	15,570	4.35	0.00	0.00	0.00
Taimyr autonomous okrug	2001-01-28	2003-01-26	31	17	294,062	5.43	0.15	3.23	0.00
o/w Ust-Ordyn Buryat autonom	2000-11-19	2004-11-14	6	5	1,684	0.56	0.00	0.00	0.00
Khanty-Mansi autonomous okru	2000-03-26		389	389	70,841	3.14	0.06	0.77	0.26
Chukotka autonomous okrug	2000-12-24		22	22	12,309	3.55	1.04	9.09	9.09
Evenki autonomous okrug	2001-04-08		5	5	6,423	5.34	0.01	0.00	0.00
Yamalo-Nenets autonomous okr	2000-03-26		132	132	61,224	2.48	0.10	1.52	0.76

Table A.5: Robustness of Panel A of Table 1 to using 5% threshold for procurement revenue share

Dependent variable: Transfers to fly-by-night firms as a share of revenue						
	Estimation results of equation 1					
Month from election, m	Coef. β^1_m	Std. Err.	t-stat	Coef. β^2_m	Std. Err.	t-stat
-8	0.005	0.045	0.11	-0.215	0.052	-4.18
-7	0.015	0.061	0.24	-0.031	0.076	-0.41
-6	0.236	0.085	2.77	0.048	0.101	0.48
-5	0.115	0.061	1.87	0.064	0.094	0.68
-4	0.060	0.075	0.8	0.098	0.055	1.78
-3	0.242	0.052	4.65	0.282	0.107	2.64
-2	0.167	0.031	5.42	0.206	0.086	2.39
-1	0.293	0.035	8.44	0.220	0.060	3.68
1	0.690	0.167	4.14	0.367	0.107	3.43
2	-0.040	0.024	-1.63	0.006	0.066	0.09
3	0.000	0.022	0.01	0.093	0.037	2.49
4	0.100	0.022	4.53	0.125	0.027	4.69
5	-0.026	0.054	-0.47	0.116	0.036	3.26
6	-0.005	0.053	-0.09	-0.260	0.218	-1.19
F-stat	β^1 jointly		5	β^2 jointly		11
F-stat	$\beta^1_{in[-1;1]} \neq \beta^1_{out[-1;1]}$		40	$\beta^2_{in[-1;1]} \neq \beta^2_{out[-1;1]}$		48

Note: Coefficients and standard errors are multiplied by 1000. Standard errors are corrected for clusters at the regional level. The number of observations is 6,286,011. The number of firms is 45,275. The number of regions (clusters) is 87.

Table A.6: Propensity to tunnel out of procurement revenue and out of other revenue

Dependent variable: Transfers to fly-by-night firms as a share of revenue	
Estimation results of equation 3	
Incoming revenue, t	0.068
	(0.013)***
Incoming revenue, $t-1$	0.035
	(0.009)***
Incoming revenue, $t-2$	0.004
	(0.004)
Incoming procurement revenue, t	3.214
	(0.663)***
Incoming procurement revenue, $t-1$	0.906
	(0.445)***
Incoming procurement revenue, $t-2$	0.906
	(0.217)***
Firm and week fixed effects	Yes
Number of obs	6,286,011
Number of firms	45,275
Number of regions	87

Note: Coefficients and standard errors are multiplied by 1000. Both dependent and the main independent variables are normalized by the size o firm's revenue in 2003. t is a particular week. * significant at 10%, ** significant at 5%, *** significant at 1% level.

Table A.7: Robustness of Panel A of Table 2 to using 5% threshold for procurement revenue share

Dependent variable:	Transfers to fly-by-night firms as a share of revenue					
Subsample	Winner, the 1st round:		Incumbent:		Incumbent, the 1st round:	
of elections:	<50%	>50%	lost	won	<70%	>70%
	Specification 1					
(Proc. rev. share > 5%) × Election window	-0.034	0.497	0.053	0.493	0.274	0.450
	(0.056)	(0.077)***	(0.092)	(0.083)***	(0.145)*	(0.053)***
Election window	0.087	0.308	0.000	0.298	0.105	0.420
	(0.079)	(0.065)***	(0.087)	(0.068)***	(0.044)**	(0.117)***
Number of obs	1833618	4452393	744847	4864401	2917418	2691830
Number of firms	16980	33817	7460	38665	25833	26521
Number of regions	45	57	27	68	24	63
Mean dependent variable	0.320	0.712	0.325	0.678	0.931	0.354

Note: Coefficients and standard errors are multiplied by 1000. Standard errors corrected for clusters at the regional level are in parentheses. Election window is a dummy indicating a window of two months: one month before and one month after the elections, [-1;1]. "Proc. rev. share > 1%" is a dummy indicating that procurement revenue is above 1% of a firm's revenue. "Procurement Rev share" is the share of a firm's revenue that comes from procurement contracts. * significant at 10%, ** significant at 5%, *** significant at 1% level.

Table A.8: Robustness of Table 3 to using 5% threshold for procurement revenue share

Dependent variable:	Dummy: Proc. rev. > 5% revenue	
	(1)	(2)
L(Tunneling/week), election window	0.006	0.006
	(0.002)***	(0.001)***
TI CPI Corruption × L(Tunneling/week), election window		0.002
		(0.001)***
L(Tunneling/week), outside election window	0.000	0.000
	(0.001)	(0.001)
log(Revenue)	-0.003	-0.003
	(0.002)	(0.002)
Net Income/Revenue	-0.025	-0.027
	(0.005)***	(0.007)***
Debt/Assets	-0.012	-0.011
	(0.003)***	(0.004)***
Industry dummy	Yes	Yes
Region dummy	Yes	Yes
Election year dummy	Yes	Yes
R-sq	0.042	0.041
Number of obs	63,021	54,115
Number of firms	45,275	38,044
Number of regions	87	40

Note: Standard errors corrected for clusters at the regional level. "TI CPI corruption" is the Transparency International's regional corruption perception index. * significant at 10%, ** significant at 5%, *** significant at 1% level.

Table A.9: Robustness of Table 4 to using 5% threshold for procurement revenue share

Dependent variable:	Dummy: Procurement revenue > 5% revenue		
	(1)	(2)	(3)
	All	TI CPI≤Median	TI CPI>Median
(Tunneling)/(Revenue) > 0.1	0.017	0.003	0.022
	(0.004)***	(0.004)	(0.005)***
Log(Revenue)	Yes	Yes	Yes
Net Income/Revenue	Yes	Yes	Yes
Debt/Assets	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes
Region dummy	Yes	Yes	Yes
Election year dummy	Yes	Yes	Yes
R-sq	0.003	0.000	0.003
Number of obs	62,874	26,161	27,838
Number of firms	45,128	19,746	18,206

Note: Standard errors corrected for clusters at the regional level are in parentheses."TI CPI" is the Transparency International's regional corruption perception index. * significant at 10%, ** significant at 5%, *** significant at 1% level.

Table A.10: Summary statistics for local corruption measures

	Obs	Mean	Std. Dev.	Min	Max
			Locality level		
t-stat on coefficient α_{1l}	246	0.60	1.36	-4.22	4.40
Dummy (α_{1l} is signif at 5% level)	246	0.21	0.41	0	1
			Firm level (observations)		
t-stat on coefficient α_{1l}	44118	1.16	1.36	-4.22	4.40
Dummy (α_{1l} is signif at 5% level)	44118	0.38	0.48	0	1

Table A.11: Procurement and productivity in subsamples with high and low local corruption

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A	Dep. var: Dummy: government procurement > 1 % of revenue							
Sample: Local corruption	insignificant	significant	insignificant	significant	insignificant	significant	insignificant	significant
Log labor productivity	-0.008	-0.010	-0.015	-0.017	-0.008	-0.011	-0.014	-0.019
	(0.002)***	(0.001)***	(0.004)***	(0.002)***	(0.002)***	(0.001)***	(0.004)***	(0.002)***
Net Income/Revenue			-0.039	-0.068			-0.041	-0.065
			(0.013)***	(0.018)***			(0.013)***	(0.018)***
Log(Revenue)			0.009	0.008			0.008	0.009
			(0.004)**	(0.001)***			(0.004)*	(0.001)***
Debt/Assets	-0.021	-0.040	-0.029	-0.049	-0.020	-0.041	-0.028	-0.05
	(0.019)	(0.008)***	(0.018)	(0.007)***	(0.019)	(0.009)***	(0.018)	(0.007)***
R-sq	0.07	0.06	0.07	0.06	0.08	0.06	0.08	0.06
Number of obs	18292	11010	18292	11010	18292	11010	18292	11010
Number of firms	12311	6802	12311	6802	12311	6802	12311	6802
Number of regions	64	20	64	20	64	20	64	20
Panel B	Dep. var: Procurement revenue/revenue							
Sample: Local corruption	insignificant	significant	insignificant	significant	insignificant	significant	insignificant	significant
Log labor productivity	-0.0006	-0.0008	-0.0009	-0.0013	-0.0006	-0.0008	-0.0008	-0.0014
	(0.0001)***	(0.0001)***	(0.0003)***	(0.0001)***	(0.0002)***	(0.0001)***	(0.0003)***	(0.0001)***
Net Income/Revenue			-0.005	-0.007			-0.0053	-0.0066
			(0.002)**	(0.001)***			(0.002)**	(0.001)***
Log(Revenue)			0.00038	0.00057			0.0003	0.0006
			(0.0003)	(0.0001)***			(0.0004)	(0.0001)***
Debt/Assets	0.001	0.001	-0.002	-0.002	0.001	0.001	-0.0016	-0.0018
	(0.002)	(0.001)	(0.001)	(0.001)**	(0.002)	(0.002)	(0.001)	(0.001)**
R-sq	0.0550	0.0456	0.0556	0.0464	0.0642	0.0496	0.0648	0.0504
Number of obs	18292	11010	18292	11010	18292	11010	18292	11010
Number of firms	12311	6802	12311	6802	12311	6802	12311	6802
Number of regions	64	20	64	20	64	20	64	20
	Controls used in each of the two regressions presented in column column							
Industry dummy	Y	Y	Y	Y	Y	Y	Y	Y
Region dummy	Y	Y	Y	Y	N	N	N	N
Locality dummy	N	N	N	N	Y	Y	Y	Y
Election year dummy	Y	Y	Y	Y	Y	Y	Y	Y

Note: The sample is split into two subsamples with significant and insignificant local corruption, i.e., p-value above and below 10 for the coefficient α_1 in equation 9, measuring the association between tunneling around elections and the distribution of public procurement. Standard errors corrected for clusters at the regional level are in parentheses. Election year fixed effects and industry fixed effects are included as controls in all specifications. * significant at 10%, ** significant at 5%, *** significant at 1% level.

Table A.12: Robustness of Panel A of Table 5 for using 5% threshold for procurement revenue share

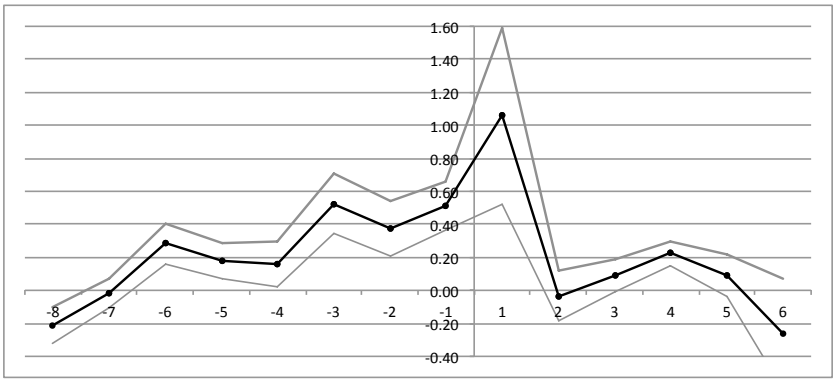
Panel A: Dummy.

Dependent var:	Dummy: government procurement revenue > 5 % of revenue							
Local corruption measure:	t-stat for α_1		dummy: p-value< 10%		t-stat for α_1		dummy: p-value< 10%	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log labor productivity	-0.006	-0.005	-0.006	-0.005	-0.006	-0.004	-0.006	-0.005
	(0.001)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***	(0.001)***
Local corruption	0.000	0.003	-0.001	0.006				
	(0.001)	(0.002)**	(0.002)	(0.003)*				
Log labor productivity × Local corruption		-0.001		-0.002		-0.001		-0.003
		(0.0004)**		(0.001)***		(0.0005)**		(0.001)***
Log(Revenue)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	(0.001)*	(0.001)*	(0.001)*	(0.001)*	(0.001)*	(0.001)*	(0.001)*	(0.001)*
Net Income/Revenue	-0.043	-0.044	-0.043	-0.044	-0.042	-0.043	-0.042	-0.043
	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***	(0.009)***
Debt/Assets	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
	(0.006)	(0.006)	(0.006)	(0.006)*	(0.006)*	(0.006)*	(0.006)*	(0.006)*
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region dummy	Yes	Yes	Yes	Yes	No	No	No	No
Locality dummy	No	No	No	No	Yes	Yes	Yes	Yes
Election year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-sq	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04
Number of obs	29,302	29,302	29,302	29,302	29,302	29,302	29,302	29,302
Number of firms	19,113	19,113	19,113	19,113	19,113	19,113	19,113	19,113
Number of regions	64	64	64	64	64	64	64	64

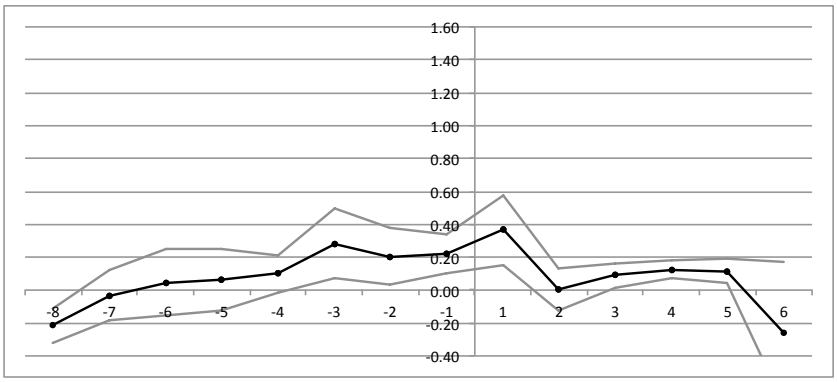
Note: Standard errors corrected for clusters at the regional level are in parentheses. Election year fixed effects and industry fixed effects are included as controls in all specifications. "Local corruption" stands for one of the two measures of corruption constructed from the association between tunneling around elections and the distribution of public procurement: the size of the t-statistic or the dummy for p-value<5%. * significant at 10%, ** significant at 5%, *** significant at 1% level.

Figure A.1: Political cycle in tunneling for firms with procurement revenue above and below 5% of revenue

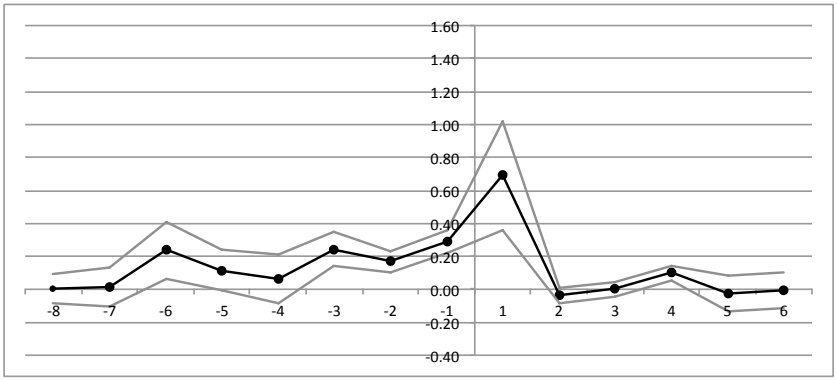
The political cycle in tunneling of firms with proc. rev. below and above 5% of revenue, $\beta_m^1 + \beta_m^2$:



The political cycle in tunneling of firms with procurement below 5% of revenue, β_m^2:



The difference between the two, β_m^1:



Note: Units of the y-axes: weekly transfers to fly-by-night firms in percentage of annual revenue multiplied by 1000. The figure portrays coefficient estimates of β_m^1, β_m^2 and their sum from the estimation of equation 1 along with their confidence intervals. The x-axes portray the number of months m from the election date.

Figure A.2: Placebo election dates

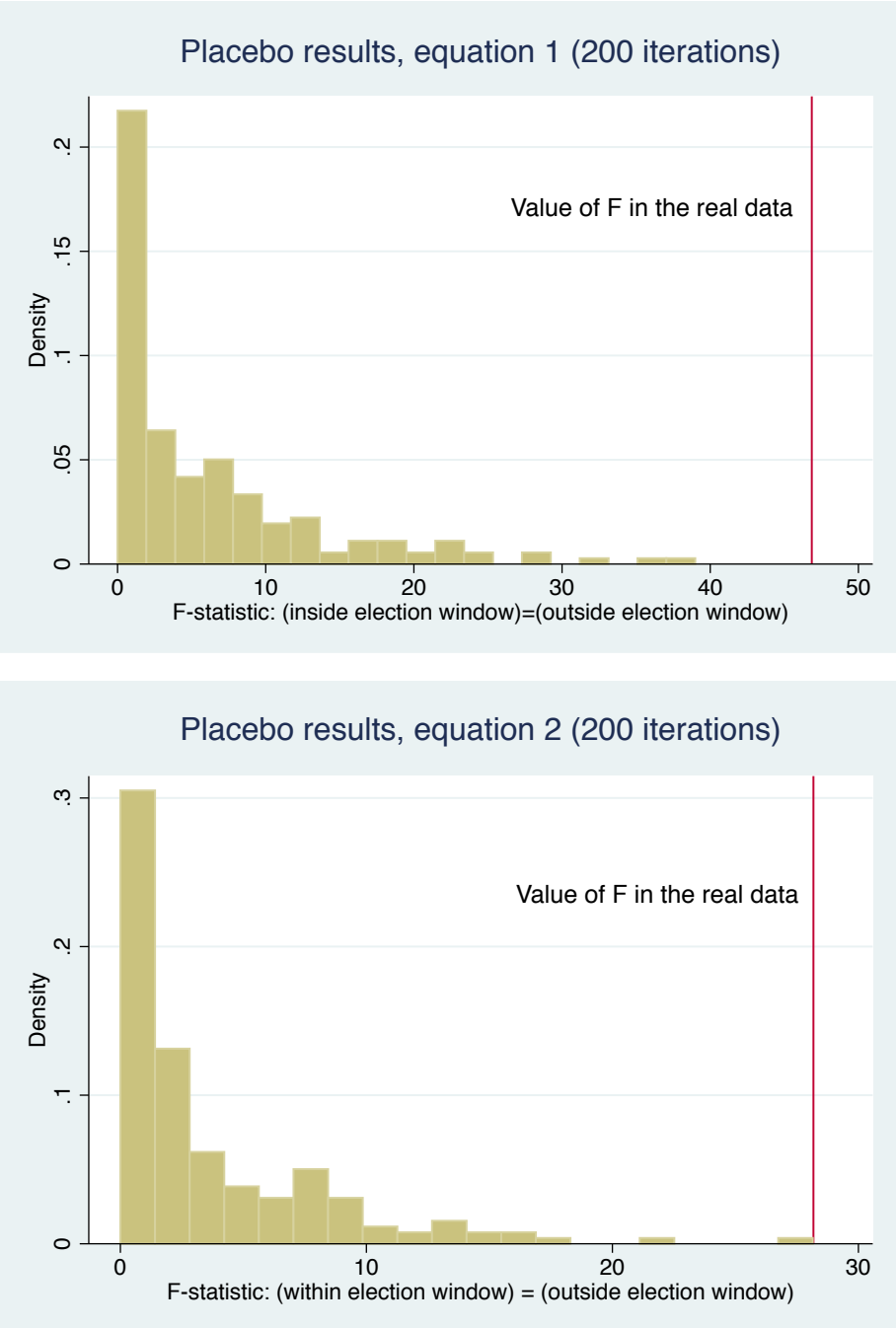
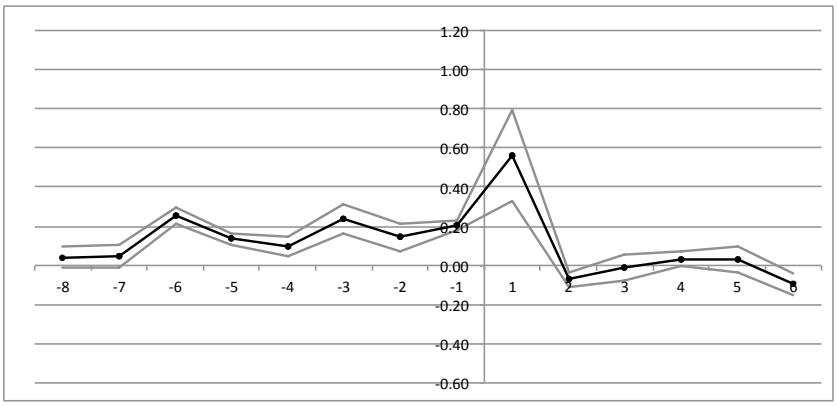
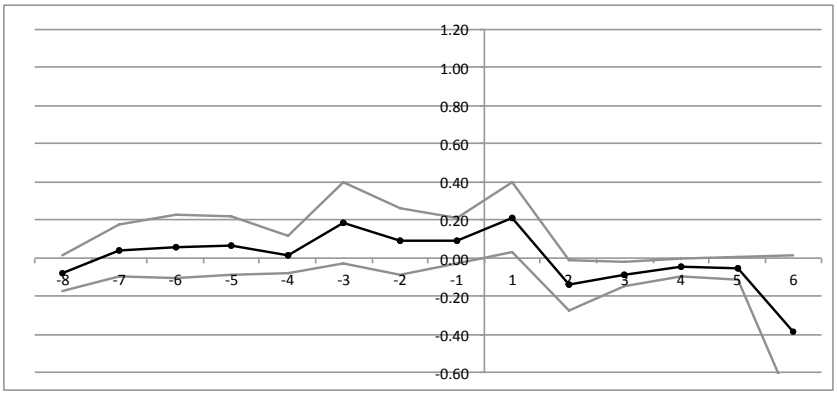


Figure A.3: Robustness of political cycle in tunneling to controlling for firms' incoming procurement revenue

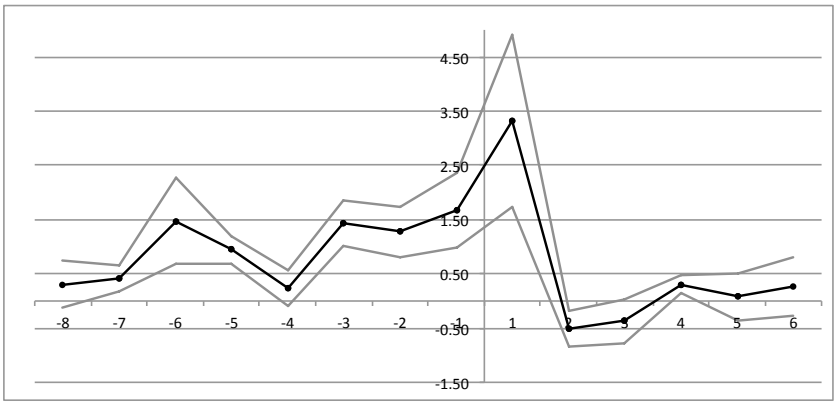
Dynamics of β_m^2:



Dynamics of β_m^1:

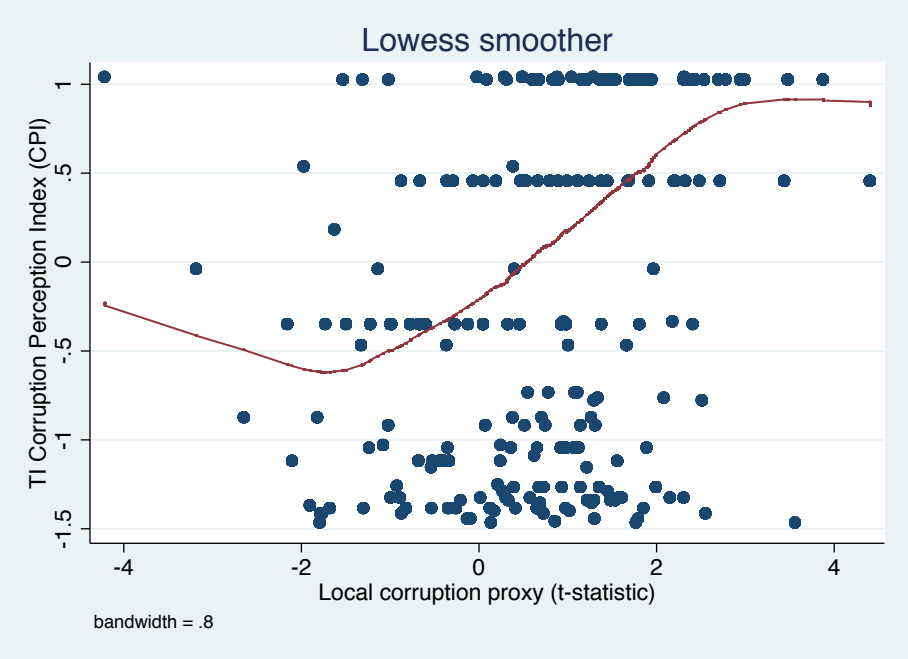


Dynamics of γ_m^1:



Note: Units of the y-axes: weekly transfers to fly-by-night firms in percentage of annual revenue multiplied by 1000. The figure portrays coefficient estimates of β_m^1, β_m^2 and γ_m^1 along with their 95% confidence intervals from the estimation of equations 1 and 2 with additional control for the incoming procurement revenue in the three preceding weeks: $\frac{ProcRev_{ft}}{Rev_f}$, $\frac{ProcRev_{f,t-1}}{Rev_f}$, $\frac{ProcRev_{f,t-2}}{Rev_f}$. X-axes portray the number of months m from the election date.

Figure A.4: Local corruption proxy and Transparency International's Corruption Perception Index



Note: The figure presents a scatterplot and the unconditional non-parametric relationship between the two variables.

B Data appendix

B.1 Data sources used in addition to banking transactions data

In addition to the list of banking transactions, we use two other data sources. The first source is the Rosstat (Russia's official statistical agency) database of Russian companies provided by Spark (http://www.ispark.ru/en-US/default.aspx). This database contains a firm's ID number (INN), name, region, date of registration, industry, directors, owners, and other identifying information about the firm. In addition, it contains basic accounting data, such as revenue, profit, net income, assets, and debt. According to Russian law, all firms (even small ones) must report their balance sheets and income statements to Rosstat quarterly. Though this law sets no explicit penalty for noncompliance, the majority of Russian firms report their data to Rosstat to maintain good relations with the tax authorities. The Rosstat database contains accounting data for about 1.5 million Russian firms.

The second dataset includes the personal income of Moscow residents. It contains more than 7 million records for 2002, and more than 9 million records for 2003 and 2004. Each entry contains unique identification data (name, address, identification number) for both employer and employee. A person can have multiple records if he or she receives income from several sources.

B.2 Description of variables used in the analysis

B.2.1 Sample: firms × elections

- Revenue, 2003 - Company's book revenue in 2003 taken from Rosstat
- Assets, 2003 - Company's book assets in 2003 taken from Rosstat
- Net Income, 2003 - Company's net income in 2003 taken from Rosstat
- Debt, 2003 - A sum of company's short term debt in 2003 and long term debt in 2003, which are taken from Rosstat
- Annualized transfers to fly-by-night firms 1999-2004 - Total transfers to fly-by-night firms by a firm in 1999-2004 divided by six. The transfers to fly-by-night firms are calculated using the banking transaction database. See Mironov (2013) for a detailed description of the identification procedure of fly-by-night firms. These firms are referred to as "spacemen" in Mironov (2013).
- Annualized revenue from procurement, 1 year after election - Total transfers from government-affiliated entities to a firm, which have the reported purpose of payment for goods and services during one year after the election. These transfers are calculated using the banking transaction database. In the baseline analysis, we exclude payments for utilities, e.g., electricity and water, from the list of revenues from public procurement contracts because these contracts are not usually allocated on a competitive basis and are automatically allocated to local monopolists. (None of the results changes if we keep utilities in definition of public procurement.) If the election date happened to be in 2004, then we divide the total transfers by the number of days left until the end of 2004 and multiply by 365 (to get annualized revenue from procurement).

- Tunneling per week, election window - We calculate total transfers to fly-by-night firms by a firm from 4 weeks before until 4 weeks after the election and divide by 8. If the election period overlapped with our sample period and is shorter than 8 weeks, then we divide the transfers to fly-by-night firms by the actual number of weeks presented in our sample period (1999-2004). For example, if the date of the election is 2004-12-19, then we divide the transfers to fly-by-night firms by 5.7.

- Tunneling per week, outside election window - We calculate total transfers to fly-by-night firms by a firm starting one year before the election date and ending 4 weeks before the election. Then, we divide this number by the actual number of weeks presented in our sample period.

- Perceived corruption - see section 4.2 of the paper for description

- Tax-agency-level corruption - see section 5 of the paper for description

- Number of employees - number of firm's employees in 2003 taken from Rosstat

B.2.2 Sample: Firms × Weeks

- Tunneling per week - Transfers to fly-by-night firms during a specific week.

- Tunneling per year - Annualized transfer to fly-by-night firms from one year before until one year after the election. For example, if the election date is 2004-03-14 then we take total transfers to fly-by-night firms from 2003-03-14 to 2004-12-31. After that we divide this number by the number of days in the period from 2003-03-14 to 2004-12-31 and multiply by 365. If the election date is 2003-12-07 then we take total transfers to fly-by-night firms from 2002-12-07 to 2004-12-07 and divide them by 2.

- Revenue - Company's book revenue in 2003 taken from Rosstat

- Procurement revenue - Annualized transfers from government-affiliated entities from one year before until one year after the election. We include only transactions that have the reported purpose of payment for goods and services. We exclude payments for utilities, e.g., electricity and water, from the list of revenues from public procurement contracts.

B.3 Reality checks on the banking transactions data by Mironov (2013)

In the section, we re-print the abbreviated vesion of the reality checks performed on the banking transactions data by Mironov (2013), which were published as an online appendix to the article and can be found at: *http://onlinelibrary.wiley.com/doi/10.1111/jofi.12026/suppinfo.*[1] See pages 9-13 of the original document:

"Because the Russian Central Bank never confirmed the authenticity of the data, I examine whether the banking database contains transactions of real companies and how complete it is.

[1]This site was accessed on November 24, 2014.

For this purpose, I use the Rosstat[2] *database of Russian companies provided by Spark.*[3] *This database contains a firm's INN* [comment of authors: INN is the firm's ID]*, name, region, date of registration, industry, directors, owners, and other identifying information about the firm. In addition, it contains basic accounting data, such as revenue, profit, net income, assets, and debt. According to the Russian law, all firms (even small ones) must report their balance sheets and income statements to Rosstat on a quarterly basis. Although this law does not set any explicit penalty for firms that do not report, the majority of Russian firms prefer to report their data to Rosstat to maintain good relations with the tax authorities. Rosstat contains accounting data for about 1.5 million Russian firms. If the banking data used here are accurate, there should be a large degree of similarity between the Rosstat data and the banking data.*

A. Test 1. Matching Rosstat to Banking Data

Using the Rosstat database, I select up to 3,000 companies with highest revenues from the 20 largest Russian regions. Columns (1) and (2) of Table AI.I [comment of authors: the table is re-printed below] *contain average revenue for 2003 for every region. An average company from Moscow has about 15 times higher revenue ($98.4M) than that of an average one from outside of Moscow ($6.3M). This is not surprising because the majority of large Russian corporations that operate in different regions have their headquarters in Moscow (e.g., Gazprom, United Energy System, Lukoil , Rosneft, Russian Railways, Aeroflot). According to expert estimates supported by Rosstat data, about 80 to 90% of all Russian business activities are concentrated in Moscow.*

I match this sample of companies to the banking database by INN. Columns (3) to (5) of Table AI.I show the results: 71% of the firms from Rostat are also present in the banking database. The match rate for Moscow city and Moscow region (94 to 97%) is much higher than the match rate for other regions (49 to 84%, average 69%). [. . .] Also, an average firm from column (4) has 30% greater revenue than an average one from column (2). The regional firms caused this difference in size. [. . .] See column (6) of Table AI.I for the results of the match weighted by revenue. Even for firms from outside Moscow, the match rate is 79% to 97% with an average of 90%. Columns (7) to (10) show firms that have at least 100 banking transactions present in the banking data set. As expected, these companies are much larger; the average revenue of a firm from column (8) is $23.2M whereas the average revenue of a firm from column (4) is $13.9M. Even though only 39% of the firms from the original sample have at least 100 transactions in the banking database, they account for about 85% of the total revenues. [. . .]

B. Test 2. Matching Banking Data to Rosstat

I select a random sample of 1,000 firms from the banking dataset. To avoid inclusion of spacemen [comment of authors: Mironov (2013) refers to fly-by-night firms as "spacemen"]*, I select only those firms that have a ratio of tax paid to total turnover of more than 1%. [. . .] spacemen are less likely to provide their financial statements to authorities and therefore are less likely to be present in the Rosstat database. A comparison of these 1,000 firms with the Rosstat database by INN matched 676 of the 1,000 firms. Why are 32% of the firms not found in the Rosstat database? One possible explanation is the presence of typos in the INNs in the banking database. Although I performed several attempts to clean this dataset, it is possible that not*

[2]Rosstat is an official Russian statistical agency.

[3]spark.interfax.ru

everything was cleaned. Another possible explanation is that due to the lack of punishment for nonreporting, some firms chose not to send their reports to Rosstat.

C. Test 3. Analysis of the Matched Firms

I choose a random sample of 500 firms that are present in both Rosstat and the banking dataset. Using similar logic as in Test 2, I select only the firms that have a ratio of tax paid to total turnover of more than 1%. Then I choose all banking transactions for these 500 firms the banking dataset. In total, I get a sample of about 300,000 transactions. I manually classify each firm's transactions that correspond to revenue receipts and profit tax payments according to the description of each transaction. Next, I aggregate these transactions at the firm level for 2003 and 2004. [comment of authors: Mironov (2013) constructs a set of financial variables from banking transactions data and compares them to the corresponding variables in the registry. The variables constructed from the banking transactions data are denoted by "_B" at the end of their names.] *For revenue (Revenue_B) I use cash basis accounting principles (i.e., if a transaction took place in 2003, it is accounted for in 2003) because it is often impossible to determine the time of performing the service from the transaction description. For profit tax payments (Profit_tax_B), I use the transaction description to identify the period because all tax payments must include the corresponding tax period in the transaction description. I define Profit_B as Profit_tax_B/Tax_rate. Because a portion of profit tax for 2004 should be paid at the beginning of 2005 and the banking dataset does not have 2005 transactions, Profit_B for 2004 is underestimated. I obtain Reported revenue (Revenue) and profit before taxes (Profit) for each firm from the Rosstat database. I define Margin_B as Profit_B/Revenue_B and Margin as Profit/Revenue. See Table IA.II* [comment of authors: the table is re-printed below] *for summary statistics and correlations.*

The table indicates that sample characteristics for the Rosstat data are similar to those for the banking data. The correlation between Log(Revenue) and Log(Revenue_B) is 0.76 for 2003 and 0.56 for 2004, the correlation between Log(Profit) and Log(Profit_B) is 0.87 for 2003 and 2004, and the correlation between Margin and Margin_B is 0.66 for 2003 and 0.49 for 2004. Furthermore, 26% to 28% of the firms have banking revenues within [-10%, +11%] of the reported revenues, and 64% to 71% have their banking and reported revenue within the [-39%, +65%] range. These facts suggest that the banking data set contains real transactions of real firms. However, it is likely that some transactions might be missing or mistyped; otherwise correlations between analogous characteristics should be higher. Figure IA.2 [comment of authors: the figure is re-printed below], which plots Log(Revenue) against Log(Revenue_B) and Log(Profit) against Log(Profit_B), provides additional evidence of similarity between Rosstat and banking transaction data."

Table IA.I
Rosstat and Banking Data Correspondence Across Regions

I choose up to 3,000 largest firms from each of the 20 largest Russian regions using the Rosstat database (www.spark.interfax.ru). Next, I match these firms to the banking data. Column (1) has the initial number of firms from each region. Column (2) reports mean revenue. Column (3) reports the number of firms present in the banking sample. Column (4) reports mean revenue for matched firms. In column (5), the percentage of matched firms is calculated. In column (6), the percentage of matched firms weighted by revenue is calculated. Columns (7) to (10) report the same characteristics for firms that have at least 100 banking transactions.

	Rosstat		Banking				N of transactions $\geqslant$ 100			
	N	Rev, $000's	N	Rev, $000's	%N	%Rev	N	Rev, $000's	%N	%Rev
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Bashkortostan	2,962	6,140	1,888	8,751	64	91	848	16,627	29	78
Chelyabinsk	2,956	4,926	2,057	6,507	70	92	876	13,002	30	78
Irkutsk	2,886	2,625	1,836	3,605	64	87	719	7,346	25	70
Kemerovo	2,896	4,077	1,744	6,145	60	91	612	14,504	21	75
Krasnodar	2,936	4,649	2,385	5,213	81	91	1,303	7,874	44	75
Krasnoyarsk	2,975	5,947	1,723	9,489	58	92	764	18,347	26	79
Leningrad	2,942	2,561	1,453	4,524	49	87	448	12,197	15	73
Moscow city	2,837	98,358	2,678	97,716	94	94	2,548	99,865	90	91
Moscow region	2,937	12,716	2,840	12,764	97	97	2,799	12,575	95	94
Nizh. Novgorod	2,925	5,698	2,348	6,478	80	91	1,396	9,525	48	80
Novosibirsk	2,933	4,258	2,085	5,321	71	89	1,095	7,799	37	68
Omsk	2,970	1,559	1,530	2,396	52	79	569	4,987	19	61
Perm	2,938	4,173	1,819	6,095	62	90	724	12,902	25	76
Rostov	2,911	4,158	2,222	4,891	76	90	1,187	7,284	41	71
Samara	2,897	7,770	2,111	9,110	73	85	1,051	15,713	36	73
St. Petersburg	2,883	15,465	2,410	16,089	84	87	1,802	18,566	63	75
Sverdlovsk	2,949	7,918	2,338	9,011	79	90	1,284	14,444	44	79
Tatarstan	2,930	5,881	1,918	8,266	65	92	1,001	13,611	34	79
Tyumen	2,921	16,759	2,377	19,888	81	97	1,186	37,214	41	90
Volgograd	2,943	2,398	1,962	3,322	67	92	824	6,730	28	79
Total	58,527	10,751	41,724	13,929	71	92	23,036	23,161	39	85

Note: Table reprinted from Mironov (2013) online appendix.

Table IA.II
Summary Statistics: Rosstat and Bank Data Matched Sample

The sample consists of 500 random firms that are present in both the Rosstat database and the banking data set. $Profit_B$ is the profit tax payment for the corresponding years divided by 0.24 (profit tax rate). Profit tax payments are taken from the banking data set and attributed to a year based on the transaction's description. $Revenue_B$ is the sum of cash receipts for the corresponding years taken from the banking data set. Reported $Profit$ and $Revenue$ are taken from Rosstat. $Log(Rev)$ and $Log(Rev_B)$ are natural logarithms of $Revenue$ and $Revenue_B$. % $|Log(Rev) - Log(Rev_B)|$<0.1 (0.5) indicates the percentage of observations for which the absolute difference between the logarithms of $Revenue$ and $Revenue_B$ is less than 0.1 (0.5). $Margin$ is $Profit/Revenue$. $Margin_B = Profit_B/Revenue_B$. Averages for $Margin$, $Margin_B$, $Revenue$, $Revenue_B$, $Profit$, and $Profit_B$ are calculated only for nonzero observations.

	2003			2004		
	Mean	St. dev.	N of obs	Mean	St. dev.	N of obs
	(1)	(2)	(3)	(4)	(5)	(6)
Revenue_B, $000's	808	2,263	411	748	2,052	452
Revenue, $000's	866	1,912	317	950	2,024	309
Profit_B, $000's	35.4	93.8	281	36.1	111.8	133
Profit, $000's	25.8	81.2	325	35.0	97.9	315
Margin_B, %	5.6	9.6	278	4.8	8.8	132
Margin, %	6.4	9.4	244	6.6	10.1	234
% |Log(Rev)-Log(Rev_B)|<0.1	26.2		309	28.1		292
% |Log(Rev)-Log(Rev_B)|<0.5	70.9		309	64.0		292
Correlations						
Log(Rev), Log(Rev_B)	0.759		309	0.560		292
Log(Profit), Log(Profit_B)	0.872		206	0.868		87
Margin, Margin_B	0.660		199	0.491		85

Note: Table reprinted from Mironov (2013) online appendix.

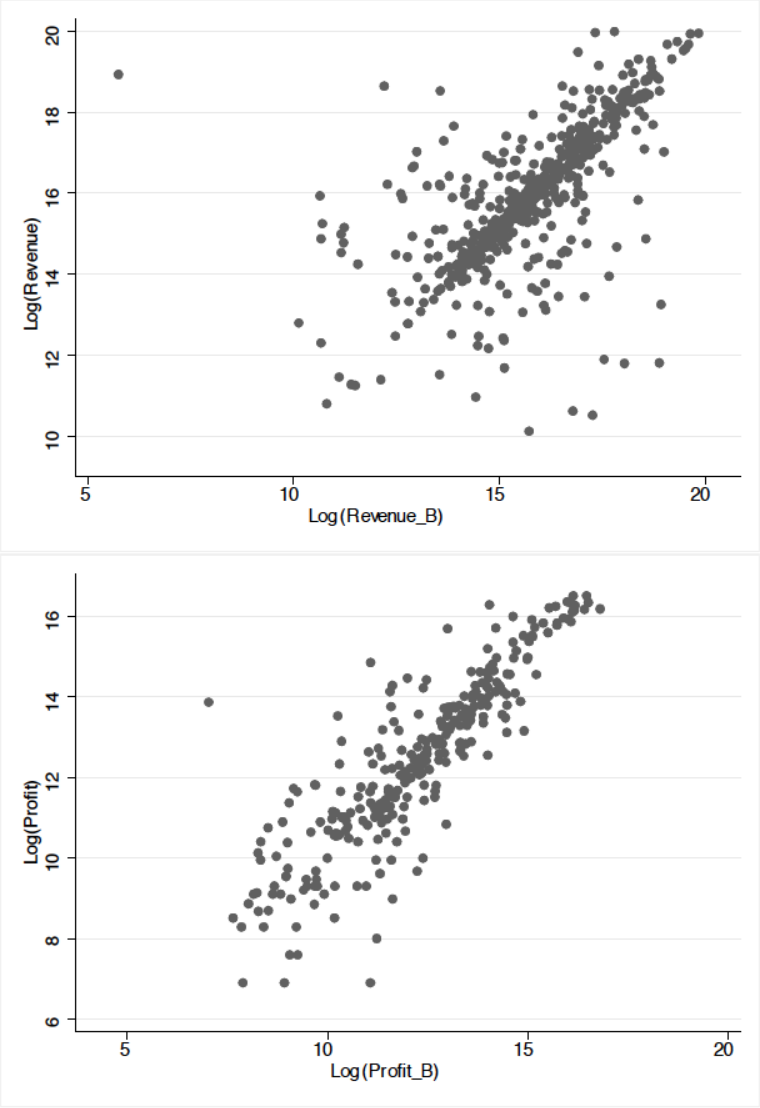


Figure IA.2. Rosstat and banking data correspondence. The figure plots Log(Revenue) vs. Log(Revenue_B) and Log(Profit) vs. Log(Profit_B) for a sample of 500 randomly selected firms. All variables are defined in Table IA.II.

Note: Figure reprinted from Mironov (2013) online appendix.

References

Mironov, Maxim, "Taxes, Theft, and Firm Performance," *Journal of Finance*, 08 2013, *68* (4), 1441–1472.