

# ONLINE APPENDIX

## ENEMIES OF THE PEOPLE

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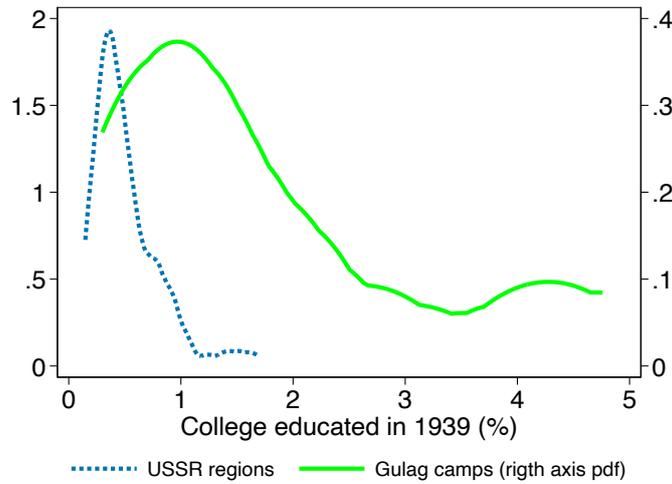
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Figure A.1. College Education: Gulag vs. USSR



Notes: The dashed line shows the distribution of the share of college educated across USSR regions in 1939. The solid line shows the same distribution across Gulag camps in 1939, confirming the higher proportion of college educated people in camps. In both cases, the share by education level is among all individuals for which education data is available. The data are from the 1939 Soviet census and the State Archive of the Russian Federation (GARF).

Table A.1. Offences of Gulag prisoners in 1939

	sum	mean	min	max
Enemies of the people	370,699	12,357	0	72,314
Dangerous crimes against the administrative order	36,146	1,205	0	9,189
Other crimes against the administrative order	169,012	5,634	369	50,747
Theft of public property	24,101	803	51	7,621
Misconduct in office, Economic crimes	85,286	2,843	243	25,421
Crimes against persons	61,003	2,033	150	18,289
Crimes against property	140,190	4,673	205	39,924
Socially harmful and dangerous elements	207,044	6,901	137	56,713
Military offences	8,705	290	18	2,595
Other delicts	28,062	935	55	6,996
Total prisoners	1,130,248	35,320	0	286,269

Notes: The table shows the number of Gulag prisoners in 1939 by type of offence. This classification allows us to measure the share of *enemies* among camp prisoners. The data is from the State Archive of the Russian Federation (GARF). It suggests that in 1939 there were 1,130,248 prisoners, 370,699 of which were *enemies*. Many of the non-political criminals were petty criminals. We do not have the same level of detail on offences for 1952, but we know that there were 1,697,011 prisoners, 485,754 of which were *enemies*. The crime of *enemies* was that defined by Article 58 as counterrevolutionary activities. These included treason to the motherland, espionage and sabotage. The other groups of prisoners were criminals of different types, classified as dangerous or arrested for disrupting the administrative order, or for crimes against property or persons.

Table A.2. Ethnic groups: Gulag vs. USSR

	Camps 1939 (%)	Census 1939 (%)	Difference	Camps 1952 (%)	Census 1959 (%)	Difference
Russians	63.05	58.09	+4.96	53.55	54.64	-1.09
Ukrainians	13.81	16.47	-2.66	22.50	17.84	+4.66
Belorussians	3.40	3.09	+0.31	4.43	3.79	+0.64
Tatars	1.89	2.52	-0.63	1.95	2.34	-0.39
Uzbeks	1.86	2.84	-0.98	1.14	2.88	-1.74
Jews	1.50	1.77	-0.27	0.89	1.09	-0.20
Germans	1.41	0.84	+0.57	1.02	0.78	+0.24
Kazakhs	1.30	1.82	-0.52	0.92	1.73	-0.81
Poles	1.28	0.37	+0.91	1.09	0.66	+0.43
Georgians	0.89	1.32	-0.43	0.48	1.23	-0.75
Armenians	0.84	1.26	-0.42	0.81	1.33	-0.52
Latvians	0.58	0.07	+0.51	1.47	0.67	+0.80
Lithuanians	-	-	-	2.38	1.11	+1.27
Estonian	-	-	-	1.21	0.47	+0.74
Moldovans	-	-	-	0.96	1.06	-0.10
Azerbaijanis	-	-	-	0.68	1.41	-0.73

Notes: The table shows the share of ethnic groups among Gulag prisoners and compares it to the respective shares in the USSR population. The 1952 data is from the State Archive of the Russian Federation (GARF) and 1939 numbers are from [Getty et al. \(1993\)](#). We restrict ethnic groups to those accounting for at least 0.45% of the Gulag population in 1952. The other ethnic groups in 1952 are Turkmens, Tadjiks, Kyrgyz, Finns, Bashkirs, Udmurts, Romanians, Iranians, Afghans, Mongols, Chinese, Japanese, Koreans, Greeks, and Turks. Overall the ethnic composition in camps was not that different from the Soviet Union as a whole. Russians were slightly over-represented in camps in 1939 while other ethnic groups are roughly in line with the distribution of the 1939 Census. In 1952 Ukrainians appear to be the most overrepresented in camps, while other ethnic groups are in line with the closest census in 1959.

Table A.3. Economic activities across camps in 1952

	(1)		(2)	
	sum	mean	sum	mean
Any resource	30	0.34	25	0.32
Calcium phosphate	1	0.01	1	0.01
Coal	7	0.08	4	0.05
Gold	2	0.02	2	0.03
Iron	1	0.01	1	0.01
Stone	24	0.27	20	0.26
Tin	1	0.01	1	0.01
Uranium	0	0.00	0	0.00
Agriculture	28	0.32	25	0.32
Arms industry	2	0.02	2	0.03
Construction Material	45	0.51	41	0.53
Energy industry	7	0.08	7	0.09
Forestry	53	0.60	50	0.65
Light Manufacturing	23	0.26	21	0.27
Mechanic industries	4	0.05	4	0.05
Metal industry	5	0.06	4	0.05
Research	8	0.09	8	0.10
Services	15	0.17	15	0.19
Construction of Mines	21	0.24	18	0.23
Construction of Housing	33	0.38	30	0.39
Construction of Infrastructure	72	0.82	64	0.83
Construction of Manufactures	48	0.55	44	0.57

Note: The table shows the number and share of Gulag camps by economic activity. For example, 25 camps among 77 in nowadays Russia, or 32%, were involved in the extraction of natural resources. 65% were involved in forestry, 83% in infrastructure construction. The data on economic activities is from Memorial.

Table A.4. The predictors of the share of *enemies* across Gulags

	(1)	(2)	(3)	(4)	(5)	(6)
	Enemies 1952 (%)					
Total prisoners (ln)	0.022	0.002	0.014	0.000	0.000	0.000
Latitude	0.000	0.000	0.000	0.000	0.000	0.000
Longitude	0.000	0.000	0.000	0.000	0.000	0.000
Altitude	0.000	0.000	0.000	0.000	0.000	0.000
Ruggedness	0.000	0.000	0.000	0.000	0.000	0.000
Rooting	0.000	0.000	0.000	0.000	0.000	0.000
Workability	0.000	0.000	0.000	0.000	0.000	0.000
Precipitation in Jul	0.000	0.000	0.000	0.000	0.000	0.000
Temp in Jul	0.000	0.000	0.000	0.000	0.000	0.000
Precipitation in Jan	0.000	0.000	0.000	0.000	0.000	0.000
Temp in Jan	0.000	0.000	0.000	0.000	0.000	0.000
Pop within 100km in 1926 (ln)	0.000	0.000	0.000	0.000	0.000	0.000
km to 1937 railway (ln)	0.002	0.000	0.000	0.000	0.000	0.000
Coal (=1)	0.000	0.000	0.000	0.000	0.000	0.000
Gold (=1)	0.000	0.000	0.000	0.000	0.000	0.000
Iron (=1)	0.000	0.000	0.000	0.000	0.674	0.000
Stone (=1)	0.000	0.000	0.000	0.000	0.000	0.000
Uran (=1)	0.000	0.000	0.000	0.000	0.000	0.000
Tin (=1)	0.000	0.000	0.000	0.000	0.000	0.000
Calcium (=1)	0.000	0.000	0.000	0.000	0.000	0.000
Any resource	0.000	0.000	0.000	0.000	0.000	0.000
Energy	0.000	0.000	0.000	0.000	0.000	0.000
Metal	0.000	0.000	0.000	0.000	0.000	0.000
Forestry	0.000	0.000	0.000	0.000	0.000	0.000
Agriculture	0.000	0.000	0.000	0.000	0.000	0.000
Materials	0.000	0.000	0.000	0.000	0.000	0.000
Mechanical	0.000	0.000	0.000	0.000	0.000	0.000
Light manufacturing	0.000	0.000	0.000	0.000	0.000	0.000
R&D	-0.036	0.000	-0.030	0.000	0.000	0.000
Services	0.000	0.000	0.000	0.000	0.000	0.000
Infrastructure	0.000	0.000	0.000	0.000	0.000	0.000
Extractive	0.000	0.000	0.000	0.000	0.000	0.000
Housing	0.000	0.000	0.000	0.000	0.000	0.000
Manufacturing	0.000	0.000	0.000	0.000	0.000	0.000
N	77	77	75	75	67	67
Model	LASSO	SQRT-LASSO	LASSO	SQRT-LASSO	LASSO	SQRT-LASSO
Region FE	No	No	Dummies	Dummies	FE	FE

Notes: In this table we estimate a LASSO model to determine the subset of variables that best predicts the share of *enemies* across camps. We include models where we use absolute values or the square root of coefficients to determine the LASSO's penalty. Columns 1-2 do not include region fixed effects, columns 3-4 include region dummies as additional variables that can be selected by the LASSO, and columns 5-6 include region fixed effects.

Table A.5. Respondents are more likely to be grandchildren or relatives of *enemies* if near camps with a higher share of *enemies* in 1952

<i>ENEMY RELATIVES</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
	Enemy relatives	Enemy relatives	Enemy relatives	Enemy relatives	Enemy relatives	Enemy relatives
Enemies 1952 (%)	1.583 (0.319)	1.432 (0.353)	1.449 (0.354)	1.583 (0.319)	1.432 (0.354)	1.444 (0.355)
Total prisoners		0.027 (0.014)	0.024 (0.014)		0.027 (0.014)	0.025 (0.014)
Latitude		0.007 (0.007)	0.010 (0.008)		0.007 (0.007)	0.011 (0.008)
Longitude		0.002 (0.003)	0.002 (0.003)		0.002 (0.003)	0.002 (0.003)
Pop within 100km - 1926 (ln)			0.006 (0.005)			0.006 (0.005)
KM to 1937 railway (ln)			-0.007 (0.015)			-0.004 (0.022)
N	2167	2167	1111	1980	1980	924
Clusters	29	29	26	27	27	24
R-sq	0.18	0.18	0.19	0.19	0.20	0.20
Moscow in Region FE	yes	yes	yes	no	no	no
	yes	yes	yes	yes	yes	yes
<i>ENEMY GRANDPARENTS</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
	Enemy relatives	Enemy relatives	Enemy relatives	Enemy relatives	Enemy relatives	Enemy relatives
Enemies 1952 (%)	0.569 (0.102)	0.449 (0.122)	0.465 (0.120)	0.569 (0.102)	0.449 (0.123)	0.458 (0.121)
Total prisoners		0.026 (0.005)	0.022 (0.006)		0.026 (0.005)	0.023 (0.007)
Latitude		-0.001 (0.005)	0.002 (0.004)		-0.001 (0.005)	0.003 (0.004)
Longitude		-0.001 (0.001)	0.000 (0.001)		-0.001 (0.001)	-0.000 (0.002)
Pop within 100km - 1926 (ln)			0.006 (0.004)			0.006 (0.004)
KM to 1937 railway (ln)			-0.010 (0.010)			-0.005 (0.014)
N	1658	1658	879	1500	1500	721
Clusters	29	29	26	27	27	24
R-sq	0.04	0.05	0.05	0.05	0.06	0.06
Moscow in Region FE	yes	yes	yes	no	no	no
	yes	yes	yes	yes	yes	yes

Notes: Here we check if survey respondents in 2016 living near camps which had a larger share of *enemies* are more likely to identify as the grandchildren or relatives of *enemies*. The table shows the results of regressions across 2,167 individuals living within 100 km of 1952 Gulags in Russia in 2016. Here we use a specification akin to equation (1). The left-hand side variables are dummies indicating whether the individual had grandparents or relatives sent to labor camps or prisons for political reasons before 1990, i.e. whether they identify as grandchildren or relatives of *enemies*. The right-hand side variable of interest is the share of *enemies* among prisoners in 1952. All regressions include region (oblast) fixed effects. Standard errors clustered by Gulag clusters (at the treatment level) are in parentheses. The results suggest that individuals are more likely to identify as descendants of *enemies* in 2016 if they live near a camp with a higher share of *enemies* in 1952. Column (1) in the top panel suggests that a one standard deviation increase in the share of *enemies*, 28 percentage points, is associated with an increase in the probability of respondents being relatives of an *enemy* by 45 percentage points.

Table A.6. The descendants of *enemies* are not more likely to be migrants

SINCE BIRTH								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Migrant							
Enemy grandparents	-0.008	-0.008	-0.001	-0.001				
	(0.018)	(0.018)	(0.018)	(0.019)				
Enemy relatives					0.010	0.010	0.005	0.011
					(0.016)	(0.016)	(0.016)	(0.017)
Latitude		0.058	0.046	0.043		0.066	0.055	0.060
		(0.089)	(0.089)	(0.084)		(0.098)	(0.099)	(0.101)
Longitude		0.043	0.052	0.054		0.047	0.053	0.047
		(0.078)	(0.078)	(0.074)		(0.089)	(0.089)	(0.091)
Female			0.053	0.054			0.056	0.057
			(0.009)	(0.009)			(0.008)	(0.008)
Age			0.002	0.002			0.002	0.002
			(0.000)	(0.000)			(0.000)	(0.000)
Income				0.009				0.007
				(0.005)				(0.004)
N	15431	15431	15431	12874	19341	19341	19341	15933
R-sq	0.41	0.41	0.41	0.42	0.40	0.40	0.41	0.41

AFTER 1990								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Migrant > 1990							
Enemy grandparents	0.021	0.020	0.004	0.003				
	(0.017)	(0.017)	(0.016)	(0.016)				
Enemy relatives					-0.019	-0.018	-0.006	-0.011
					(0.015)	(0.015)	(0.015)	(0.015)
Latitude		-0.151	-0.140	-0.148		-0.118	-0.107	-0.107
		(0.025)	(0.020)	(0.020)		(0.046)	(0.041)	(0.050)
Longitude		0.177	0.166	0.175		0.165	0.157	0.158
		(0.019)	(0.017)	(0.018)		(0.041)	(0.037)	(0.042)
Female			0.013	0.018			0.021	0.022
			(0.006)	(0.007)			(0.006)	(0.007)
Age			-0.006	-0.006			-0.006	-0.007
			(0.000)	(0.000)			(0.000)	(0.000)
Income				0.012				0.010
				(0.004)				(0.003)
N	15431	15431	15431	12874	19341	19341	19341	15933
R-sq	0.19	0.19	0.24	0.25	0.18	0.18	0.24	0.26

Notes: Here we check if those that identify as grandchildren or relatives of *enemies* are more or less likely to have migrated. The table shows the results of regressions across 15,431 individuals in ex-USSR countries in 2016. The left-hand side variables are dummies indicating whether the individual has migrated since birth or since 1990 (lower panel), using the answer to the question: *How long have you lived in this city/town/village?*. The right-hand side variables of interest are dummies indicating whether the individual had grandparents or relatives in labor camps or prisons for political reasons before 1990. All regressions include primary sampling unit regions (PSU) fixed effects. Robust standard errors are in parentheses. The results suggest that those who identify as grandchildren or relatives of *enemies* are not more likely to have migrated since birth or since 1990.

Table A.7. Firms near camps with a higher share of *enemies* have a more educated workforce in 2014, and are less likely to say that an inadequately educated workforce is an obstacle to operations

	(1)	(2)	(3)	(4)	(5)	(6)
	College (=1)	College (=1)	College (=1)	College (=1)	College (=1)	College (=1)
Enemies 1952 (%)	1.860 (0.384)	1.917 (0.138)	2.745 (0.247)	1.858 (0.387)	2.021 (0.259)	2.719 (0.245)
Total prisoners		0.034 (0.015)	-0.015 (0.017)		-0.028 (0.072)	-0.013 (0.077)
Latitude		-0.092 (0.032)	-0.089 (0.022)		-0.071 (0.039)	-0.091 (0.044)
Longitude		-0.005 (0.004)	-0.012 (0.006)		-0.004 (0.004)	-0.011 (0.009)
Pop within 100km - 1926 (ln)			0.071 (0.021)			0.071 (0.036)
KM to 1937 railway (ln)			-0.033 (0.032)			-0.035 (0.038)
N	601	601	601	503	503	503
Clusters	29	29	29	25	25	25
R-sq	0.06	0.07	0.07	0.08	0.08	0.09
Moscow in	yes	yes	yes	no	no	no
Region FE	yes	yes	yes	yes	yes	yes

	(1)	(2)	(3)	(4)	(5)	(6)
	Inadequate educ.					
Enemies 1952 (%)	-0.293 (1.332)	-0.322 (0.867)	-0.483 (1.050)	-0.335 (1.335)	-0.277 (0.874)	-0.403 (0.927)
Total prisoners		0.231 (0.041)	0.237 (0.044)		0.236 (0.104)	0.296 (0.214)
Latitude		-0.215 (0.088)	-0.219 (0.093)		-0.223 (0.093)	-0.258 (0.158)
Longitude		-0.016 (0.005)	-0.019 (0.007)		-0.018 (0.004)	-0.024 (0.015)
Pop within 100km - 1926 (ln)			0.010 (0.032)			0.034 (0.085)
KM to 1937 railway (ln)			0.028 (0.057)			0.035 (0.068)
N	2130	2130	2130	1861	1861	1861
Clusters	33	33	33	29	29	29
R-sq	0.08	0.09	0.09	0.10	0.10	0.10
Moscow in	yes	yes	yes	no	no	no
Region FE	yes	yes	yes	yes	yes	yes

Notes: The table shows the results of regressions across 2,130 firms located within 100 km of 1952 Gulags in Russia in 2014. The left-hand side variables are dummies indicating whether the firm's average employee has a college education, or if it identifies an inadequately educated workforce as an obstacle to operations (bottom panel). The right-hand side variable of interest is as in our baseline in Table 5, the share of *enemies* among prisoners in 1952. All regressions include regions (oblast) fixed effects. Standard errors clustered by Gulag clusters (at the treatment level) are in parentheses. The results suggest that a firm near a camp with a higher share of *enemies* in 1952 is more likely to have college-educated employees. According to column (1), a 28 percentage point increase in *enemy* share increases the probability that a firm's average employee has a college education by 52 percentage points. Firms near *enemies* camps are also less likely to say that an inadequately educated workforce is an obstacle to operations, although the effects are not statistically significant.

Table A.8. Using *Enemies* in 1952 (ln) (instead of *Enemies* (%))

	(1)	(2)	(3)	(4)	(5)	(6)
	Average wage (ln)					
Enemies 1952 (ln)	0.037 (0.009)	0.017 (0.017)	0.018 (0.018)	0.027 (0.006)	0.029 (0.018)	0.029 (0.018)
Prisoners within 100km (ln)		0.033 (0.040)	0.027 (0.040)		-0.045 (0.036)	-0.049 (0.038)
Latitude		0.042 (0.018)	0.046 (0.020)		0.048 (0.016)	0.048 (0.018)
Longitude		-0.005 (0.007)	-0.005 (0.007)		-0.004 (0.006)	-0.003 (0.006)
Pop within 100km - 1926 (ln)			0.003 (0.010)			-0.006 (0.011)
KM to 1937 railway (ln)			-0.008 (0.017)			-0.012 (0.021)
N	699226	699226	699226	433491	433491	433491
Clusters	125	125	125	115	115	115
R-sq	0.07	0.08	0.08	0.04	0.04	0.04
Moscow in	yes	yes	yes	no	no	no
Region FE	yes	yes	yes	yes	yes	yes
Weights	emp	emp	emp	emp	emp	emp

Notes: The table mimics the regressions in Table 5 but replaces the share of *enemies* with the log of *enemies*. The table shows the results of regressions across 699,226 firms located within 100 km of a 1952 Gulag, in Russia in 2018. Columns 4-6 exclude firms within 100 km of Moscow. All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. Standard errors clustered by Gulag clusters (at the treatment level) are in parentheses. The results in column (1) suggest that firms near Gulags with 10% more *enemies* pay 3.7% higher wages.

Table A.9. Using *enemies* as a share of the 1926 population (instead of total prisoners)

	(1)	(2)	(3)	(4)	(5)	(6)
	Average wage (ln)					
Enemies (% pop 1926)	0.974 (0.369)	0.496 (0.312)	0.759 (0.346)	0.970 (0.369)	0.559 (0.317)	0.694 (0.357)
Prisoners within 100km (ln)		0.062 (0.028)	0.052 (0.025)		0.011 (0.017)	0.007 (0.018)
Latitude		0.033 (0.017)	0.041 (0.017)		0.038 (0.015)	0.044 (0.016)
Longitude		-0.005 (0.005)	-0.005 (0.005)		-0.002 (0.003)	-0.002 (0.004)
Pop within 100km - 1926 (ln)			0.017 (0.009)			0.008 (0.009)
KM to 1937 railway (ln)			-0.008 (0.018)			-0.010 (0.021)
N	699226	699226	699226	433491	433491	433491
Clusters	125	125	125	115	115	115
R-sq	0.07	0.08	0.08	0.04	0.04	0.04
Moscow in	yes	yes	yes	no	no	no
Region FE	yes	yes	yes	yes	yes	yes
Weights	emp	emp	emp	emp	emp	emp

Notes: The table mimics the regressions in Table 5 but takes *enemies* as a share of the 1926 population within 100km, to which we also add total prisoners, instead of as a share of only total prisoners. The table shows the results of regressions across 699,226 firms located within 100 km of a 1952 Gulag, in Russia in 2018. All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. Standard errors clustered by Gulag clusters (at the treatment level) are in parentheses. Results in column (1) suggest that increasing the population share of *enemies* by 10 percentage point increases average wages by around 10%.

Table A.10. The effect of the share of *enemies* on value added per employee

	(1)	(2)	(3)	(4)	(5)	(6)
	Value Added per employee (ln)					
Enemies within 100km (%)	0.237 (0.208)	0.042 (0.226)	0.474 (0.227)	0.110 (0.216)	0.101 (0.203)	0.457 (0.210)
Prisoners within 100km (ln)		0.084 (0.034)	0.049 (0.030)	0.035 (0.027)	0.025 (0.029)	0.002 (0.030)
Latitude		0.014 (0.013)	0.052 (0.014)		0.020 (0.010)	0.054 (0.012)
Longitude		-0.011 (0.005)	-0.008 (0.004)		-0.009 (0.004)	-0.005 (0.004)
Pop within 100km - 1926 (ln)			0.038 (0.012)			0.030 (0.011)
KM to 1937 railway (ln)			-0.066 (0.009)			-0.069 (0.011)
N	762597	762597	762597	478669	478669	478669
Clusters	125	125	125	115	115	115
R-sq	0.04	0.04	0.04	0.05	0.05	0.05
Moscow in	yes	yes	yes	no	no	no
Region FE	yes	yes	yes	yes	yes	yes
Weights	emp	emp	emp	emp	emp	emp

Notes: The table mimics the regressions in Table 5 but replaces average wages with value added, defined as revenues net of input costs, per employee. The table shows the results of regressions across 762,597 firms located within 100 km of a 1952 Gulag, in Russia in 2018. Columns 4-6 exclude firms within 100 km of Moscow. All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. Standard errors clustered by Gulag clusters (at the treatment level) are in parentheses. The results suggest that firms near Gulags with a higher share of *enemies* create higher value added per employee. The coefficient in column (3) suggests that a one standard deviation increase in the share of *enemies* increases value added per employee by 14%.

Table A.11. The effect of the share of *enemies* on night lights per capita  
With Moscow

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Lights per capita (ln)									
Enemies (%)	1.010 (0.286)	0.716 (0.329)	1.019 (0.318)	0.825 (0.342)	1.029 (0.291)	0.793 (0.294)	2.315 (0.643)	1.551 (0.605)	2.123 (0.519)	1.365 (0.591)
N	77	67	77	67	77	67	77	67	77	67
R-sq	0.11	0.69	0.12	0.70	0.11	0.76	0.19	0.73	0.19	0.72
Region FE	no	yes								
Moscow in	yes									
Year	2000	2000	2005	2005	2010	2010	2015	2015	2020	2020

Without Moscow

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Lights per capita (ln)									
Enemies (%)	0.785 (0.276)	0.717 (0.332)	0.821 (0.315)	0.826 (0.345)	0.791 (0.283)	0.794 (0.297)	2.072 (0.644)	1.553 (0.610)	1.845 (0.514)	1.365 (0.596)
N	71	61	71	61	71	61	71	61	71	61
R-sq	0.08	0.61	0.09	0.64	0.07	0.70	0.16	0.70	0.16	0.68
Region FE	no	yes								
Moscow in	no									
Year	2000	2000	2005	2005	2010	2010	2015	2015	2020	2020

Notes: The table shows the results of regressions across 100km-radius areas around Gulags in Russia in 2000, 2005, 2010, 2015, and 2020. All regressions include region (oblast) fixed effects. Regions with only one Gulag are dropped due to region fixed effects. Standard errors clustered by region are in parentheses. The results suggest that areas near Gulags with a larger share of *enemies* have brighter night lights per capita. The coefficient in column (10) in the bottom panel suggests that a one standard deviation increase in the share of *enemies* increases night lights per capita by 46%.

Table A.12. The effect of the share of *enemies* on Soviet capital investments 1953-1989  
WITHOUT CONTROLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Junction 1954-89	Junction 1954-89	Science city	Science city	Defense factory	Defense factory	University	University
Enemies 1952 (%)	0.076 (0.243)	0.075 (0.245)	-0.752 (0.187)	-0.752 (0.189)	-0.034 (0.163)	-0.034 (0.164)	-0.311 (0.293)	-0.311 (0.295)
N	67	61	67	61	67	61	67	61
R-sq	0.43	0.43	0.56	0.51	0.39	0.39	0.50	0.46
Moscow in	yes	no	yes	no	yes	no	yes	no
Region FE	yes	yes	yes	yes	yes	yes	yes	yes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Junction 1954-89	Junction 1954-89	Science city	Science city	Defense factory	Defense factory	University	University
Enemies 1952 (%)	0.228 (0.305)	0.225 (0.309)	-0.237 (0.124)	-0.236 (0.126)	-0.022 (0.183)	-0.022 (0.185)	-0.043 (0.274)	-0.042 (0.276)
Total prisoners 1952	-0.005 (0.067)	-0.045 (0.064)	0.037 (0.050)	0.048 (0.056)	0.030 (0.021)	0.034 (0.024)	-0.020 (0.062)	-0.014 (0.069)
Latitude	0.005 (0.030)	0.006 (0.030)	0.017 (0.020)	0.017 (0.020)	0.009 (0.018)	0.009 (0.018)	0.014 (0.032)	0.014 (0.032)
Longitude	0.018 (0.016)	0.019 (0.017)	-0.002 (0.008)	-0.002 (0.008)	-0.006 (0.007)	-0.006 (0.007)	-0.017 (0.013)	-0.017 (0.013)
Pop within 100km - 1926 (ln)	0.003 (0.023)	-0.006 (0.023)	0.075 (0.011)	0.077 (0.011)	0.005 (0.009)	0.005 (0.009)	0.060 (0.015)	0.062 (0.015)
KM to 1937 railway (ln)	-0.110 (0.062)	-0.128 (0.061)	-0.044 (0.043)	-0.040 (0.044)	-0.010 (0.031)	-0.010 (0.031)	0.086 (0.050)	0.090 (0.051)
N	67	61	67	61	67	61	67	61
R-sq	0.49	0.51	0.77	0.75	0.42	0.42	0.62	0.60
Moscow in	yes	no	yes	no	yes	no	yes	no
Region FE	yes							

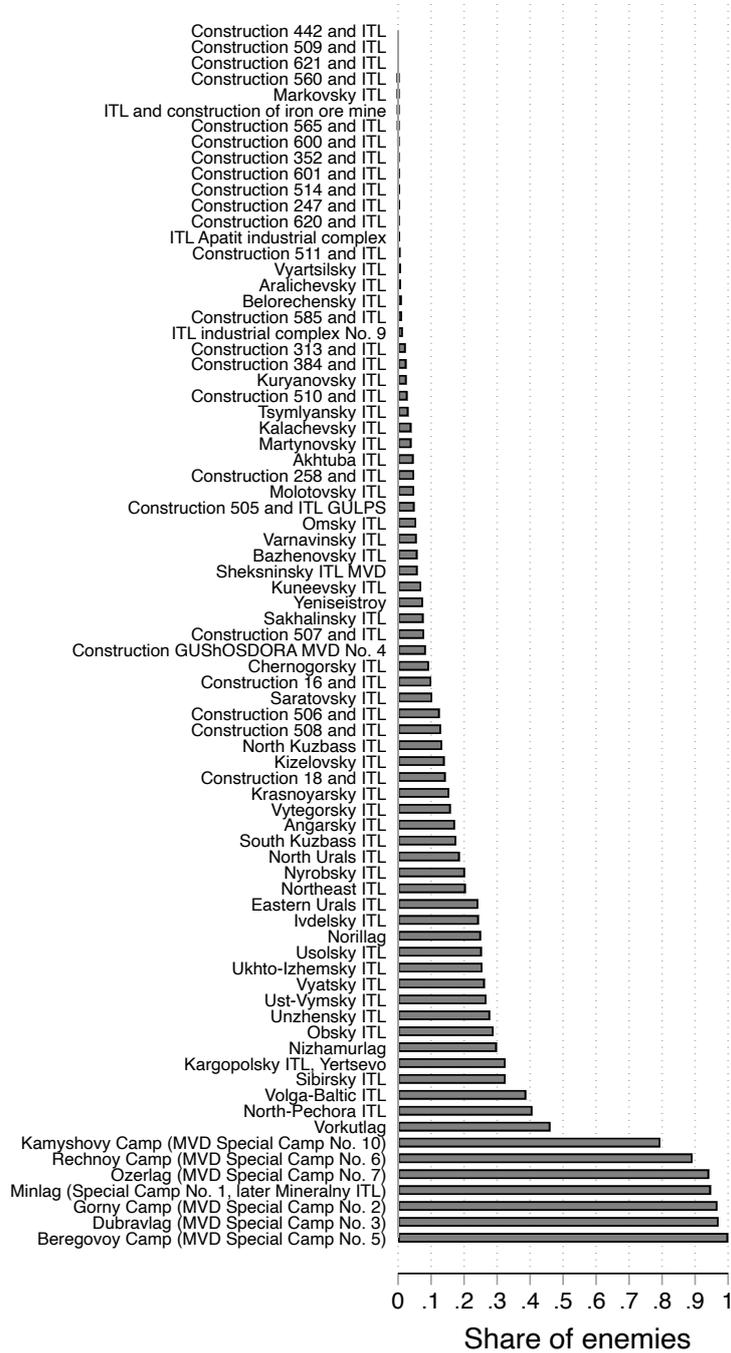
Notes: Here we explore the possibility that locations around camps with a larger share of *enemies* are richer today because they attracted a larger amount of investment in Soviet times. We check whether *enemies* are associated with more investment in railways, defense factories, or universities between 1953 and 1989 and if they were more likely to become science cities focused on R&D (see [Schweiger et al. \(2018\)](#)). The table shows the results of regressions across 100km-radius areas around 1952 Gulags. We use dummy variables on the left-hand side that capture the presence of different capital investment during 1953-1989. Railway is equal to 1 if new railway tracks were added within 100 km of a camp, and zero otherwise. Science city is equal to 1 if a science city was established within 100 km of a camp, and zero otherwise. Defense factory is equal to 1 if a new defense factory was built within 100 km of a camp, and zero otherwise. University is equal to 1 if a new university was opened within 100 km of a camp, and zero otherwise. All regressions include region (oblast) fixed effects. Robust standard errors are in parentheses. The results including region fixed effects suggest that there was no difference in investment in railways, defence factories, and universities near Gulags with a higher share of *enemies*, and these camps were less likely to be the locations of Soviet Science cities. Soviet planners were thus not more likely to invest more in camps with a higher share of *enemies*. This result also holds if we exclude Moscow. Capital investment thus does not seem likely to have driven the relationship between *enemies* and long-run prosperity. The data on railway is from [Zhukov and Talibova \(2018\)](#), on defence factories from [Dexter and Rodionov \(2017\)](#), on science cities from [Schweiger et al. \(2018\)](#), and on universities from [Wikipedia](#).

Figure A.2. Example of archive microfilms with data on Gulags

	Сибирь	Восток	Волгоцк	Арх.обл.	Свердлов	Орловск	Дальний
Список, число в/к на 1 ЯНВАРЯ 1952 года.	82576	42296	16035	25616	23029	37023	39612
а) мужчины	18097	28580	19468	17243	19151	26536	34174
б) женщины	13589	13716	2622	8379	3958	10557	5438
<b>ПО ВОЗРАСТУ:</b>							
Недостигшие 17 лет	-	12	55	44	-	-	-
" " 18 "	92	28	101	151	-	-	-
От 18 до 25 лет.	5966	7008	2443	5233	6071	6309	9207
От 25 " 35 "	8318	11371	6514	5832	8529	10794	12342
От 35 " 45 "	6246	10395	1638	5242	6225	5887	7652
От 45 " 50 "	4065	5150	1600	2536	1444	6674	4146
От 50 " 60 "	5296	5541	2524	4506	697	4401	3971
Старше 60 "	2603	2791	855	2022	123	2728	1782
<b>ПО ХАРАКТЕРУ ПРЕСТУП.</b>							
Имена родные	6502	7201	4118	18280	16380	2582	2063
Полковик	3	7	1	1029	1378	2524	2001
Террор	5	132	3	388	572	306	521
Тер. вынуждения	3	-	35	362	328	361	222
Тяжелая	3	4	5	42	265	736	272
Средней тяжести	5	29	3	46	87	21	10

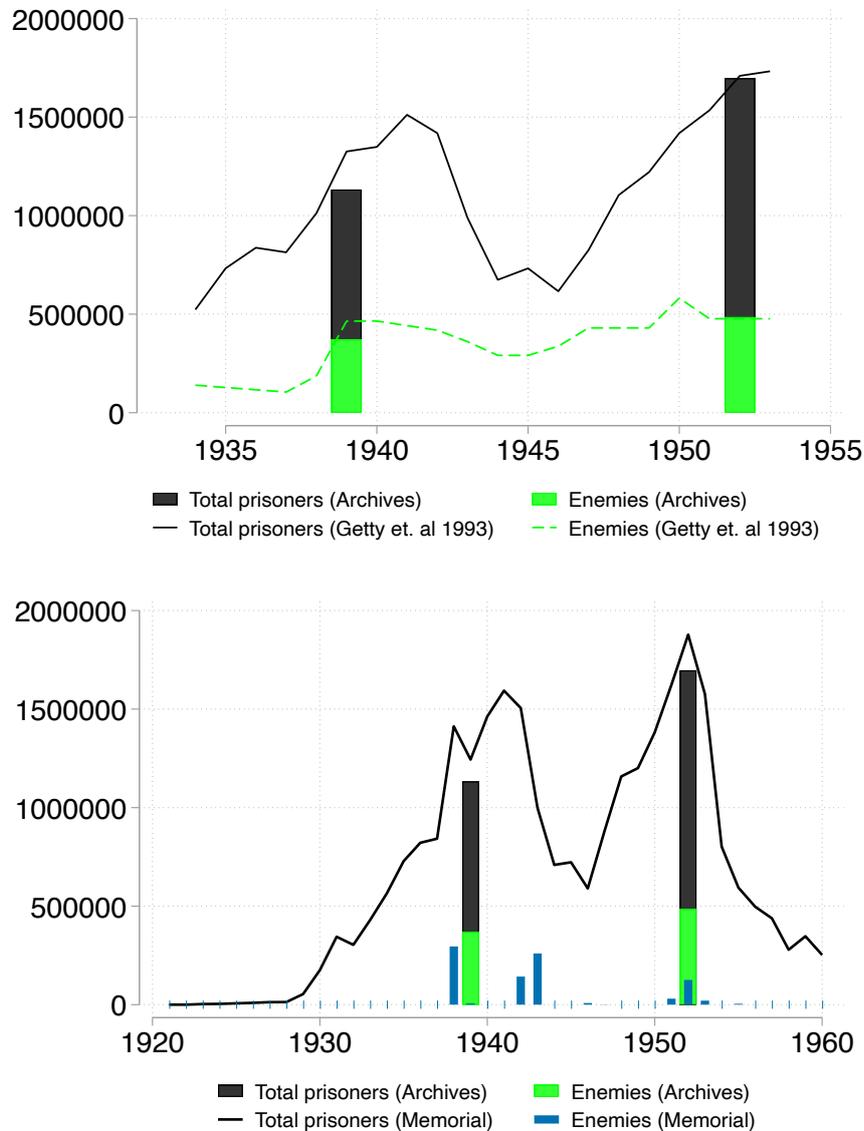
Notes: The picture provides an example of the microfilms in the State Archive of the Russian Federation (GARF). It shows the number of prisoners by gender, age, and crime committed, in a specific camp in 1952. The data on 1952 camps is from the "Summary of the numerical composition of prisoners in the corrective labor camps" (Russian: Svodnye zifrovye svedenie o sostave zakluchonyx ITL.) and the microfilm containing this information is: GARF 9414 1 1356.

Figure A.3. Share of *enemies* across camps in 1952



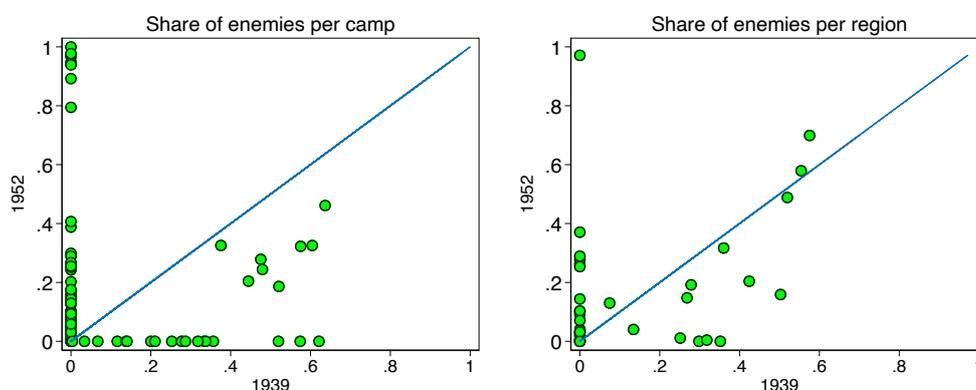
Notes: The bars show the share of *enemies* among prisoners by camp in 1952. The average share of *enemies* was .19 and the standard deviation .28. ITL stands for Ispravitelno-trudovoi lager, i.e. corrective labor camp. MVD is Ministry of Internal Affairs. Source: State Archive of the Russian Federation (GARF). We use [Wikipedia](#) for the translation of camp names.

Figure A.4. Gulag prisoners and *enemies*:  
Comparing archive data to [Getty et al. \(1993\)](#) and [Memorial](#)



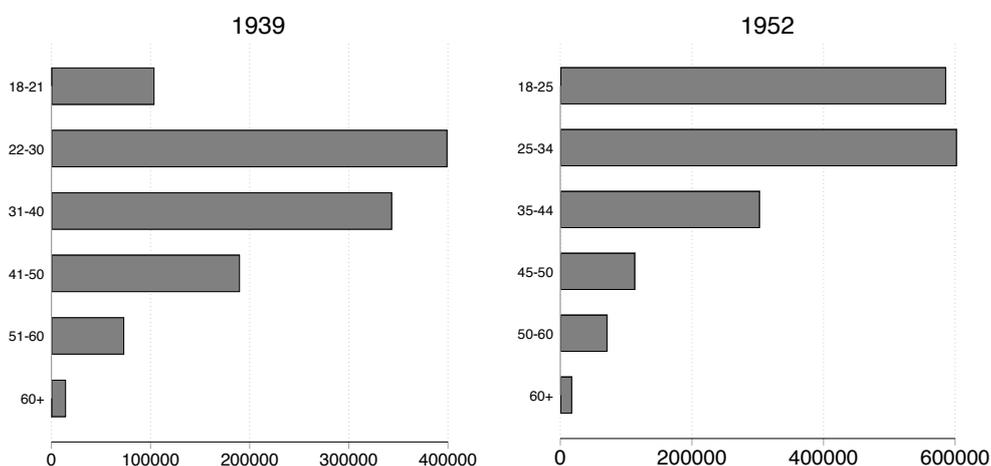
Notes: The graphs compare the number of Gulag prisoners and share of *enemies* from microfilms of the State Archive of the Russian Federation (GARF) to aggregate data from [Getty et al. \(1993\)](#), in the top graph, and from [Memorial](#). For 1939, the archives cover a total of 1.13 million prisoners, while [Getty et al. \(1993\)](#) reports 1.35 million and [Memorial](#) 1.26 million. For 1952, the archive data covers 1.69 million prisoners while [Getty et al. \(1993\)](#) reports 1.7 million and [Memorial](#) 1.9 million. Our lower numbers are due to prisoners that can't be matched to camps, as they work on various infrastructure projects. [Memorial](#) also provides some data on the share of *enemies* on camp-specific [webpages](#). But as seen at the bottom of [Figure A.4](#), these data are not complete. The historical [Memorial](#) data on Gulags is also available from [Tatiana Mikhailova online](#), but this version does not contain information on *enemies*. Overall these graphs confirm that our data on shares of *enemies* across Gulags, obtained from GARF, is in line with aggregate figures from previous studies.

Figure A.5. Persistence of share of *enemies*: 1939-1952



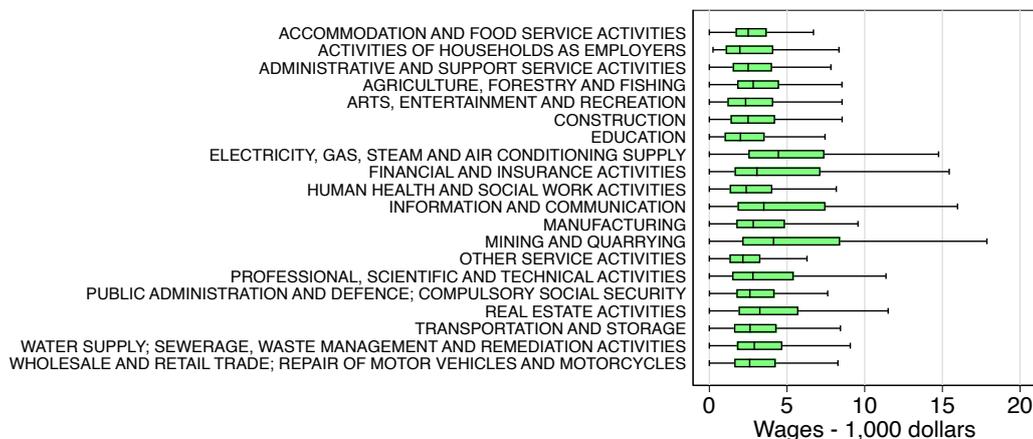
Notes: The scatters show the relationship between the share of *enemies* across camps in 1939 and 1952. On the left-hand side, each dot is a camp, on the right-hand side, each dot is a region. The solid lines are 45 degree lines. The figures show that for camps that existed in 1939 and persisted until 1952, the share of *enemies* in 1939 is correlated with that in 1952. This is also true if we consider persistence at the region level, where camps in 1952 may be near those that existed in 1939 in the same region. The data is from the State Archive of the Russian Federation (GARF).

Figure A.6. Gulag prisoners by age bins: 1939 and 1952



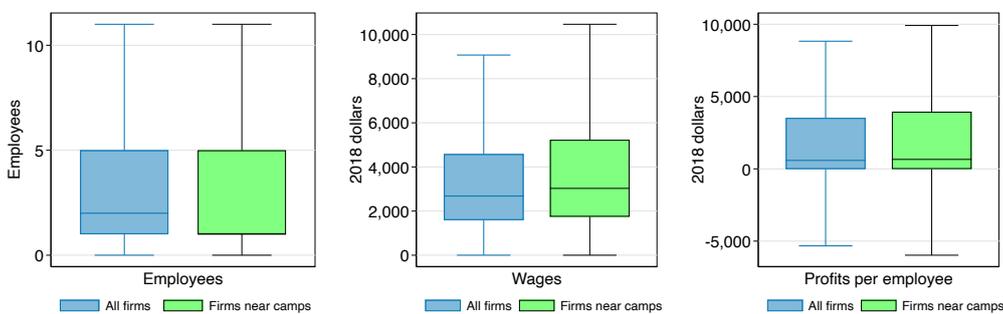
Notes: The bars show the number of prisoners by age group in all camps in 1939 and 1952. Gulag prisoners are older on average than the population as a whole. While children of *enemies* were also often arrested, they were often sent to orphanages in colonies rather than to Gulag camps, according to Applebaum (2012). Camps with a higher share of *enemies* have a higher share of older prisoners, in line with *enemies* being the educated elite. The data is from the State Archive of the Russian Federation (GARF).

Figure A.7. Yearly wages in Russia - 2018



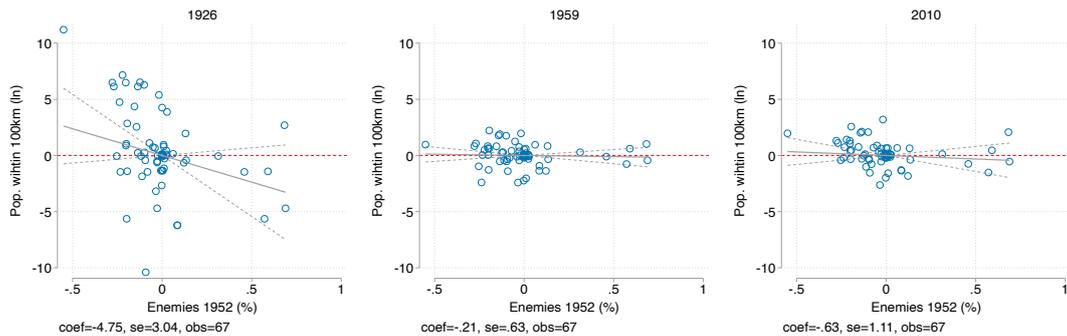
Notes: The boxplot gives the distribution of yearly wages in US dollars in Russia in 2018 by sector (Level 1 Codes of the NACE classification). The data is from SPARK, and wages are estimated from medical insurance payments which amount to 5.1% of wages and are mandatory across firms for all employees. The wages were converted to 2018 US dollars using the average exchange rate in 2018 of 65 rubles per dollar. The average wage across sectors was around 7,000 dollars a year. Outside values are omitted.

Figure A.8. Employees, wages, and profits in Russia: 2018

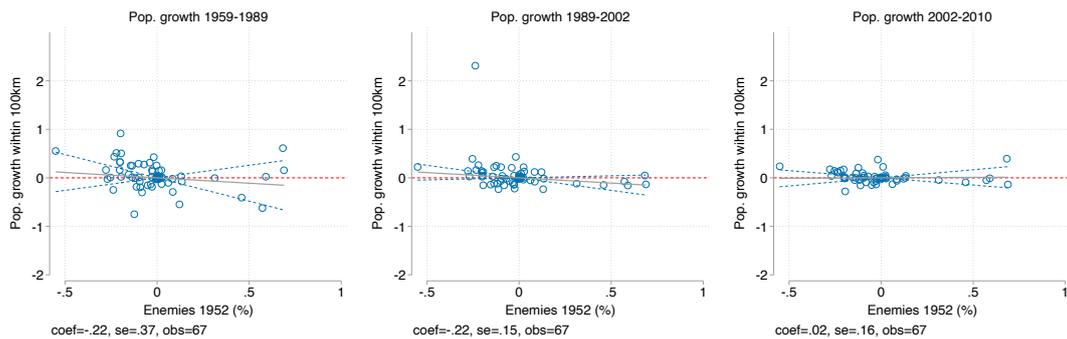


Notes: The boxplot gives the distribution of employees, wages, and net profits per employee per year in 2018 across all firms in Russia and for the subset of firms located within 100 km of a Gulag. This is the subset we use in our regressions. The data is from SPARK, and wages are estimated from medical insurance payments which amount to 5.1% of wages and are mandatory across firms for all employees. Comparing the average numbers from the Census with our sub sample of firms located within 100 km of Gulags we find that the size of firms appears similar while wages and net profits per employee appear higher in firms located within 100 km of Gulags. The median number of employees in Russian firms is 2, and 50% of the firms have 1-5 employees. Using a nominal exchange rate of 65 ruble per US dollar, the average exchange rate in 2018, we estimate that Russian workers were paid on average 7,000 US\$ per year or 584 US\$ per month in 2018. 50% of the firms report their profits to be between 0 and 3,523 US\$ per employee with an average of 3,009 US\$. The total of wages and profits of all the firms in our data is 96 Trillion Rubles which is close to the officially reported 104 trillion Rubles in 2018. This discrepancy can be attributed to the fact that information on firms in the security and military sectors is not made available to the public and thus not in our data.

Figure A.9. Share of *enemies* vs. population within 100 km of camps

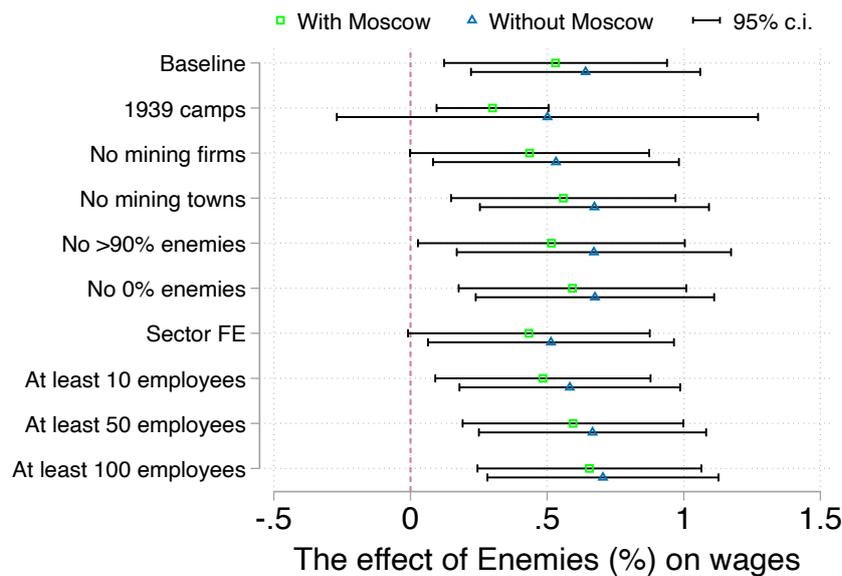


Share of *enemies* vs. population growth within 100 km of camps



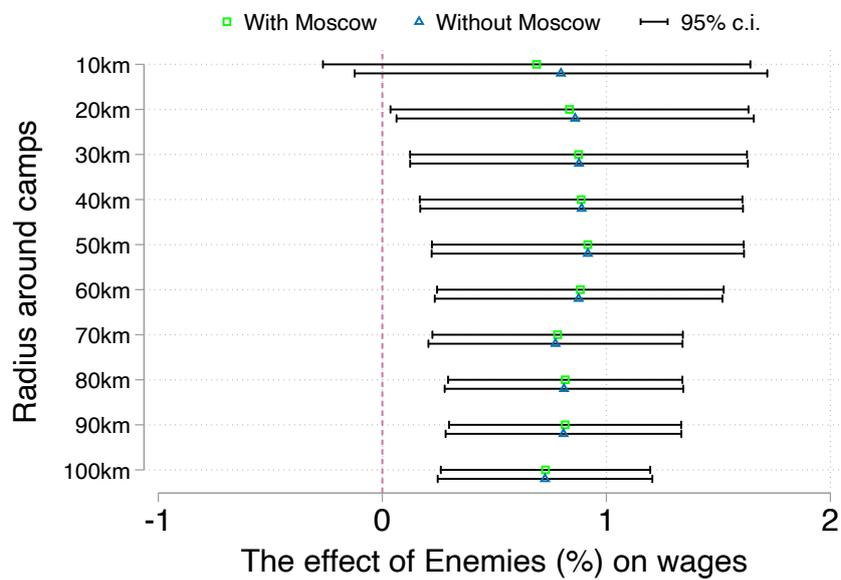
Notes: The top scatters show the relationship between the share of *enemies* in camps in 1952 and population within 100 km of camps in 1926, 1959, and 2010, conditional on region fixed effects. Each circle is a 100km-radius area around a camp. The solid lines show the linear fit and the dashed lines show the 95% confidence interval. Areas near camps with a higher share of *enemies* had a lower population in 1926, but similar populations in 1959 and 2010. The bottom graphs show the relationships between the share of *enemies* and population growth, in Soviet times (1959-1989), in the aftermath of the fall of the Soviet Union (1989-2002), and in more recent times (2002-2010). The scatters show that the relationship is not statistically significant. Overall it suggests that the locations of *enemies* did not fare differently in terms of population dynamics in the post-Gulag years. The data on Gulags is from the State Archive of the Russian Federation (GARF), and the population data is from the 1926 and 1959 Soviet census and the 2010 Russian census and available on [Wikipedia](#).

Figure A.10. The effect of the share of *enemies* on wages  
Robustness to various specifications



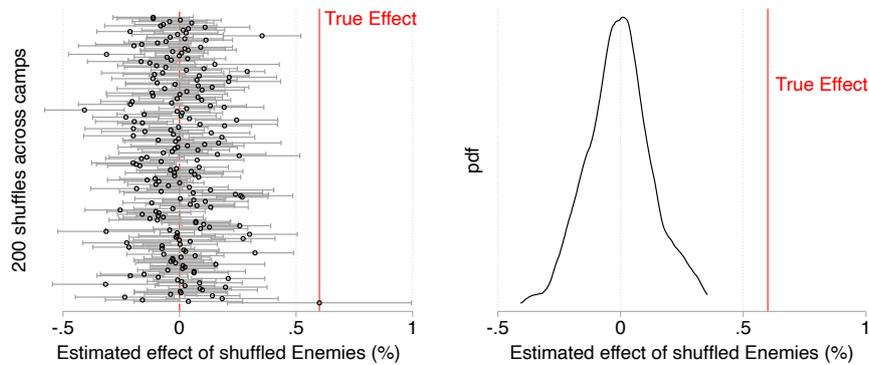
Notes: The figure shows the effects of the share of *enemies* on local wages when we estimate alternative specifications akin to those of column 1 (with Moscow) and column 4 (without Moscow) in Table 5. All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. The whiskers are 95% confidence intervals based on standard errors clustered by Gulag clusters (at the treatment level). The baseline effects are those in column 1 and 4 in Table 5. The second set of coefficients shows the effect of *enemy* shares across camps in 1939 instead of 1952. In the third set of results, we remove all mining firms from the sample. In the fourth set we exclude all locations, or firm clusters, where mining firms account for more than 1% of all firms. In the fifth set, we remove all firms affected by a share of *enemies* above 90%. In the sixth set we remove all firms near Gulags with no *enemies*. In the seventh set of results, we include sector fixed effects. In the three last sets, we restrict our sample to firms with more than 10, 50, or 100 employees. Overall the results suggest that across alternative specifications, we find firms near Gulags with a larger share of *enemies* to pay higher wages.

Figure A.11. The effect of the share of *enemies* on wages  
Robustness to various radius around camps



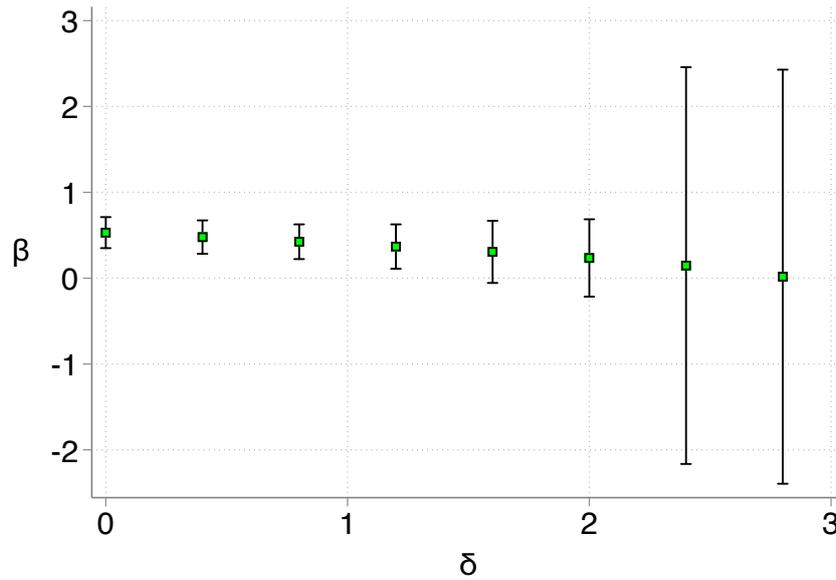
Notes: The figure shows the effects of the share of *enemies* on local wages when we estimate specifications akin to those of column 1 (with Moscow) and column 4 (without Moscow) in Table 5 but varying the size of the radius around camps, from 10 to 100 km. All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. The whiskers are 95% confidence intervals based on standard errors clustered by Gulag clusters (at the treatment level). The baseline effects are those for firms within 100km of camps, as in column 1 and 3 in Table 5. The results are robust whether we reduce or extend the radius around camps to include all firms within 10 to 100 km of Gulags.

Figure A.12. The effect of 200 placebo shares of *enemies* on wages



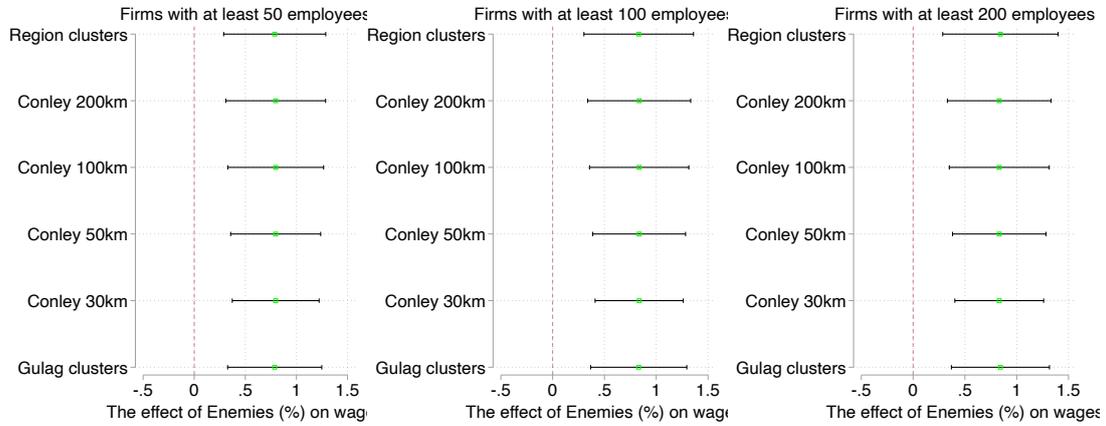
Notes: The left figure shows the effects of 200 placebo shares of *enemies*, which we obtain by shuffling actual shares of *enemies* across 1952 camps, and by estimating the specifications in column 6 (without Moscow) of Table 5. All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. The whiskers are 90% confidence intervals based on standard errors clustered by Gulag clusters (at the treatment level). The right figure shows the distribution of the 200 placebo effects, roughly centred around zero. In both figures the vertical line shows the magnitude of the true effect. Overall the results suggest that the true effect of the share of *enemies* on wages is very unlikely to be due to chance.

Figure A.13. The effect of the share of *enemies* on wages  
Robustness to omitted variable bias



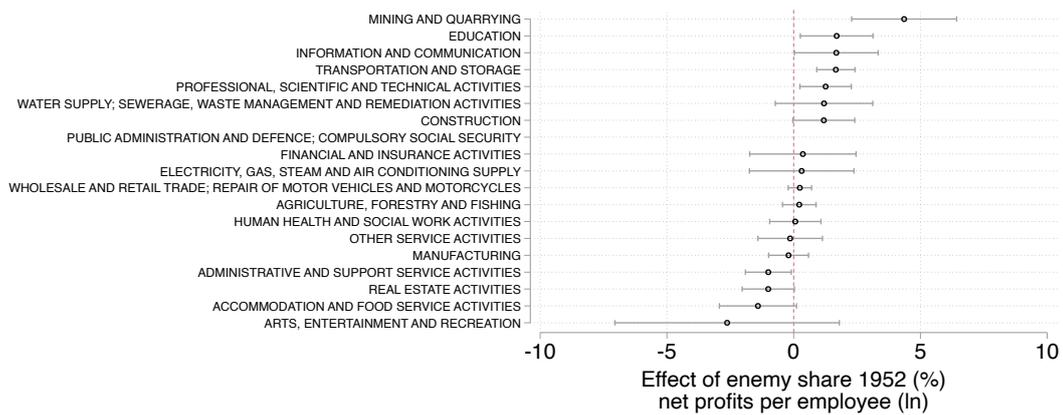
Notes: The  $\beta$  shows the effects of the share of *enemies* on local wages when we estimate specifications akin to those of column 1 (with Moscow) in Table 5 but assuming there is an omitted variable that may bias the coefficient on the share of *enemies*. We follow the methodology in Oster (2019) and Oster (2013) where the  $\delta$  captures the strengths of selection on unobservables, relative to selection on observables, which in this case are the total number of prisoners per camp. We focus on this observable variable as it is positively correlated with the share of *enemies* and could capture unobservable features of locations which are linked to development. A  $\delta = 1$  suggests equal selection on observables and unobservables and is an appropriate upper bound according to Oster (2019). We set  $R_{\max} = 1.3 \times$  the R-squared in column 1 in Table 5, as suggested in Oster (2019). All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. The whiskers are 90% confidence intervals based on bootstrapped standard errors. The baseline effects are those when  $\delta = 0$ . Overall the results are robust to a potential omitted variable bias as long as selection on unobservables is not 2 times larger than on observables.

Figure A.14. - The effect of *enemies* on wages - Robustness to different standard error clusters and minimum employee cutoffs



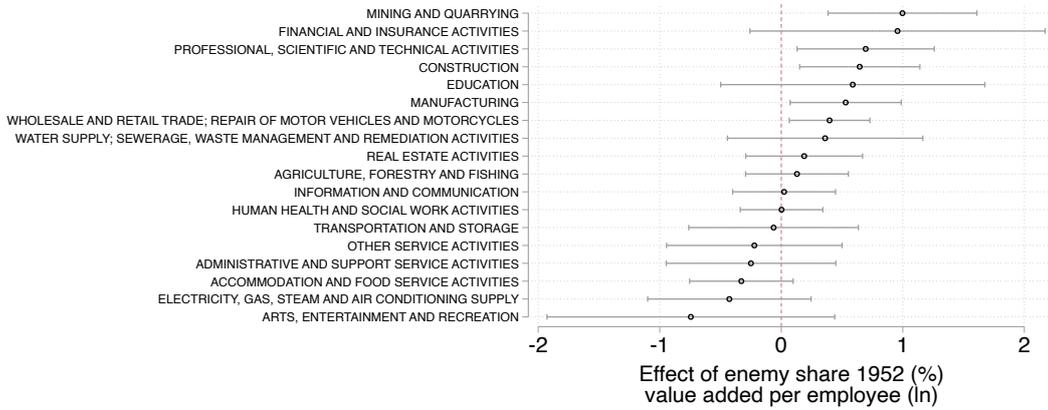
Notes: The figure shows the effect of *enemies* on wages. It corresponds to the specifications in column 1 of Table 5. Gulag clusters are our benchmark standard errors and the ones we use throughout the paper. Region clusters are simply s.e. clustered at the region (oblast) level. The others are Conley s.e. using different radius and estimated using the acreg Stata package by Colella et al. (2019). Overall the figure shows that our results are robust to the choice of standard errors and to different samples of firms.

Figure A.15. The effect of the share of *enemies* on net profits per employee by Industry



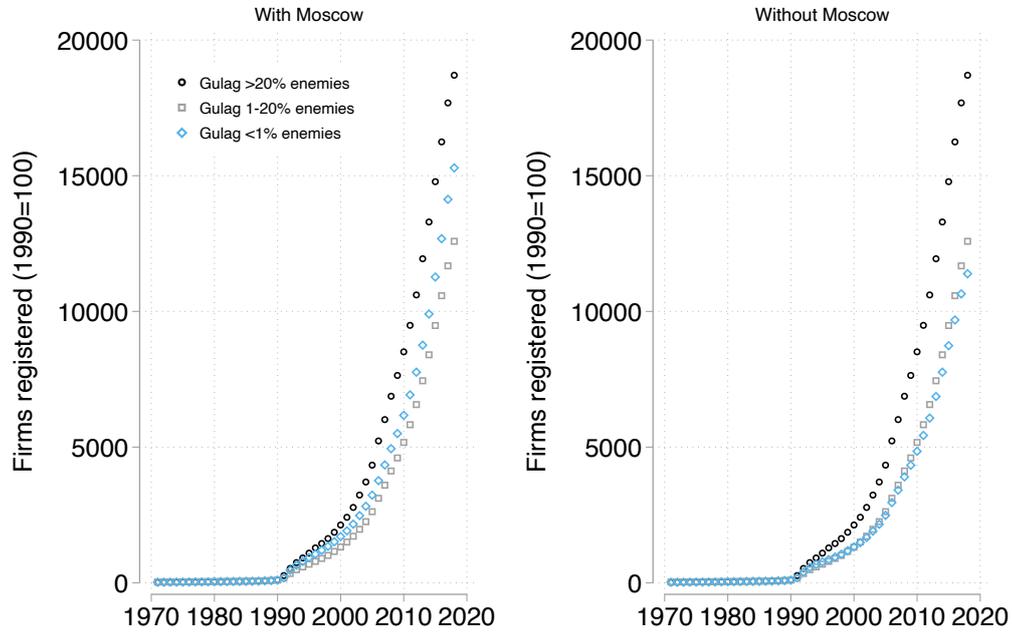
Notes: The figure shows the effects of the share of *enemies* on net profits per employee when we estimate the specification of column (1) in Table 7 by industry (NACE categories). All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. The whiskers are 90% confidence intervals based on standard errors clustered by Gulag clusters (at the treatment level). The results suggest that in some industries such as professional and scientific activities, firms near Gulags with a larger share of *enemies* make higher profits per employee.

Figure A.16. The effect of the share of *enemies* on value added per employee by Industry



Notes: The figure shows the effects of the share of *enemies* on value added per employee when we estimate the specification of column (1) in Table A.10 by industry (NACE categories). All regressions are weighted least squares, with the numbers of employees per firm used as weights, and include region (oblast) fixed effects. The whiskers are 90% confidence intervals based on standard errors clustered by Gulag clusters (at the treatment level). The results suggest that in many industries such as manufacturing, finance, as well as professional and scientific activities, firms near Gulags with a larger share of *enemies* have higher value added per employee.

Figure A.17. Firm registrations by year



Notes: The figure shows the growth of registered firms since 1990 across Gulag locations (within 100 km of camps) with different shares of *enemies*. It suggests that there was a higher rate of firm creation in locations with a higher share of *enemies*. Note that the registration data is based on the 2018 cross section of firms from SPARK, and that the data is thus subject to survival bias.

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