American Relief and the Soviet Famine of 1921–1922

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Hoover Institution, November 4, 2026

Motivation

- **295 million at risk of famine or severe hunger (2024)**

  GRFC 2025. Famine harms last: lives lost, plus stunting and lifetime health problems among survivors

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  - Credible evidence comes from small programs
  - Bigger operations mean more diversion and coordination failures
  - Aid goes to the worst-hit areas $\Rightarrow$ identification requires careful design

  Sen 1981; de Waal 2018; Jeong and Trako 2022; Sentia et al. 2023

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Can massive food relief succeed under an adversarial regime?

Does feeding people change their politics?

This Paper: The ARA in Soviet Russia, 1921–23

- **One of the largest relief operations of the 20th century**

  At the origins of modern humanitarianism: >$60 mln (>$1 bln today) distributed; 10 mln people fed daily at the peak

- **A hard test: 20 mln starving after civil war**

  Hostile government, only 200 Americans on the ground. "Almost insurmountable obstacles": secret-police surveillance, collapsed transport (Frank Golder, ARA)

- **Never systematically assessed**
  - *The New Republic* (1922): 5–10 mln lives saved, perhaps the regime too
  - Soviet accounts: rations too small, Americans were spies

- **New data from the Hoover Institution Archives**

  Hand-digitized monthly ARA feeding reports + newly digitized Soviet data on prices, calories, disease, criminal convictions, and the 1926 census

Main Findings

- **Aid followed need:** conditional on famine severity, no political or ethnic targeting
- **Aid saved lives**
  - Rye prices ≈9% lower (0.21 SD) per SD (10 pp) of feeding
    Rye flour; prices fall by the 3rd month of feeding
  - Calories +9% per SD (8%) of feeding
    ≈300 kcal per adult male; largest gains for the poorest peasants
  - Less relapsing fever (louse-borne), not waterborne typhoid
  - ≈4.4 million more people alive in 1926, at ≈$11 per life
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- **Worked best where local human capital was higher**
- **Did not weaken the regime**
  - No effect on peasant unrest, turnout, or disenfranchisement
    Preliminary: no effect on counter-revolutionary convictions or revolutionary names; suggestive rise in American names

Contributions

- **Famine relief works at scale, even under a hostile regime**

  Prior evidence: smaller crises (Hidrobo et al. 2014; Kurdi 2021); ideological distance lowers aid effectiveness (Dreher et al. 2015)

- **Aid was not captured by the regime**

  vs. aid follows donor interests or is diverted (Barnett 2011; Bradley 2023)

- **Feeding people did not change their politics**

  No effect on peasant unrest, turnout, or counter-revolution convictions; vs. aid fuels conflict (Crost et al. 2014; Nunn and Qian 2014) and aid wins "hearts and minds" (Tokdemir 2017)

- **New data on the first years of Soviet rule**

  Hand-digitized ARA and Soviet records on an understudied period (Gregg 2024; Zhuravskaya et al. 2024)

Outline

Background

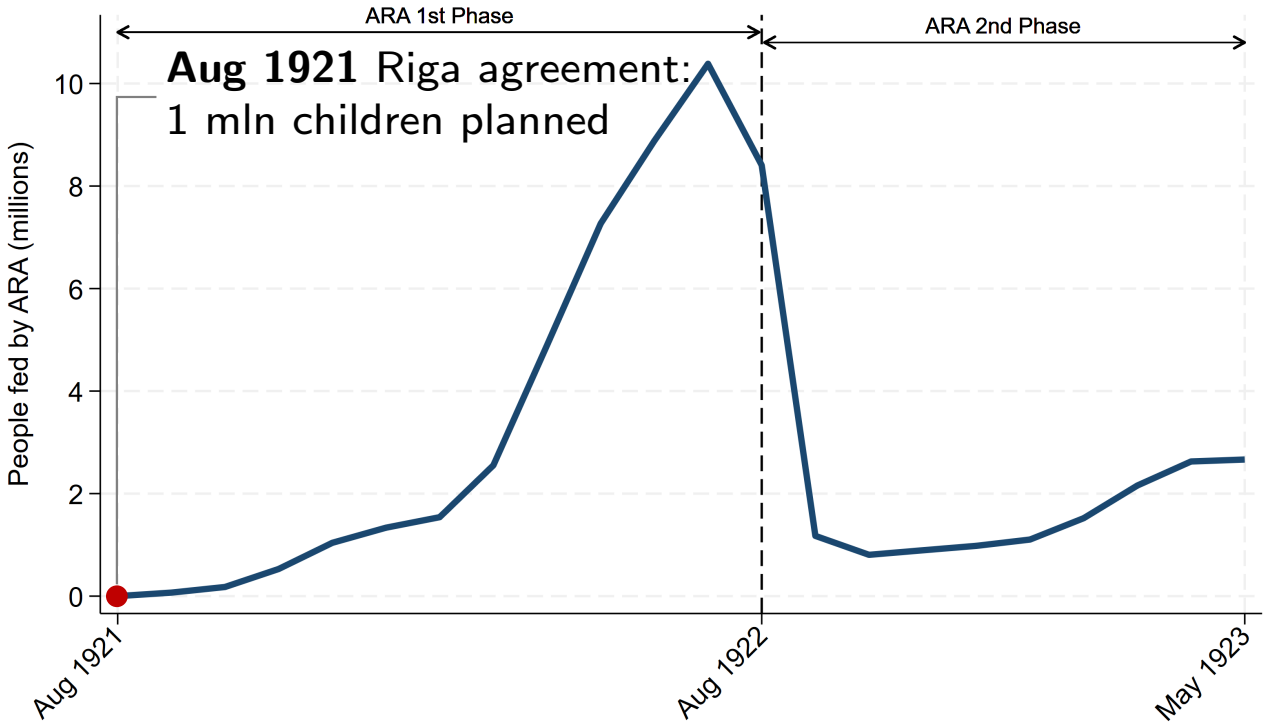
Data and Descriptive Statistics

Results
- Economic Effects
- Demographic Effects
- Heterogeneous Effects
- Political Effects

Conclusion

Timeline of ARA Relief Operation

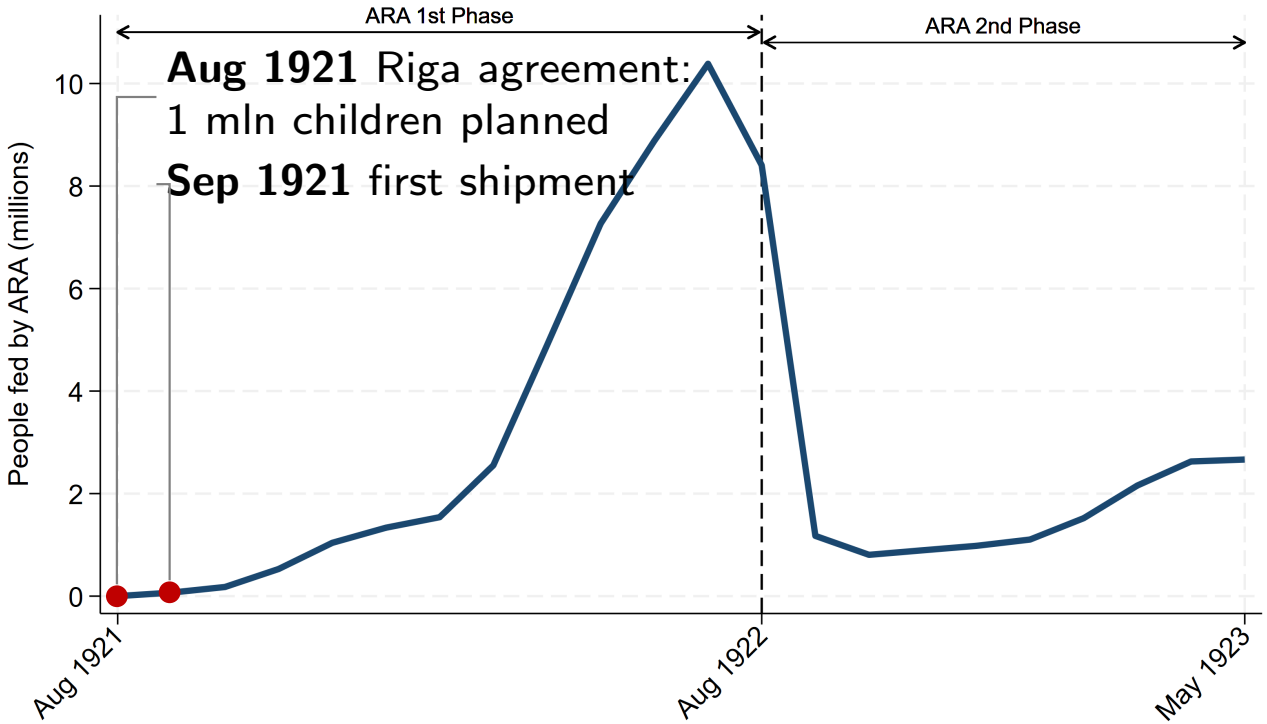
1917 Revolution → 1918–20 Civil War, grain requisitions (sown area −30%) → spring 1921 drought → July 1921 Gorky's appeal, Hoover replies



718,770 tons, 61.4 mln person-months: ≈390 g per person per day (+30% to the 1,200 g average intake, June 1922)

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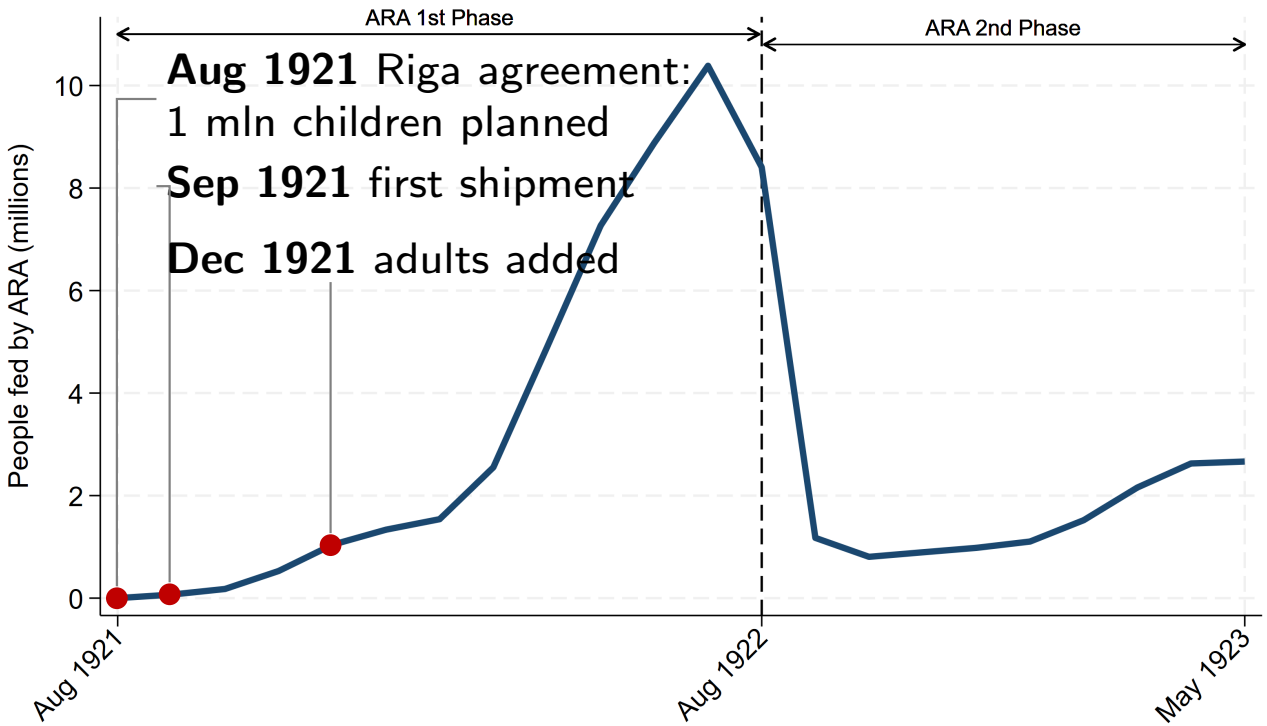
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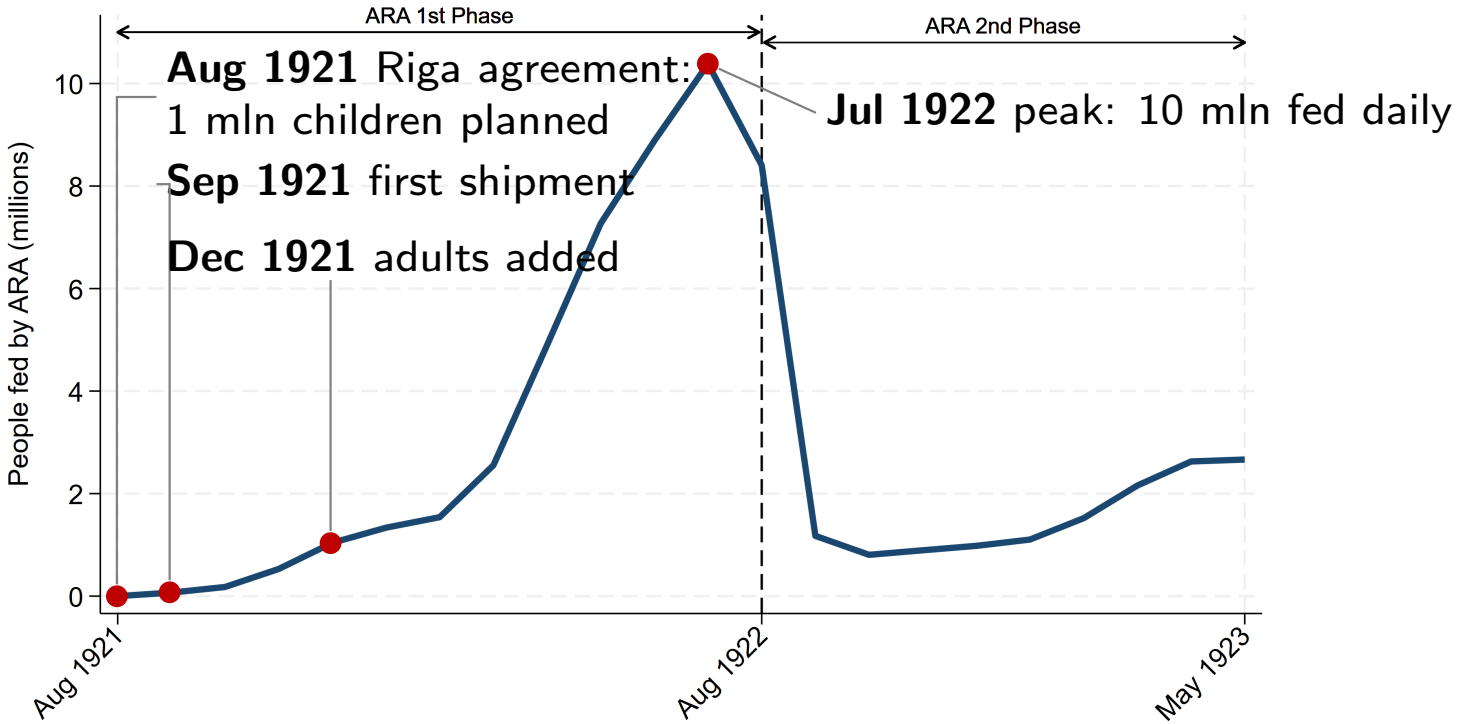
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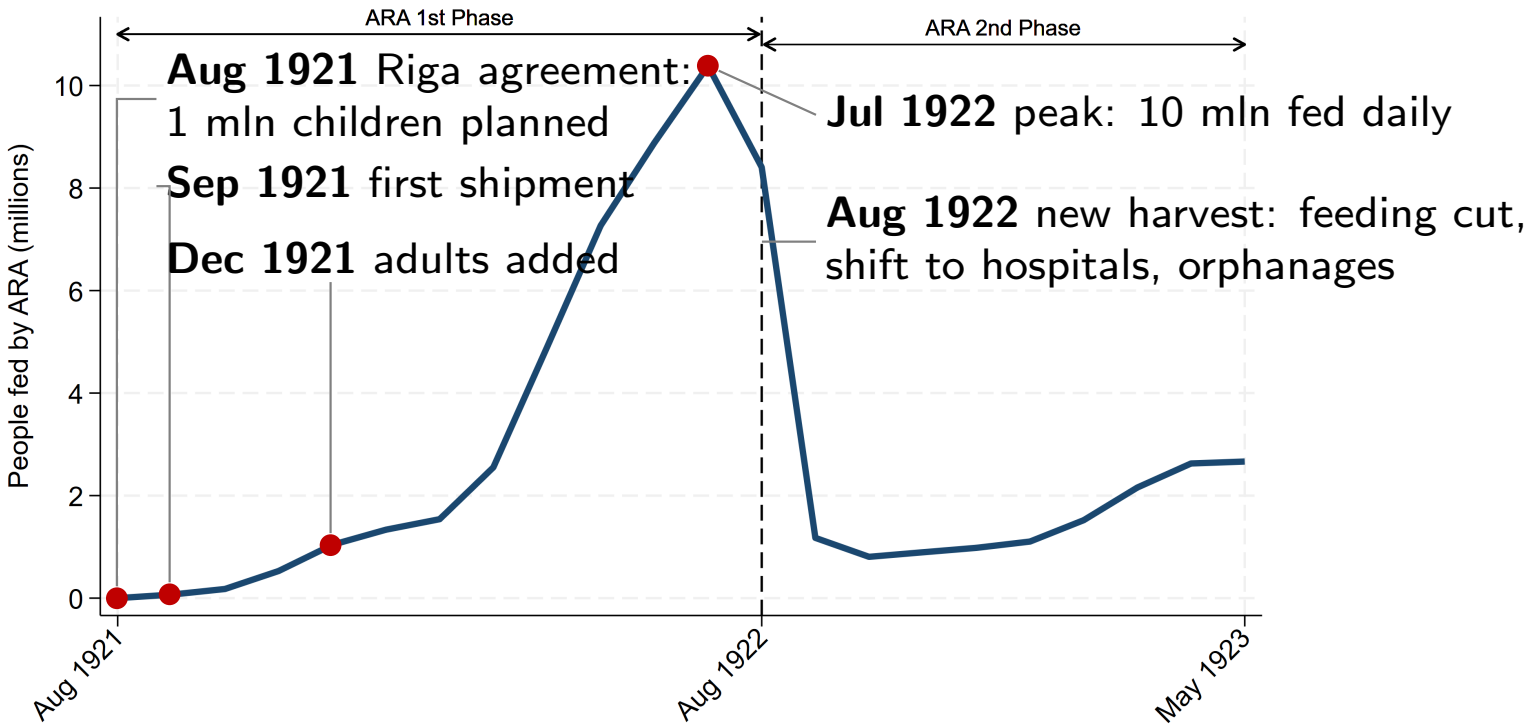
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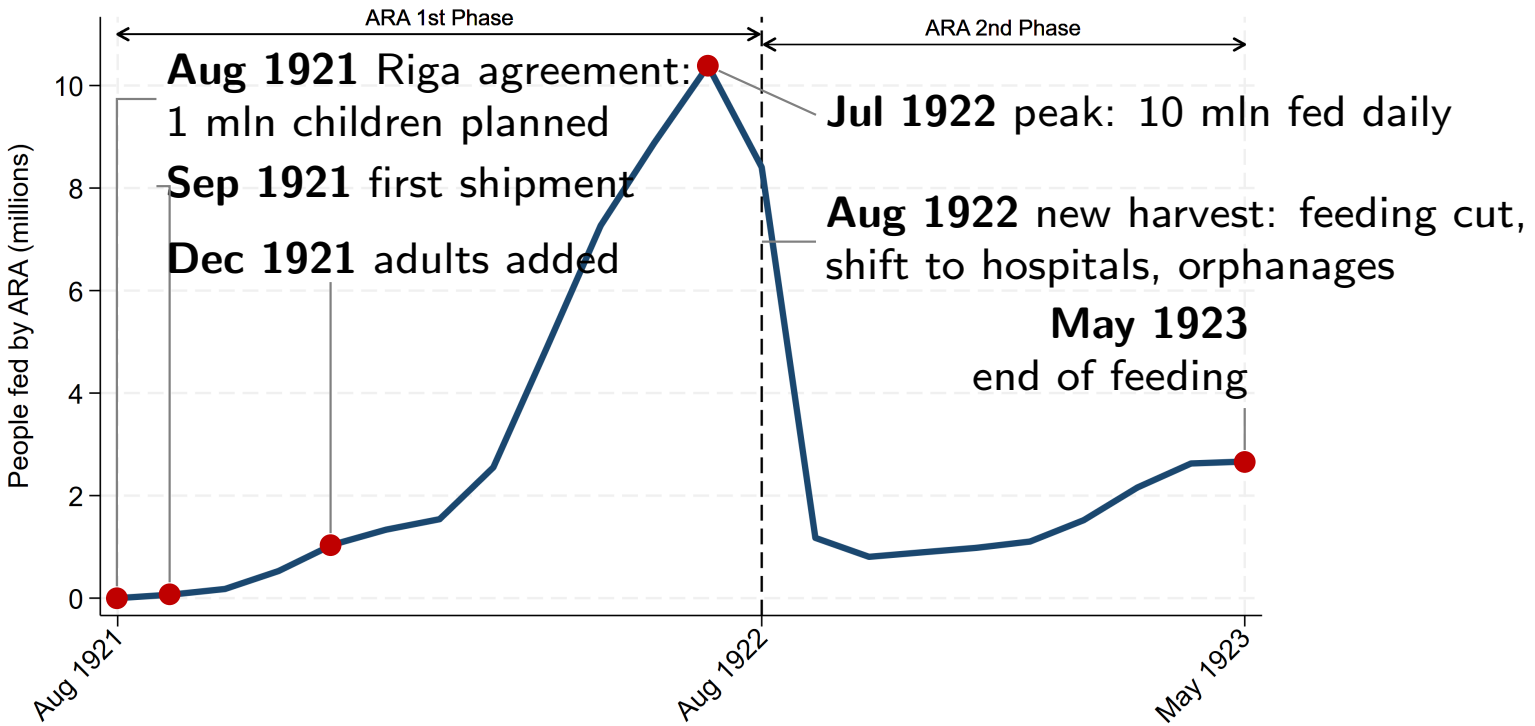
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ARA Investigators' Travels and ARA Feeding

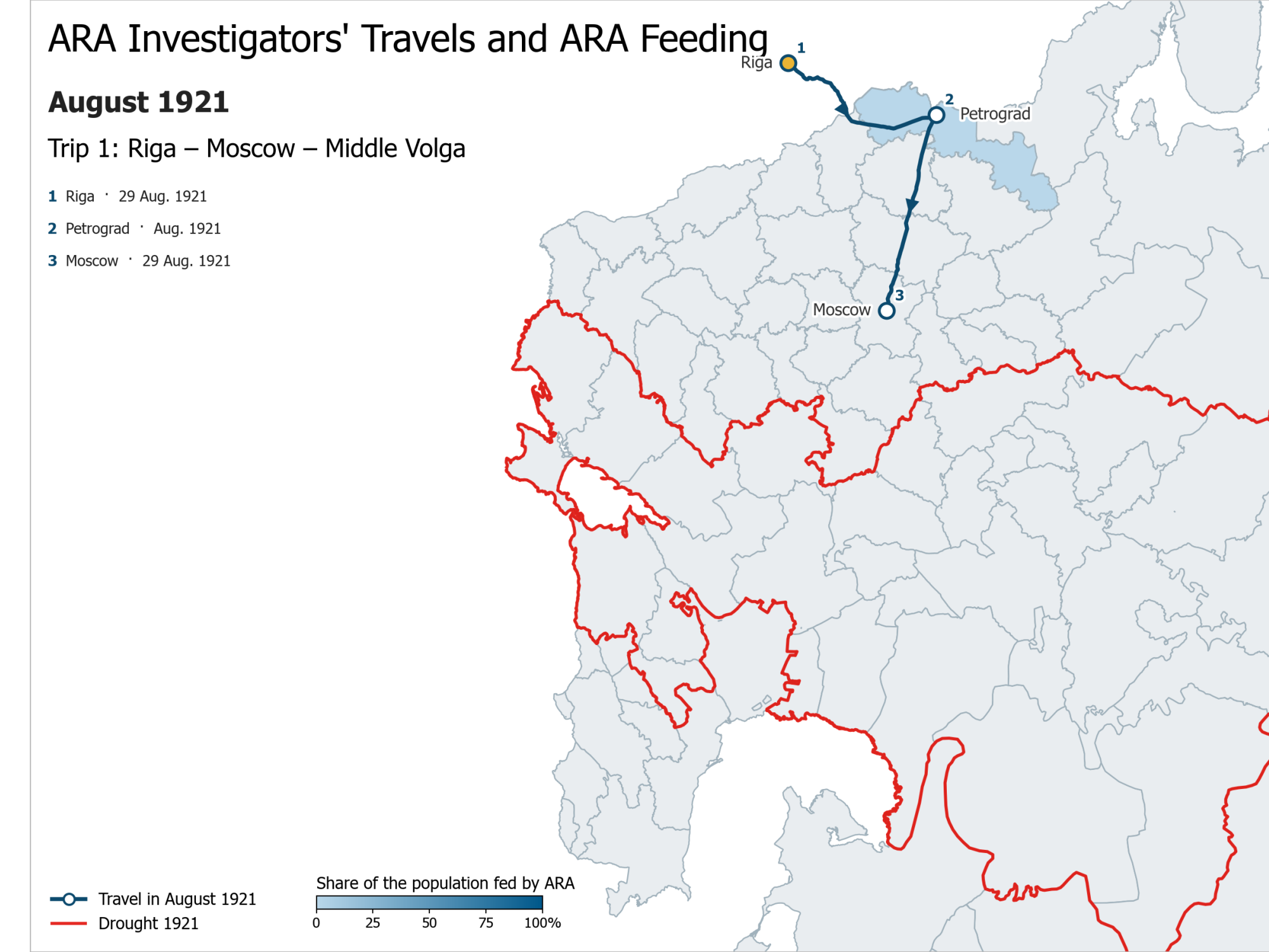
August 1921

Trip 1: Riga – Moscow – Middle Volga

1 Riga · 29 Aug. 1921

2 Petrograd · Aug. 1921

3 Moscow · 29 Aug. 1921



ARA Investigators' Travels and ARA Feeding

September 1921

Trip 1: Riga – Moscow – Middle Volga

1 Moscow · 29 Aug. 1921

2 Kazan · 3 Sep. 1921

3 Titiushi · 4 Sep. 1921

4 Krasni Uzel · 8 Sep. 1921

5 Sura · 9 Sep. 1921

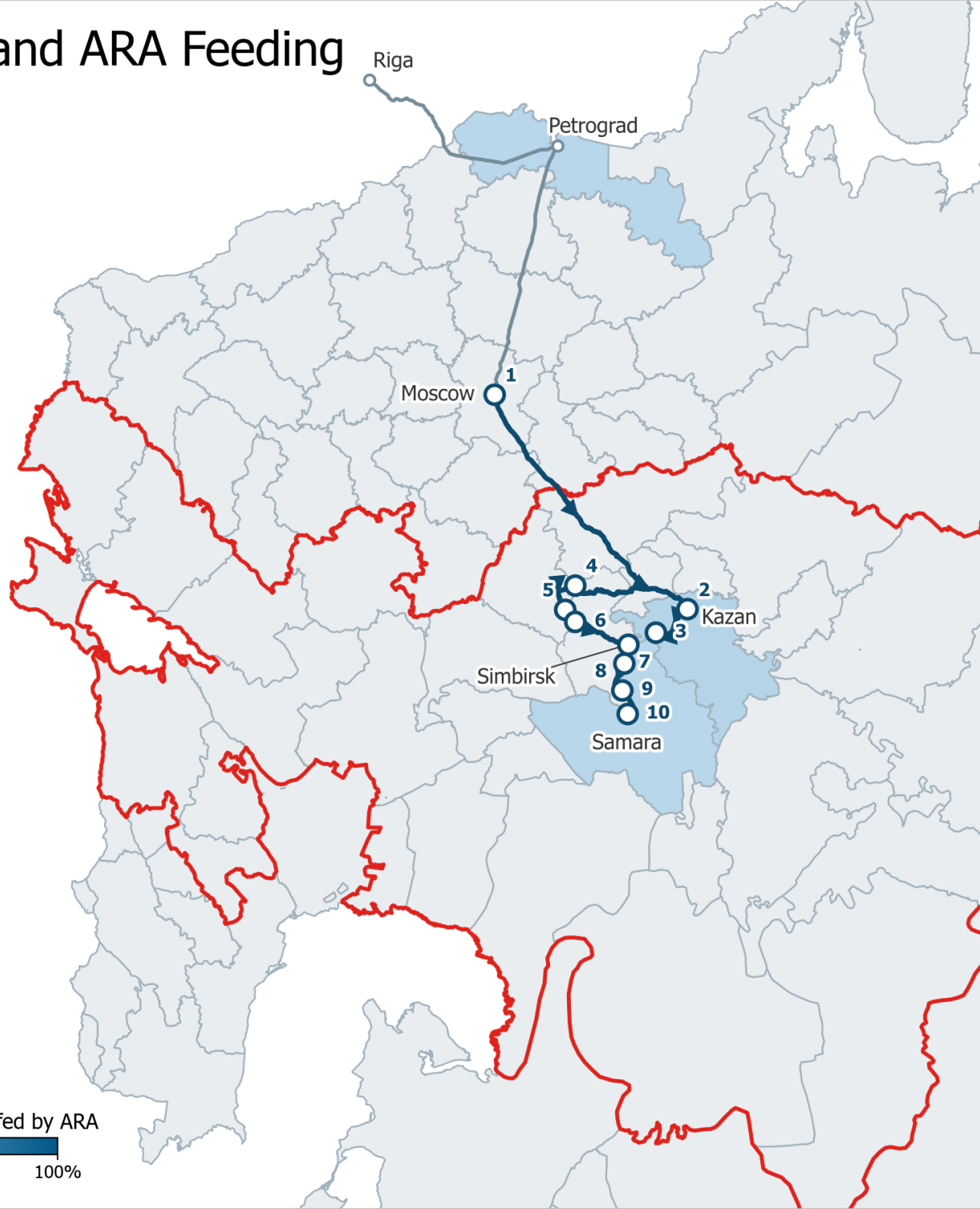
6 Inza · 10 Sep. 1921

7 Simbirsk · 10 Sep. 1921

8 Sengilei · 11 Sep. 1921

9 Stavropol · 13 Sep. 1921

10 Samara · 14-30 Sep. 1921



Travel in September 1921
Earlier travel
Drought 1921

Share of the population fed by ARA
0 25 50 75 100%

ARA Investigators' Travels and ARA Feeding

October 1921

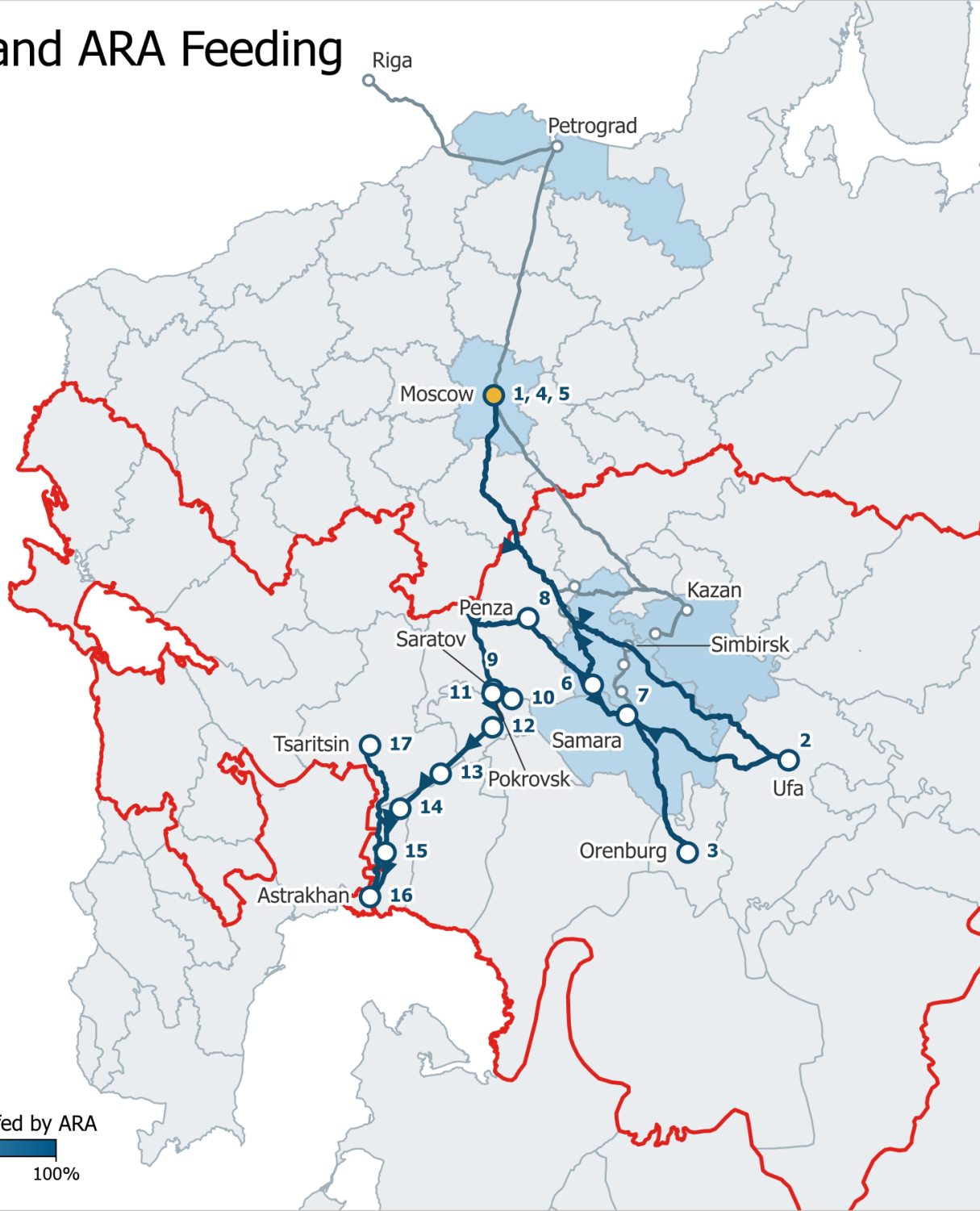
Trips 2 and 3

Trip 2: Southern Urals (Haskell)

1 Moscow
2 Ufa · early Oct. 1921
3 Orenburg · Oct. 1921
4 Moscow

Trip 3: Lower Volga: Samara – Astrakhan

5 Moscow
6 Syzran
7 Samara · 10 Oct. 1921
8 Penza · 15 Oct. 1921
9 Saratov · 17 Oct. 1921
10 Marxstadt · 21 Oct. 1921
11 Pokrovsk · 23 Oct. 1921
12 Krasni Kut · 24 Oct. 1921
13 Dzhanybek · 25 Oct. 1921
14 Bashunchak · 25 Oct. 1921
15 Kharbalinsk, Ashuluk · 26 Oct. 1921
16 Astrakhan · 27 Oct. 1921
17 Tsaritsin · 30 Oct. 1921



Travel in October 1921
Earlier travel
Drought 1921

Share of the population fed by ARA
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ARA Investigators' Travels and ARA Feeding

November 1921

Trips 3 and 4

Trip 3: Lower Volga: Samara – Astrakhan

1 Tsaritsin · 30 Oct. 1921

2 Krasni Kut, Anisovka · 3 Nov. 1921

3 Saratov · 4 Nov. 1921

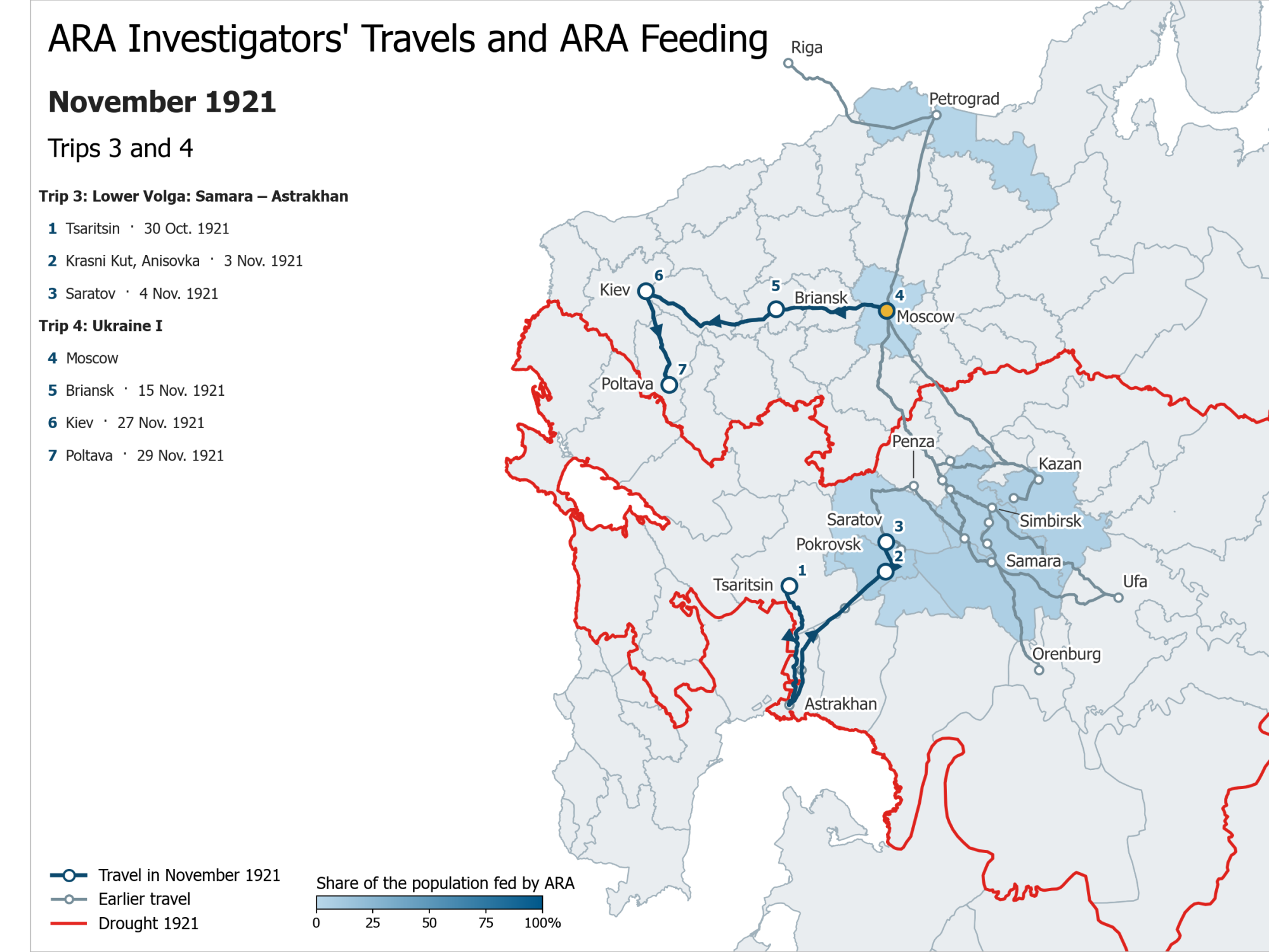
Trip 4: Ukraine I

4 Moscow

5 Briansk · 15 Nov. 1921

6 Kiev · 27 Nov. 1921

7 Poltava · 29 Nov. 1921



ARA Investigators' Travels and ARA Feeding

December 1921

Trips 4 and 5

Trip 4: Ukraine I

1 Poltava · 29 Nov. 1921

2 Kharkov · 1 Dec. 1921

Trip 5: Ukraine II

3 Moscow

4 Kursk · 14 Dec. 1921

5 Kharkov · 15 Dec. 1921

6 Odessa · 18 Dec. 1921

7 Alexandrovsk · 18 Dec. 1921

8 Sinelnikovo · 21 Dec. 1921

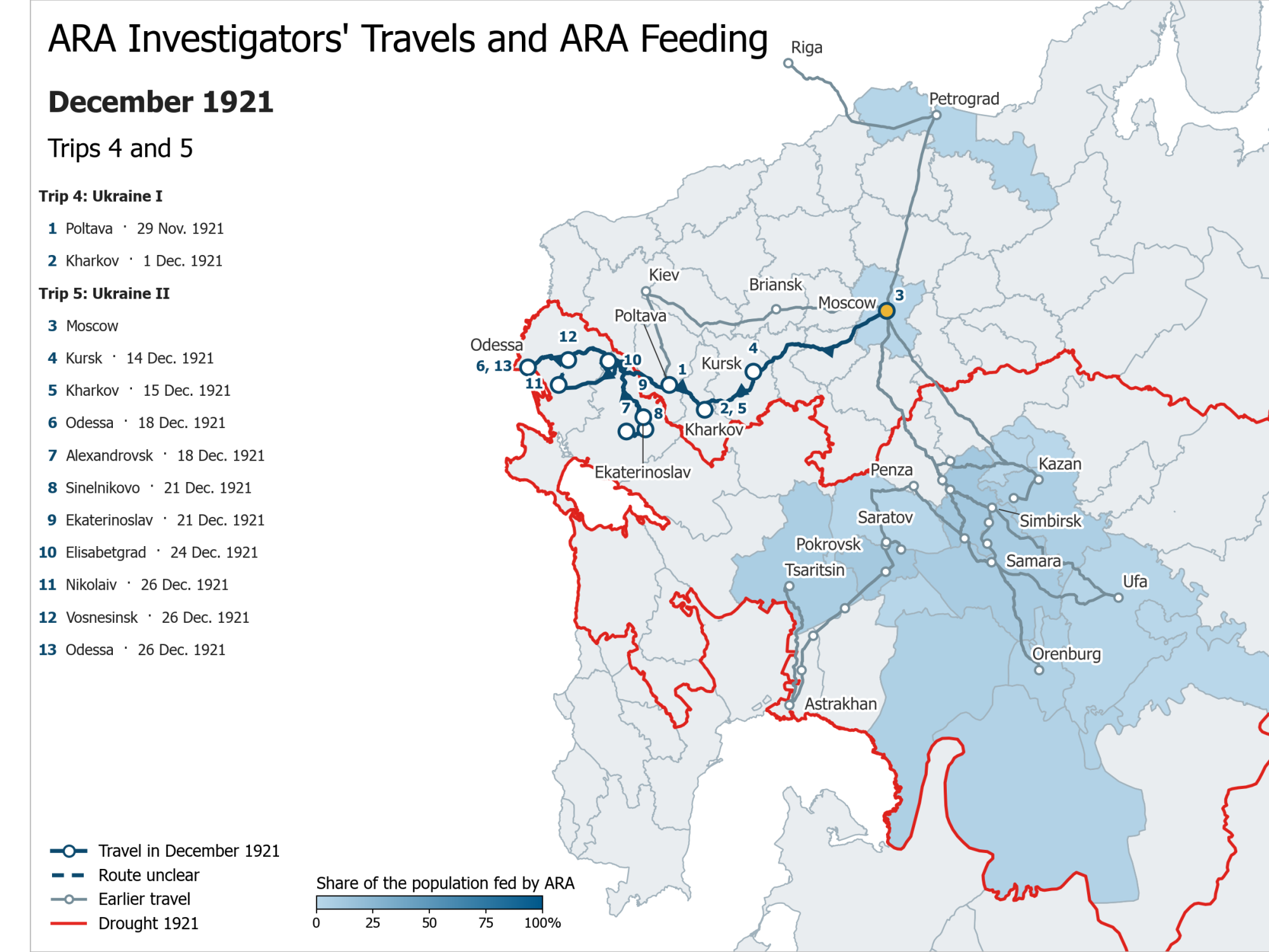
9 Ekaterinoslav · 21 Dec. 1921

10 Elisabetgrad · 24 Dec. 1921

11 Nikolaiv · 26 Dec. 1921

12 Vosnesinsk · 26 Dec. 1921

13 Odessa · 26 Dec. 1921



ARA Investigators' Travels and ARA Feeding

January 1922

Trip 5: Ukraine II

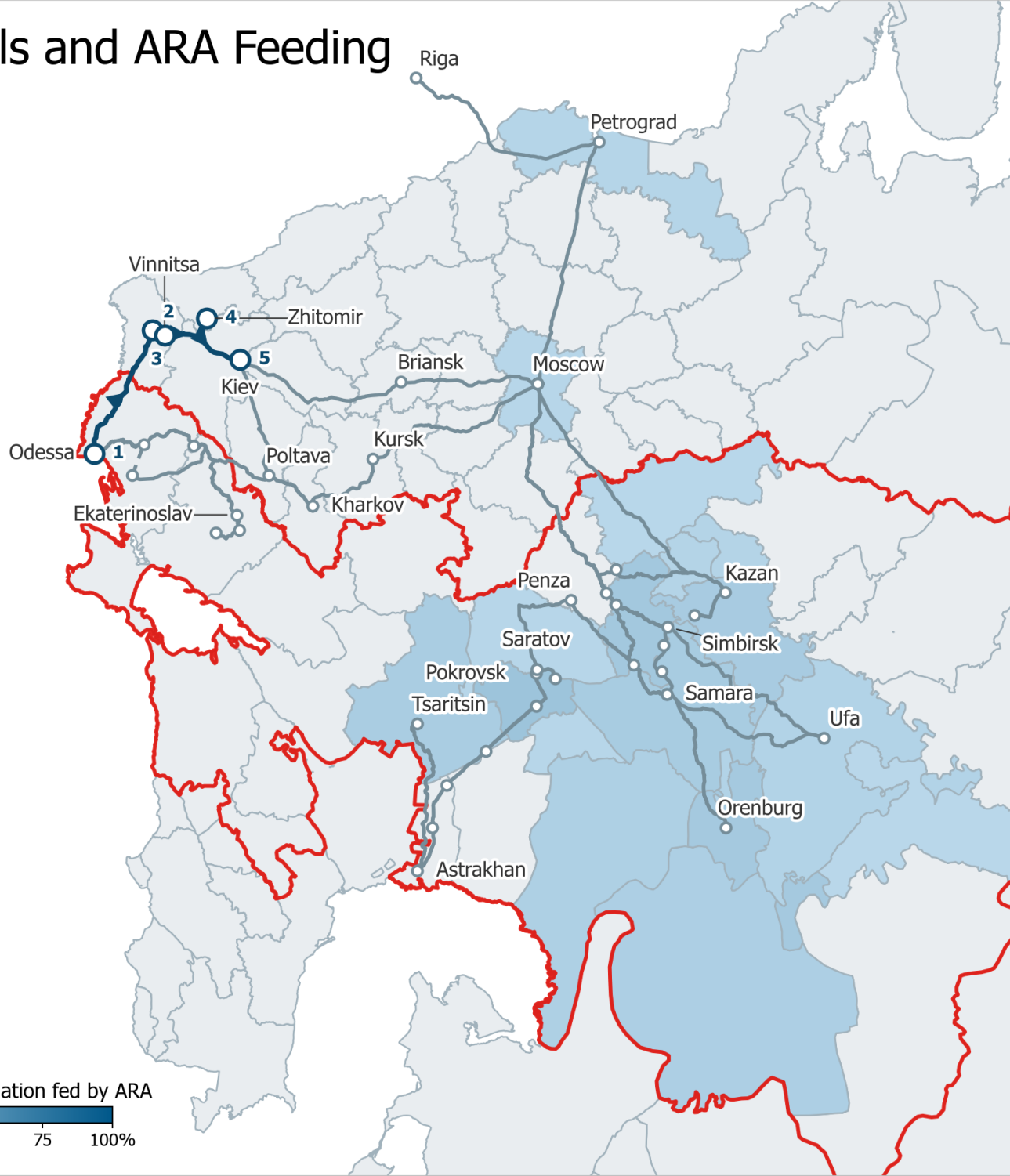
1 Odessa · 26 Dec. 1921

2 Zhmerinka · 1 Jan. 1922

3 Vinnitsa · 2 Jan. 1922

4 Zhitomir · 5 Jan. 1922

5 Kiev · 8 Jan. 1922



Travel in January 1922
Earlier travel
Drought 1921

Share of the population fed by ARA

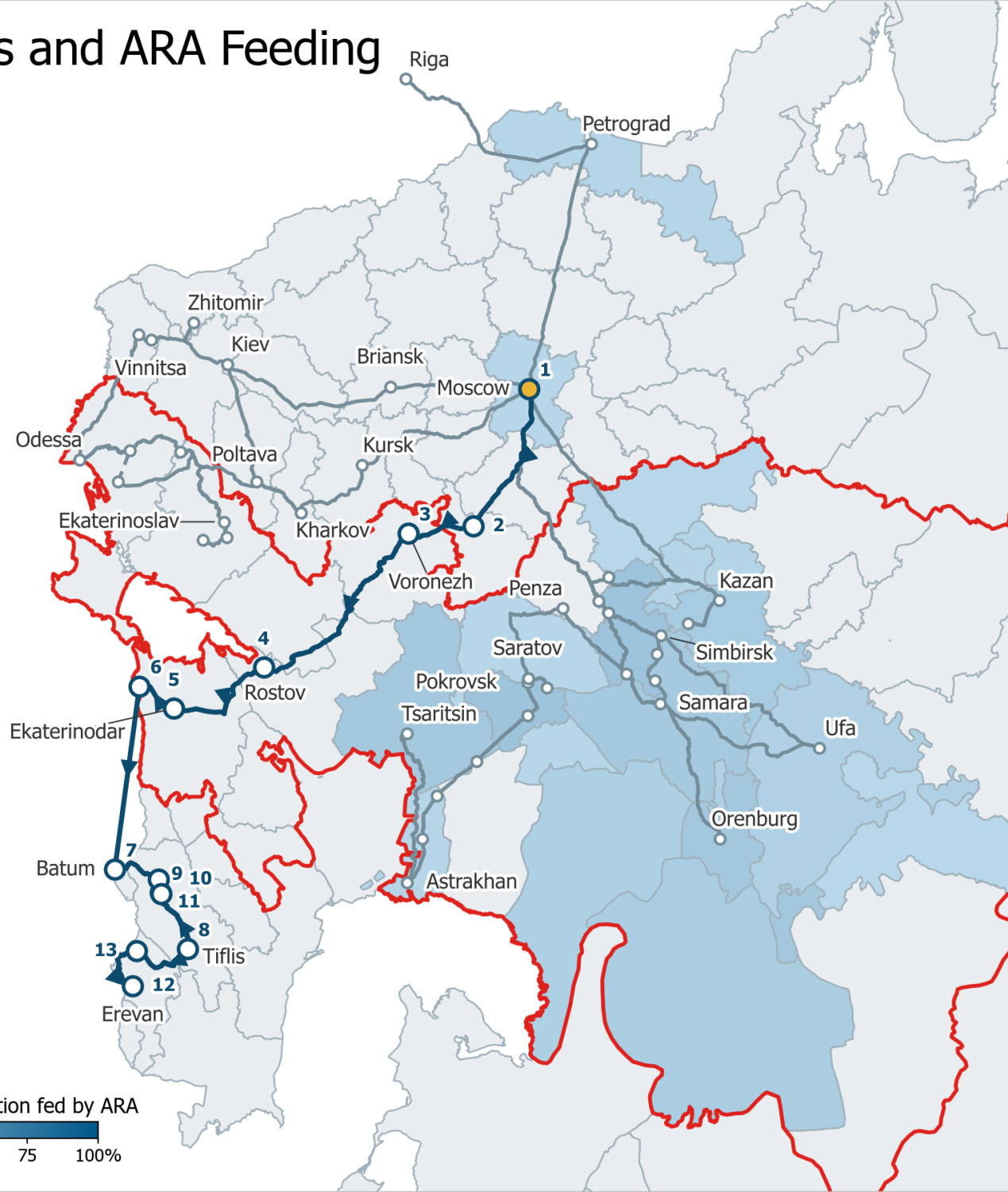
0 25 50 75 100%

ARA Investigators' Travels and ARA Feeding

February 1922

Trip 7: Caucasus

1 Moscow
2 Kozlov · 3 Feb. 1922
3 Voronezh · 4 Feb. 1922
4 Rostov-on-the Don · 5 Feb. 1922
5 Ekaterinodar · 6 Feb. 1922
6 Novorossisk · 8 Feb. 1922
7 Batum · 10 Feb. 1922
8 Tiflis · 12 Feb. 1922
9 Zestafoni · 17 Feb. 1922
10 Kutais · 18 Feb. 1922
11 Sharopan, Georgia · 19 Feb. 1922
12 Erevan, Armenia · 22 Feb. 1922
13 Aleksandropol · 25 Feb. 1922



ARA Investigators' Travels and ARA Feeding

March 1922

Trip 7: Caucasus

1 Aleksandropol · 25 Feb. 1922

2 Ganzha · 3 Mar. 1922

3 Baku · 5 Mar. 1922

4 Petrovsk and Grozni · 6 Mar. 1922

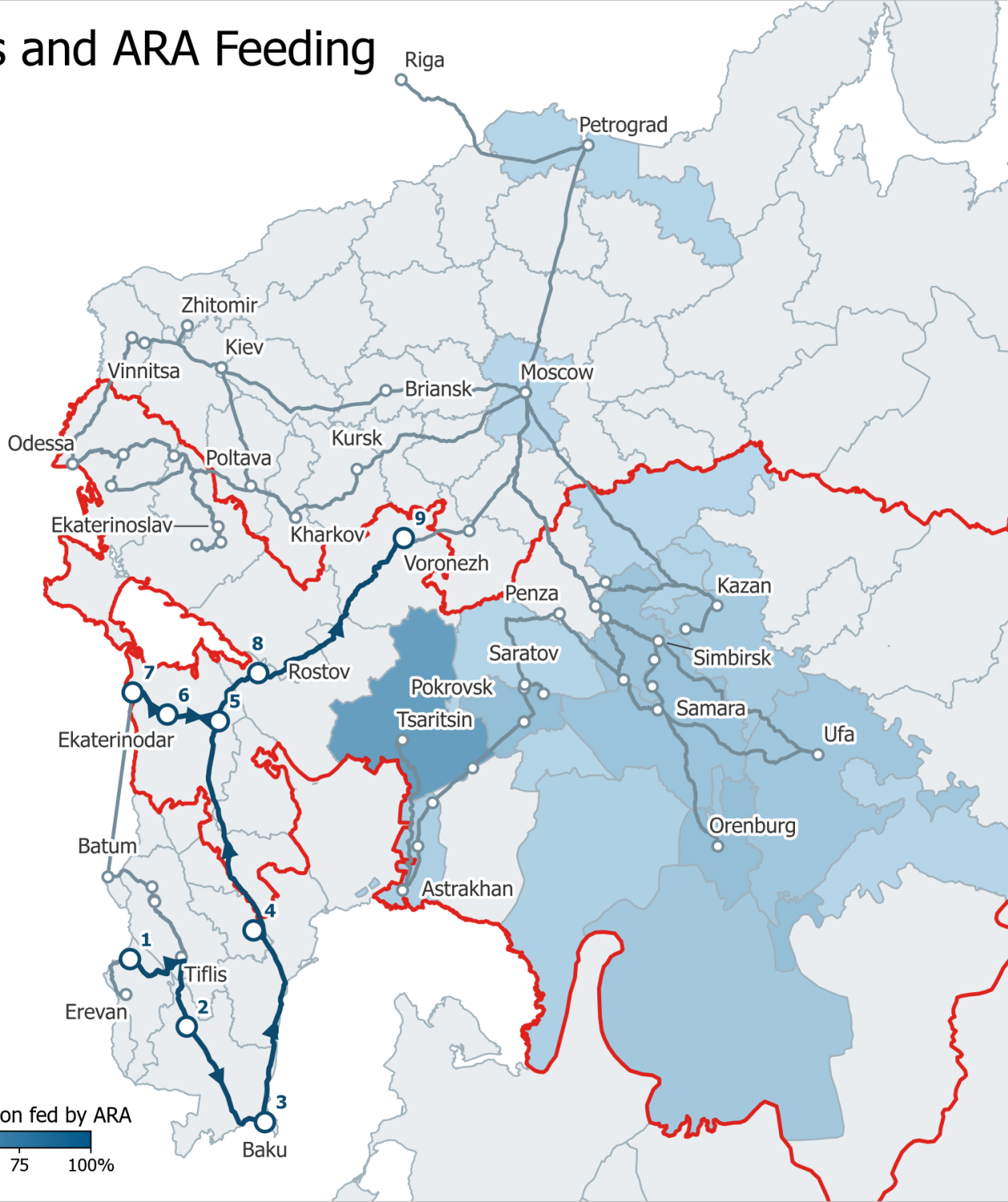
5 Tikhoretskaia · 8 Mar. 1922

6 Ekaterinodar · 9 Mar. 1922

7 Novorossisk · 10 Mar. 1922

8 Rostov-on-the Don · 10 Mar. 1922

9 Voronezh · 12 Mar. 1922



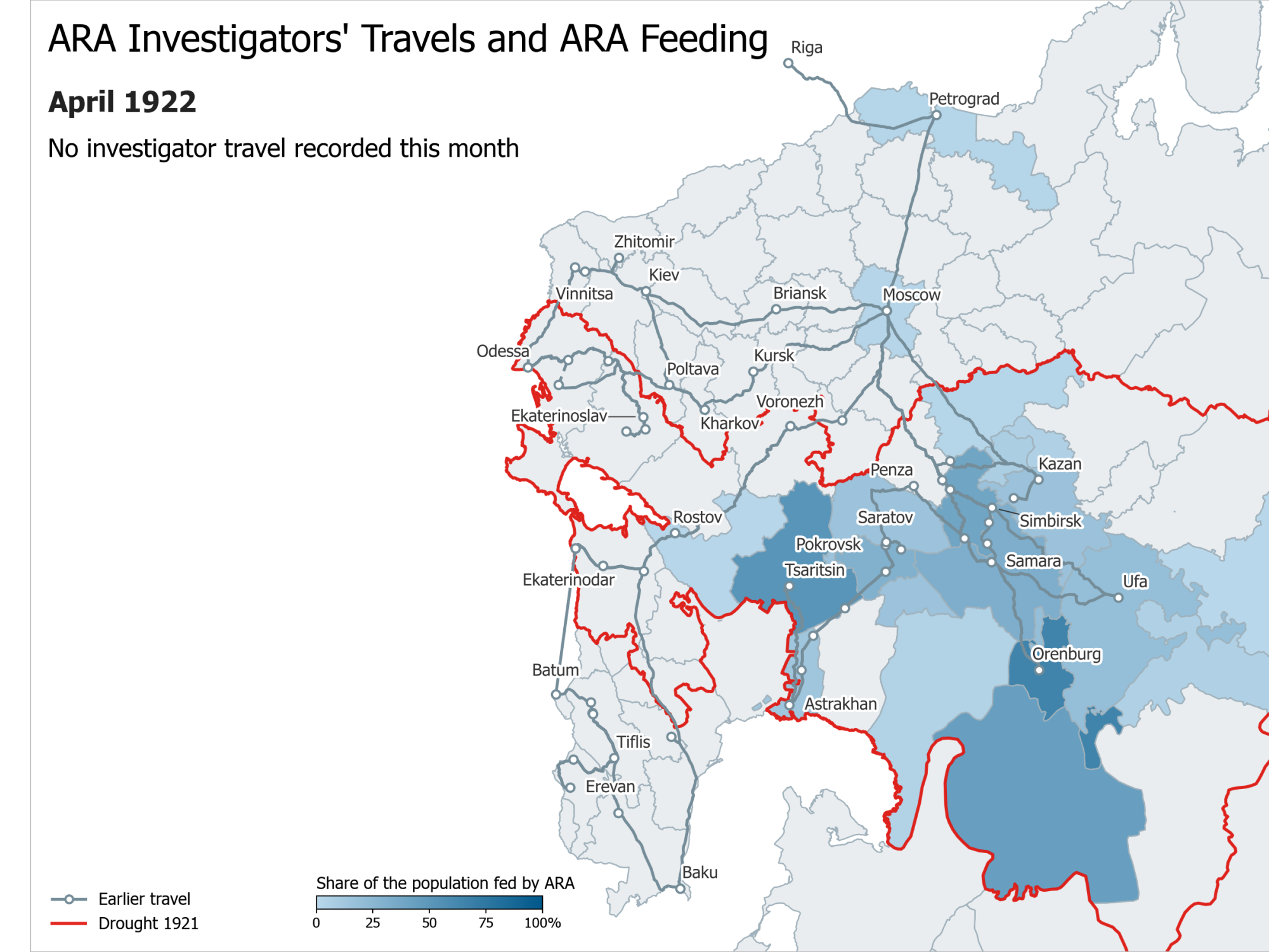
Travel in March 1922
Earlier travel
Drought 1921

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ARA Investigators' Travels and ARA Feeding

April 1922

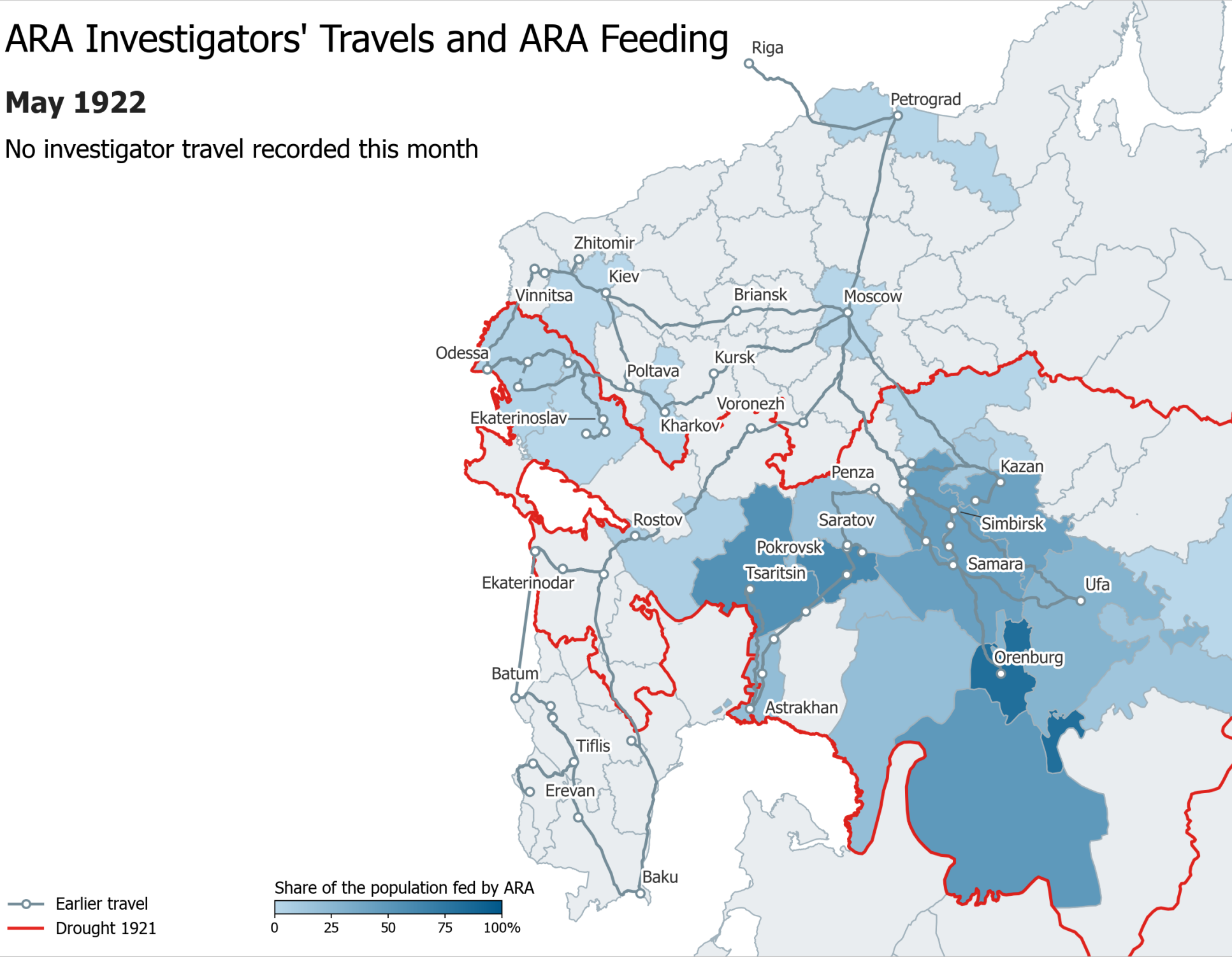
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

May 1922

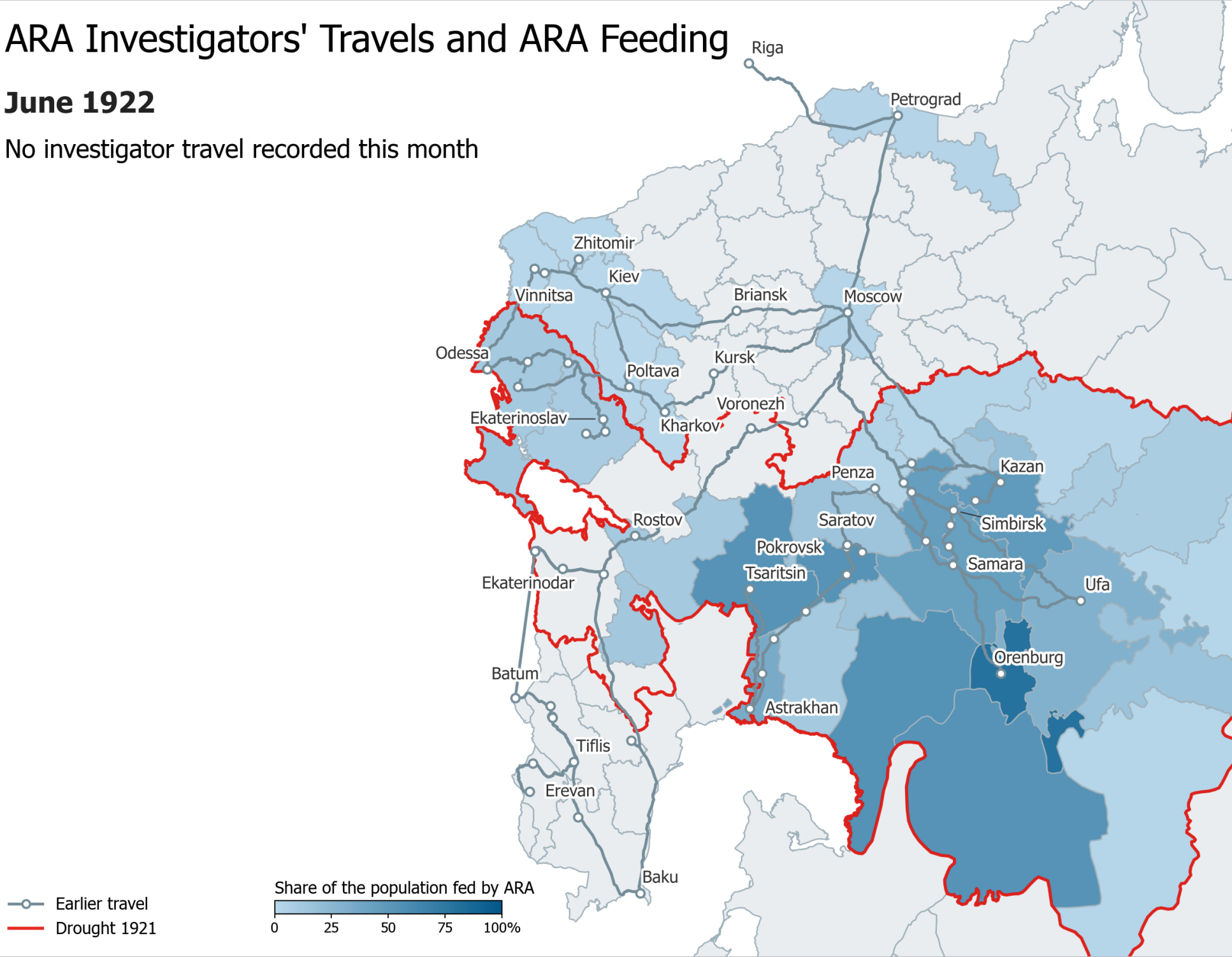
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

June 1922

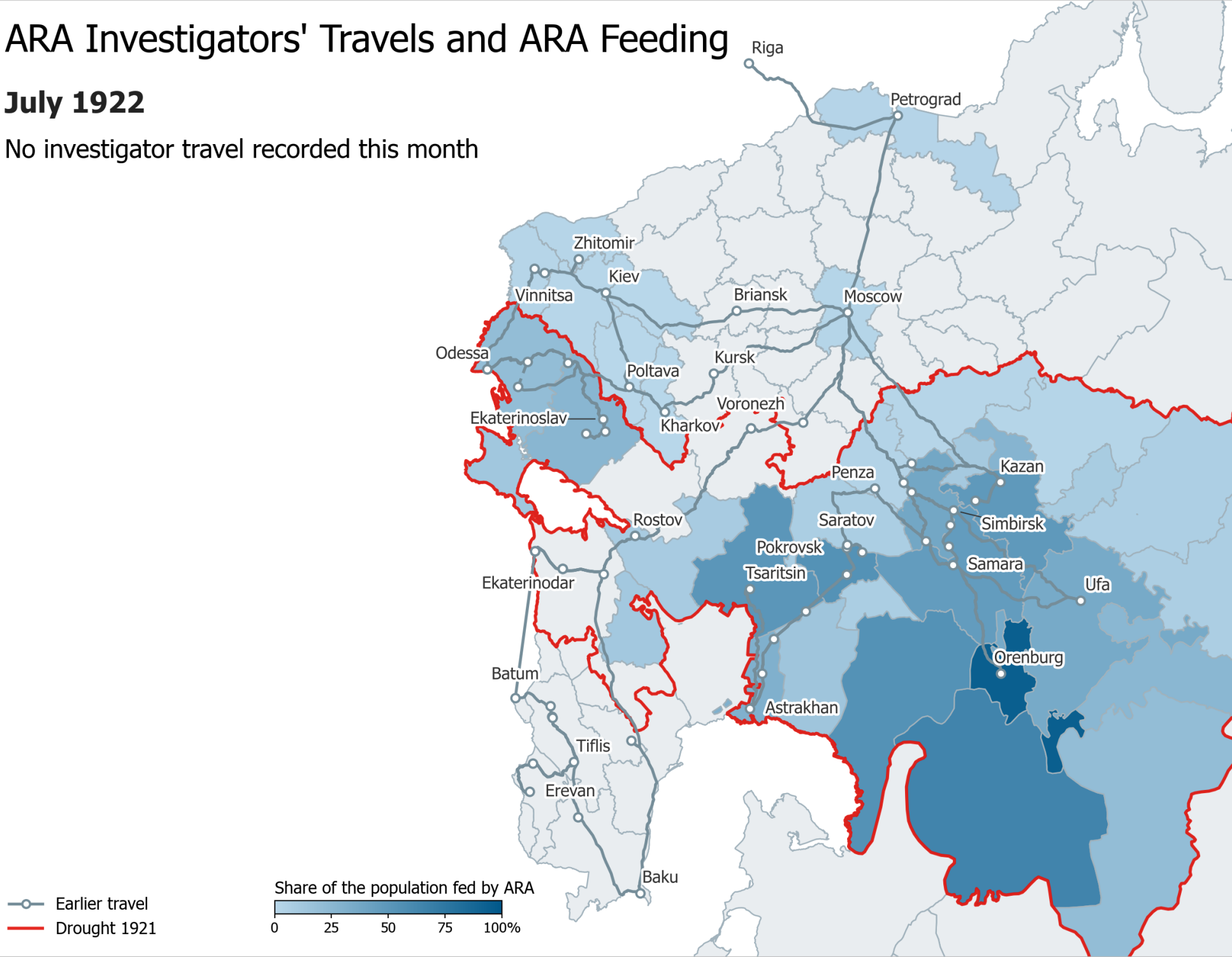
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

July 1922

No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

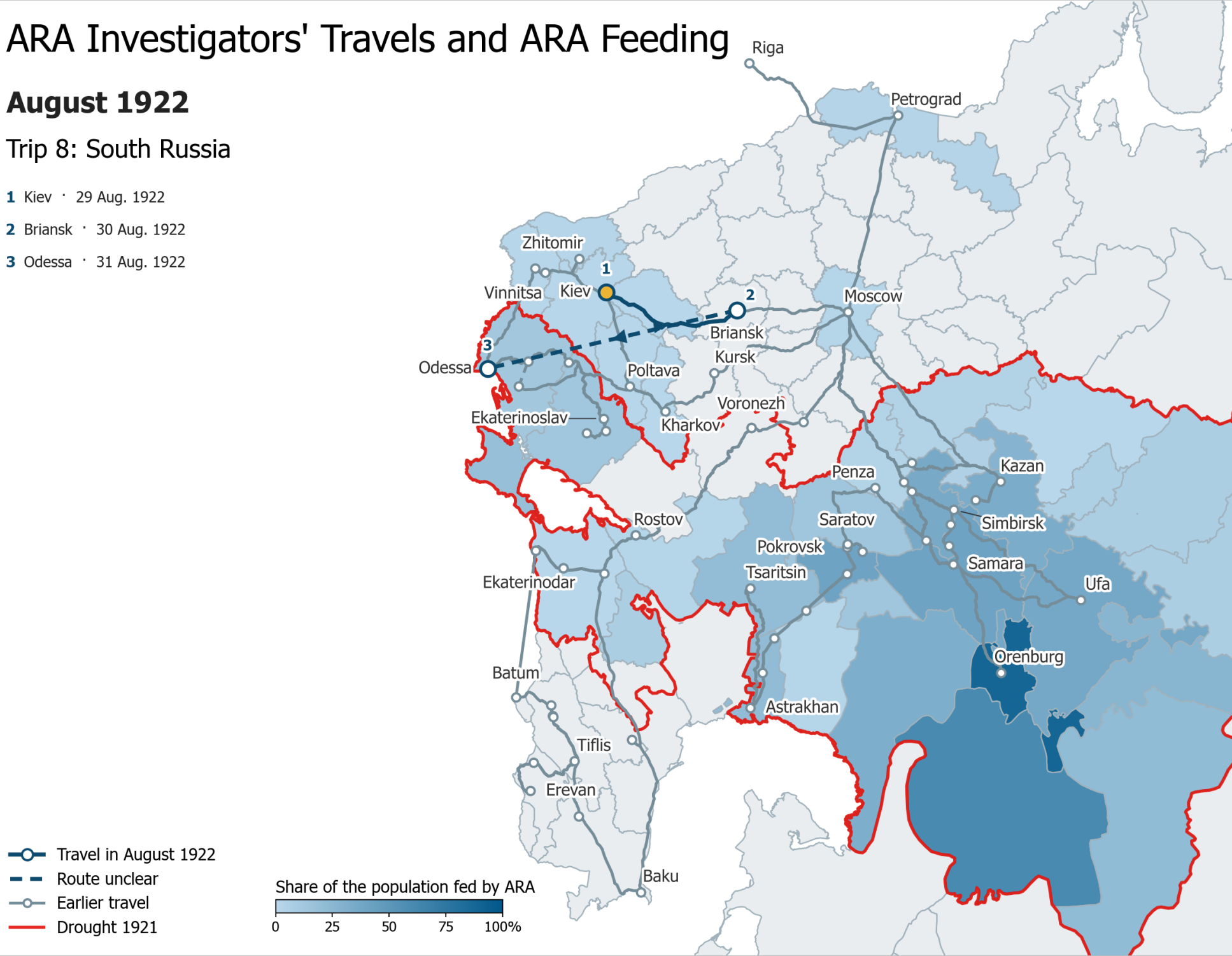
August 1922

Trip 8: South Russia

1 Kiev · 29 Aug. 1922

2 Briansk · 30 Aug. 1922

3 Odessa · 31 Aug. 1922



ARA Investigators' Travels and ARA Feeding

September 1922

Trips 8 and 9

Trip 8: South Russia

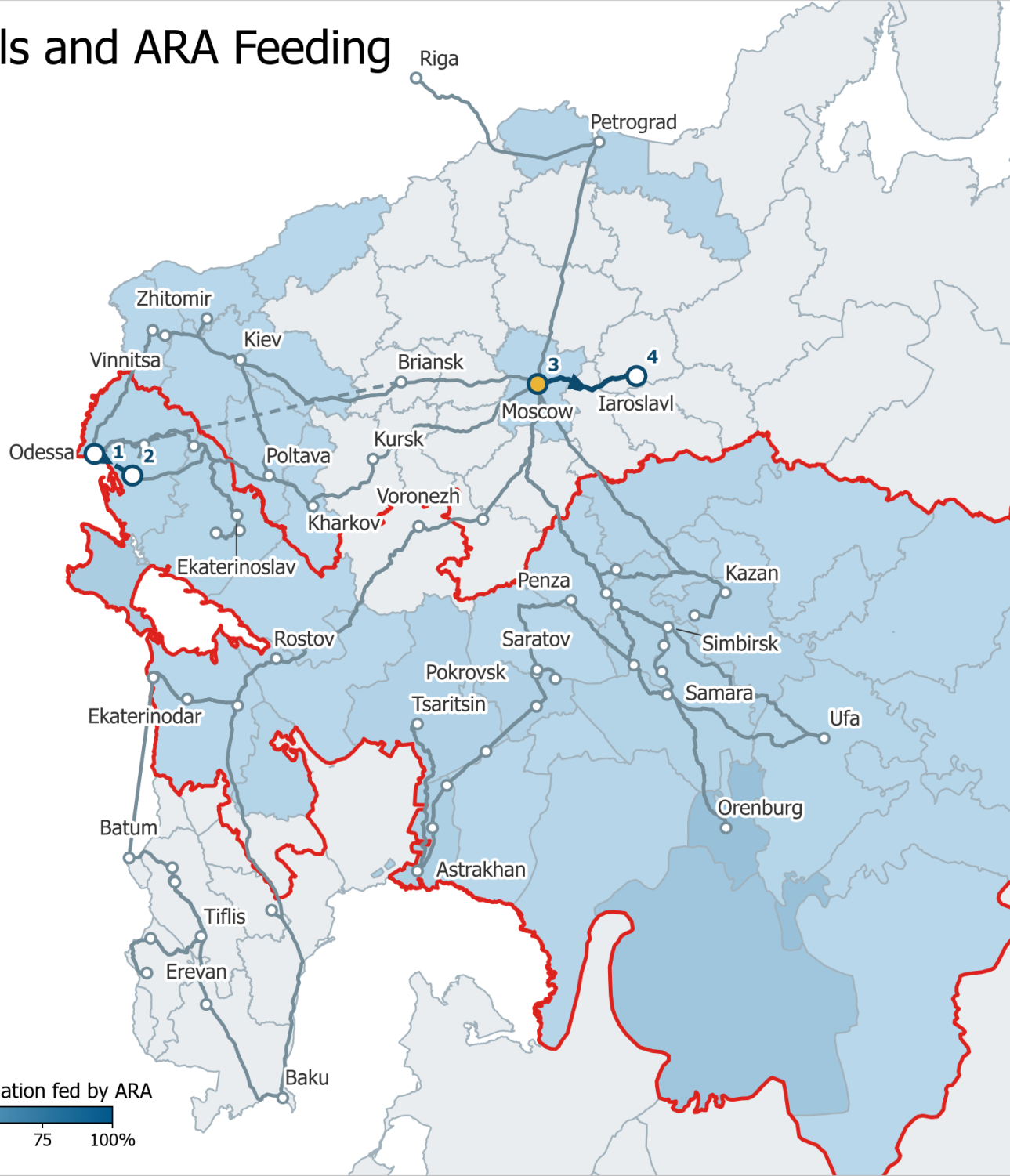
1 Odessa · 31 Aug. 1922

2 Nikolaev · 2 Sep. 1922

Trip 9: Upper Volga

3 Moscow

4 Iaroslav · Sep. 1922



Travel in September 1922
Route unclear
Earlier travel
Drought 1921

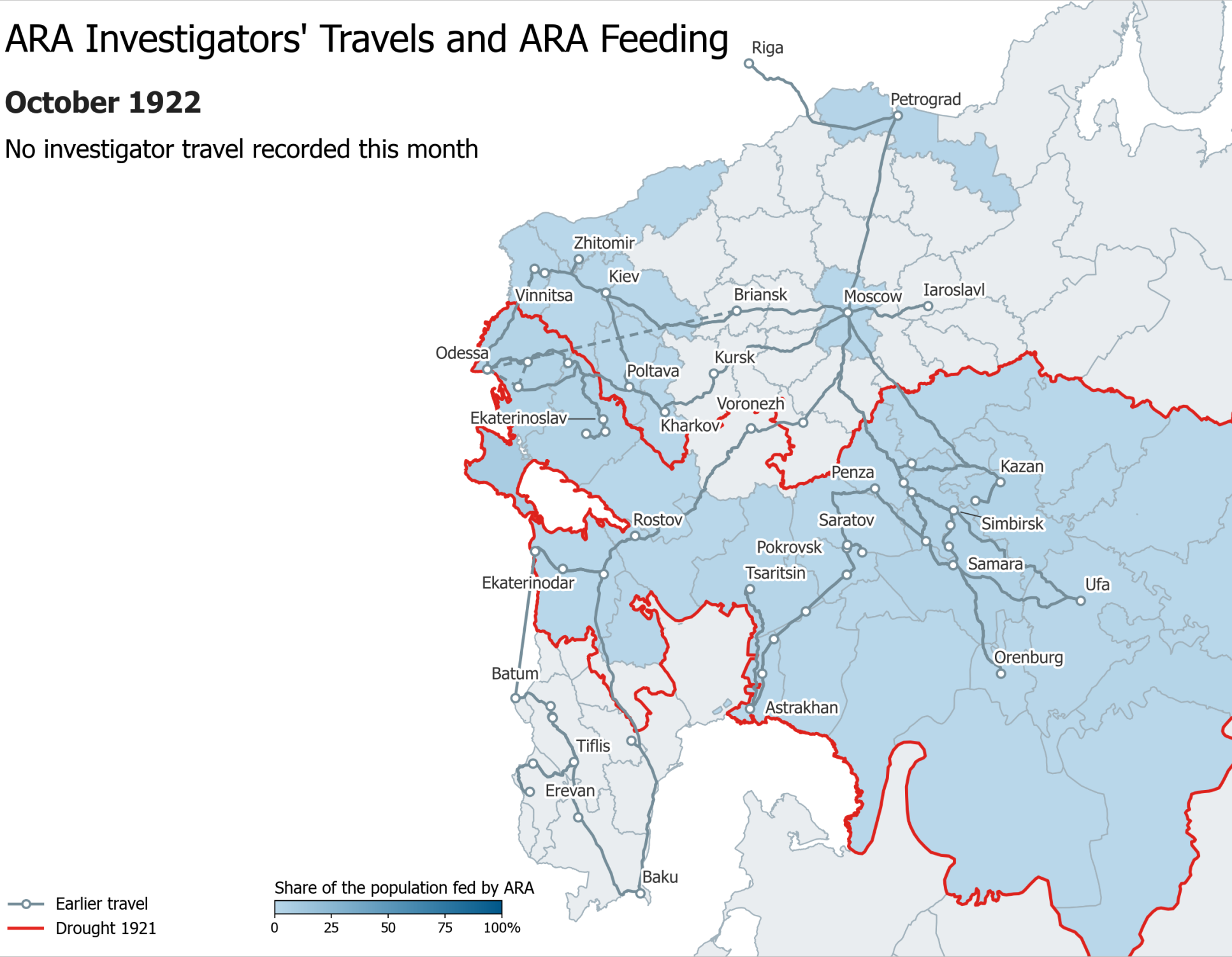
Share of the population fed by ARA

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ARA Investigators' Travels and ARA Feeding

October 1922

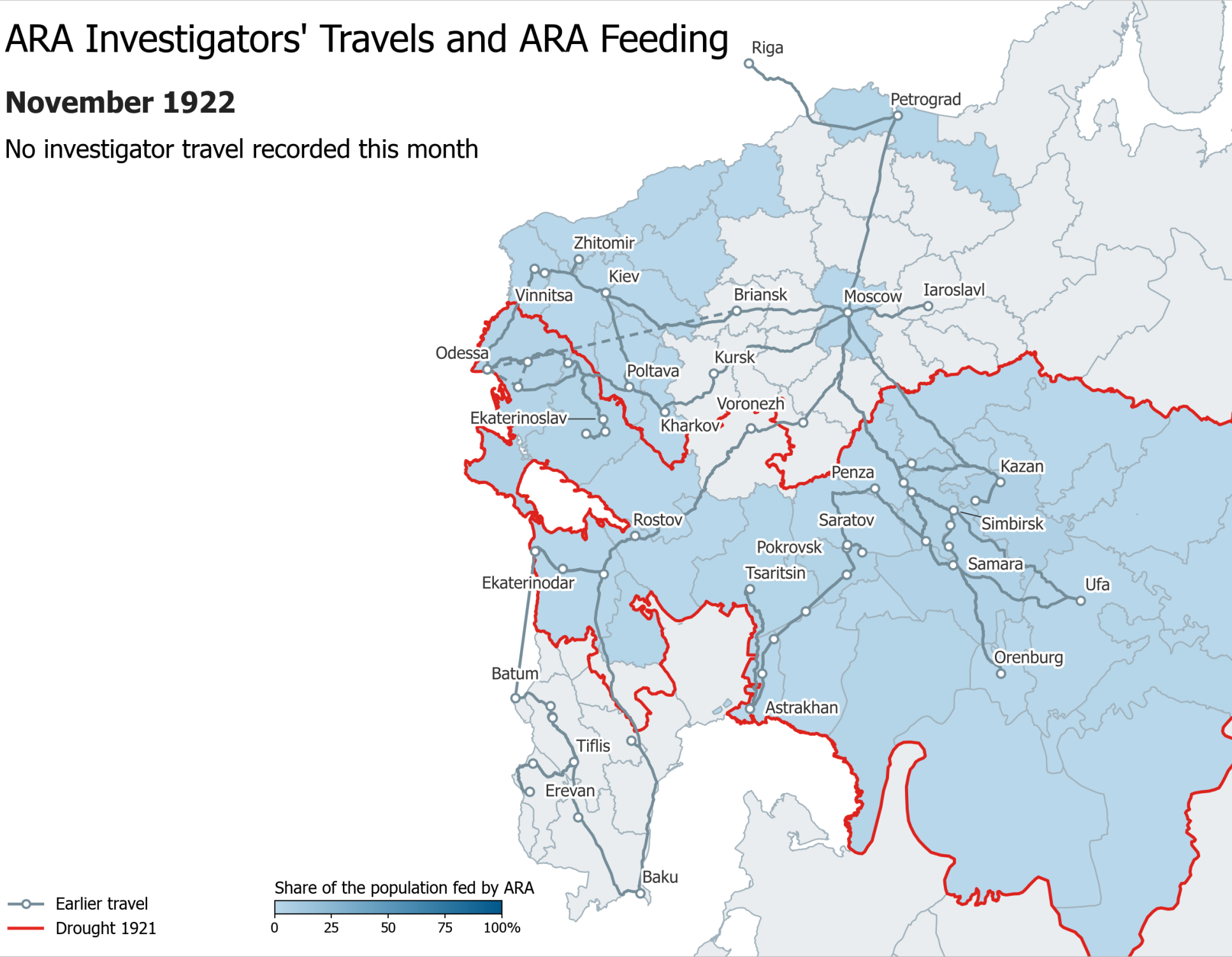
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

November 1922

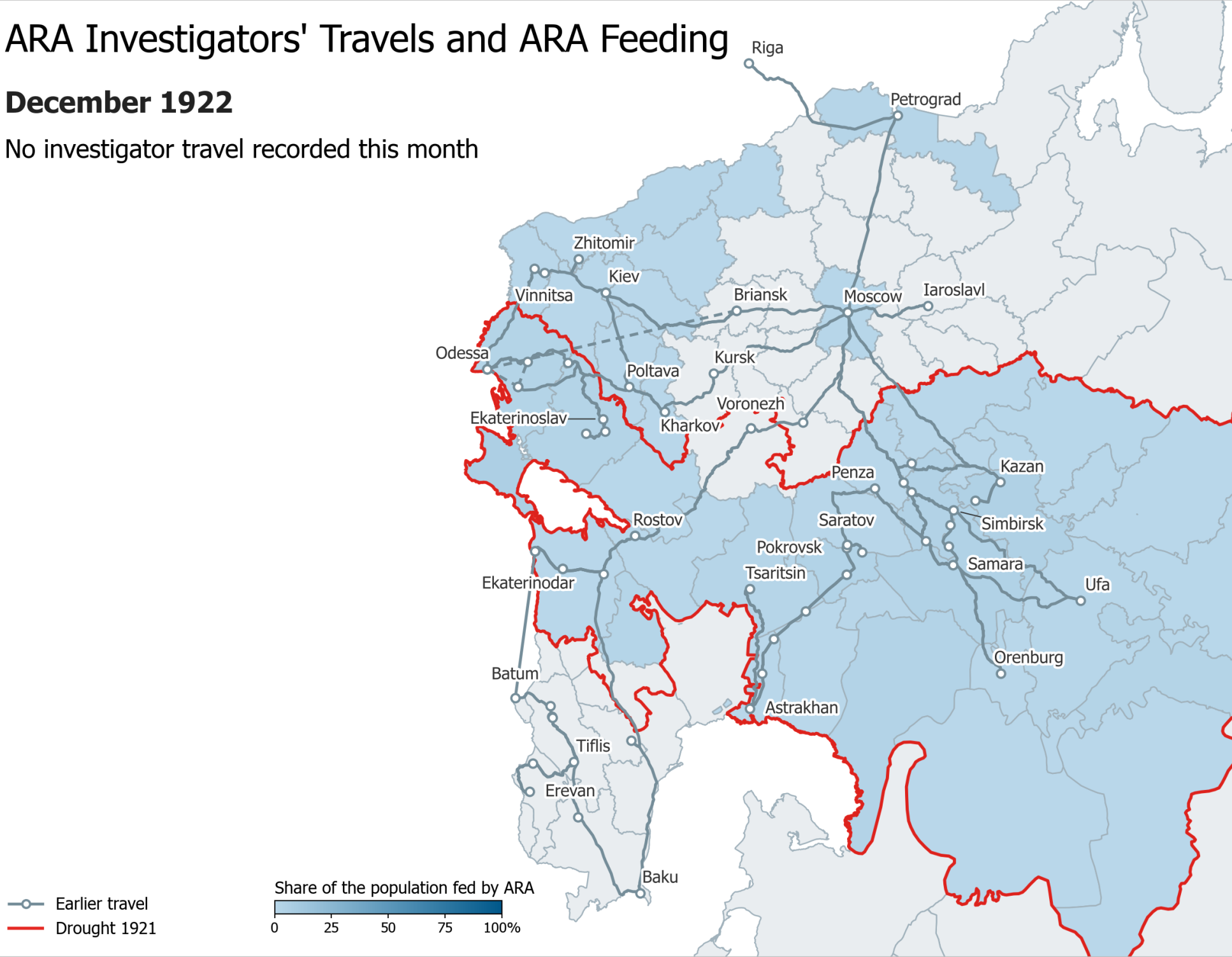
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

December 1922

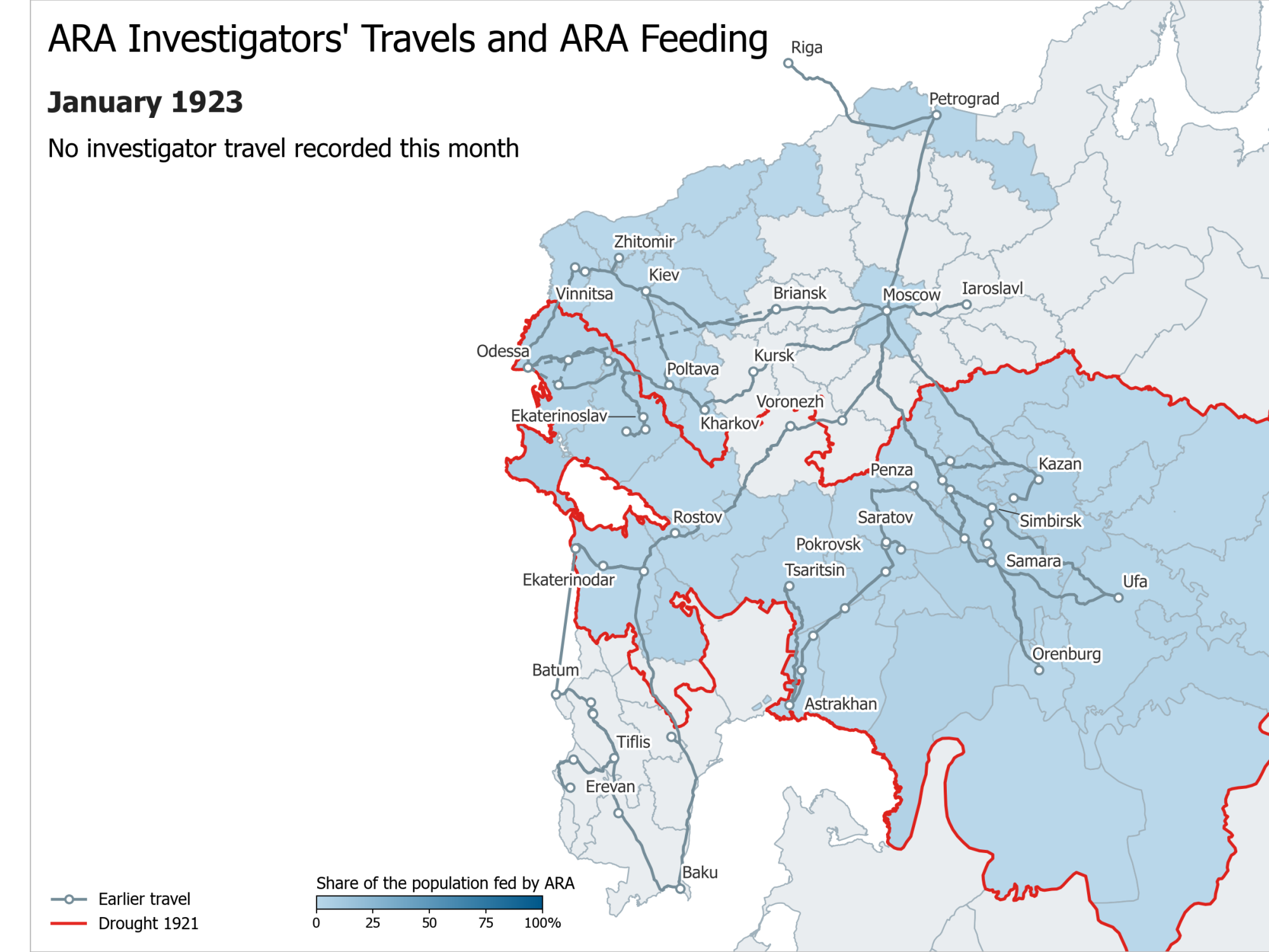
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

January 1923

No investigator travel recorded this month



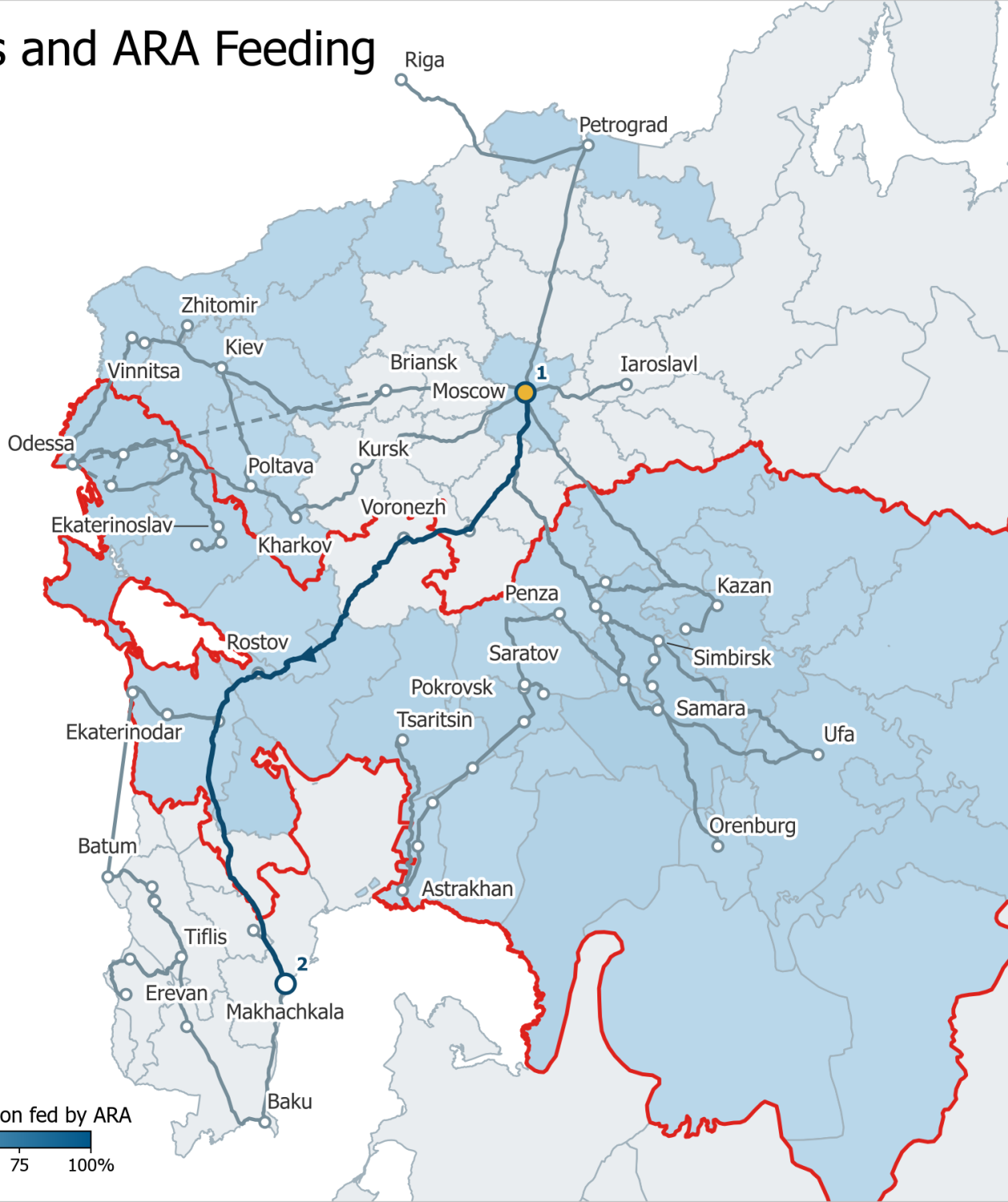
ARA Investigators' Travels and ARA Feeding

February 1923

Trip 10: Dagestan

1 Moscow

2 Dagestan · 16 Feb. 1923



Travel in February 1923
Earlier travel
Drought 1921

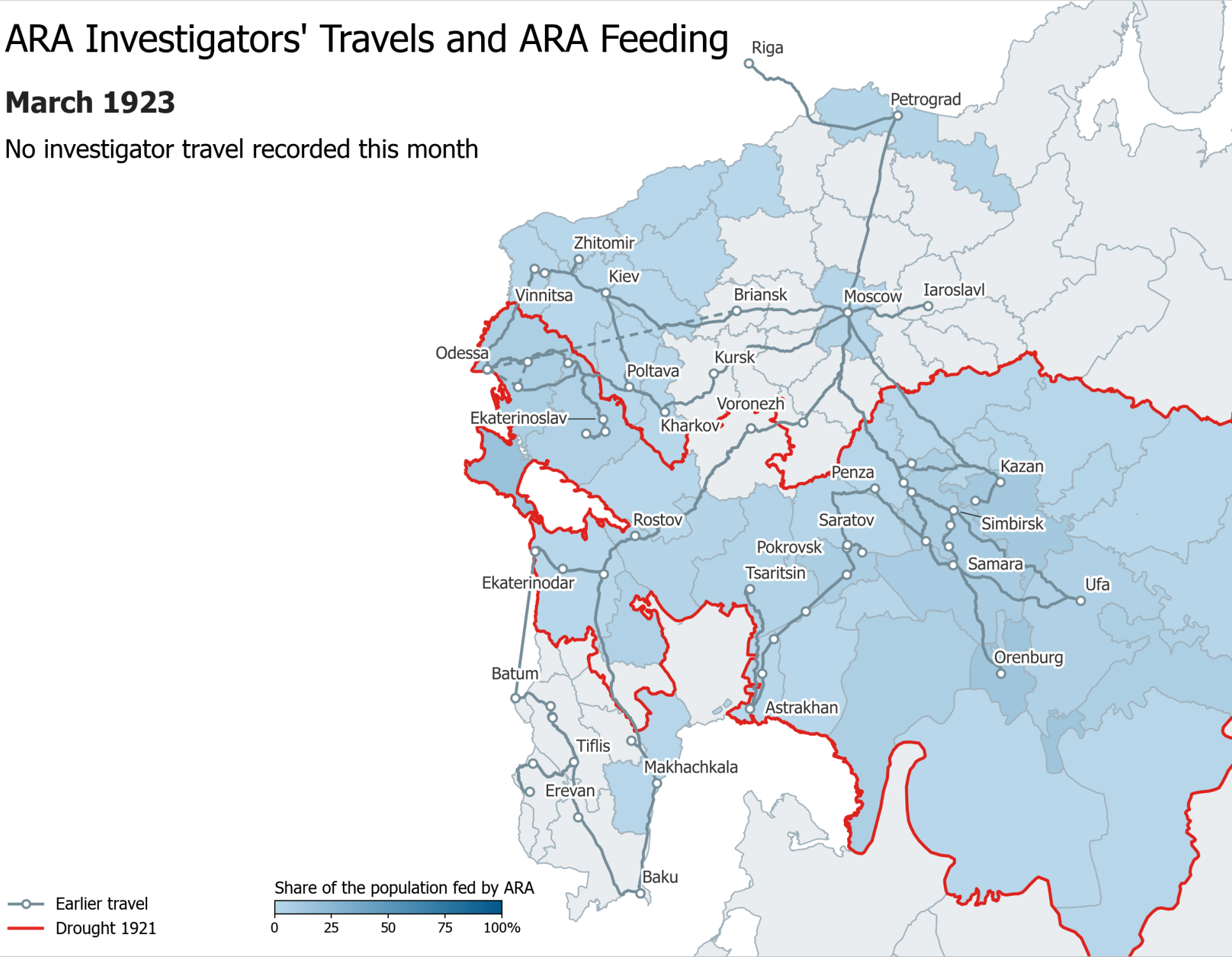
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ARA Investigators' Travels and ARA Feeding

March 1923

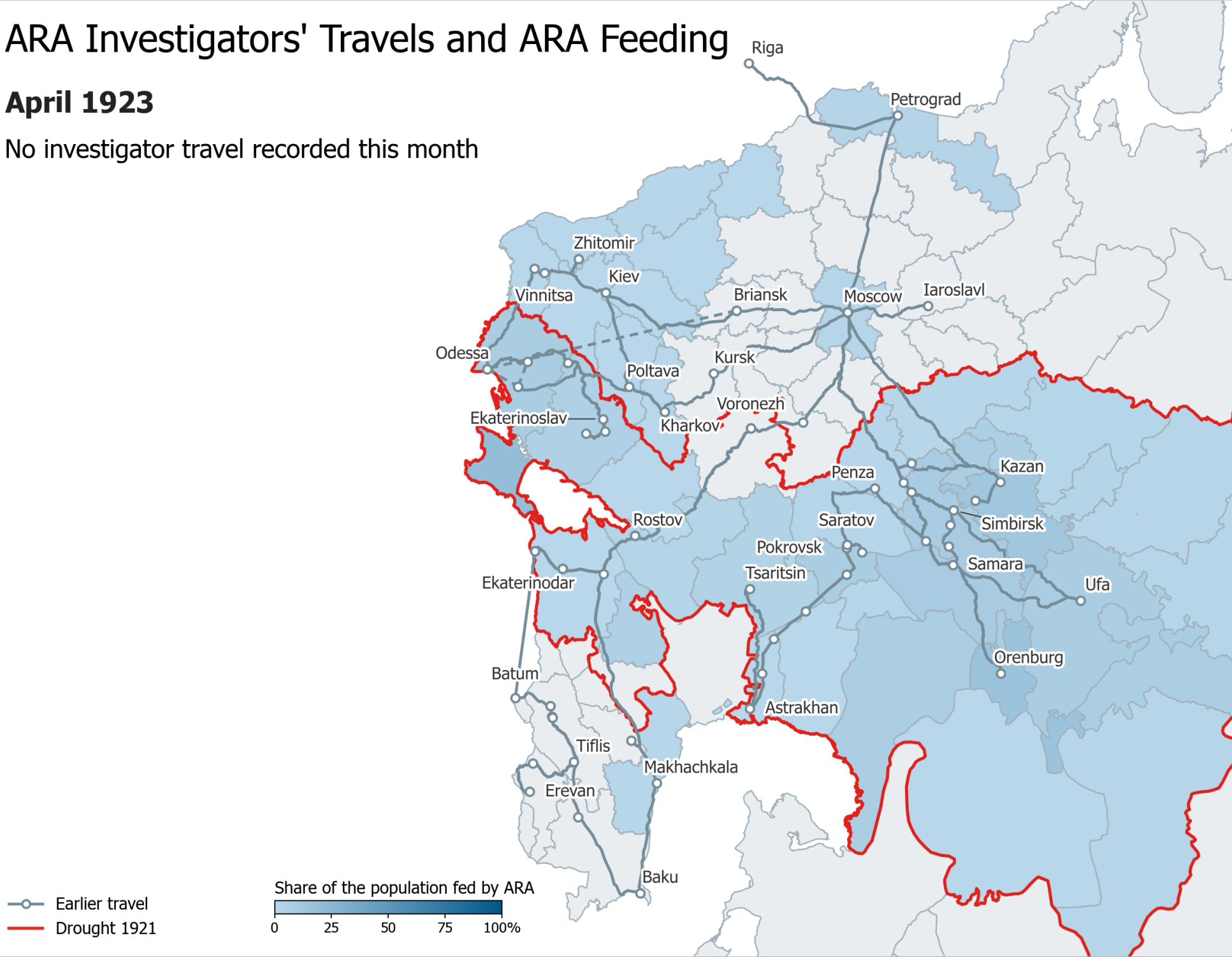
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

April 1923

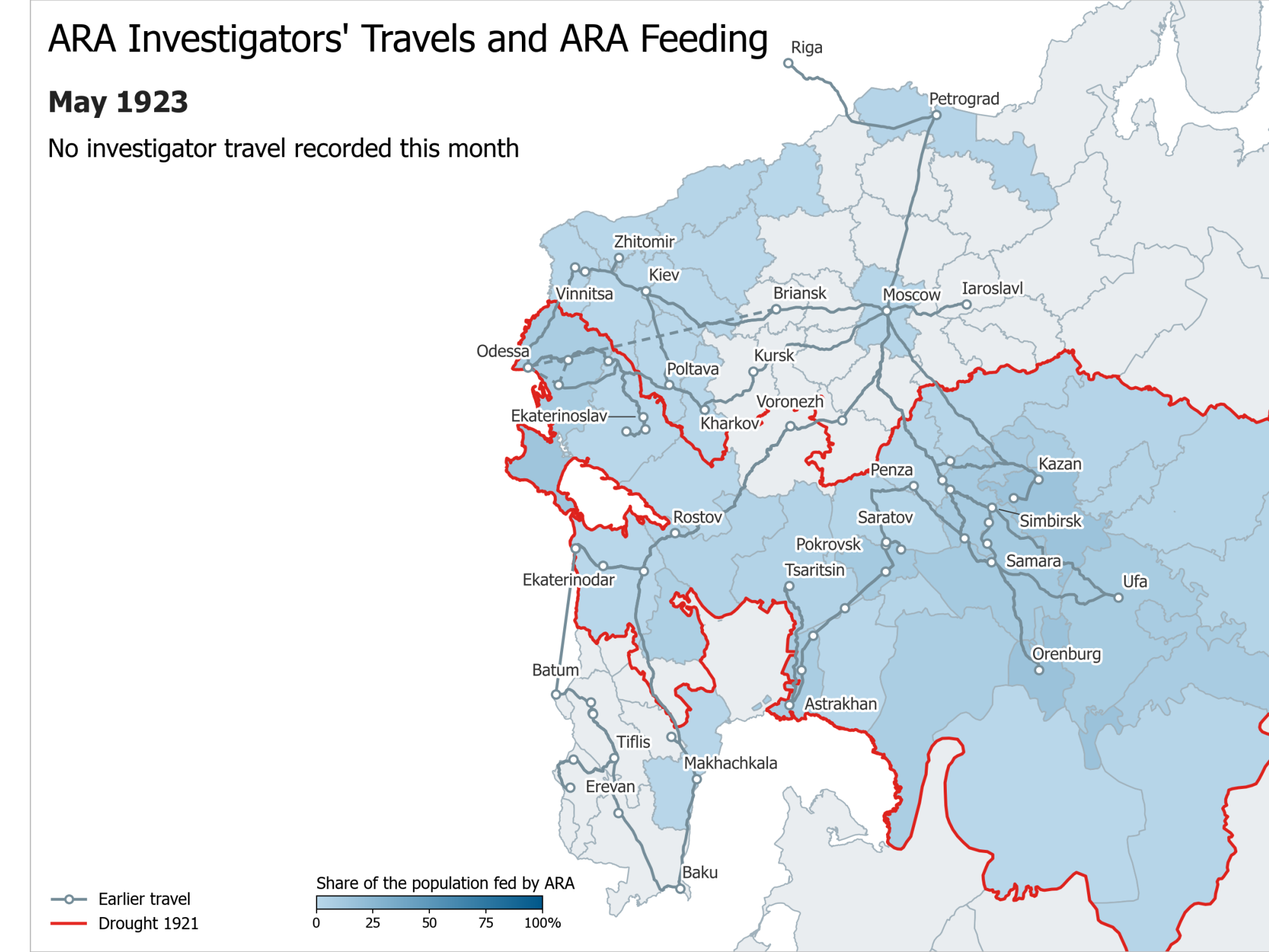
No investigator travel recorded this month



ARA Investigators' Travels and ARA Feeding

May 1923

No investigator travel recorded this month



ARA Operations: 199 Americans, 120,000 Local Staff

- **Americans traveled widely to see conditions firsthand**
- **Relied on local participation and information**
  - Local committees set up kitchens and listed recipients
  - Children were fed in ARA-run soup kitchens
- **Local staff hired for human capital**
  - Priests and teachers, not mere party members (Fisher 1927)
  - But the Cheka planted informers among them (Smith 2019)
- **Severe operating challenges**
  - Broken transport: no port warehouses, few railcars, little fuel
  - Secret police arrested and intimidated the ARA's Russian staff
  - Soviets tried to restrict where Americans went (Ukraine)
  - Armed bands and small-scale theft reported

ARA Soup Kitchen



Outline

Background

Data and Descriptive Statistics

Results
- Economic Effects
- Demographic Effects
- Heterogeneous Effects
- Political Effects

Conclusion

Data: A New Province-Month Panel, 1919–1924

82 provinces (88% of the 1913 population); most series newly digitized

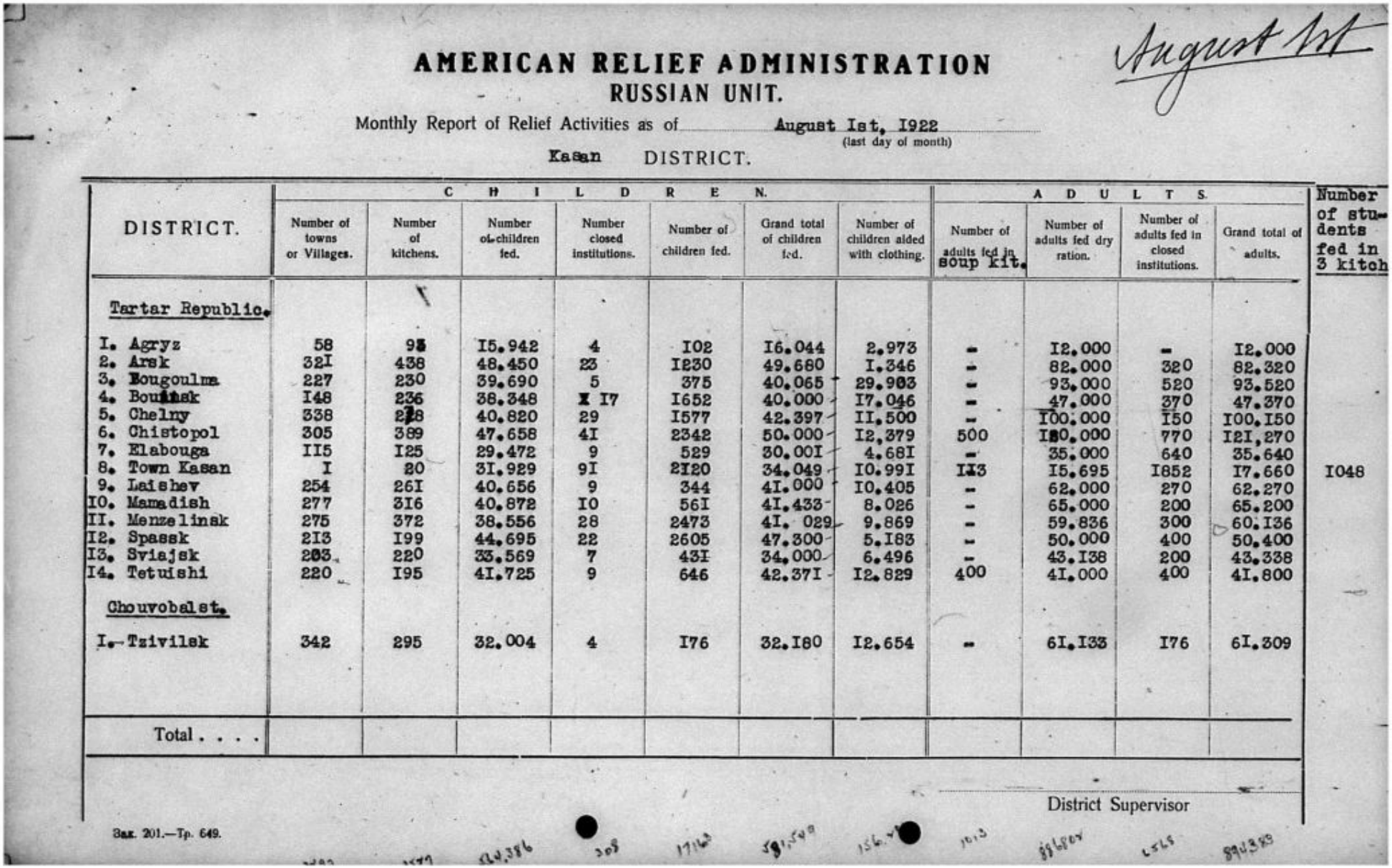
Treatment and controls

- **ARA feeding:** monthly reports, Hoover Institution Archives
- **Agricultural conditions:** 1921 drought losses, harvest, procurement, monthly weather
- **Population:** Aug 1920 census (first use in economics); 1897 census
- **Controls:** 1917 elections, party membership, ethnicity, transport

Outcomes

- **Economic:** monthly rye and other prices; calories from nutrition surveys; monthly new cases of infectious diseases
- **Demographic:** birth cohorts and population, 1926 census
- **Political:** peasant unrest in secret-police reports; elections, 1917–29; counter-revolution convictions, 1917–27; first names of 38 mln WWII soldiers

Feeding Data Example



AMERICAN RELIEF ADMINISTRATION
RUSSIAN UNIT.

August 1st

Monthly Report of Relief Activities as of August 1st, 1922
(last day of month)

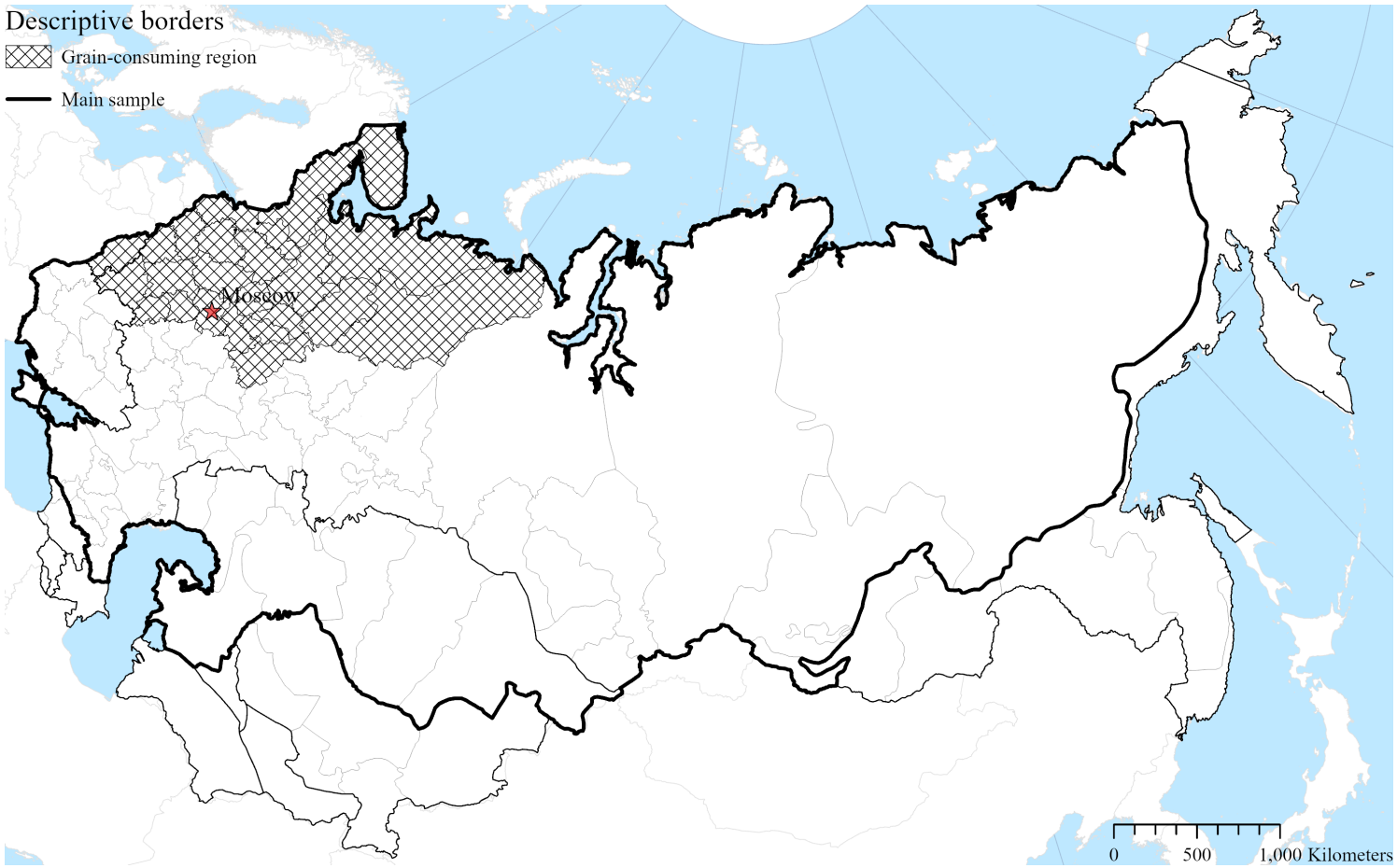
Kasan DISTRICT.

DISTRICT.	CHILDREN. Number of towns or Villages.	Number of kitchens.	Number of children fed.	Number closed institutions.	Number of children fed.	Grand total of children fed.	Number of children aided with clothing.	ADULTS. Number of adults fed in soup kit.	Number of adults fed dry ration.	Number of adults fed in closed institutions.	Grand total of adults.	Number of students fed in 3 kitch
Tartar Republic.												
I. Agryz	58	95	I5.942	4	I02	I6.044	2.973	-	I2.000	-	I2.000	
2. Arsk	32I	438	48.450	23	I230	49.680	I.346	-	82.000	320	82.320	
3. Bougoulma	227	230	39.690	5	375	40.065	29.903	-	93.000	520	93.520	
4. Bouinsk	I48	236	38.348	X I7	I652	40.000	I7.046	-	47.000	370	47.370	
5. Chelny	338	238	40.820	29	I577	42.397	II.500	-	I00.000	I50	I00.I50	
6. Chistopol	305	389	47.658	4I	2342	50.000	I2.379	500	I80.000	770	I2I.270	
7. Elabouga	II5	I25	29.472	9	529	30.00I	4.68I	-	35.000	640	35.640	
8. Town Kasan	I	20	3I.929	9I	2I20	34.049	I0.99I	II3	I5.695	I852	I7.660	I048
9. Laishev	254	26I	40.656	9	344	4I.000	I0.405	-	62.000	270	62.270	
I0. Mamadish	277	3I6	40.872	I0	56I	4I.433	8.026	-	65.000	200	65.200	
II. Menzelinsk	275	372	38.556	28	2473	4I. 029	9.869	-	59.836	300	60.I36	
I2. Spassk	2I3	I99	44.695	22	2605	47.300	5.I83	-	50.000	400	50.400	
I3. Sviajsk	203	220	33.569	7	43I	34.000	6.496	-	43.I38	200	43.338	
I4. Tetuishi	220	I95	4I.725	9	646	42.37I	I2.829	400	4I.000	400	4I.800	
Chouvobalst.												
I. Tzivilsk	342	295	32.004	4	I76	32.I80	I2.654	-	6I.I33	I76	6I.309	
Total												

District Supervisor

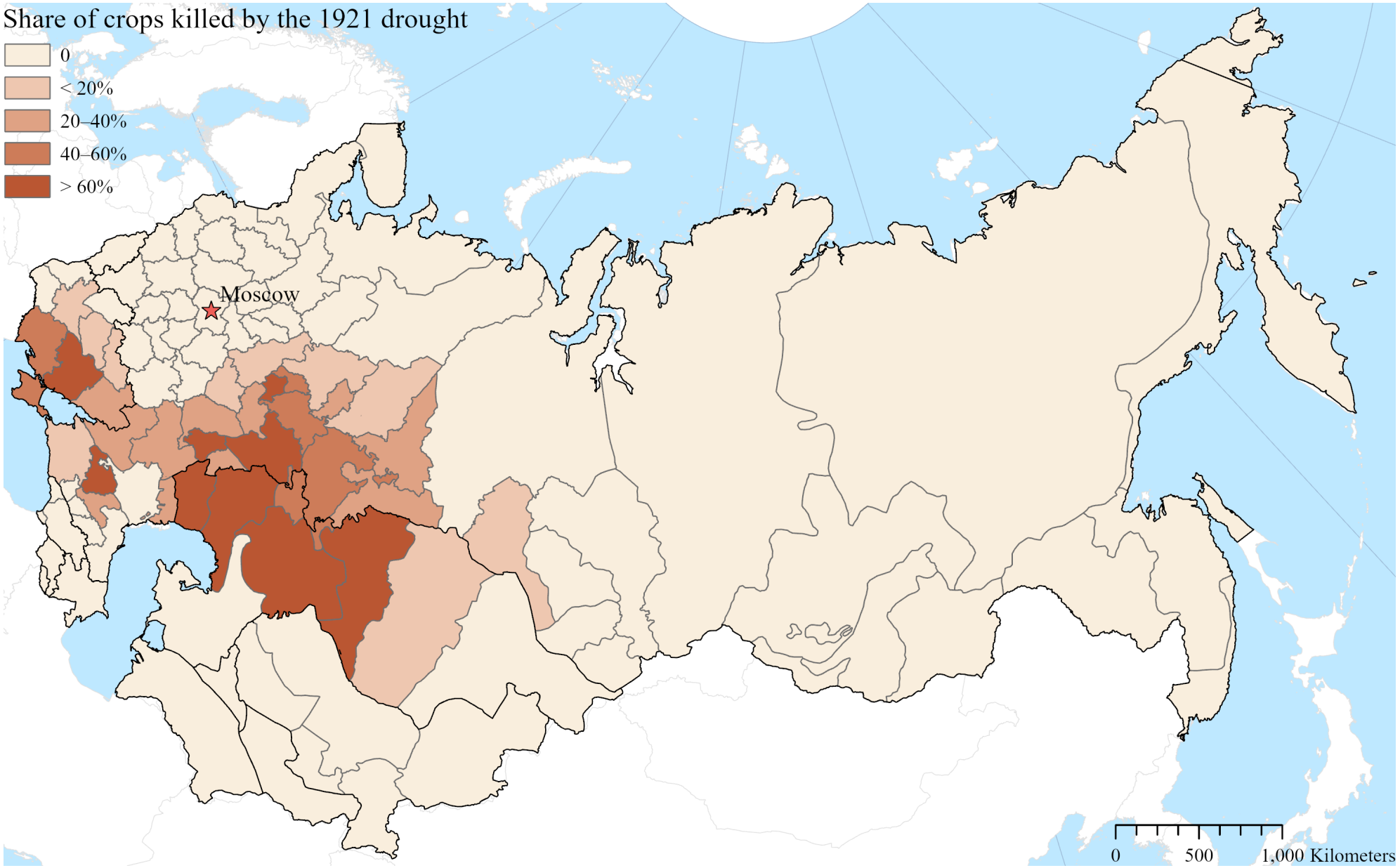
Зак. 201.—Тр. 649.

Provinces Sample and Northern Grain-Consuming Region

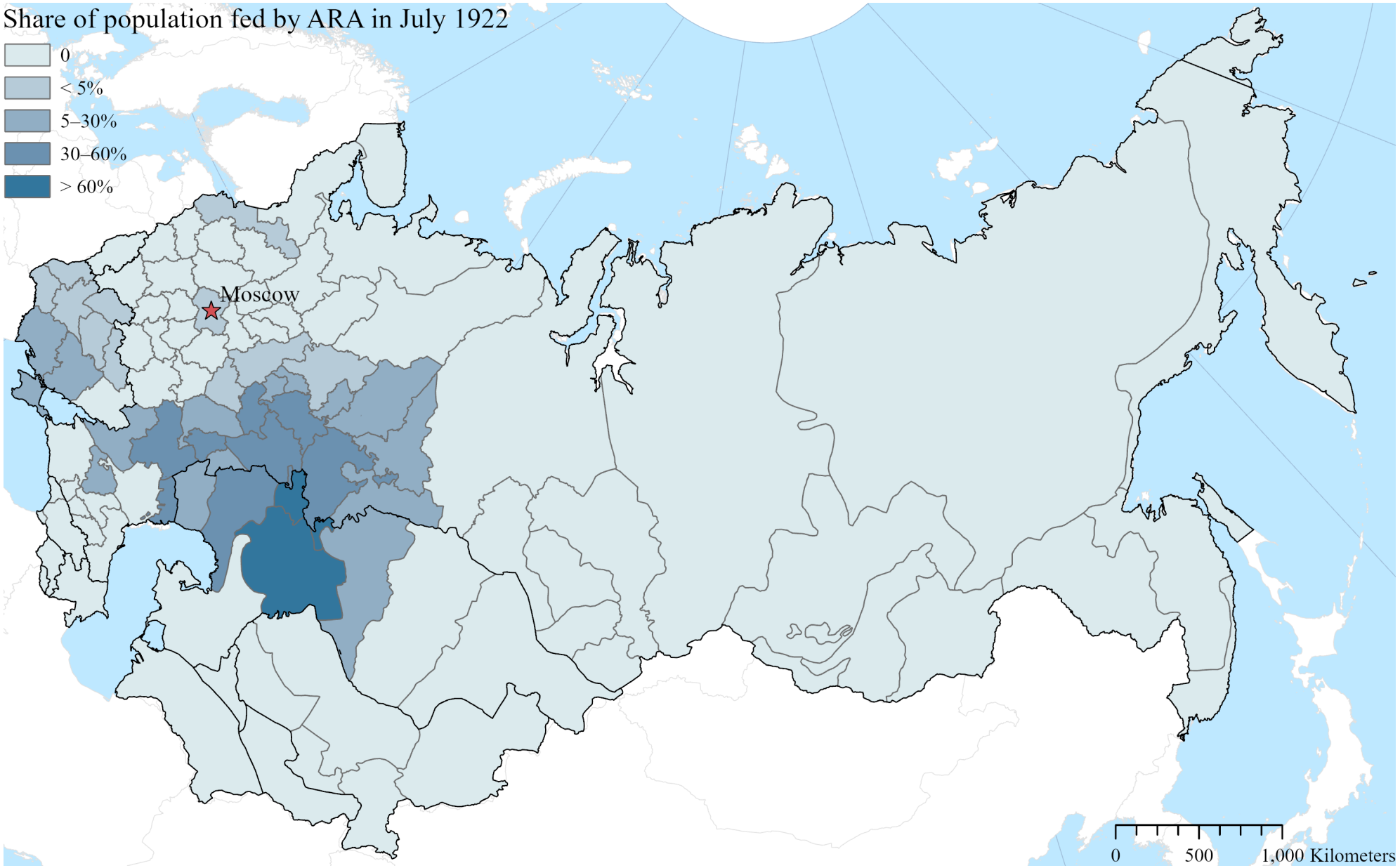


Note: 82 provinces: European Soviet Union, Siberia, Kirgiz republic (present-day Kazakhstan); 88% of the 1913 (or 1897) population. Excludes Soviet Far East, North Caucasus ethnic republics, Armenia, Azerbaijan, Bukhara, Georgia, Turkestan.

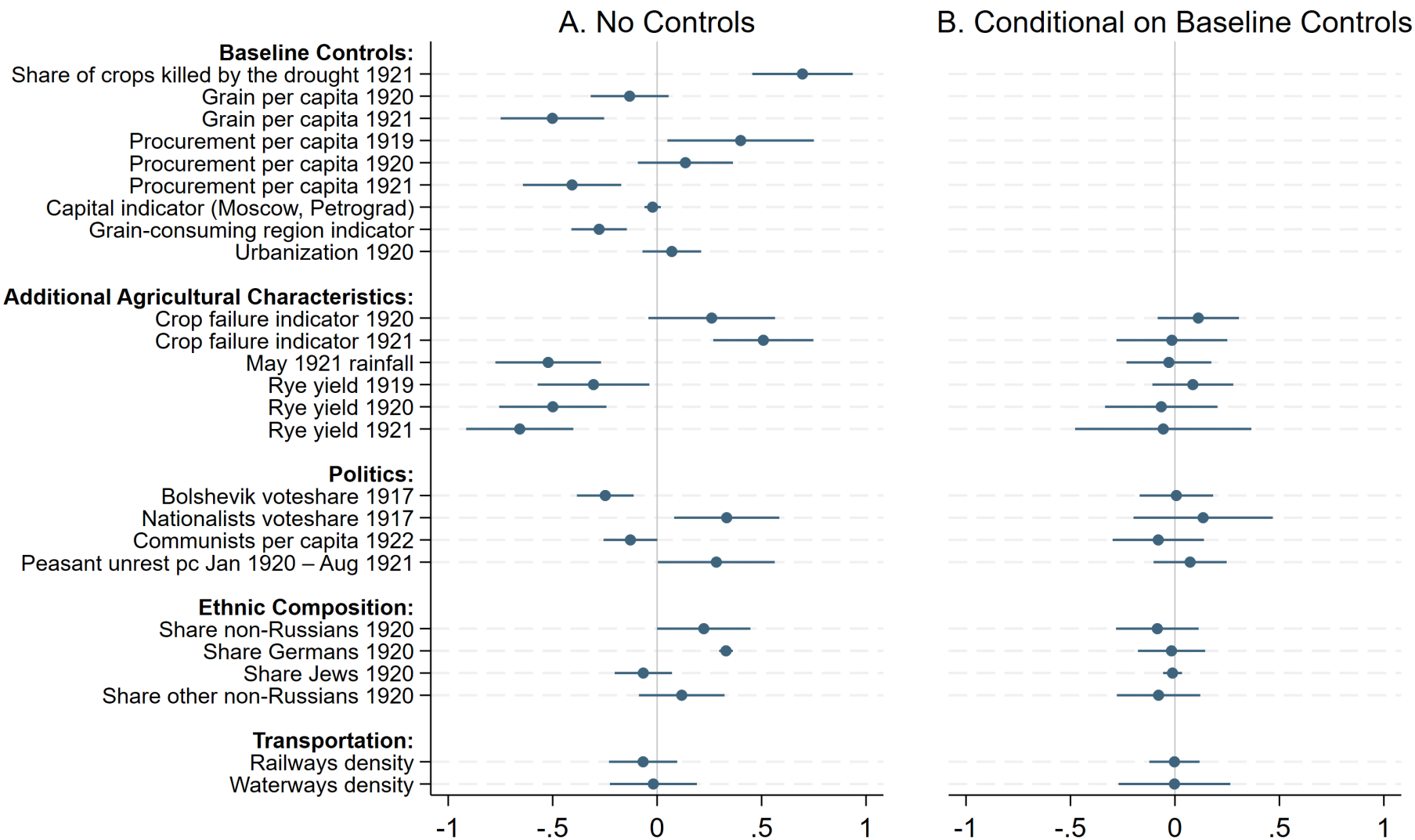
1921 Drought



Peak of ARA Feeding, July 1922



Aid Tracked Famine Severity, Not Politics or Ethnicity



Notes: Standardized coefficients from separate regressions of ARA feeding per capita (Aug 1921–May 1923) on each province characteristic, with 95% CIs (robust SE). Panel A: no controls; Panel B: baseline controls.

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- Political Effects

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Empirical Strategy

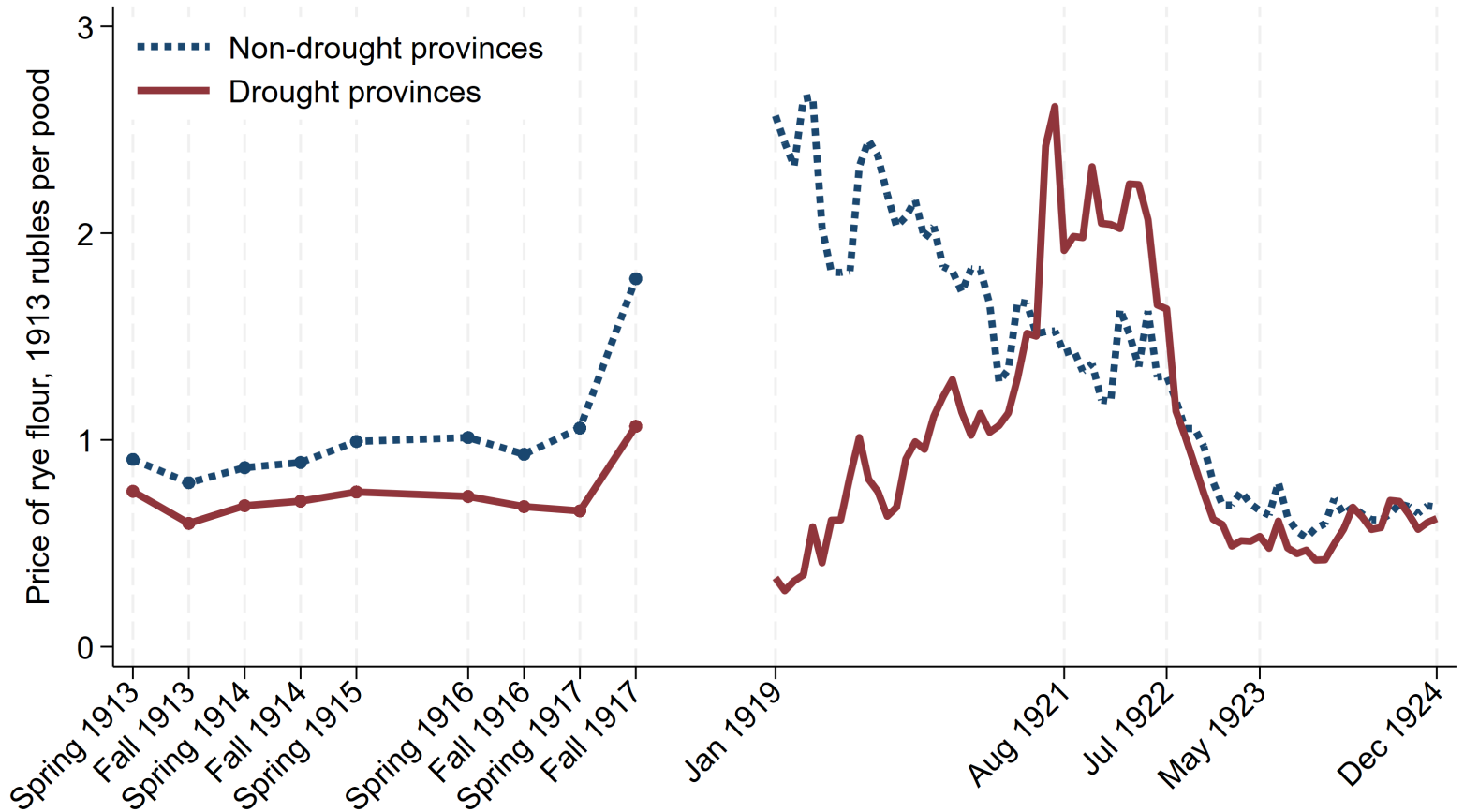
- **Problem:** feeding is endogenous to food shortages (omitted variable)
- **Solution:** shortages change slowly until the Aug 1922 harvest $\Rightarrow$ first differences, separate effects before/after

$$\begin{aligned}\Delta \textit{food price}_{i,t+1} =& \alpha \Delta \textit{feeding}_{i,t} \cdot I[t \leq \text{Aug 1922}] + \\ & \beta \Delta \textit{feeding}_{i,t} \cdot I[t > \text{Aug 1922}] + \gamma_t + X_{it}\delta + \epsilon_{it}\end{aligned}$$

i: province; t: month; $\textit{feeding}_{i,t}$: ARA feeding per capita by the end of the month

- **Controls X_{it}**
  Grain pc, procurement pc (year Y applies Sep Y–Aug $Y+1$); $\times$ month FE: 1921 drought crop losses, grain-consuming region, capital province, 1920 urbanization
- **If ARA fed more where shortages worsened: lower bound**

Average Food Prices



Note: Monthly province-level bazaar prices of rye flour (the staple food), Jan 1919–Dec 1924. Coverage: 35 provinces in 1919, 63 in 1921, 74 in 1924. Deflated by the average price of a fixed basket of consumer goods reported by the TsSU (Central Statistical Administration).

ARA Feeding Cut Rye Prices Before the 1922 Harvest

	Δ Log Price of Rye Flour in Month $t+1$			
	Drought × month FE only	Baseline	Price not inflation-adjusted	Fed / 1897 population
Δ Fed pc × Before Aug 1922	**−0.944*** **	**−0.939*** **	**−0.938*** **	**−0.694*** **
	(0.284)	(0.285)	(0.286)	(0.207)
Std. coeff.	−0.145	−0.213	−0.044	−0.214
Δ Fed pc × After Aug 1922	−0.097	−0.202	−0.201	−0.158
	(0.180)	(0.175)	(0.175)	(0.121)
Std. coeff.	−0.005	−0.010	−0.003	−0.011
Observations	2,777	2,155	1,720	2,155
Provinces	75	71	71	71
R^2	0.168	0.238	0.566	0.237
Avg. price, before Aug 1922	1.605	1.600	2,316,358	1.600
Avg. price, after Aug 1922	0.634	0.633	369,700,000	0.633

Notes: Province-month observations. Col. (1) controls only for 1921 drought crop losses × month FE and month FE; cols. (2)–(4) add grain pc, procurement pc, grain-consuming region, capital, and 1920 urbanization × month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Price Effect Robust to Alternative Food Sources

	Δ Log Price of Rye Flour in Month $t+1$				
		Additional controls			
	Baseline	Soviet feeding	Other foreign feeding	Livestock pc 1920	Refugees pc
Δ Fed pc × Before Aug 1922	**−0.939*** **	**−0.939*** **	**−0.937*** **	**−0.951*** **	**−0.905*** **
	(0.285)	(0.285)	(0.312)	(0.281)	(0.241)
Std. coeff.	−0.213	−0.213	−0.213	−0.214	−0.156
Δ Fed pc × After Aug 1922	−0.202	−0.202	−0.158	−0.330	−0.081
	(0.175)	(0.175)	(0.200)	(0.307)	(0.532)
Std. coeff.	−0.010	−0.010	−0.008	−0.017	−0.004
Observations	2,155	2,155	2,155	2,028	2,058
Provinces	71	71	71	63	64
R^2	0.238	0.238	0.245	0.276	0.247
Avg. price, before Aug 1922	1.600	1.600	1.600	1.617	1.595
Avg. price, after Aug 1922	0.633	0.633	0.633	0.631	0.635

Notes: Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. Added controls are interacted with month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

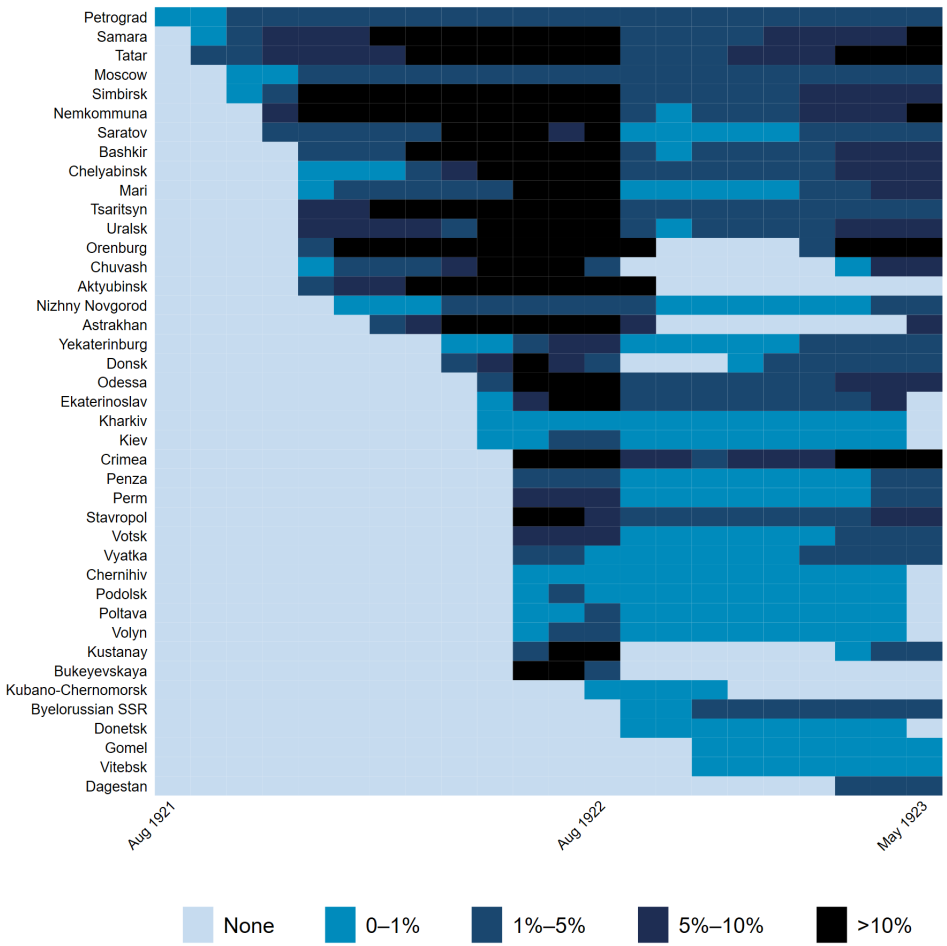
ARA Did Not Target Provinces with Falling Prices

- **Concern:** maybe food prices would have fallen even without the ARA
- The counterfactual is unobservable, **but** we can test whether the ARA **targeted areas that were already improving**
- **Test:** regress the change in feeding in month t+1 on the change in prices in month t

	Δ ARA Fed pc by the End of Month t+1		
Sample:	Full Sep 1921–Apr 1923	Phase 1 Sep 1921–Jul 1922	Phase 2 Aug 1922–Apr 1923
Δ Log rye price in month t	**0.002**	**−0.002**	**0.017**
	(0.004)	(0.004)	(0.012)
Std. coeff.	0.013	−0.016	0.070
Observations	915	516	399
Provinces	68	63	67
R^2	0.535	0.403	0.599

Notes: Province-month observations. Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

When Each Province Started Receiving Aid



Note: Each row is a province; color shows the share of the population fed by the ARA. Feeding starts at different times ⇒ staggered treatment adoption.

Event Studies: Staggered, Continuous Treatment

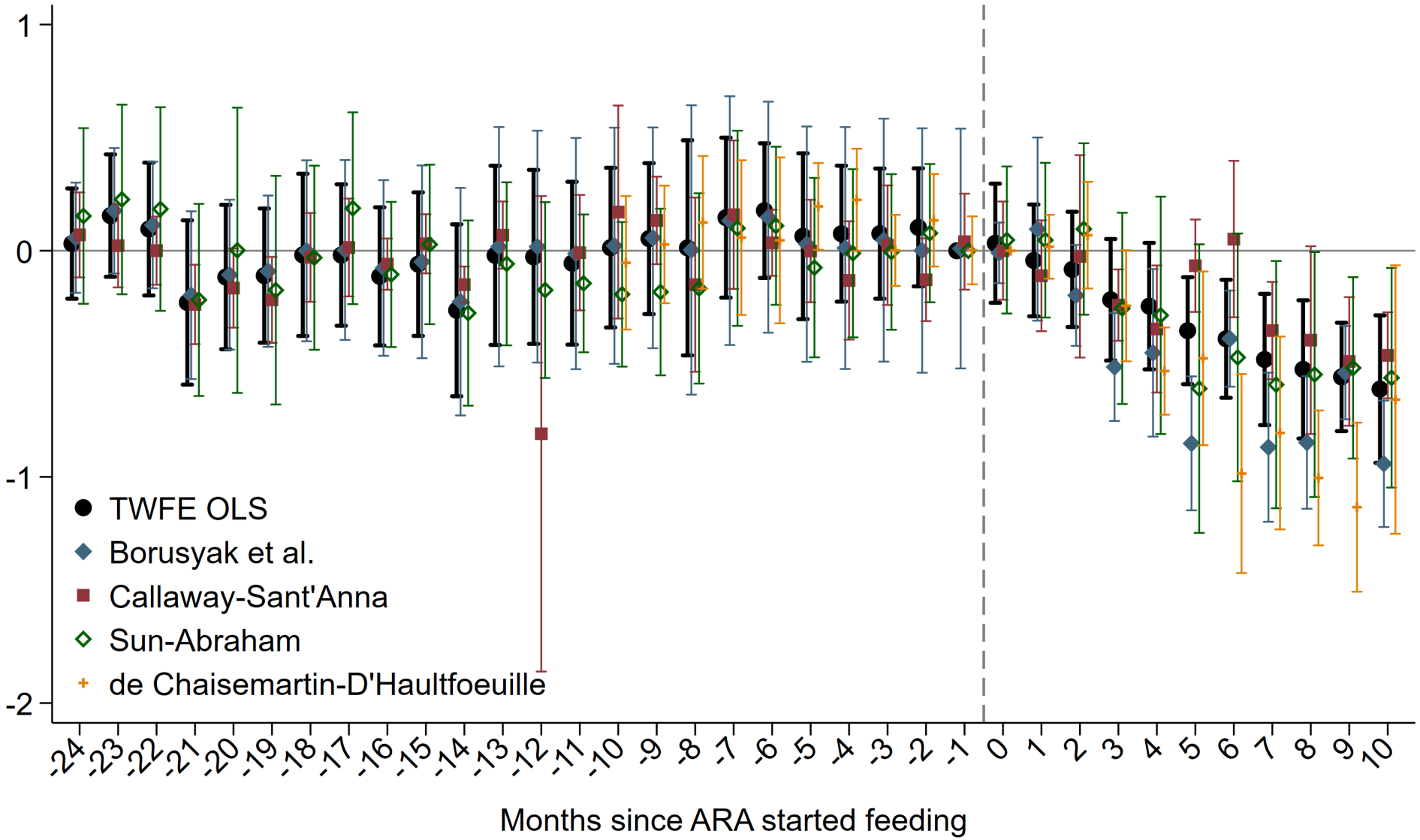
Problem

- With heterogeneous effects, TWFE has two sources of bias:
  - across provinces
  - within a province over time
- Our treatment is continuous and *changes* over time $\Rightarrow$ a fully heterogeneous model is not identified

Our approach

- **Assume:** within-province heterogeneity comes from *changes* in feeding, not from a different effect of the same feeding
- **Binarize** treatment
- **Controls:** 1921 drought crop losses $\times$ month FE; province and month FE
- **Window:** feeding drops after August 1922 $\Rightarrow$ 10 post-treatment periods

Event Studies: Prices Fall by the 3rd Month of Feeding



Staples Got Cheaper; Cotton Cloth and Beef Did Not

	Δ Log Price in Month $t+1$					
	Rye flour (baseline)	Wheat	Potatoes	Oats	Beef	Cotton cloth
Δ Fed pc × Before Aug 1922	**−0.939*** **	**−1.040*** **	**−1.473***	**−2.012*** **	**−0.278**	**0.256**
	(0.285)	(0.239)	(0.770)	(0.711)	(0.402)	(0.325)
Std. coeff.	−0.213	−0.364	−0.231	−0.516	−0.061	0.108
Δ Fed pc × After Aug 1922	−0.202	0.197	0.872	0.073	0.008	−0.280**
	(0.175)	(0.206)	(0.551)	(0.247)	(0.244)	(0.136)
Std. coeff.	−0.010	0.013	0.025	0.004	0.0004	−0.019
Observations	2,155	1,172	2,182	1,921	2,159	1,747
Provinces	71	73	78	76	78	78
R^2	0.238	0.343	0.318	0.274	0.281	0.418
Avg. price, before Aug 1922	1.600	1.677	0.446	0.798	0.074	0.156
Avg. price, after Aug 1922	0.633	0.713	0.285	0.504	0.103	0.265

Notes: Province-month observations. ARA supplied grain but no meat or cloth. Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Additional Robustness

- **Alternative food sources:** Soviet and other foreign feeding, livestock, refugees

  ARA supplied >70% of all relief distributed in June 1922

- **Weather and agricultural controls** ▸ table
- **Political, ethnic, and transportation controls**

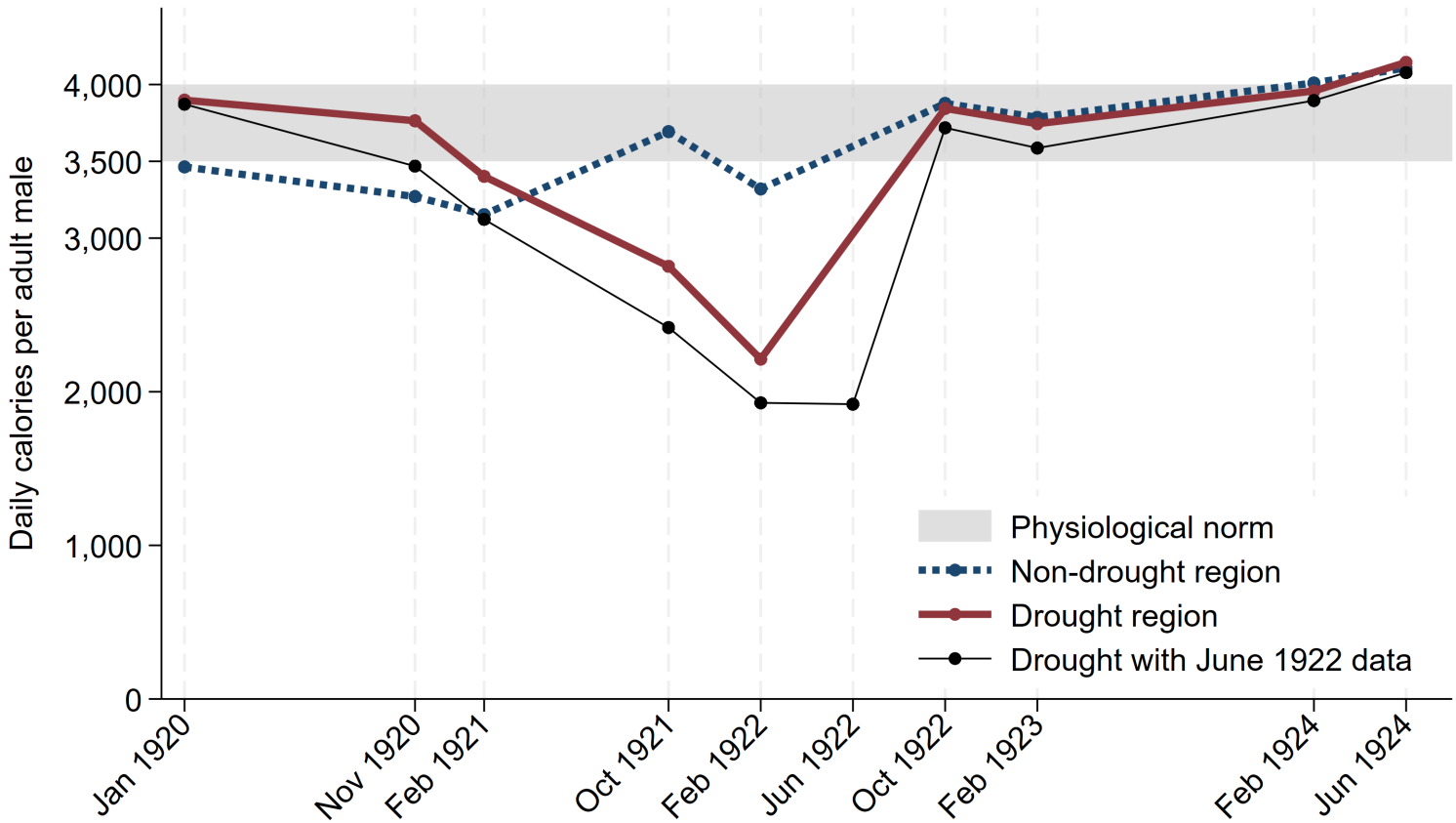
  ▸ political ▸ ethnic ▸ transport

- **Random permutations** (10,000 draws): $p = 0.005$ permuting feeding, $p = 0.025$ permuting prices
- **Spatially correlated SE** (400–3,000 km cutoffs) are smaller than province-clustered SE

  so we report the more conservative clustered SE

- **Other checks:** dropping individual months or provinces; no log transformation

Average Rural Calories



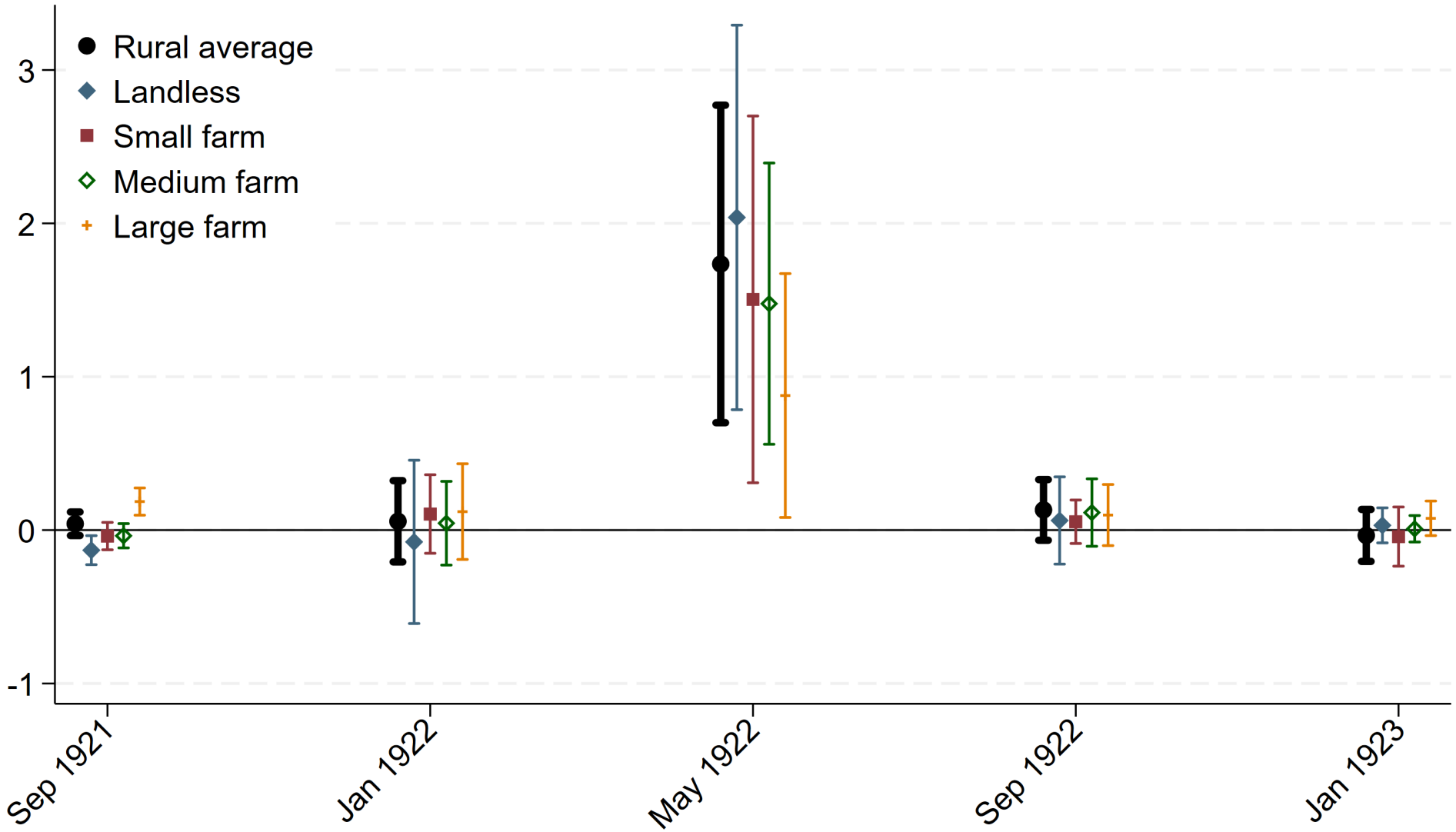
Note: Coverage: 30 provinces in January 1920; 22 (starving-only) provinces in June 1922; 73 provinces in June 1924. Surveys ask households what food and how much of it they ate in the previous week, converted into daily calories per adult male. Only province averages are available.

ARA Feeding Raised Calories, Most for the Poorest

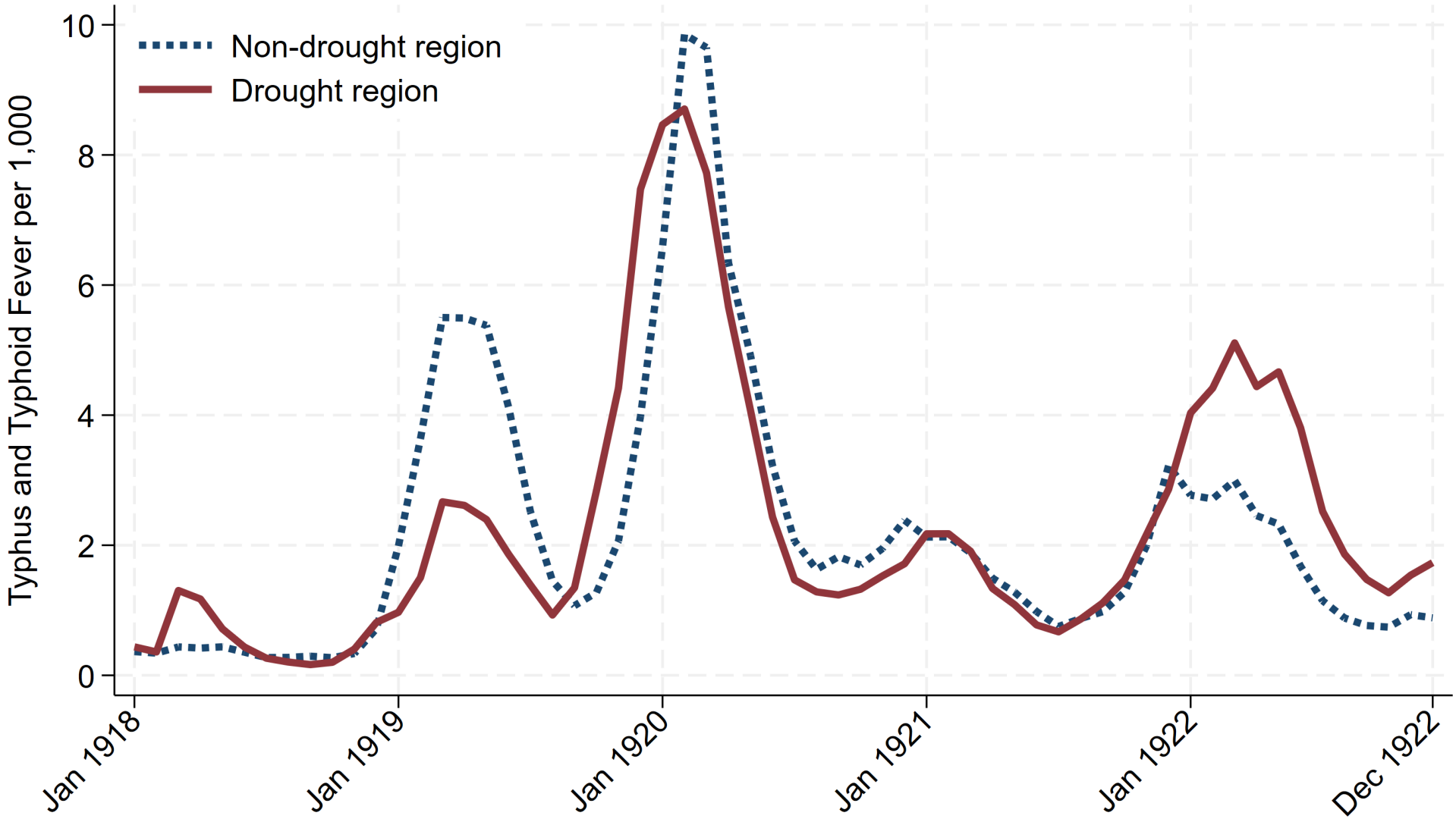
	Δ Log Daily Calories per Adult Male in Month $t+1$				
	Rural average	Landless	Small farm	Medium farm	Large farm
Δ Fed pc × Before Aug 1922	**1.167*****	**1.549*****	**1.167*****	**1.155*****	**0.672**
	(0.315)	(0.554)	(0.357)	(0.423)	(0.456)
Std. coeff.	0.324	0.387	0.286	0.300	0.183
Δ Fed pc × After Aug 1922	0.315	0.303	0.281	0.485	0.496
	(0.210)	(0.272)	(0.281)	(0.414)	(0.370)
Std. coeff.	0.048	0.033	0.032	0.066	0.070
Observations	454	418	452	451	445
Provinces	78	76	77	77	77
R^2	0.731	0.502	0.626	0.627	0.606
Avg. calories, before Aug 1922	2,986	2,489	2,822	3,039	3,194
Avg. calories, after Aug 1922	3,951	3,494	3,818	3,969	4,183

Notes: Province-month observations, 9 survey months. Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Calorie Gains Peak by May 1922, Vanish After Harvest



Average New Cases of Infectious Diseases



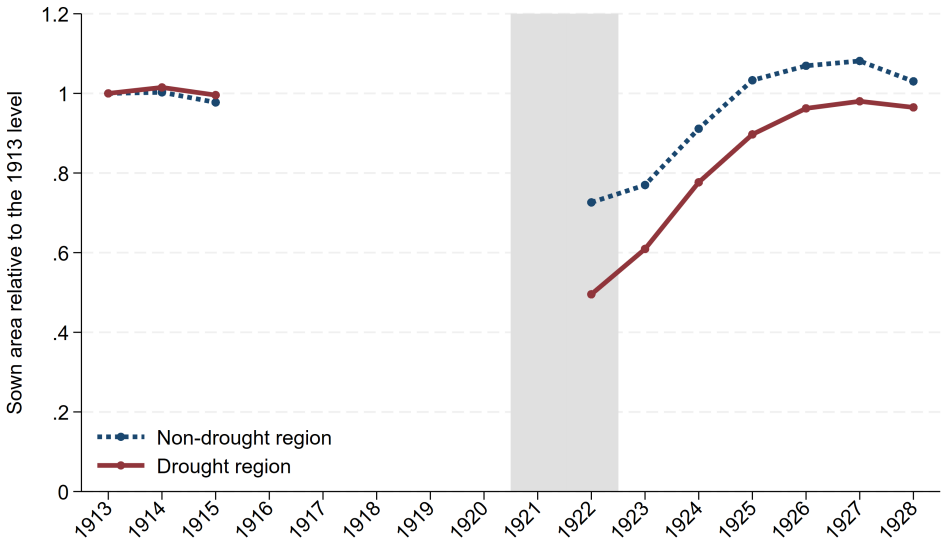
ARA Feeding Cut Relapsing Fever, Not Typhoid

	Δ Cases per 1,000 in Month $t+1$				
		Louse-borne		Waterborne	Unclear
	All	Typhus	Relapsing fever	Typhoid fever	Uncategorized typhus/typhoid
Δ Fed pc × Before Aug 1922	**−1.877***	**−1.226**	**−0.869*****	**0.033**	**0.192**
	(1.077)	(0.766)	(0.264)	(0.206)	(0.215)
Std. coeff.	−0.085	−0.102	−0.098	0.008	0.064
Δ Fed pc × After Aug 1922	0.544	0.224	−0.027	0.195	0.138
	(0.633)	(0.232)	(0.426)	(0.157)	(0.167)
Std. coeff.	0.007	0.007	−0.001	0.020	0.014
Observations	1,353	1,352	1,345	1,335	1,267
Provinces	63	63	61	61	59
R^2	0.372	0.417	0.297	0.187	0.172
Avg. cases/1,000, before Aug 1922	2.032	0.824	0.708	0.333	0.187
Avg. cases/1,000, after Aug 1922	1.082	0.360	0.469	0.160	0.103

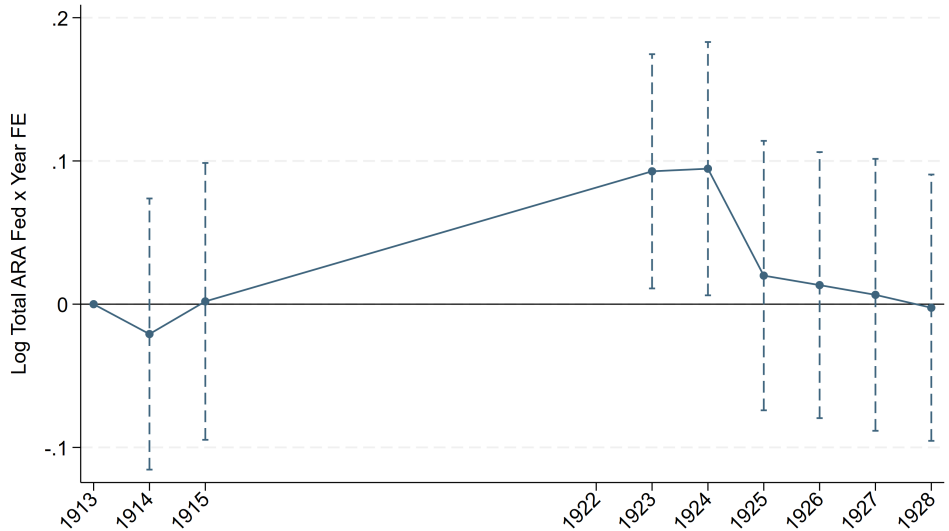
Notes: Province-month observations. Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

ARA Aid Facilitated Agricultural Recovery

(a) Grain sown area, 1913 = 1



(b) ARA feeding effect, by year



Notes: (a) Average sown area relative to 1913, drought vs. non-drought provinces. (b) Coefficients and 95% CIs from regressing log sown area on log phase-1 ARA feeding (Sep 1921–Aug 1922) × year FE; controls: 1921 drought crop losses, 1920 urbanization, capital, grain-consuming region × year FE, monthly temperature and precipitation; year and province FE.

Outline

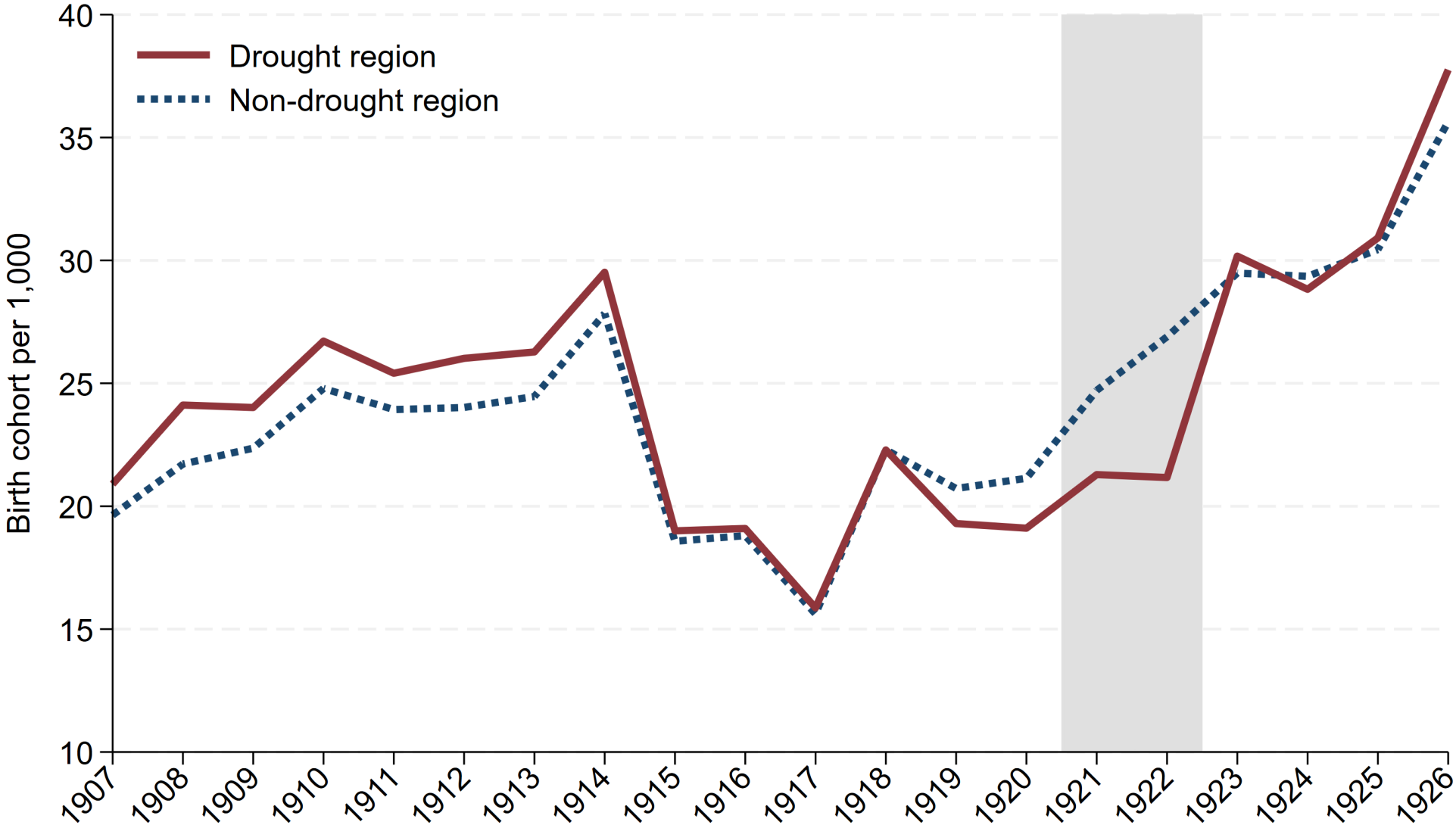
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Measuring Famine Severity from the 1926 Census

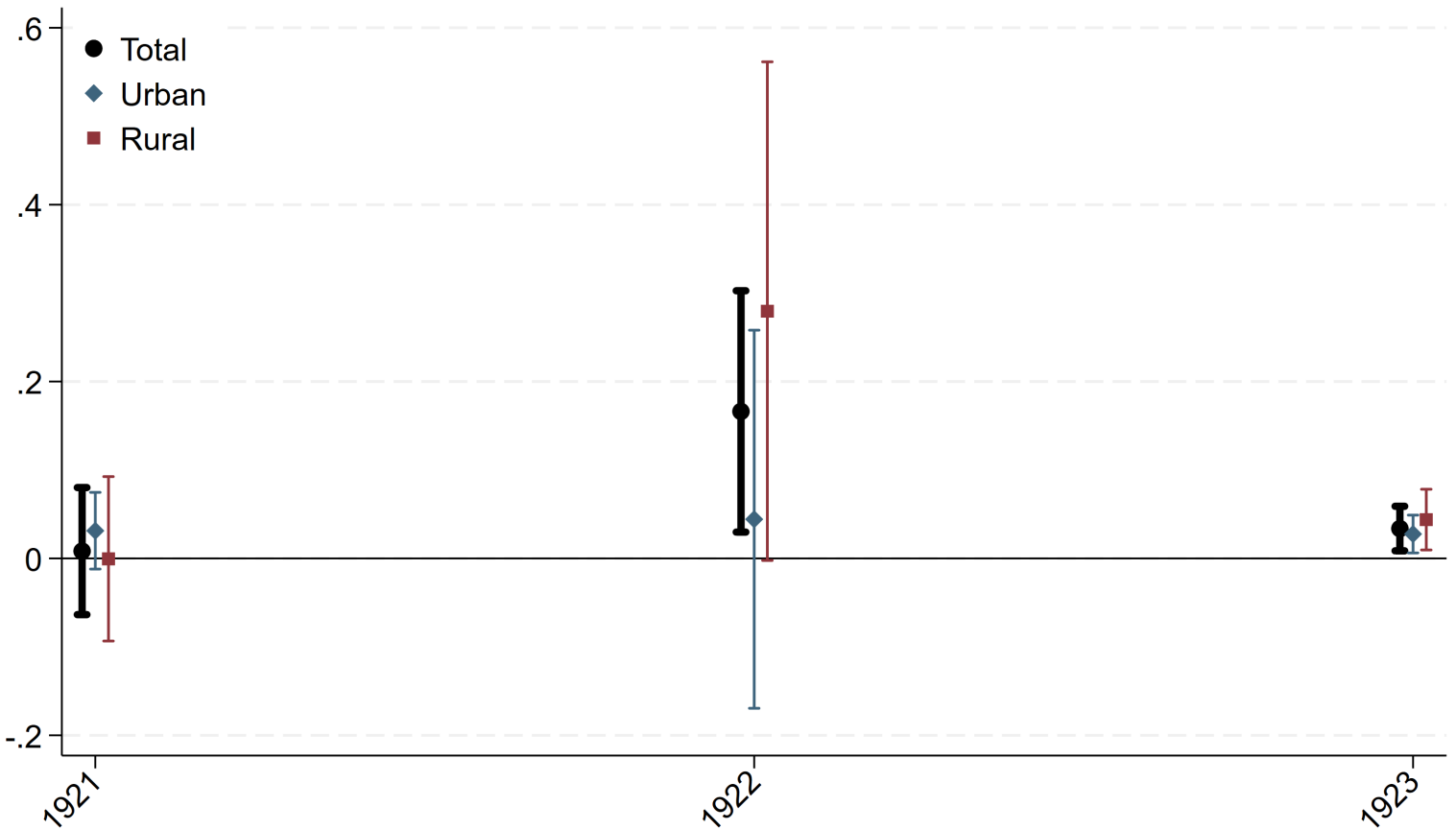


More ARA Feeding, Larger Birth Cohorts Next Year

	Δ Cohort Size per 1,000 in Year $t+1$		
	Total	Urban	Rural
Δ Fed pc in year t	**0.577*****	**0.637***	**0.635*****
	(0.153)	(0.369)	(0.192)
Std. coeff.	0.062	0.057	0.075
Observations	253	252	253
Provinces	69	68	69
R^2	0.793	0.737	0.781
Avg. cohort size per 1,000	26.821	22.071	28.040

Notes: Province-year observations, 1920–1924. Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × year FE; year FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Cohort Gains: Rural After 1922, Urban After 1923



ARA Feeding Raised 1926 Total and Rural Population

	Log Population 1926		
	Total	Urban	Rural
Log fed, Aug 1921–Aug 1922	**0.009***	**0.008**	**0.011****
	(0.005)	(0.020)	(0.005)
Std. coeff.	0.103	0.063	0.120
Log fed, Sep 1922–May 1923	−0.0001	−0.022	0.003
	(0.005)	(0.013)	(0.005)
Std. coeff.	−0.001	−0.150	0.026
Observations (provinces)	43	43	43
R^2	0.995	0.960	0.997
Avg. log population 1926	14.199	12.219	13.994

Notes: Cross-section of 43 provinces. Controls: log population 1920, log urban population 1920, grain pc 1920–23, procurement pc 1919–23, 1921 drought crop losses, grain-consuming region, capital, 1920 urbanization, and 1913 natural population increase. Robust SE. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Back-of-the-Envelope: 4.4 Million Extra People

Using Panel B, Column (1), 43 provinces:

- 1926 population: reported 74.9 mln; predicted 74.8 mln
- Predicted with ARA feeding set to zero: 70.4 mln
- Difference: $\approx$ 4.4 mln more people in 1926
- $\approx$ \$49 mln (80% of ARA spending) / 4.4 mln $\approx$ \$11 per person (\$213 today)

Includes differential in/out-migration; covers 43 of 82 provinces. Interpret with caution.



Children at an ARA kitchen



Photo: George Rinhart/Corbis

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Heterogeneous Effects: Local Human Capital Matters

	Δ Log Price of Rye Flour in Month $t+1$						
	Loyalty	Unrest	Militia	Transport	Ethnic frac.	Human capital	Unrest + HC
Δ Fed pc	-1.116^{***}	-1.339^{***}	-1.021^{***}	-1.011^{***}	-0.938^{***}	-1.067^{**}	-0.947
	(0.381)	(0.440)	(0.307)	(0.338)	(0.245)	(0.489)	(0.847)
× Loyalty	-0.149						
	(0.269)						
× Pre-famine unrest		16.658^{*}					-7.955
		(9.355)					(36.198)
× Militia pc			-0.450				
			(0.380)				
× Transportation				-0.133			
				(0.267)			
× Ethnic frac.					-0.247		
					(0.967)		
× **Human capital**						**-1.285^{***}**	**-1.248^{**}**
						(0.424)	(0.521)
Observations	916	916	860	916	893	683	683
R^2	0.243	0.244	0.270	0.243	0.243	0.336	0.336

Notes: Province-month observations, Sep 1920–Aug 1922. Interactions are principal components or demeaned: loyalty (1917 vote, party membership), unrest per 1,000 (Jan 1920–Aug 1921), transportation (rail, waterways), human capital (literacy, universities, students). Baseline controls; SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Outline

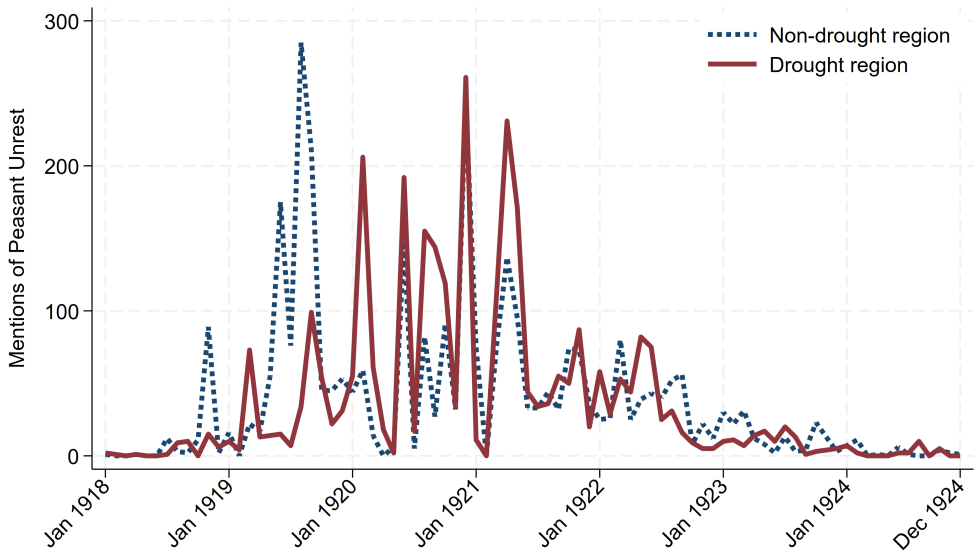
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Peasant Unrest



Source: dated secret-police reports, *Sovetskaia derevnia glazami VChK-OGPU-NKVD*; each report matched to a province

Measure: revolt keywords *povst* (rebel), *vosst* (uprising), *band* (bandits, gang), *dezertir* (deserter), *nedovol* (discontent)

Example (Vol. 1, Doc. 192, January 3, 1921): "Tambov province [. . .] A **gang** of 1,500 mounted men with machine guns in the village of Lukilovka surrounded Comrade Efimov's detachment [. . .] After a long battle in the streets of the village, the detachment was captured by **bandits**."

ARA Feeding Had No Effect on Peasant Unrest

	Dependent variable			
	Δ Mentions month $t+1$	Δ Mentions months $t+1$ to $t+3$	Δ Any mention month $t+1$	Δ Mentions per 100,000
Δ Fed pc × Before Aug 1922	**3.565**	**1.238**	**0.333**	**0.102**
	(4.274)	(0.896)	(0.465)	(0.286)
Std. coeff.	0.064	0.032	0.062	0.022
Δ Fed pc × After Aug 1922	0.412	−0.314	0.108	−0.057
	(0.852)	(0.370)	(0.338)	(0.071)
Std. coeff.	0.009	−0.011	0.006	−0.009
Observations	3,420	3,420	3,420	3,420
Provinces	79	79	79	79
R^2	0.147	0.155	0.127	0.157
Avg. unrest, before Aug 1922	1.789	1.694	0.348	0.144
Avg. unrest, after Aug 1922	0.194	0.187	0.098	0.019

Notes: Province-month observations. Unrest: mentions of revolt keywords in secret-police reports. Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

No Effect on Turnout or Disenfranchisement

	Dependent Variable			
	Turnout		Share disenfranchised	
	(1)	(2)	(3)	(4)
Log total fed 1921–23 × Post ARA	**−0.002**		**−0.001**	
	(0.004)		(0.001)	
Std. coeff.	−0.118		−0.173	
Total fed pc 1921–23 × Post ARA		**0.011**		**−0.002**
		(0.021)		(0.002)
Std. coeff.		0.127		−0.066
Observations	211	211	217	217
Provinces	60	60	61	61
R^2	0.625	0.626	0.814	0.812
Avg. outcome	0.547	0.547	0.031	0.031

Notes: Province-year observations; elections of 1917, 1925, 1927, 1929. Controls: 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × year FE; year and province FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Data: Convictions for Counter-Revolution

- **Source: Register of Convictions, 1917–1927**

  Vedomost' Spravok o Sudimosti: individual-level conviction records

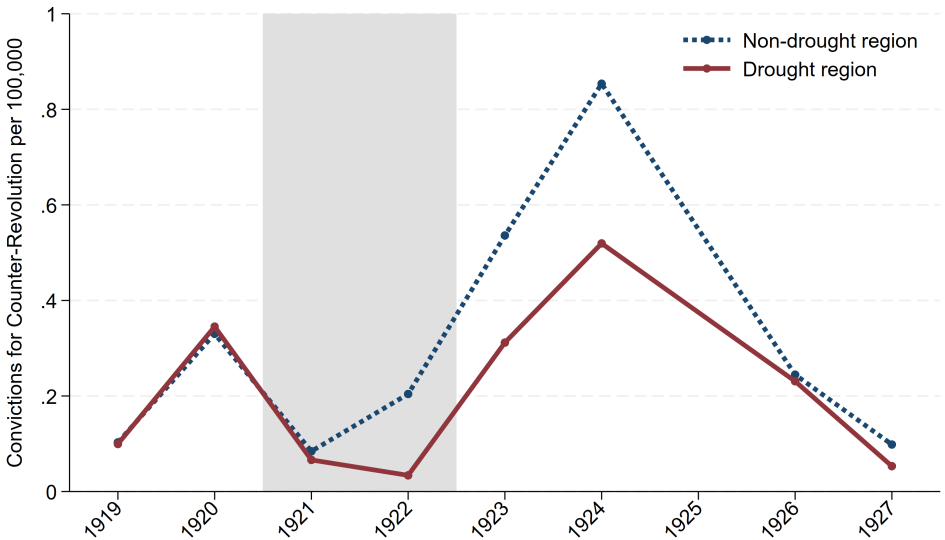
- **Coding changes with how crimes are recorded**

Period	Register records	Coded as counter-revolutionary
To mid-1922	Description of the crime	Mentions a crime listed below (not smuggling)
Mid-1922–1926	1922 RSFSR Criminal Code	Arts. 57–73 ("On counter-revolutionary crimes")
From 1927	1926 Criminal Code	All of Art. 58 (58.1–58.18)

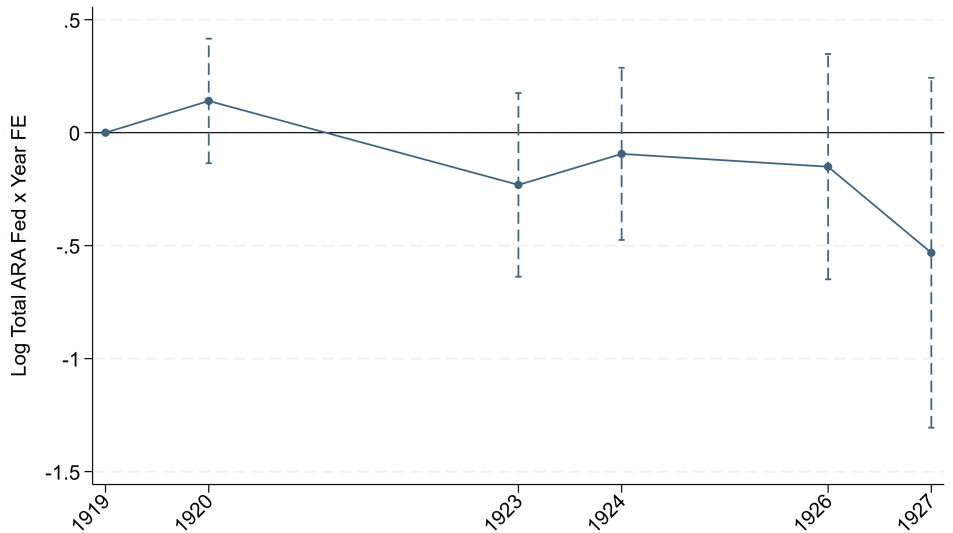
What counts as counter-revolutionary: armed uprising, espionage, sabotage and wrecking, anti-Soviet agitation and propaganda, terrorist acts, ties to the White Guards or foreign powers

No Effect on Political Convictions (Preliminary!)

(a) Counter-revolution convictions, 1919-1927



(b) ARA feeding effect, by year



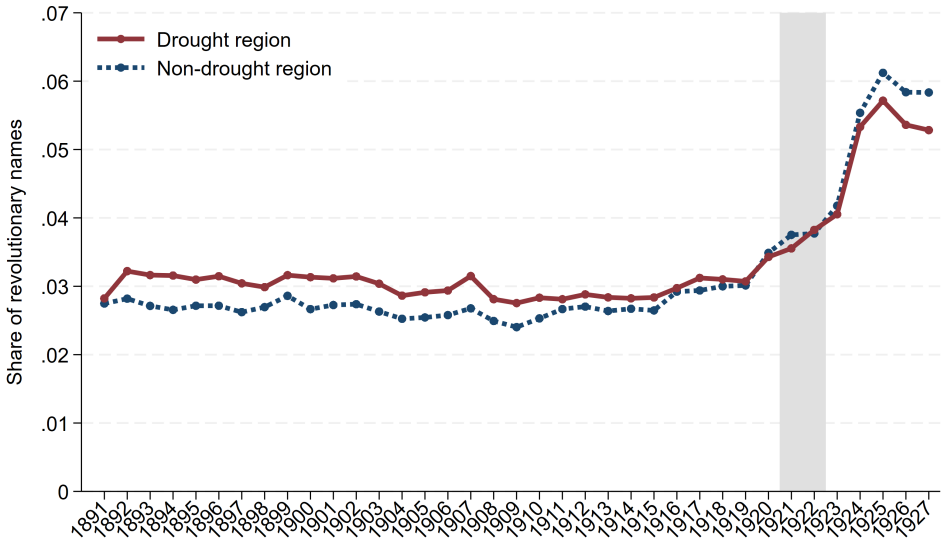
Notes: (a) Counter-revolution convictions per 100,000, drought vs. non-drought provinces. (b) Coefficients and 95% CIs from regressing convictions per 100,000 on log phase-1 ARA feeding (Sep 1921–Aug 1922) × year FE; controls: 1921 drought crop losses, 1920 urbanization, capital, and grain-consuming region × year FE; year and province FE.

Georeferenced names from WW2 soldiers database

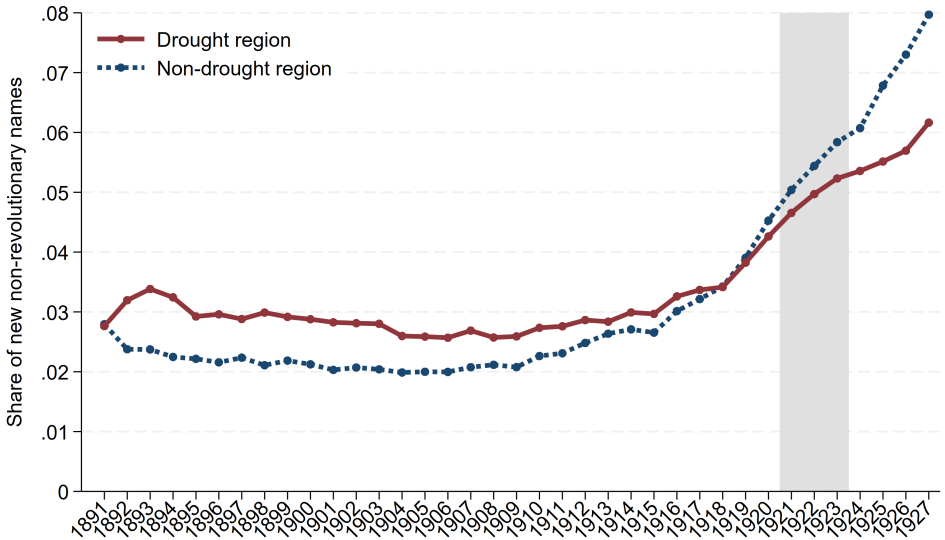
- **Data:** 38 mln WWII soldier records, born 1891–1927, georeferenced to 350 districts (*uezdy*)
- **Proxy:** first name reflects parents' political preferences

  Revolutionary names, e.g., Ninel (Lenin backwards), Vil (V. I. Lenin)

(a) Revolutionary Names



(b) New Non-Revolutionary Names



Revolutionary Names Did Not Decline (Preliminary!)

	Dependent Variable: Share of Names × 10					
	Revolutionary		New non-revolutionary		American	
	(1)	(2)	(3)	(4)	(5)	(6)
Fed pc 1921–23 × [1921–1923]	**0.006**	**0.011*****	**0.001**	**−0.002**	**0.003*****	**0.001**
	(0.004)	(0.004)	(0.008)	(0.006)	(0.001)	(0.001)
Std. coeff.	0.046	0.095	0.004	−0.011	0.233	0.084
Fed pc 1921–23 × Post ARA	−0.008	0.016	−0.014	−0.009	0.002***	0.001
	(0.011)	(0.011)	(0.010)	(0.009)	(0.001)	(0.001)
Std. coeff.	−0.037	0.078	−0.047	−0.032	0.098	0.041
ARA region × year FE		Yes		Yes		Yes
Observations	13,209	13,135	13,209	13,135	13,172	13,098
Districts (*uezdy*)	357	355	357	355	356	354
R^2	0.585	0.590	0.620	0.651	0.324	0.357
Avg. share × 10	0.320	0.318	0.328	0.325	0.037	0.037

Notes: District-year observations, 37 birth years. All columns: May 1921 rainfall, grain suitability, and 1920 urbanization × year FE; district FE. Cols. (1), (3), (5): year FE; cols. (2), (4), (6): ARA region × year FE. Cols. (5)–(6) omit the Volga Germans province. SE clustered by district. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Conclusion

- Conditional on famine severity, no political or ethnic targeting; ARA provided more relief in areas most affected by the famine
- Where ARA fed more people, food prices are lower, calorie intakes are higher, the prevalence of relapsing fever is smaller, and birth cohorts and rural population are larger
- Aid was more effective where local human capital was higher
- No evidence that aid weakened support for the regime or fuelled unrest
- **Why relief worked:** donor control of distribution; monthly deliveries and a credible threat to suspend them; skilled local staff

Large-scale food aid can save lives even in the most adverse circumstances, but feeding people may not change their political behavior under a repressive regime

Gift of the American People

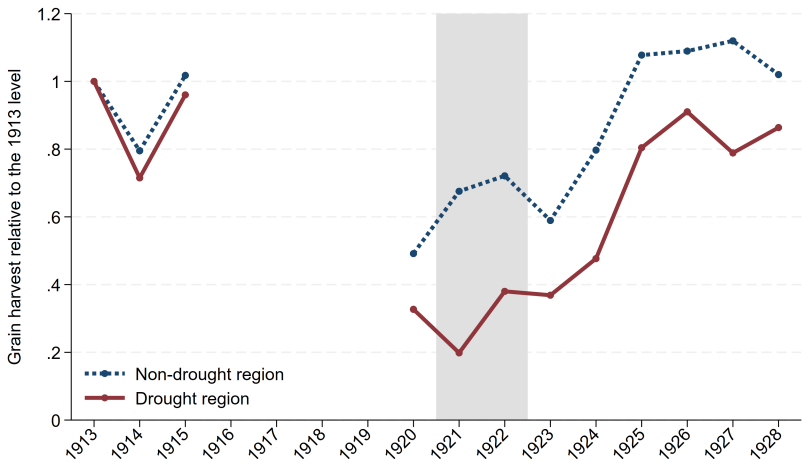


Backup Slides

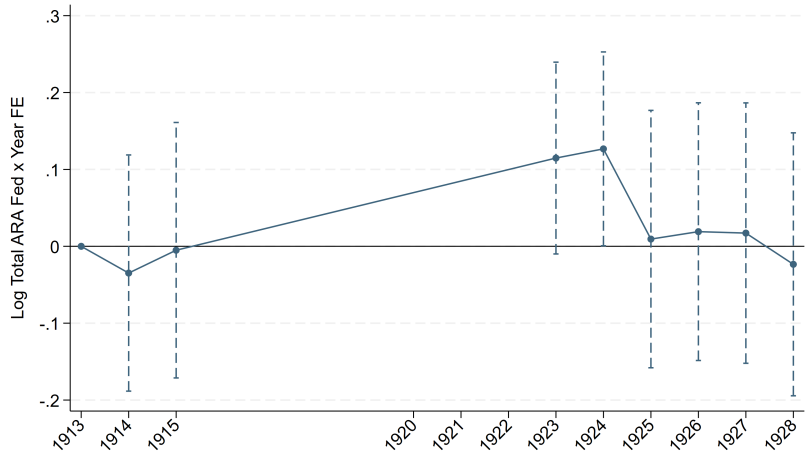
- Grain Harvest
- Background: Time scale
- Dynamics of Consumer Prices
- ARA Targeted Improving Provinces? No
- Robustness to Additional Agricultural Controls
- Robustness to Additional Political Controls
- Robustness to Ethnic Composition
- Robustness to Transportation Infrastructure
- Crop Failure 1920
- Crop Failure 1921
- Other Foreign Feeding, June 1922
- Soviet Feeding, June 1922

Grain Harvest

(a) Grain harvest, 1913 = 1



(b) ARA feeding effect, by year

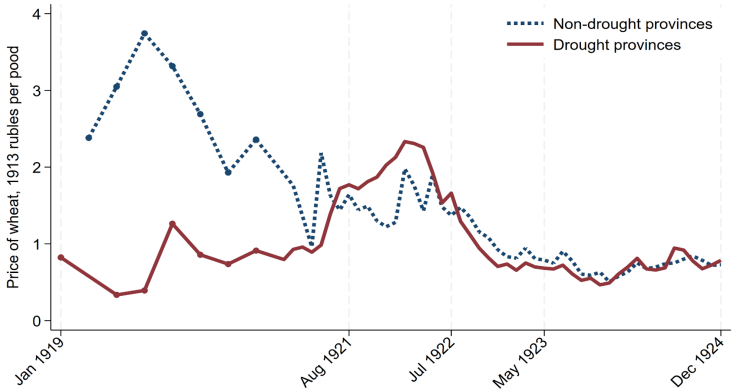


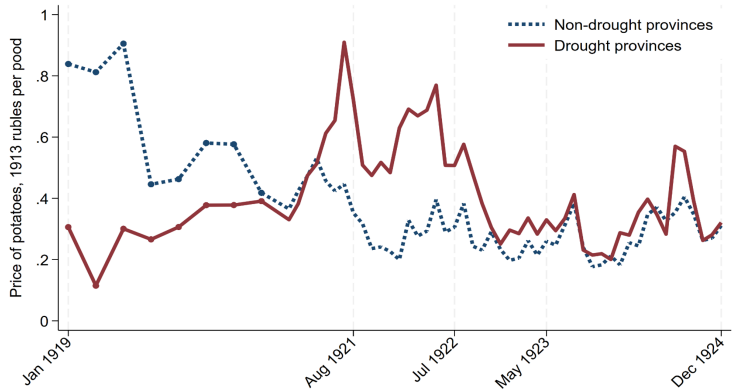
Notes: Figure (a) plots the average grain harvest normalized by its 1913 value for drought- and non-drought provinces. Figures (b) plots regression coefficients with their 95% confidence intervals from regressing log grain harvest on log ARA feeding from Sep 1921 to Aug 1922 (phase-1 feeding) interacted with year fixed effects and controlling for the share of crops killed by the 1921 drought, urbanization 1920, capital province indicator, grain-consuming region indicator interacted with year fixed effects, monthly temperature and precipitation (24 controls), and year and province fixed effects.

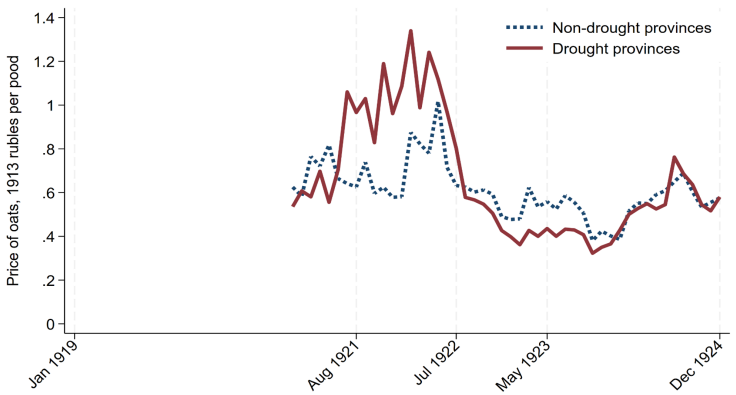
Background: Time scale

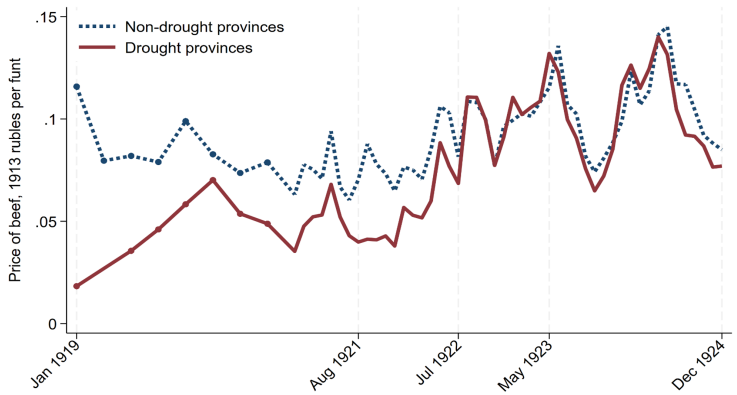
1917	Russian Revolution
1918-20	Civil War, grain requisitions (*prodrazverstka*) by the Bolshevik government ▶ Sown area drops by 30% by 1921
Spring 1921	Drought: 7.1 mm of rain vs usual 108 mm
June 1921	Pomgol (*Relief for Starving*) Committee is organized (Gorky, Kondratiev); banned shortly by the Bolsheviks
July 1921	Gorky issues an open letter: "I ask all honest European and American people for prompt aid to the Russian people" Herbert Hoover, head of ARA, replies
August 20, 1921	Riga agreement ▶ ARA promised to feed 1 mln children ▶ ARA can investigate, hire locals, and provide relief without Bolshevik control
September 1921	First food shipment to Petrograd
July 1922	Peak of relief, 10 million fed daily
May 1923	End of feeding

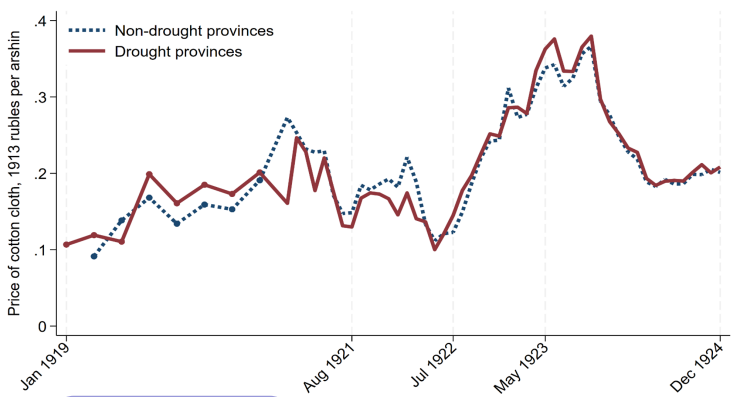
Dynamics of Consumer Prices











ARA Targeted Improving Provinces? No

	Δ ARA Fed pc by the End of Month t+1		
Sample:	Full Sep 1921–Apr 1923	Phase 1 Sep 1921–Jul 1922	Phase 2 Aug 1922–Apr 1923
A. Month FE only			
Δ Log rye price in month t	0.009	−0.001	0.040**
	(0.006)	(0.005)	(0.017)
Std. coeff.	0.059	−0.008	0.168
Observations	925	520	405
Provinces	70	65	68
R^2	0.190	0.097	0.238
B. All baseline controls			
Δ Log rye price in month t	**0.002**	**−0.002**	**0.017**
	(0.004)	(0.004)	(0.012)
Std. coeff.	0.013	−0.016	0.070
Observations	915	516	399
Provinces	68	63	67
R^2	0.535	0.403	0.599

Notes: Province-month observations. Panel B adds grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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Robustness to Additional Agricultural Controls

	Δ Log Price of Rye Flour in Month $t+1$							
Added control × month FE:	Baseline	Crop failure 1920, 1921	Drought (weather)	May 1921 precip.	Rye yield[a]	Temp. and precip.	Distance to Kazan	Lat, lon, lat×lon
Δ Fed pc × Before Aug 1922	**−0.939*****	**−1.000*****	**−0.931*****	**−0.974*****	**−0.792****	**−0.940*****	**−1.100*****	**−0.981*****
	(0.285)	(0.324)	(0.281)	(0.287)	(0.319)	(0.294)	(0.275)	(0.292)
Std. coeff.	−0.213	−0.227	−0.211	−0.221	−0.132	−0.213	−0.250	−0.223
Δ Fed pc × After Aug 1922	−0.202	−0.167	−0.173	−0.173	−0.199	−0.234	−0.301*	−0.300*
	(0.175)	(0.205)	(0.180)	(0.192)	(0.184)	(0.171)	(0.166)	(0.167)
Std. coeff.	−0.010	−0.008	−0.009	−0.009	−0.010	−0.012	−0.015	−0.015
Observations	2,155	2,155	2,155	2,155	2,455	2,155	2,155	2,155
Provinces	71	71	71	71	71	71	71	71
R^2	0.238	0.309	0.276	0.289	0.243	0.240	0.252	0.305

Notes: Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. [a]Rye yield instead of grain pc (available since 1919).

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Robustness to Additional Political Controls

	Δ Log Price of Rye Flour in Month $t+1$								
Added control × month FE:	Baseline	1917 Bolshevik	1917 Nationalist	1917 turnout	1922 party members	1922 party candidates	Members + candidates	Unrest 1920–21	Unrest per 1,000
Δ Fed pc × Before Aug 1922	**−0.939*****	**−0.940*****	**−0.889*****	**−0.991*****	**−0.878*****	**−0.923*****	**−0.886*****	**−1.044*****	**−1.012*****
	(0.285)	(0.296)	(0.283)	(0.283)	(0.299)	(0.307)	(0.301)	(0.295)	(0.284)
Std. coeff.	−0.213	−0.213	−0.202	−0.225	−0.199	−0.209	−0.201	−0.237	−0.230
Δ Fed pc × After Aug 1922	−0.202	−0.177	−0.197	−0.181	−0.189	−0.181	−0.187	−0.124	−0.152
	(0.175)	(0.187)	(0.176)	(0.199)	(0.182)	(0.188)	(0.184)	(0.198)	(0.199)
Std. coeff.	−0.010	−0.009	−0.010	−0.009	−0.010	−0.009	−0.009	−0.006	−0.008
Observations	2,155	2,125	2,125	2,121	2,155	2,155	2,155	2,155	2,155
Provinces	71	69	69	68	71	71	71	71	71
R^2	0.238	0.267	0.289	0.261	0.269	0.278	0.273	0.258	0.253

Notes: Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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Robustness to Ethnic Composition

	Δ Log Price of Rye Flour in Month $t+1$								
Added control × month FE:	Baseline	Non-Russian 1920	German 1920	Jewish 1920	Other 1920	Non-Russian 1897	German 1897	Jewish 1897	Other 1897
Δ Fed pc × Before Aug 1922	**−0.939*****	**−0.920*****	**−1.044*****	**−0.898*****	**−0.957*****	**−1.003*****	**−0.950*****	**−0.984*****	**−0.988*****
	(0.285)	(0.311)	(0.318)	(0.326)	(0.332)	(0.348)	(0.340)	(0.323)	(0.356)
Std. coeff.	−0.213	−0.214	−0.243	−0.209	−0.223	−0.228	−0.216	−0.223	−0.224
Δ Fed pc × After Aug 1922	−0.202	−0.369*	−0.225	−0.314*	−0.376*	−0.357**	−0.280*	−0.315*	−0.337*
	(0.175)	(0.193)	(0.184)	(0.174)	(0.197)	(0.174)	(0.167)	(0.168)	(0.180)
Std. coeff.	−0.010	−0.019	−0.012	−0.016	−0.020	−0.018	−0.014	−0.016	−0.017
Observations	2,155	2,055	2,055	2,055	2,055	2,155	2,155	2,155	2,155
Provinces	71	66	66	66	66	71	71	71	71
R^2	0.238	0.294	0.259	0.299	0.301	0.290	0.253	0.289	0.288

Notes: Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Columns (2)–(9): population shares.

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Robustness to Transportation Infrastructure

	Δ Log Price of Rye Flour in Month $t+1$				
Added control × month FE:	Baseline	Railroad length/area	Rail stations /area	Waterways length/area	Docks /area
Δ Fed pc × Before Aug 1922	**−0.939*** **	**−0.927*** **	**−0.887*** **	**−0.930*** **	**−0.906*** **
	(0.285)	(0.294)	(0.282)	(0.275)	(0.293)
Std. coeff.	−0.213	−0.210	−0.201	−0.211	−0.206
Δ Fed pc × After Aug 1922	−0.202	−0.213	−0.197	−0.252	−0.250
	(0.175)	(0.191)	(0.180)	(0.201)	(0.188)
Std. coeff.	−0.010	−0.011	−0.010	−0.013	−0.013
Observations	2,155	2,155	2,155	2,155	2,155
Provinces	71	71	71	71	71
R^2	0.238	0.278	0.276	0.261	0.269

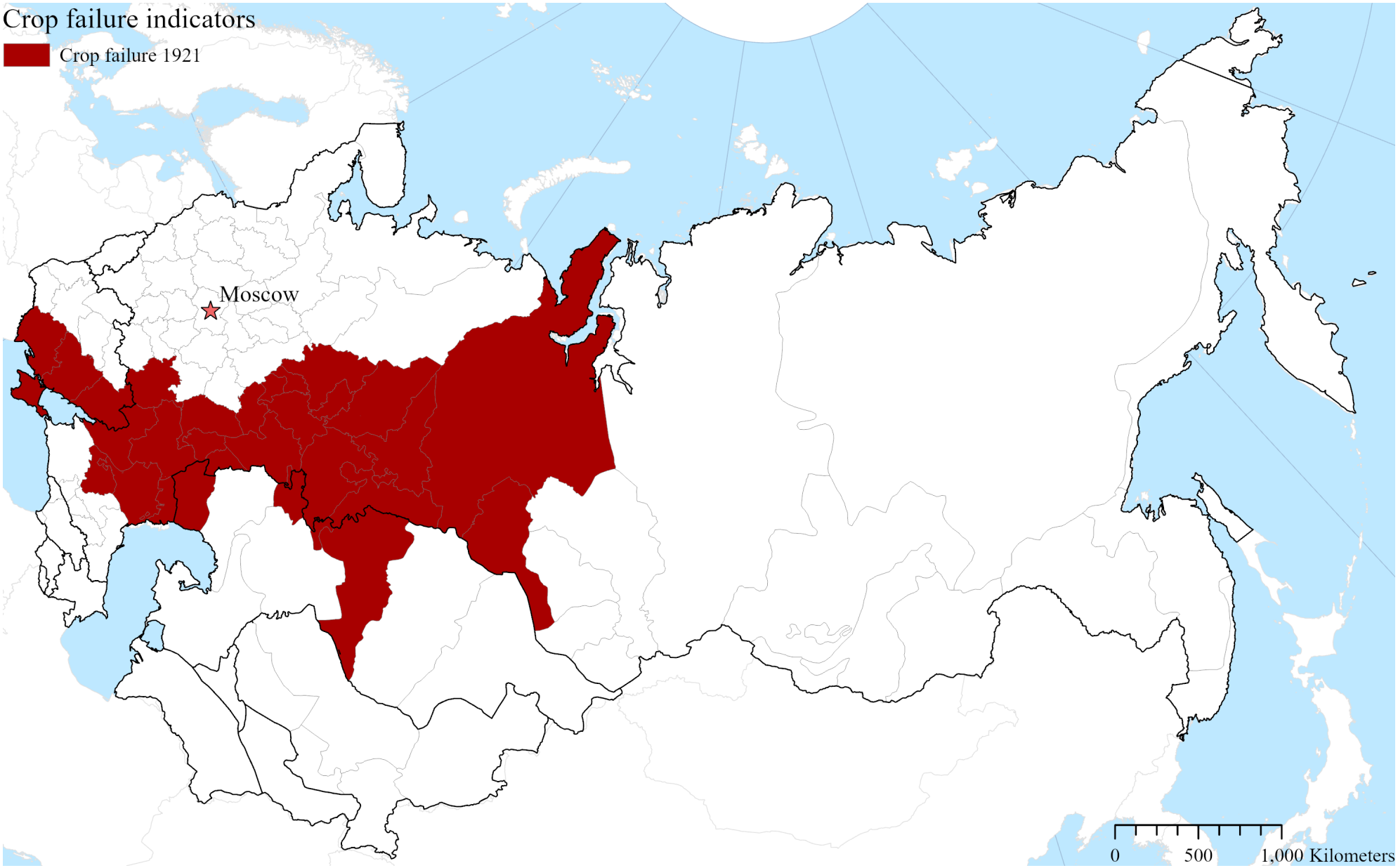
Notes: Controls: grain pc, procurement pc; 1921 drought crop losses, grain-consuming region, capital, and 1920 urbanization × month FE; month FE. SE clustered by province. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Back

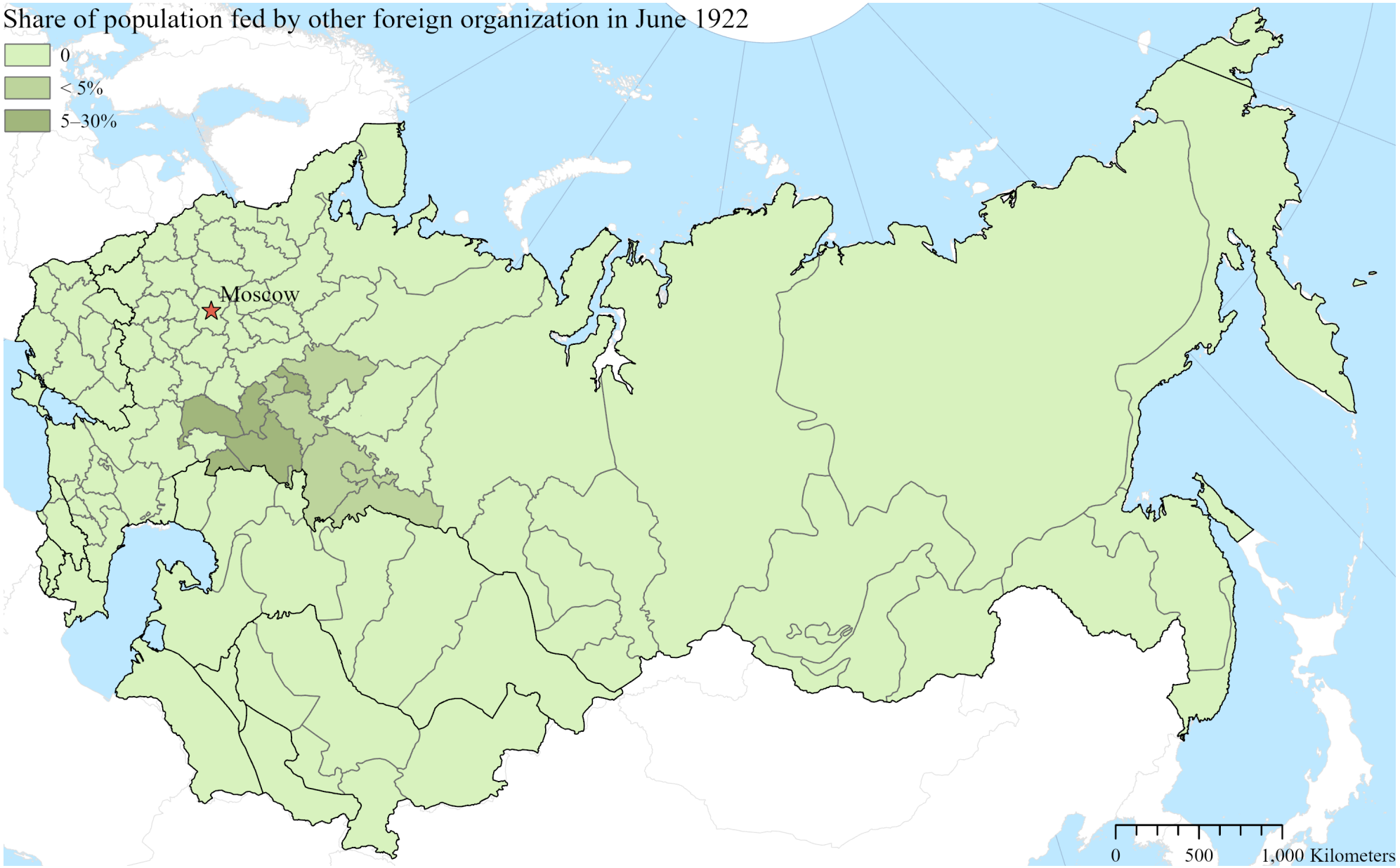
Crop Failure 1920



Crop Failure 1921



Other Foreign Feeding, June 1922



Soviet Feeding, June 1922

