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The Environmental Economy of the Soviet Famine in Ukraine in 1933: A Critique of Several Papers by Natalya Naumenko

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LINK TO ABSTRACT

This paper analyzes and critiques the main arguments and evidence of three papers by Prof. Natalya Naumenko, an economist at George Mason University. One of the papers was published in the March 2021 issue of the *Journal of Economic History* (hereafter JEH), entitled "The Political Economy of Famine: The Ukrainian Famine of 1933" (Naumenko 2021a). The other two are on websites. One, an earlier version of the JEH article with the same title but from July 2018, is on the website of the Center for Micro-Economic Policy Research (CMEPR) at George Mason (Naumenko 2018). The other online paper is a National Bureau for Economic Research (NBER) working paper (meaning it may not be their final version), in which Naumenko collaborated with two other economists, Andrei Markevich and Nancy Qian, entitled "The Causes of Ukrainian Famine Mortality," dated July 2021 and revised in 2023 (Markevich et al. 2023).

In the JEH article, which is the main subject of this paper, Naumenko rejected the argument that the famine was a genocide that intentionally targeted Ukrainians and, instead, argued that the evidence showing the Soviet regime's "discrimination" against Ukrainians and Germans is limited. Her alternative explanation of the famine, which occupies most of her article, is extremely problematic. She attempts to discredit approaches that attribute the famine to environmental

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disasters, which she reduces to "weather." She attributes the famine mostly to Soviet policies: collectivization of agriculture and government policies favoring certain industries.[2] The CMEPR paper mostly takes the same approach as the JEH article, but is slightly more accepting of the argument that Ukrainians were targeted in the famine. It also cites substantial evidence that I published years before, but does not cite my work, as I discuss below. The NBER paper again repeats many of the earlier papers' problematic arguments, but in contrast to the others argues that the famine specifically targeted Ukrainians because of "anti-Ukrainian bias" on the part of the Soviet leadership.

Naumenko's arguments and analysis are based on major historical inaccuracies and falsehoods, omissions of essential evidence contained in her sources or easily available, and substantial misunderstandings of certain key topics. All of these characteristics reflect a biased approach to the history and issues that these papers address. All three papers reach their conclusions using statistical calculations based partly on selective use of Soviet evidence and partly on their own "estimates," but they present only the results of their statistical calculations, and almost none of the actual evidence they used for those calculations, and the tiny amount of evidence that they do present is inaccurate. As a result, all three papers draw invalid conclusions from a grossly distorted history of this important crisis. In the following discussion I document these historical and evidence issues to show the problems with her arguments and to support the central importance of environmental factors in causing the famine conditions of 1931–1933.

I begin with comments about the introductory sections of Naumenko's papers. After this introduction, Naumenko in her JEH article summarizes her arguments: that "available data" do not support "weather" as a major cause of famine deaths; that government policies, especially collectivization, explain most of the famine deaths; and that very little evidence indicates that Ukrainians were subject to discrimination. She elaborates these points in multiple sections of her article, so going through her article section by section would involve considerable repetition. To avoid that repetition, after discussing her introduction I will compile her points on each of these areas into one concise summary and then explain the problems with them. The CMEPR paper addresses most of these points but with certain problems in use of evidence, which I will discuss below. The NBER article also asserts similar points but then claims that Ukrainians were subject to bias in policies, which I will discuss in the final section.

2. This article also refers to tables in its appendices, but these appendices are not included in the article as published; as I found out later with help from the editors of this journal, those appendices are located on the internet (Naumenko 2021b).

Naumenko's introduction

First of all, it is necessary to note that the titles of all three papers refer to "the Ukrainian famine of 1933," but the first sentences refer to "the 1933 Soviet famine," or in the NBER paper's case, "the Great Soviet Famine (1932–33)." Several studies and document collections from Soviet archives, including some she cited, clearly show that during 1931–1933 many regions of the USSR endured famines (see, e.g., Danilov et al. 1999–2004; Antipova et al. 2009; Davies and Wheatcroft 2004). The Russian historian Nikolai Ivnitskii, who as a child lived through the famine in the Central Blackearth Oblast' north of Ukraine, published a book documenting the famine in multiple regions of the USSR (Ivnitskii 2009). Yet Ivnitskii's list was incomplete: Belarus many years ago posted a website on the "Holodomor in Belarus" (**link**), which stated that "Belarus, just like Ukraine, Povolzh'e and Kazakhstan, endured in 1932–1934 the tragedy of the Holodomor." There are also studies of this famine in specific regions, such as the study of famine in Siberia by V. S. Poznanskii (2007). In addition to dealing with rural famine, the Soviet government in these years was providing food in the form of rations for approximately 40 million people in towns and cities, in part because of food shortages and high prices from crop failures (see Davies 1996, esp. 177–189, 530). The article more accurately should have referred to the topic as the Soviet famine in Ukraine.

Naumenko begins both the JEH article and the CMEPR paper with reference to an economic study in 1995 that found the USSR in 1928 was "one of the 30 richest countries in the world," and asks: how could a severe famine have occurred there, especially in Ukraine that was "famous for its grain production" and the "grain-basket" of the USSR (Naumenko 2021a, 157; 2018, 1). These statements reflect a widespread bias and incomplete information that Naumenko does not address. In fact, the non-Ukrainian provinces of Russia and later the USSR always produced double or more than double the amounts of grain produced by Ukraine, simply because the non-Ukrainian agricultural regions were much larger. As an example of this, Table 1 shows the grain production of the Ukrainian and non-Ukrainian provinces of late Imperial Russia, based on estimates of the Central Statistical Administration, from a recent Russian study.

TABLE 1. Grain production in Ukrainian provinces and in European Russia excluding the Ukrainian provinces, five-year averages, in million tons (calculated from original figures in puds, 16 kg units)

Region	1896–1900	1901–1905	1906–1910	1911–1915
Ukrainian gubernias	9.68	14.0	13.95	16.1
Russia outside Ukrainian gubernias	25.1	27.68	27.8	32.2
Source: Ostrovskii 2013, 222.				

The Tsarist statistical agencies tended to inflate the harvest, but that inflation applied to all of the data, from both Ukrainian and non-Ukrainian provinces. While these data are thus approximate, and the five-year averages conceal considerable variations (as discussed below), they still are a valid indication of the relative shares of Ukrainian and non-Ukrainian grain harvests in the Russian Empire (Tauger 2001c, 24–29).

Descriptions of Ukraine as the 'breadbasket' of Russia have long been a conventional assumption that reflects Ukrainian nationalist views, but these data show that the non-Ukrainian regions of Russia were the main 'breadbasket' for Russia.[3]

Moreover, a detailed study of famines and famine aid in Tsarist Russia showed that from the serf emancipation era of the 1860s until 1909, during which the government provided famine relief almost every year to crop failure regions, the province that had the most frequent recourse to government famine relief was Tavride gubernia, which included south-central Ukraine and Crimea. Other Ukrainian gubernias, including Ekaterinoslav in central Ukraine and Kherson in southwest Ukraine, also had frequent recourse to this relief (Ermolov 1909, pt. II 4–6). Ukraine gubernias did tend to have higher harvest yields in good years than most non-Ukrainian gubernias, but the Ukrainian regions were also subject regularly to the same environmental and agricultural problems and chronic crop failures and famines that struck the rest of Russia, and as I will show below, this situation had not changed by the early 1930s.

Causes of the 1931–33 famine: "Weather"

Naumenko's first main argument in her JEH article is that "weather" does not explain the famine adequately and is accountable only for a small share, 8.1 percent, of famine deaths. She supports this with discussions of three topics: grain harvest statistics; comparisons of 1931–1932 weather with weather in earlier periods; and the actual weather in 1931 and 1932. The NBER paper also dismisses "weather" as a factor in the famine, in an even more superficial manner (Markevich et al. 2023, 20).

3. Examples of this viewpoint include the following articles: "Futures Markets," *Wall Street Journal*, 1 May 1986, p. 1, referring to Ukraine as "the Soviet breadbasket," and "Bush, Yeltsin back Union Treaty…," *Christian Science Monitor*, 5 August 1991, p. 1, stating "Ukraine is widely known as Europe and Eurasia's bread basket."

Naumenko's problematic approaches to Soviet grain harvest statistics and earlier research

Naumenko's discussions of Soviet harvest data have the following problems. First, she inaccurately describes the sources of the official harvest data for 1931 and 1932. Naumenko (2021a, 175 n.36) wrote: "Officially, Soviet grain accounting changed in 1933: instead of barn yields, statisticians started using field yields that did not account for 15–20 percent harvesting losses. There is a debate on whether field or barn yields were used in 1931 and 1932 harvest reports; see the excellent discussion of the topic in Tauger (1991)." I appreciate her positive reference to my 1991 *Slavic Review* article, but a better citation would be my much more substantial and comparative Treadgold Paper from 2001 on the development of Soviet harvest statistics (Tauger 2001c; the following discussion is based on pp. 44–49 of this study, which in turn is based on both published and archival sources). Naumenko refers to the policy change in 1933, which established the central state commission for harvest yields in a central government decree in December 1932, with further decrees in early 1933 elaborating its structure. This agency organized pre-harvest forecasts of grain production based on samples from fields, which was called at the time the 'biological yield,' not 'field yields.'

In researching this commission, however, I found that the laws establishing it specified that all the previous agencies collecting pre-harvest data were to be abolished, clearly indicating that the central state commission was not the first agency to collect this data. I sought further evidence in Russian and Ukrainian archives, and found that during the collectivization period the government set up three previous agencies that also made pre-harvest forecasts, one each in 1930, 1931, and 1932, none of which were ever mentioned in previous scholarship. In particular, in May 1932 the regime established "interagency accounting-control commissions" at both district and oblast' levels, which performed the same pre-harvest sampling forecasts as the 1933 commission would conduct in subsequent years. As Soviet officials at the time admitted, these commissions inflated the sampling data because they distrusted lower figures. The commissariat of agriculture also conducted pre-harvest sample surveys of the harvests, and disputed the higher estimates of the interagency commissions. The full story of this dispute is complicated, but it was ultimately settled, as one might expect, by Stalin, who decided in a letter in September 1933 that the 1932 harvest should be defined as 698 million centners (69.8 million tons), about halfway between the two agencies' estimates, and which has been the 'official' figure for the 1932 harvest since then. This official figure was thus a dictated compromise between two pre-harvest forecasts, but in no sense was it actual harvest data.

This research shows, however, that Naumenko's assertion that 'field yields'

were officially used only from 1933 is incorrect, just as I showed that similar claims by other scholars about the 'biological' yield use only from 1933 were also incorrect. These pre-harvest exaggerated forecasts were used from at least 1930, and especially in 1932. In fact, most if not all earlier Soviet and pre-revolutionary Russian harvest data were based on pre-harvest forecasts (Tauger 2001c, 24–39).

Naumenko then acknowledges that there is more reliable harvest data, but in the JEH article she presents the harvest data very minimally, only in a few figures (Naumenko 2021a, 171). She presented the more reliable data, from kolkhoz annual reports, concretely only in the online 2018 version of the article. Yet I consider it important to point out that the two main points she makes about this data in both articles, and especially in the 2018 version, I made previously and in more explanatory detail in my first article in 1991 in *Slavic Review* and in certain later work, all of which were published before her 2018 paper and 2021 article (Tauger 1991b).

The first of the two main points Naumenko makes about the data is to note that the official harvest data cannot be correct because the "rural grain retention is too high in 1931 and 1932" (2018, 19; 2021a, 158). This is partly correct, but I documented this point with statistics in Table 2 of my 1991 article (Tauger 1991b, 74). However, I also showed that this statistical 'retention' was the result not only of inflated official harvest data, but also of substantial amounts of grain that the government returned to villages for food and seed, after collecting grain procurements. Naumenko did not cite my article and its data on either of these points. In my article I also cited numerous western and Soviet studies that asserted the official figures were too high (ibid., 74–77). And as discussed above, I showed in 2001 why the official harvest data for 1931 and 1932 were too high, because they were based on inflated pre-harvest projections by special agencies set up to gather such data. Naumenko did not cite my work or evidence for any of these points in any of her papers.

The second main point Naumenko makes about the data is in her 2018 paper, where she specifically discussed an important source, the kolkhoz annual reports from two archival documents, and noted very briefly that they showed a much smaller harvest in 1932 in Ukraine. She noted that they came from 47.3 percent of kolkhozy in Ukraine. She also discussed their reliability and how representative they were, and concluded that "these data deserve serious consideration" (2018, 18). My 1991 article, which Naumenko does not cite in the 2018 paper, presented all of these data and more from those same archival sources, and made most of the same arguments about the data that she made, as well as other points (Tauger 1991b, 78–85). My article was the first western study to cite the annual report data, from the same archival sources that she cited. I presented tables on their coverage, which included the 47.3 percent figure that she cited, and their data on harvest yields and procurements for several regions including the six main oblasti (Soviet-

defined provinces) of Ukraine as well as totals for Ukraine as a whole, which was more data than what she cited from those sources. I also discussed their reliability and representativeness, citing the work of V. I. Zvavich, a Soviet scholar who wrote a dissertation and articles on these data, and who also endorsed their reliability and importance.

While Naumenko's points about these data are mostly correct, I made those points earlier, and I find it extremely problematic that Naumenko in her 2018 paper used the same data that I used and made most of the same arguments that I made about the data without citing my work on these points. In her JEH article she cites my article minimally and elliptically and does not identify the annual report data as a source, but her citation of my article proves that she knew about my work before 2021. I do not know whether she knew my article when she wrote her original paper in 2018, but that paper's presentation of the same data I used and the same points I made about that data clearly suggests that she did know my article and failed to cite it.

Naumenko also makes another error in her discussion of statistics in the 2018 article. In it she acknowledges that grain procurements from Ukraine fell from 7.1 million tons in 1931 to 4.2 million tons in 1932 (p. 19 and Table 2), but this missed two key points. First, that 4.2 million tons included 600,000 tons from sovkhozy in Ukraine, which were a smaller sector and not a major site of famine. The procurement plan for the main groups who suffered from famine, the kolkhoz peasants and non-collectivized peasants, were reduced to 3.77 million tons, or just over half of the 1931 target.[4] Second, all of these figures, the 4.2 million tons and 3.77 million tons, were the final plan after the government reduced procurements four times for Ukraine in 1932, but not the actual procurements gathered. The procurements the Soviet government managed to receive were less than that total. In mid-December the Ukrainian official press reported that kolkhozy had fulfilled the procurement plan 72.4 percent, sovkhozy 68.8 percent, and non-collectivized peasants only 39.5 percent (Slyn'ko 1961, 298, citing the newspaper *Za sotsialistiychhnu perebudovu* from 18 December 1932). At that time, the regime had reduced the procurement plan for Ukraine three times; on 11 January the regime reduced the plan one more time, which enabled some regions to fulfill the plan (I discuss these reductions further below). But the total reduced plan was never fulfilled, and the regime on 29 January specified that most grain procurements still being collected at that point were to be allotted to the farms for seed (Pyrih 2007, 601–602, 625).

4. Calculated from the decrees reducing procurements recorded in documents in Pyrih 2007, 290–303, 355–360, 597–601. I discussed this in my review of Applebaum's book *Red Famine* on History News Network (Tauger 2018), but here I have corrected the data slightly.

Consequently, using the procurement plan to determine how much grain peasants and kolkhozy had after the harvest is misleading: the fact that they were starving even though they had not fulfilled the procurement plans surely indicated that the harvest was even lower than the annual report data indicated. Naumenko made a similar point in her CMEPR paper (2018, 20), but she claims that "weather data" do not support this harvest decline. This argument is problematic, as I will discuss below.

Finally, Naumenko made two more errors regarding my work in her discussions of statistics in her 2021 article. First, she wrote: "Since Davies and Wheatcroft (2004) and Tauger (2001) do not offer corrections for separate Soviet republics…" (Naumenko 2021a, 170–172). This is not correct: in my 1991 article I calculated weighted-average grain harvest yields for Ukraine and most of the other important grain regions of the USSR for 1932 (Tauger 1991b, 85 Table 10).[5] Then, discussing the larger 1933 harvest, Naumenko wrote "… historians (including Davies and Wheatcroft, although, remarkably, not Tauger) agree that the 1933 harvest was good" (Naumenko 2021a, 174). This is also incorrect. In my 1991 article three tables of data show that the 1933 harvest was much larger than the 1932 harvest: Table 6 has data from the kolkhoz annual reports for 1932 and 1933, showing much larger harvests in 1933 in Ukraine; Table 7 documents increased sown areas and increased yields in 1933 over 1932, again from annual reports; and Table 8 shows substantially larger harvests in 1933 than in 1932, from a 1935 Soviet publication that included annual report data (Tauger 1991, 80–82). I also document how the larger 1933 harvest substantially reduced grain prices on markets (Tauger 1991b, 87).[6] I do not know whether Naumenko's false statements in these two cases were intentional, results of her failure to read those works carefully, or results of forgetfulness, but no matter what the reason they reflect at least incompetent work, and possibly an attempt to discredit other scholars whose work would challenge her conclusions.

Comparisons of 1931–1932 weather with weather in earlier periods

Naumenko attempts to discredit the idea that the 1931 and 1932 harvests were low from environmental factors by comparing them with earlier periods when according to her weather statistics, weather conditions were similar.

Naumenko (2021a, 157, 175; 2018, 3) argues that the 1931 harvest was not

5. Davies and Wheatcroft also performed this calculation in a publication that came out 13 years after my initial presentation of it, also without citing my work; see Tauger 2006a.
6. *See* Tauger 2001b and 2001c for further documentation of these points.

terribly low because it was on the same level as 1924 and 1934 and those were not famine years, and in line with the average of 1924–1929, during which she states there were no famines. The truth is quite different: the USSR saw two substantial famines in this period, in 1924–1925 and in 1928–1929. The 1924 crop failure and the famine conditions that followed it affected many regions of the USSR, including Ukraine, and were not secret but were openly recognized in the Soviet press. Even the *New York Times* reported on them.[7] The Soviet government established a famine relief committee, led by top Soviet official Alexei Rykov, imported food and distributed it to famine victims, regularly reported on conditions both in certain publications and in internal sources now in Soviet archives, and in 1925 published a substantial collection of articles on the famine, its causes, relief efforts, and proposals to prevent future famines, *V bor'be s zasukhoi i golodom* (*In the Struggle with Drought and Famine*). In 2007 I presented at a conference a substantial paper on this famine, based on both published sources and extensive archival research, and my study was published in France in a collection of my articles in 2017 (Rykov 1925; Tauger 2017b).

In 1928, a serious crop failure struck Ukraine, which was again not secret. The Ukrainian government again set up a relief committee, imported food, and provided relief to famine victims. I published an article on this famine in 2001, which was the first historical study of this famine in any language, as a later Ukrainian scholar acknowledged (Tauger 2001a; Hrynevych 2013, 7–8). Soviet scientists, including Nikolai Vavilov, published two studies documenting these crop failures. Other regions also had low harvests in 1927 and 1928 (Kuleshov 1929; Vorob'ev 1929). A Ukrainian leader, Stanislav Kosior, in a report to the Communist Party Central Committee from 5 February 1933, referred to the "catastrophe" of massive winterkill of crops in 1927–1928, indicating that Ukrainian officials remembered this crisis (Pyrih 2007, 642–643). The occurrence of these crop failures from diverse environmental disasters in multiple regions, and the government's establishment of famine relief committees and distribution of food relief to crop failure regions from regions with better harvests and from imports, repeated decades of similar events and practices from the Tsarist regime.

Naumenko (2021a, 161–162; 2018, 7) briefly discusses this period with no reference to the crop failures, and instead attributes the urban shortages of the late 1920s to peasants' decisions to shift away from growing grain to more expensive produce. This is an old conventional argument that was based on ignorance of actual agricultural conditions, especially the severe crop failures, and on incomplete evidence about peasants' actions (Tauger 2001a, 164, 360; for an example of these

7. For example: "Reports famine sweeping Russia," *New York Times* 7 September 1924, p. 3; "Famine again in Russia," *New York Times* 9 September 1924, p. 28. For Soviet sources, see discussion below.

older views, see Lewin 1974, ch. 9). As the above cited sources show, the "grain crisis" of 1928–1929 was really at root a crisis of crop failures and famine (Tauger 2001a; 2006b). Naumenko concludes from her description of the 1924–1929 period as "non-famine years" that environmental factors were non-existent and unimportant for the 1931–1933 crisis. The reality is, however, that environmental factors were extremely important and caused serious crop failures and famines in 1924–1925 and 1927–1929, famines that the Soviet government openly recognized and organized relief, including importing food, to alleviate. Consequently, a historically accurate comparison of these years with 1931 would clearly have to indicate the central importance of environmental factors.

Naumenko makes a similar inaccurate historical comparison in a statistical calculation using 'weather data' from Russia in 1901–1915 to predict what the 1931–1932 harvests would have been without collectivization (2021a, 174–175; 2018, 16–17). She implies that the 1901–1915 data came from a period when Russia had good harvests and no famines, again in an attempt to prove that the 1932–33 famine did not result from 'weather shock.' She also makes a similar claim in the NBER paper using the "famine of 1892" (actually 1891–1892) and describing it as the "last large famine in the Russian Empire" (Markevich et al. 2023, 20).

Yet her implicit assumption in using this 'data' is again completely incorrect. I am in the process of writing a history of famines in Russia, and I have substantial evidence documenting crop failures in every one of those years. Several of those years had extremely severe crop failures that caused serious famines: in 1901–1902, 1905–1907, 1911–1912, and 1914–1915. These cases are documented in the western press, such as the *New York Times*, but especially in many Russian publications. The most important ones were a series of annual reports prepared by the Russian Ministry of Interior for the years 1906–1914, demanded by the new elected Russian Duma (parliament), established after the 1905 revolution. These reports were extremely detailed: the one for 1906–1907 had seven volumes, approximately 10,000 pages, mostly statistical data on the aid the government provided; the one for 1911–1912 was two volumes, approximately 1000 pages long (MVD 1907; 1908; 1913). All of them provided detailed information on weather and agricultural conditions, which were extremely complex and diverse and rapidly changing over the year each report covered, as well as estimated harvests of food and forage crops and estimated needs for relief in crop failure regions. To give an impression of how serious many of these crises were, the following table, prepared by a Russian scholar in a study of the 1911–1912 case, shows the amounts the government spent on famine relief in these years:

TABLE 2. Russian government spending from state treasury for the most important food relief campaigns, in rubles.

1881	3,229,324	1903	5,000,000
1891–92	146,500,000	1904	1,500,000
1897–98	35,000,000	1905–6	71,153,000
1900	699,698	1906–7	169,657,000
1901	20,000,000	1907–9	23,954,000
1902	18,620,000	1911–12	126,555,517
Source: Belokurov 2014, 17.			

The 1891–1892 famine is well-known in the literature as a particularly severe case, but this table, based in part on the substantial Ministry of Interior publications mentioned above, shows that the government spent much more on relief in 1906–1907, almost as much in 1911–1912, and very substantial sums in other years. These data as well as many more sources clearly show that the 1891–92 famine was not the last large famine in the Russian Empire.

Yet Naumenko never mentions that the years she used as a reference, 1901–1915, had crop failures every year and several serious famines; she implies that these years were perfectly normal, good harvest years, which was clearly not the case. She used some generalized weather data, but never mentions or cites these much more detailed and accurate sources, which described the weather and agricultural conditions as they changed week by week and region by region, and the concrete effects of them on farm production. Her claim that her calculations, using what in fact was very selective and unrepresentative data from 1901–1915, demonstrate that the harvests and famine in 1931–1933 were not the result of environmental conditions, is clearly incorrect and appears to reflect ignorance about both the real conditions in 1901–1915 and their comparability with conditions in 1931–1933. The Tsarist regime's massive expenditures on relief efforts recorded in Table 2 were undertaken in response to low harvests and crop failures caused by weather extremes and other environmental factors. They clearly indicate that Naumenko's assumption that the period 1901–1915 saw good regular harvests is wrong. Her assertion, derived from this assumption, that the same "favorable" weather conditions would have prevailed in 1931–1933 without collectivization is also wrong, because as the above table indicates, Russia (including Ukraine) had frequent and unpredictable environmental disasters and crop failures repeatedly in the past, and also because, as discussed below, the actual environmental conditions in 1931–1932 were also not favorable.

The actual weather and other environmental conditions in 1931 and 1932

In discussing the 'weather' conditions in 1931 and 1932, Naumenko makes several assertions that ignored evidence in her own sources, in particular in my publications. First, there was a serious drought in the USSR in 1931, but she claimed in both papers that it did not affect Ukraine. In the 2018 paper she wrote that "raw weather data" did not confirm the drought; in the 2021 paper she wrote: "I demonstrate that there was no drought in Ukraine in 1931" (Naumenko 2018, 3; Naumenko 2021a, 158, 176).

She bases these arguments on published weather data, but these data are extremely problematic. The appendices to her 2021 article include a map show the locations of the weather stations that were the sources of her data (Naumenko 2021b, 14). This map indicated three main weather stations, and three smaller ones, all in three of the seven regions of Ukraine. Their coverage, in other words, was extremely sparse and incomplete.

Yet in my Carl Beck paper that Naumenko cited, I included a table from Ukrainian archives showing precipitation there in April–June 1932, crucial months for crop growth, and I reproduce it in Table 3 (Tauger 2001b, 12). These data came from 10 regions in Ukraine, in other words much wider and more comprehensive coverage than Naumenko's data. These data came from the Ukrainian commissariat of agriculture, which had qualified observers and scientists all over Ukraine reporting on these conditions. These data are based on eyewitness, measured day-by-day reports, covering almost all of Ukraine, and hence are very reliable.

TABLE 3. Summary of precipitation in Ukraine, April to the first half of June, 1931 and 1932

	Millimeters			Percent		
Oblast'	Long-term average	1931	1932	Long-term average	1931	1932
Kiev	165	191	328	100	116	199
Vinnytsia	130	76	171	100	51	132
Sumy	150	113	178	100	75	119
Kharkov	118	99	233	100	84	198
Poltava	110	58	210	100	53	192
Zinov'ev	105	115	315	100	110	300
Odessa	80	77	191	100	96	240
Askenia	85	57	143	100	67	168
Novoluk	110	66	136	100	69	124
Iasinuvsk	140	56	210	100	40	150

Source: Tsentral'nyy derzhavnyy arkhiv vyshchykh orhaniv vlasty ta upravliniia Ukrainy (Central State Archive of Leading State Organs of Ukraine), f.27 o.13 d.213, ll. 37, 39; previously published in Tauger 2001b, 12.

Table 3 shows that three regions—Kiev, Zinov'ev, and Odessa—had near-normal or above normal rainfall in 1931, but the remaining seven regions had lower rainfall than average, including three—Vinnitsya, Poltava, and Iasinuvsk—that had 40–53 percent of normal rainfall. Unless it was perfectly timed, such low rainfall would be likely to create drought conditions. These data thus document both drought or near-drought conditions in most of Ukraine in 1931 as well as extraordinarily heavy rainfall in 1932.

Naumenko ignored this table, even though she cited the publication on other points. These drought conditions in Ukraine clearly contributed to a low harvest in Ukraine in 1931. The official estimate of the harvest (of course prepared by one of those agencies that conducted pre-harvest projections) was 18.3 million tons, from a sown area of 21.1 million hectares, with a yield of 8.6 centners per hectare (Sels'skoe 1936, 248, 270). A Soviet Ukrainian scholar, however, cited archival sources showing that the harvest was actually about 30 percent lower, 13.8 million tons, from sowings of 19.5 million hectares, for a yield of 7 centners (Slyn'ko 1961, 285–287). Further evidence of the effects of this drought in Ukraine include Soviet decrees allocating 870,000 tons of food and seed aid to central and eastern regions of the USSR, the ones most severely struck by the drought, on 16 February 1932, but also 106,000 tons of grain as food aid to Ukraine on 15 May 1932, and additional aid over the following weeks (Pyrih 2007, 63–64, 156; Pyrih 1990, 162).

On the 1932 harvest, Naumenko presents inconsistent arguments in her JEH article and CMEPR paper, both of which ignore crucial data. In her 2018 paper, as discussed above, she cited, discussed, and basically accepted the kolkhoz annual report data showing a harvest in Ukraine much smaller than the official figure (Markevich et al. 2023, p.36, uses the same figure for "production" in 1932, in her footnote stating the data were "revised by the authors using archival sources," which were clearly the sources I published in 1991). In this discussion, however, she relied exclusively on weather data and argued that the smaller harvest was not due to "weather", again relying just on official rainfall and temperature sources, and her inaccurate comparison with 1901–1915 (Naumenko 2018, 15–20).

In her 2021 article, she very briefly acknowledged the low harvest estimates by me and by Davies and Wheatcroft (as noted above, overlooking our 'corrected estimates' for Ukraine), with a very brief reference to my much longer discussion of the other environmental factors of infestations of insects, plant diseases, rodents, and weeds. Then she discussed weather and its uncertainties, and applied the 1901–1915 and 1924–1929 comparisons, as discussed above, arguing that the weather predicted similar harvests to those earlier periods, again as noted without recognizing the crop failures and famines in those years. Then she concluded that "if there was a gap between the officially reported harvest and the true harvest (and there must have been, otherwise rural retention is too high), in Ukraine, this gap *is*

not predicted by the weather" (Naumenko 2021a, 175, her emphasis).

Then she wrote "Unfortunately, it is impossible to directly quantify the presumed damage from pests and grain diseases" (Naumenko 2021a, 175). She asserts that the weather data do not allow such quantification. Then she refers to "Appendix B.5," which "studies how often published archival documents discussed famine, weather, grain diseases and pests" and "shows that weather or pests were not discussed more than usual in the years leading up to the 1933 famine" (ibid., 176). This is an invalid argument, as I will show below.

Her arguments regarding the 1932 harvest in the 2018 paper are based exclusively on weather, and completely ignore my paper that presented substantial scientific evidence on the other environmental factors. Her arguments in that paper are extremely problematic, because first of all, as the reports on the 1901–1915 period showed, the weather processes in this region were never simple, but involved many complex changes that cannot be reduced simply to selected temperature and precipitation readings. Second, any study of agriculture will show that in most cases one cannot reduce agricultural production exclusively to weather: there are also factors internal to the plants and in the surrounding environment that influence their growth and development. This was especially the case in 1932 all over the USSR. Her 2021 article unfortunately does not discuss the annual report data at all, which showed how serious the harvest decline was in 1932; instead, she basically argued that it was impossible to know how low the harvest was.

Naumenko's assertion in the JEH article that "it is impossible to directly quantify the presumed damage from pests and grain diseases" (Naumenko 2021a, 175) ignores a table I cited from a Soviet scientific article, reproduced in Table 4 below, containing quantitative estimates of losses for six different crops from rust and smut that totaled 8.94 million tons, by a leading Soviet agronomist (Tauger 2001b, 17, citing Artemov 1933, 75). That article was a study of susceptibility of grain crops to fungal diseases, written by one of the leading specialists in that area, P. K. Artemov. I was informed about the article by a leading U.S. specialist, Professor Alan Roelfs of the University of Minnesota. The journal, *Trudy po prikladnoi botanike, genetike, i selektsii* (*Studies on Applied Botany, Genetics, and Selection*) was founded in 1908 and has continued publishing to the present day. At the time of this publication, 1933, the head of agricultural research in the USSR, and the head of VASKhNiL, the Soviet academy of agricultural sciences, was the internationally respected scientist Nikolai Vavilov; the fraudulent scientist Trofim Lysenko at this time worked at a research center in Ukraine, was still a follower of Vavilov and had not yet turned against genetics, and had no political power over agricultural research. Consequently, Artemov's article is not political propaganda, not 'lysenkoist,' but a legitimate and reputable scientific article.

TABLE 4. Harvest losses from smut and rust, 1932 (centners)

Crop	Losses from Smut	Losses from Rust
Rye	457,000	---
Winter Wheat	1,313,000	40,000,000
Spring Wheat	5,771,000	11,000,000
Oats	3,056,000	20,000,000
Barley	1,422,000	---
Millet	1,406,000	---
Total	18,455,000	71,000,000
Sources: Artemov 1933, 75; Tauger 2001b, 17.		

These data show that Soviet scientists recognized enormous losses just from these plant diseases and attempted to quantify them. In addition to ignoring this source, Naumenko wrote that published archival sources did not discuss these problems much if at all, but she did not seem to be aware that there are many unpublished archival sources by scientists and specialists who documented that these environmental factors had devastating effects on crops in 1932. I have a large collection of scans of these reports for 1931–1933, which I am translating and preparing for publication. There are many more of these reports for 1932 than for those other years, which indicates that specialists recognized how serious these problems were in 1932. Scientists from regional branches of the Soviet Institute of Plant Protection (VIZR) reported regularly on these conditions, with particular attention to Ukraine because of its importance for grain supply after the 1931 crop failures and because of the significance of these problems in that republic. Their report on Ukraine report from 10 July 1932 noted:

> The general condition of grain crops in Ukraine, which at the present time are in the phase before the end of vegetative growth, should be characterized as satisfactory. Thanks to meteorological conditions of this year with presence of sufficient warmth and moisture in the important periods of development of plants unconditionally was reflected in the growth of grain crops. However, simultaneously with the rapid growth of cultivated plants, proceeded also rapid growth on them of parasitic microflora, which especially was observed in relation to rust, which by the end of June reached 100% development in a series of parts of Ukraine. The largest appearance of the parasite was observed in June, when the dynamics of the disease had the greatest intensity. The first 10 days of July noted further intensification of rust, which by this time implanted in the regions of the forest-steppe and Poles'ia. (TsGANTD f.356. o. 1-1 d.483, l.30)[8]

8. TsGANTD is the Central State Archive of Scientific and Technical Documentation, St. Petersburg,

Their report from 31 July 1932 noted that this year had especially severe infestations of rust, smut, and ergot (smut is documented in a quote further down):

> Infestation of ergot this year evidently has exceptional character and should be attributed to favorable meteorological conditions (warmth and moisture), and also to poor agricultural measures. … Rust has the character of almost uniform infestation in the whole territory of the Republic … 1932 should be acknowledged unfavorable because of mass epiphytotic of rust, which encompassed almost the whole territory of Ukraine and stood out for 100% infestation of sowings. Rapid development of rust coincided with milky whiteness maturity of the crops, led to significant drying of leaf surfaces and interrupted the correct accumulation of the plant at the moment of its ripening. The observed rapid development of spring grain crops in connection with this was held back and the quality of the harvest was noticeably reduced. (TsGANTD f.356. o. 1-1 d.483, ll.43–44)

These reports all contained detailed tables showing the degrees of infestation of these diseases at the observation points, as well as detailed reports on several major insect infestations that damaged crops in Ukraine and elsewhere in the USSR. These agronomic reports show that Naumenko's emphasis on "weather," and her arguments that weather conditions were generally favorable, clearly failed to consider that "favorable" weather for crops can also be favorable for infestations that seriously reduce harvests.

The VIZR reports at the end of the year included detailed statistical reports on plant disease infestations in Ukraine, which concluded that "1932 should be noted for mass development of smut fungi on all grain crops, which led to significant lowering of the harvest," that "mass spread of ergot in Ukraine this year carried an exceptional character, in particular in some districts infestations of grain reached levels exceeding epidemic disease (above 0.5%)," and that "the year 1932 should be recognized as a year of mass development of rusts. Rust encompassed the territory of all of Ukraine and was distributed both on winter and spring grain crops." A recent study by a Ukrainian biologist, Nazar Nazarenko, also documents that Soviet agronomists were very concerned about the plant diseases and documented the unusually high degrees of infestations in scientific publications (TsGANTD f.356. o. 1-1, d.482, ll. 17, 19, 23; Nazarenko 2019, 189). There is much more evidence of these infestations in these documents, which I am preparing for publication.

There were also other environmental disasters that Naumenko did not men-

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Russian Federation. In these citations, f = fond, the collection of documents for a specific agency; o = opis, inventory of documents in the fond; d = delo, the specific file; l = list, or page.

tion, most notably a vast weed infestation in 1932. The above-cited articles cited both published scientific and archival sources stating that while weeds had long been a serious problem in prerevolutionary Russian and Soviet farms, those of 1932 were much worse than previously observed. Even the Soviet press reported in July 1932 that weeds in Ukraine were "smothering" crops, providing breeding grounds for certain insects and plant diseases, and causing decreased harvests. Nazarenko cited several scientific studies showing that unusually high weediness on millions of hectares in most regions of the USSR greatly reduced yields and also made much harvested grain inedible because of lower quality and contamination with weed seeds. His article cited detailed studies showing high degrees of weed contamination of harvests of all the main grain crops in 1932 (Nazarenko 2019, 187–188; Tauger 2001b, 37–39).

The weed infestations resulted from favorable environmental conditions and from other historical, environmental, and economic factors. Until collectivization, most peasants, including in Ukrainian provinces, farmed their fields in strips, with borders between them that fostered weed growth (discussed below). Peasants usually did not sort their seed before sowing to eliminate weed seeds, peasants' farming implements allowed only shallow plowing and did not uproot weeds, and peasants often never bothered to weed their grain crops. A Russian specialist noted in 1917 that these factors "partly explain the terrible infestation of our fields with weed plants" (Mozzhukhin 1917, 20–21). A Soviet scientist, A. I. Mal'tsev, documented the catastrophic effects of weeds in Soviet agriculture in a 1926 publication, from these and other causes (Mal'tsev 1926, 3–71). Russian grain exports were notorious in Europe for high proportions of impurities, including seeds from non-grain plants, which included weeds. Mal'tsev reported that weed contamination of Soviet grain frequently reached 20–30 percent, sometimes 50 percent, and that this contamination lowered the value and acceptability of Soviet grain exports (Rubinow 1908, 15ff.; Mal'tsev 1926, 8–9). This pattern also meant that after 1917, the USSR inherited Russia fields heavily infested with weed seeds that under favorable environmental conditions would grow rapidly. Mal'tsev refers to research documenting that Soviet soils were contaminated with hundreds of millions and even billions of weed seeds. Many scientific sources on weeds, both Western and Russian/Soviet, document this point (Mal'tsev 1926, 14; one example of a Western source is WSSA 2016).

In 1932, both Soviet and Western specialists observed and reported on weed infestations. They all argued that the infestations were exceptionally large and unprecedented. Soviet personnel recognized that many factors contributed to these infestations, including lack of crop rotations, unusually warm and wet weather (see Table 3 above), but also equipment and draft power shortages (Tauger 2001b, 38). At a national conference Soviet scientists held on the weed problem in December

1933, a specialist from the North Caucasus, which bordered the Ukrainian republic, stated that a major influence on weed growth was the moist weather in 1932 and 1933. A Ukrainian specialist noted that weediness was extreme in 1932 and even with better weeding, it was still significant in 1933 (Volkov et al. 1935, 26–27, 46). Another environmental aspect that they did not mention was that the enormous weediness was probably partly a bounce-back effect stimulated by above-average rainfall in 1932 after the 1931 droughts. The specialists also noted inadequate seed cleaning, and neglect of weeding and unwillingness to weed on the part of kolkhoz managers and peasants, which was in part a continuation of peasants' traditional practices. The government sent soldiers to Ukraine to help with weeding and harvesting in August 1932, but by then it was too late to have much of an effect (Tauger 2001b, 37–39; Nazarenko 2019, 186–188; Pyrih 2007, 290). These sources indicated that while more effective weeding work could have reduced these problems partially, the scale and severity of the infestations in 1932 would still have caused serious losses, and that fighting weeds involved much more than simply weeding work. The Soviets were also still in the early stages of developing chemical weed treatments (Volkov et al. 1935, 27–28, 179–196).

The weediness problem raises the issue of whether better incentives for peasants to conduct weeding could have affected the 1932 harvest and the famine. I would argue that such measures could have helped, but only to a limited extent. As noted above and will be noted further below, weeds were only one of a complex of environmental factors that reduced the 1932 harvest and overwhelmed both farmers and specialists. Also, as noted above, even before collectivization and under the Tsarist regime, peasants were known to weed poorly or not at all, even when they were managing their own crops for subsistence and sale. Collectivization did not eliminate incentives, because peasants earned labor days for their work and those who did more work would receive higher incomes in money and kind. The problem in 1932 was that the harvests were so small in many regions that even peasants who earned many labor days did not get much income. I documented in my dissertation that collective farms had many organizational problems, and also considerable autonomy, and sometimes re-created pre-collectivization working conditions for peasants (Tauger 1991a, 236–237, 249–250, 339–340, and elsewhere). Perhaps most important, the larger harvests in 1933 showed that kolkhoz peasants, including in Ukraine, also worked as hard as they could during the peak of the famine in spring and summer 1933 to produce a better harvest. Their "incentive" in this period was to produce enough to survive. In addition, they received considerable aid from several thousand industrial workers sent to the villages as "political departments" of the Machine-Tractor Stations, who worked hard and mostly successfully to improve labor organization and work in the kolkhozy (Tauger 1991a, 404–510). So better incentives and organization could

possibly have reduced somewhat the severity of the weed infestation in 1932, but probably not the other environmental factors.

Those other factors also included massive pest infestations that severely damaged crops in many areas. One of these was a widespread infestation of mice. Studies had shown that mouse infestations recurred every ten or eleven years; the last was in 1921–1922 (which contributed to the Soviet famine in those years), so the one in 1932 was part of that cycle. Delays in crop harvesting and moving cut grain off the fields and inadequate grain storage also enabled mice to consume large amounts of grain. Mice also consumed large amounts of forage that in many places left livestock starving. In some regions, officials and kolkhozy took measures to destroy the mice, but in other areas they minimized or overlooked these infestations (Tauger 2001b, 39–40; Nazarenko 2019, 188–189). There were also significant insect infestations, from locusts, beet weevils, meadow moths, and many other insect pests, that spread very rapidly because of the warm, humid weather in 1932 that followed the drought of 1931—again apparently a bounce-back effect. These insects infested millions of hectares in Ukraine, the Volga region, the Caucasus republics, Kazakhstan, and Central Asia, and reduced or destroyed harvests. Many farms and Soviet anti-pest agencies worked to eradicate them, but the scale of infestations overwhelmed them. They also had limited amounts of pesticides and those they had were often ineffective (Tauger 2001b, 18–20; Nazarenko 2019, 188). The documents I am preparing for publication contain hundreds of descriptions of all of these infestations.

Naumenko uses statistics from weather stations to argue that the weather was not a serious problem (Naumenko 2021a, 173–174, 180). Yet the issue was not simply weather, but all the environmental and agronomic factors discussed above, including weeds, insects, rodents, plant diseases, and more. Her calculations about predicted harvests are consequently invalid because they are based exclusively on temperatures and rainfall. Agriculture production, especially grain farming, is much more complex than that, which is why there are many university departments and institutes all over the world where researchers study every aspect of agricultural production, and companies that produce and sell many chemicals and other treatments to help plants resist a wide range of environmental threats. It is an invalid oversimplification, and in conditions of 1932 extremely inaccurate and misleading, to reduce Soviet harvests to temperature and rainfall. Consequently, her tables, calculations, and assertions, which ignore or minimize the decreased harvests and consequent famine conditions caused by these environmental disasters, are invalid because they omit the most important scientific evidence. Her arguments on these points are unjustified and incorrect, and seem to reflect some degree of ignorance about agriculture.

As noted above, Naumenko (2021a, 176) also asserts that published archival

documents do not discuss environmental factors more than usual, which was almost never. She reaches this conclusion based on a study of the frequency of the use of keywords, such as rust, plant disease, pests, and other terms related to famine, in two sets of published documents: a large collection of documents from the Soviet secret police produced by Russian scholars, and a broader collection of documents on "the tragedy of the Soviet village" from 1927–1939 produced by an international group of scholars (Berelovich and Danilov 1998–2012; Danilov et al. 1999–2004). In her appendices she presents numerous graphs showing the use of these words in these documents during the 1930s. These graphs show that the terms concerning infestations and pests, were used extremely rarely in these documents, especially compared to words referring to weather, like heat, drought, torrential rain, and especially human actions, like drunkenness, mismanagement, theft, and neglect (Naumenko 2021b, 22–28).

Yet the fact that these published archival documents did not discuss pests and infestations is not evidence that they did not occur. Virtually all of these documents were political documents, by officials and secret police personnel; virtually none of them were written by scientists. Their neglect or dismissal of such information reflects a deep-seated bias among Russian and later Soviet Marxists. During the first decades of the Soviet regime, Soviet leaders, like Marxists in the Tsarist regime, knew little about agronomic and environmental factors in farming, ignored or minimized them, and attributed famines to the actions of people, usually the Tsarist regime before 1917, and the peasants or their own lower-level personnel when they were in power. An example from the Tsarist era is the book on how Russian socialists should struggle with famine in 1906, by the founder of the Russian Marxist party, G. V. Plekhanov, which never even mentions the environmental factors that caused crop failures and famine that year, and blames Russian famines on the Tsarist regime (Plekhanov 1906). Stalin continued this pattern in his statement at a Central Committee plenum in January 1933 that the 1932 harvest must have been larger than that of 1931 because there was no drought in 1932, although there were certain "unfavorable climatic conditions" (which he did not identify) in 1932 (Tauger 2001b, 8; Stalin 1955, 13:220–221). Stalin did not mention any of the other factors that Soviet scientists recognized in 1932 as extremely damaging to the harvests, as noted above. Sometimes leaders did recognize natural disasters, as when Kosior referred in his February 1933 report to the Central Committee to the winterkill that caused the 1928 crop failure in Ukraine (mentioned above). But these leaders were not agronomists and were focused on blaming people rather than understanding the environment. And the sources cited above show that there are vast numbers of archival sources that document these problems that Naumenko did not use or even mention.

Soviet policies

After rejecting 'weather' as an explanation of the famine, Naumenko, along with her collaborators in the NBER paper, attempt to attribute the famine and the deaths it caused to "Soviet policies", mainly collectivization and to a lesser extent the lack of "Group A" industries in regions most severely struck by famine. In the following discussion I will focus on two major problems in her approach to Soviet policies, both based on false claims about or misrepresentation of those policies.

Private trade in food

The topic of private trade is an important part of Soviet history, and Naumenko refers to it multiple times in all three papers, but all of those references are completely or almost completely wrong. Because this is a historical issue, I will discuss these references in historical order.

Both the CMEPR paper and the NBER paper contain a section entitled "Background," and in both Naumenko asserts with no sources or evidence that the Bolshevik regime during the Civil War of 1918–1921 eliminated money and prohibited private trade. In the CMEPR paper, she refers to the Civil War and "experiments with 'communism' (abolishing money and the prohibition of private trade)" (Naumenko 2018, 6). The NBER paper states "War Communism [an important Soviet economic policy during the Civil War] banned money and trading of foodstuffs and prodrazverstka aimed to extract all 'surplus' grain from peasants. The peasants resisted by not working. Sown area in 1921 was 30% lower than the 1913 level" (Markevich et al. 2023, 8).

In fact, the Bolsheviks did not abolish money, they continued and intensified the increased currency emissions of the Tsarist regime during World War I. As a result, they printed more money than any previous Russian government, responding to the rapid inflation during the Civil War, and thereby created a hyperinflation that lasted beyond the Civil War. According to contemporary documentation, the Tsarist, Provisional, and then especially the Soviet government printed and distributed billions and trillions of rubles. The Russian economist S. S. Katzenellenbaum documented that during the World War, revolution, and Civil War the amount of paper rubles in circulation in Russia increased from 1.63 billion rubles in July 1914 to 18.9 billion rubles in October 1917 to 225 billion rubles in January 1920 to 1.168 trillion rubles in January 1921 to 17.5 trillion rubles in January 1922 to 178 quadrillion rubles in January 1924, when a new currency was finally introduced. The new regime printed so much because the government and the Red Army and ordinary people faced rapidly increasing inflation, and the regime had to print

ever more money to cover its expenses. In addition, many towns and regions in Russia began printing their own currencies, some of which the Soviet government authorized, and foreign currencies circulated in many border regions. The Bolsheviks even allowed use of the money issue by their opponents, the White Armies (Katzenellenbaum 1925, ch. 3, especially the table 56–58, that shows the amount of currency in circulation every month from July 1914 to May 1924; Marks 2014, 128–132; Efremov 2012, 16–17). Steven Marks also notes that Lenin's objectives were not to eliminate currency but to establish a new currency, which the Soviet regime finally did in 1924 (Marks 2014, 132).

The Bolsheviks also did not stop private trade. After they came to power in November 1917, workers began sending representatives to villages to buy or barter food. The Bolsheviks in spring 1918 attempted to impose a "grain monopoly" to stop inflation, but it failed, and in August 1918 Lenin and the leaders returned to the Tsarist wartime food supply system of prodrazverstka, which imposed a kind of food tax to guarantee workers' supplies, but still allowed private trade (Lih 1990, ch. 6–7). Lih (1990, 184) notes that officials recognized razverstka resembled a tax and admitted that it provided an incentive for peasants to produce more because larger production would leave a surplus for the peasants. The *New York Times* recorded the Tsarist regime's introduction of the prodrazverstka (6 October 1915, p. 3, "Russia takes over food"). Lenin in a speech on 30 July 1919 admitted that in "a thorough study, it was found that this spring and summer the urban worker obtained about a half his food from the Commissariat of Food and had to buy the rest on the open market, as Sukharevka, and from the profiteers" (**link**). Sukharevka was a market in Moscow, but similar markets survived in most if not all other towns (see, e.g., the photo of the Nizhnii Novgorod market in Lih 1990, before p. 167). Even the western press reported on private food trade, "speculators," and extremely high prices, which could not have happened if money had been banned.[9]

Finally, Naumenko's claim that the peasants responded to the Civil War policies by "not working" is also not correct. First, as documented above and in the footnotes, private trade and speculation continued during this period despite the Bolsheviks' attempts to control it, which clearly indicated that at least some peasants did attempt to produce for the market. A contemporary Russian economist who was an eyewitness to these events, L. N. Litoshenko, wrote a book

9. For example in the *New York Times*: February 18, 1918, p. 1, "Hunger and plague threaten Russia," which notes that prices were "grotesque;" February 25, 1920, p. 2, "Russia under Reds much as of old," notes that "profiteering is general," and that trade continued despite the government policies against "speculation" and prices were "exorbitant;" August 21, 1920, p. 2, "Russia is stripped to supply Moscow," notes that "Speculators operate despite stringent laws—prices beyond the workman's income;" and June 26, 1922, p. 21, "Currency inflation on fantastic scale," notes that "Russia's new issues reported 58 trillions in April."

about this period that was only published about 70 years later, in which initially he asserts that peasants cut back their crop sowings in response to the prodrazverstka, but then at the end of the book finally admits that they cut back their sowings mainly because they lacked sufficient seed and livestock to sow as much as they had before (Litoshenko 2001, 441; Tauger 2004). Also, during the revolution and Civil War, many peasants seized land from landlords and divided it among themselves, but peasants had lower productivity than landlords, so their land seizures resulted in lower farm production (on higher harvests on landlord estates, see Ermolov 1909, 144, citing a study by the Imperial Free Economic Society).

Naumenko makes similar false claims regarding trade in the late 1920s and collectivization period. In her JEH article, Naumenko claims at least twice that Soviet authorities "banned private trade in food" as part of the collectivization campaign (2021a, 158, 163). She also wrote that the government allowed kolkhoz peasants to trade at "kolkhoz markets" only after the famine (ibid., 165). The CMEPR article also claims private trade was "mostly banned" from 1928 (Naumenko 2018, 8). The historical evidence, however, contradicts her claims and discredits some of her main arguments about the famine.

While the Soviet regime from 1928 did crack down on the 'Nepman,' the private producers and traders of the NEP period (1921–1928), it could not and did not stop peasants' trade in agricultural products. During the first collectivization campaign from November 1929 to March 1930, some "zealous" local organizers (almost all of whom came from towns) went beyond their task and tried to introduce 'socialism' by closing peasant markets. When reports on these and other actions reached top Soviet authorities, Stalin called off the first collectivization campaign on 2 March 1930 and criticized those actions as "excesses" in his article "Dizzy with Success" published that day in most newspapers (Davies 1980a, 269ff.; *Pravda*, 2 March 1930). Two weeks later, on 15 March, the Communist Party Central Committee (TsK) published a long decree—"decree of TsK BKP(b) on the struggle with distortions of the party line in the kolkhoz movement"—in *Pravda* and other newspapers in the USSR that condemned these 'excesses.' It included the following statement: "Finally the TsK considers necessary to note completely impermissible distortions of the party line…also in the area of trade turnover between town and village. We have in view…the abolition in a series of places of markets and bazaars, leading to worsening supply of towns." The TsK then ordered in this decree: "6. Prohibit closing of markets, restore bazaars and not restrict sale by peasants, include kolkhozniki, of their produce on the market" (Egorov and Bogoliubov 1984, 5:103–104).

In her JEH article, Naumenko on this point (Naumenko 2021a, 163) included a parenthetical reference to Davies, *The Soviet Collective Farm* (Davies 1980b), but with no page number, about the abolition of private trade. In fact, in that

book Davies wrote that the policy ideas of eliminating private food trade were "repudiated" in February 1930, and that the authorities authorized private trade, citing the 14 March decree discussed above and also citing the decrees that allowed kolkhoz peasants to retain private plots and livestock (1980b, 159–161). Naumenko did not mention this passage in Davies' work at all, either overlooking it or choosing to ignore it and suppress the evidence that contradicted her false claim that trade was banned.

As a result of the 14 March decree, peasants' trade in agricultural products on both rural and town markets continued. During 1930, Soviet economic publications and some official statements argued that because of growing inflation of food prices (again clear evidence of the continuation of private trade), the future would see "planned exchange." On 10 May 1931, however, Sovnarkom (the Council of People's Commissars, the top Soviet government institution) issued a circular that reversed this viewpoint and set the goal of promoting Soviet trade and ultimately abolishing rationing (Davies 1982, 22–23). The government also kept track of prices on these markets, and the indices of prices compared to 1928 as 100, reached 662 by 1931, i.e., grain prices more than sextupled by the beginning of the famine, mostly because of the low 1931 harvest and consequent food shortages in towns and industrial sites throughout the USSR, which I discuss below (Kerblay 1968, 122; on the low 1931 harvest and food shortages throughout the USSR, see Davies 1996, 176–196). The state planning commission (GOSPLAN) conducted a study of peasant food trade and estimated that peasants earned approximately 2 billion rubles from produce sales on private markets in 1929, 2.8 billion rubles in 1930, and 4.5 billion rubles in 1931 (Malafeev 1964, 130–131, 169; Davies 1982, 24). Another study showed that kolkhoz peasants earned more money from private trade than from work in kolkhozy in 1931–32 (Zvezdin 1968). In October 1931 the government issued another decree emphasizing the need to develop private trade by collective farms once they had fulfilled state procurements. By this time, kolkhoz private trading "had grown to such proportions that the authorities, rather than attempt to suppress it, decided to tax it" (Whitman 1956, 386). After that decree, local officials tried to encourage peasants to sell produce at "Soviet prices," but with no success. By January 1932 at the 17th Party Conference, the party leader of the North Caucasus krai (another term for province), Boris Sheboldaev, stated:

> Also evidence of the inadequacies of our work for improving turnover between town and village is that we still have bazaars that are not Soviet, but simply private bazaars—speculative bazaars. Almost in every stanitsa [village], almost in every town, I think, in all provinces there are bazaars, which trade again the same eggs, butter, milk and series of other relatively small goods, but these bazaars allow the existence of speculative elements who try to adapt to collectivization…. (VKP(b) 1932, 210; Davies 1982, 24)

Simultaneously with this pattern, in 1931 the regime imposed the highest grain procurements on farms up to that time, yet the drought, as discussed above, substantially reduced grain harvests in most of the main grain-producing regions. As a result, millions of people in rural areas (as well as in towns) were starving, and many kolkhozy, sovkhozy, and non-collectivized peasants did not have enough seed for the next year's sowings. In response, as discussed above, the regime issued a series of decrees to provide food and seed aid to villages over the following months. To obtain supplies for this purpose, the government had to reduce supplies allocated to rations for many of the 38 million people receiving rations that year in towns and industry, and cut in half planned exports of grains (Antipova et al. 2009; Pyrih 2007).

In response to the near-impossibility of stopping private food trade by peasants and kolkhozy, and the desperate need to supply the growing cities, Stalin and other Soviet leaders decided to compromise and took the changes of 1931 a major step further. In three decrees in May 1932, they reduced grain and other food procurements from kolkhozy and non-collectivized peasants, and explicitly authorized private trade by kolkhozy and peasants "at prices formed on the market." These decrees eliminated taxes on private trade by kolkhozy and collectivized peasants, and reduced taxes on non-collectivized peasants. These decrees also increased the range of food products that were removed from the rationing system and available only through peasant markets and Soviet cooperatives. As Davies pointed out, "In view of the huge scale on which the free market in food products was already operating semi-legally, this decree in terms of current practice merely regularized an existing activity" (Davies 1982, 25; Sharova 1957, 411–413, 416–419; Pyrih 2007, 149–152; on products removed from rationing, Davies 1996, 206; Tauger 1991b, 72). Naumenko's claim that the regime allowed private trade only after the famine is thus totally incorrect and suggests that she is ignorant about basic features of Soviet history.

The only constraint, which was imposed in the first of these laws, issued on 6 May, was that peasants and kolkhozy had to fulfill those reduced procurement goals and gather necessary seed for the coming crop year before beginning to trade grain. The decree specified that grain trade could not begin until 15 January 1933. Yet peasants, traders, and even some Soviet personnel ignored this regulation. The Politburo of the Ukrainian SSR issued a decree on 9 August reporting on speculation in grain trading and emphasized the need for local officials to control it. A decree of the Ukrainian Commissariat of Justice on 15 August reiterated this point and listed fines and other penalties for particular forms of grain trading. Finally on 16 September the central office of the Soviet security police (OGPU) issued a secret circular that stated that "according to available information, sale of grain and flour of the new harvest is being conducted at bazaars and markets almost

everywhere, despite the government decree prohibiting sale of grain from the new harvest until 15 January 1933" and that "OGPU up to now is not conducting sufficiently active struggle with this phenomenon, allowing trade in grain and flour." The circular ordered a series of measures against grain trading. It is extremely important to note, however, that this circular explicitly directed these measures only against grain trading and not against all trade: the circular had 11 directives, and the 7th directive stated: "7. Categorically prohibit confiscation at bazaars of any other agriculture products, except grain and flour" (Pyrih 2007, 283–285, 287–289, 322–324). These decrees clearly aimed not to stop all private trade, but only trade in raw grain products, because grain was the primary food source that the regime needed to supply the population of the towns and industrial sites, and because they were still exporting a limited amount of grain to pay for imported supplies.

Finally, in case readers suspect that these Soviet sources are just 'propaganda,' we should note that Western observers in the USSR in these years clearly documented this private trade. The Third Secretary of the British Embassy to the USSR, J. M. K. Vyvyan, prepared a report based on his week-long tour of Ukraine and Crimea in July 1932 in which he wrote:

> The institution of so-called collective farm trade, combined with the establishment in every town of large free markets encouraged by the State, is a dominant feature of the Soviet Government's policy of decentralisation of distribution. … [He noted that meat products were in short supply in those markets, but that] the collective farm markets are, however, thronged. In Simferopol, with a population of about 100,000, I do not think that less than 5,000 people were congregated in the bazaar in the morning. The produce sold consists in main of bread, meal, vegetables, milk, eggs, butter, potatoes and large quantities of fruit. (Carynnyk 1988, 90–91)

This description resembles the one Sheboldaev presented seven months earlier, and also supports the Gosplan study showing peasants earned billions of rubles from private market sales in the previous years, as well as all the other sources cited about peasant violations of restrictions on grain trading in 1932. In all three of these papers, Naumenko, and in the NBER paper her colleagues as well, repeat completely false claims that the Soviet regime banned money during the Civil War and private food trade both then and during collectivization. The above sources show that the regime was not nearly as repressive of peasants' activities as they implied. Their false claims also suggests that all of these writers were ignorant about Soviet history, and worked from extremely biased assumptions about that history that they did not bother to verify.

Procurements

The most important topic for the arguments regarding famine mortality in Ukraine in these three papers is grain procurements. Ukrainian nationalist literature views the grain procurements as the means by which the Soviet government imposed a 'man-made' famine. Naumenko's papers present inconsistent viewpoints on this. In her JEH article, Naumenko asserts that the Soviet government "made an extreme effort to procure as much grain as planned" in 1932, which essentially repeats the conventional Ukrainian nationalist viewpoint (Naumenko 2021a, 164). She gives as a source Davies and Wheatcroft's 550-page study *The Years of Hunger*, but she does not specify page numbers or provide any other explanation. This claim is part of her argument in the paper that the main cause of famine mortality was higher procurements from kolkhozy. This paper does not acknowledge, however, that the Soviet regime reduced procurements in 1932. The CMEPR paper acknowledges procurements as a factor in the famine but argues that kolkhozy were less productive in 1932 (using the sources I first presented, as discussed above) and that procurements were lower, but the article never presents the actual procurement data nor documents how and why the government reduced the procurements (Naumenko 2018, 3, 27–28). The NBER paper does acknowledge that the government reduced procurements in 1932, but emphatically and repeatedly argues that grain procurements were the direct cause of the famine, that the regime imposed harsher procurements on regions and kolkhozy populated by Ukrainians than on regions and farms with little or no Ukrainian population, and that these actions were the result of anti-Ukrainian bias of Soviet leaders and officials (Markevich et al. 2023, 1, 3, 5, 11, 36).

Yet again, all of these arguments in these papers are either incorrect or extremely misleading, because the changing Soviet policies toward private trade also affected grain procurements in this crisis year. It was mentioned above that the grain procurement plans were reduced in 1932, but in the following I will explain this in more detail because of what it shows about real Soviet policies compared to Naumenko's claims.

Among the May laws regarding private trade discussed above, the one issued on 6 May 1932 reduced grain procurement quotas for every grain producing region of the USSR. In particular, the 6 May decree reduced the procurement quota for kolkhozy and non-collectivized peasants in Ukraine from 434 million puds (7.1 million tons) to 356 million puds (5.83 million tons), a reduction of 18 percent, much more than the reductions in any other region. The decree attempted to make up the difference with a marginal increase in procurements from sovkhozy, which were a small but growing subsector of agricultural production, and mostly by authorization and endorsement of private kolkhoz trade (Sharova 1957, 412ff.).

Naumenko (2021a, 164–165) does mention that the Soviet regime allowed peasants to sell private produce on "kolkhoz markets"—but her discussion makes it appear as if this decision came in the mid- or late 1930s, and she provides no date or documentation for this. In fact, as discussed above, kolkhozy were allowed to trade from the beginning of collectivization, and the law on kolkhoz markets came during the famine crisis, in May 1932, as documented here.

Yet this reduction set a precedent for more reductions. In August, once procurements began, Ukrainian leaders and leaders of other provinces appealed to the central government for more reductions in procurements. Stalin and the other leaders agreed to cut Ukraine's grain procurement plan a second time, by 40 million puds (656,000 tons), over 12 percent of the plan that remained for Ukraine to fulfill. This proposal was approved (the decree specified that procurements were to be reduced by 39.5 million puds, holding back half a million puds of reduction in case further reductions were needed) and implemented over the next two weeks. In preparation of this measure, Stalin wrote to his subordinate in Ukraine Lazar Kaganovich and specified that this reduction was only for Ukraine, the other regions would have to wait:

> As is evident from the materials, not only the Ukrainians but also the North Caucasus, Middle Volga, Western Siberia, Kazakhstan, and Bashkiria will speak with the Central Committee about reducing the grain procurement plan. I advise satisfying for the time being only the Ukrainians, reducing their plan by 30 million and only in extreme case by 35–40 million. As for the others, postpone discussion with them until the end of August. (Pyrih 2007, 290–298)

Stalin here clearly indicated that he considered reducing procurements for Ukraine a higher priority than for other regions. These are not the words of a leader who had a strong anti-Ukrainian bias. Naumenko never cites this source nor the document collection it came from.

The authorities reduced procurements for Ukraine a third time in late October 1932, after Stalin's associate Viacheslav Molotov met with Ukrainian leaders, including Stanislav Kosior, the head of the Ukrainian republic Politburo, and the leaders of all the Ukrainian oblasti, and discussed in detail their views about how much the procurements should be reduced. Based on these discussions, he proposed to Stalin that Ukraine's procurement target be cut by 70 million puds (1.1 million tons), almost double the previous reduction, including reductions for sovkhozy as well as for kolkhozy and individual peasants. This total reduction was rapidly approved and implemented (Pyrih 2007, 355–360). Here again, the regime reduced procurements substantially and only for Ukraine, in response to appeals by Ukrainian authorities, who were trying to alleviate the desperate situation of peasants and others in Ukraine. The regime reduced Ukraine's grain procurement

plan a fourth time in January 1933, again in response to appeals from Ukraine and three other regions. In this decree, issued 12 January, the Soviet government reduced the grain procurement plan by 28 million puds (459,000 tons), in Ukraine, and much smaller amounts in three other regions (2 million puds in the North Caucasus, and half a million puds in the Urals and Kazakhstan) (Pyrih 2007, 597).

These documents on grain procurement reductions are drawn from a large document collection (over 1100 pages) on the "Holodomor" that was published in independent Ukraine in 2007 by Ukrainian scholars and students under the auspices of the Ukrainian Academy of Sciences and the Ukrainian Institute of History. They are genuine, previously secret, Soviet archival documents that reveal what actually happened in this crisis, and not some sort of Soviet or Russian propaganda (Pyrih 2007; some of these documents were also published in a major Russian-American document collection, Danilov et al. 1999–2004, 3:515ff.).

As noted above, these four substantial reductions reduced Ukraine's procurement plan for collective farms and individual peasants from the 1931 level of 7.1 million tons to 3.77 million tons, just over half of the 1931 plan. The total final plan for 1932 was somewhat higher, 4.2 million tons, because it included procurements from sovkhozy, which as noted were also reduced in October 1932. No other Soviet region had its procurements reduced as frequently, by that percentage, or by anything close to that amount. That these decrees were implemented is confirmed by several documents. Ukrainian leader Stanislav Kosior, in his report to the Party Central Committee in 5 February 1933, confirmed the total reductions in the procurement plans after the May 6 decree, 138 million puds, and even admitted that those reduced grain procurements from Ukraine had not been fulfilled by the end of 1932, which confirmed the press reports shortly before, as noted above (Pyrih 2007, 642–643).

Naumenko's assertion in the JEH article that the Soviet regime "was not willing to accept the low harvest estimates and made an extreme effort to procure as much grain as planned" (2021a, 164) clearly overlooks these reductions of grain procurements from Ukraine, which are documented in her sources and in her 2018 paper (they were documented in a source she cited: Tauger 1991b, 73 n.14). Her JEH article also does not present the actual amounts of grain procurements in Ukraine in any of these crisis years, except in the "appendices." The procurement total for Ukraine in 1932 that she lists in her appendices is the planned total of 4.2 million tons, after the four reductions (Naumenko 2021b, 59), but as documented above, that planned total was never fulfilled and actual procurements were significantly lower. Her 2018 paper did recognize these points in general terms, but also did not discuss the process by which the procurement plan was reduced or the fact that the plan was not actually fulfilled. Most notably, the NBER article recognized that the regime reduced procurements, citing a table from Davies and

Wheatcroft's *Years of Hunger*, but the NBER paper brushed over these procurement reductions rapidly and superficially (Markevich et al. 2023, 9). The NBER paper attributed the reductions to reduced grain production, without any consideration of the implication that if the leaders reduced grain procurements for Ukraine because its production was lower, then they may not have been so "biased against" Ukraine.

At the end of the NBER paper is also an attempt to attribute the famine to issues raised in a study of the Chinese famine of 1958–61, referring to the government's inability and unwillingness to adjust procurements because central authorities did not trust local officials, and that bureaucrats did not have an incentive to report conditions truthfully (Markevich et al. 2023, 30). Yet the documents quoted and discussed above show that Stalin and Molotov did recognize food supply difficulties and did not arbitrarily procure "as much as possible" with no consideration for local needs. Molotov consulted with local and regional officials, trusted their information and views, and communicated this to Stalin, and Stalin and his associates reduced grain procurement targets for Ukraine three times after the May 6 general reduction, in response to their appeals. These sources clearly undermine the NBER paper's comparison with China and its claims about the total "anti-Ukrainian bias" of Soviet leaders and their actions.

These sources and data also contradict one of the NBER paper's main claims: that the regime imposed higher grain procurements on Ukraine-inhabited regions than on non-Ukrainian regions, with the result that Ukrainian regions retained less grain. The NBER paper presents none of the actual data to document these claims, but only statistical coefficients and similar calculation results. In Table 5, I present a similar calculation, but with the actual data, to show the per-capita grain procurements for Ukraine and other primary grain producing regions: the North Caucasus, the Middle and Lower Volga, the Central Blackearth oblast', and West Siberia. I use the rural population data from the 1926 census because this was the last census before the 1937 one, because all other estimates of population between these years are speculative and incomplete, and while the rural population grew by a few million between 1926 and 1932, several million of the rural population also left to work in the cities because of intensive recruitment of workers by the government and factory managers during the first five-year plan. Consequently, I would argue that the rural population in the 1926 census is not too far from the rural population in 1932.

TABLE 5. Per-capita grain procurements from peasants and kolkhozy, 1932

Region	1926 rural population, million people	Actual total peasant and kolkhoz grain procurements 1932, 1000 tons	Per-capita peasant and kolkhoznik grain procurements 1932, kg
Ukrainian SSR	23.66	3584	151
North Caucasus krai	5.92	1593	268
West Siberia krai	4.78	1054	209
Lower Volga krai	3.7	1185	320
Middle Volga krai	4.9	1159	236
Central Blackearth ob.	10.1	1797	180

Sources: Poliakov et al. 1991, 49–61 (table containing data for 1926 and 1937 censuses); Davies and Wheatcroft 2004, 478, Table 21.

This table shows that the repeated procurement reductions for Ukraine, and the fact that Ukrainian peasants and kolkhozy did not fulfill the greatly reduced procurement quota, had the result that per-capita grain procurements in Ukraine were less, often significantly less, than the per-capita procurements from the five other main grain-producing regions in the USSR in 1932. These calculations, in which I use and present for readers the actual data, completely contradict the NBER paper's repeated claims that the regime imposed higher procurements on Ukraine than other regions, which that paper does not actually document with concrete data that readers can see and verify. The data and results in Table 5 further document the points made above that Soviet leaders did try to accommodate the food supply crisis in Ukraine by significantly reducing procurements below the levels of other regions, and that therefore the grain procurements in Ukraine did not reflect an "anti-Ukrainian bias." Finally, since Ukraine had such a severe famine despite much lower per-capita procurements, a central cause of the famine must have been a much lower harvest, which was mostly the result of the environmental disasters discussed above, and which Naumenko and her co-authors dismiss or ignore in all three papers.

To further understand the significance of these procurement reductions, it helps to view them in context. First, Ukrainian cities and industries were also part of the Soviet urban rationing system: most factories on the "special list" of sites to receive the highest rations were in Ukraine (Davies 1996, 178). This fact, which Naumenko never mentions, challenges her claims in JEH and the CMEPR paper that Ukraine did not have enough "Group A" industries and that lack of such industries led to famine, and the repeated references in the NBER paper to procurements being taken out of Ukraine (Markevich et al. 2023, 13, 24). In fact, Ukraine had many such enterprises. Consequently, much of Ukraine's procurements must have been used to feed Ukraine's town and industrial populations.

Second, as noted above, Soviet authorities reduced these grain procurements at a time when the towns and industrial sites were desperately short of food, and the regime had to reduce rations to make these accommodations for the rural population. Naumenko does not sufficiently take into consideration the essential point that the whole Soviet Union was enduring food crises in this period. Soviet procurements were not perpetrated arbitrarily to attack peasants, as Ukrainian nationalist interpretations usually claim and as the NBER paper tries to prove. Almost the entire urban population was living on inadequate rations provided by the Soviet government based on planned food procurements from the villages. Both Soviet and western sources documented the food crises in the towns: workers and their families were starving, fleeing from factory to factory in hopes of finding better food supplies, writing appeals to officials, and going on strikes and protests. Davies also presented evidence that urban mortality substantially increased in 1932 (Davies 1996, 176–192; Rossman 2005).

Naumenko's claim in the JEH article that the Soviet regime "made an extreme effort to procure as much grain as planned," and the NBER article's claims that the regime procured more from Ukrainian regions to kill Ukrainians, are false and misrepresent Soviet policies and actions. Soviet leaders clearly tried to balance the needs of towns and villages, both of which were enduring extremely serious crises of food supplies, by reducing procurements, especially in Ukraine, and by reducing supplies to certain urban groups. Both rural and urban populations had significantly higher mortality in this famine.

Collectivization

In the JEH article and the CMEPR paper, Naumenko attempts to attribute most of the famine mortality in Ukraine in 1932–1933 to the Soviet policy of collectivization. Her arguments for this factor are based again on false data and historical misunderstandings.

First, she confused a crucial aspect of collectivization. She asserted that the regime allowed peasants in kolkhozy to have their own private plots only after the famine (Naumenko 2021a, 165), but this is completely wrong. From the beginning of the Soviet system in 1918 the regime allowed three types of kolkhozy: the TOZ, in which only a small part of the land was farmed collectively, and the rest farmed by peasants individually; the artel', in which most of the land was farmed collectively, but the peasants retained small private plots and livestock, and the kommuna, in which all the land was collectively farmed. By fall 1917 about 100 collective farms of various types existed in Russia; by the end of 1918 there were at least 912, 61.8 percent of which were kommuny and 38.2 percent were artely. After that, however, the share of kommuny among the newly forming collective

farms fell, and the share of partly collectivized types, artely and TOZy, rapidly increased and greatly outnumbered the kommuny. Some kommuny became artely or TOZy and distributed part of their collective land to individual members of the collectives. By 1925, 59 percent of kolkhozy were artely, 28.9 percent were TOZy, and only 11.9 percent were kommuny (Danilov 1988, 291; Danilov et al. 1990–1991, 1:8, 2:81, 2:174–175). A report by the Commissariat of Agriculture on kolkhozy in 1927 showed the degree of "socialization" of kolkhoz assets by type. As presented in Table 6, in the great majority of kolkhozy by the late 1920s, half or more of the farms' assets were not collectivized but were owned and used by members individually.

TABLE 6. Percentage of socialization of kolkhoz assets by kolkhoz type, RSFSR 1927

Kolkhoz asset	Kommuna	Artel'	TOZ
Land	100.0	55.5	32.6
Sown area	100.0	53.1	17.8
Tools	99.6	75.3	33.2
Draft livestock	97.3	13.5	2.9
Productive livestock	92.8	12.2	3.0
Source: Danilov 1988, 293, based on a 1929 publication of the Agriculture Commissariat.			

During the first collectivization drive, there were attempts by some radical organizers to force new kolkhozy to be kommuny, but these were few cases, and the government considered them to be 'excesses' like the above-mentioned closing of markets. Stalin in his "Dizzy with Success" article that ended the first collectivization campaign, published on 2 March 1930 in virtually all newspapers, insisted that all kolkhozy be arteli as most appropriate for the present stage of peasant farming, because it involved both socialized farming and non-socialized household farms and livestock.[10] Simultaneously with his article, the regime issued the Kolkhoz Model Artel' Statute on 1 March 1930, also published in virtually all the newspapers, that specified that kolkhozy were to be artely, and in articles II and III that kolkhoz members were to have private homes, private land plots, including gardens, orchards, and other sectors, and private livestock (Sharova 1957, 282–283). The kolkhoz system thus always had a private sector, and numerous studies both Soviet and non-Soviet have documented the great importance of the kolkhoz private plots in providing food supplies for the Soviet Union (Kerblay 1968; Whitman 1956; Wädekin 1973).

Then Naumenko elliptically and incompletely explained what a kolkhoz was. She wrote that most of the land, livestock, and implements belonged to the

10. A translation of Stalin's article can be found at marxists.org (**link**).

kolkhoz, and that the peasants did not decide when or what to plant, but had to follow plans sent by the government (2021a, 162). This is misleading because it omits any comparison with the pre-existing traditional peasant farming system. Before collectivization, for centuries, peasants lived in corporate villages usually called a commune, or a 'hromada' in Ukrainian-speaking regions, in which village lands were divided into dozens and sometimes hundreds of strips, separated by borders to enable access without stepping on another peasant's strip, and grouped into large fields by crop. This land use pattern was called interstripping; it dated back at least to 16th century Russian serfdom, but was maintained in the emancipated peasant villages after the emancipations of the serfs in the 1860s. Russian agronomists had long criticized it for inefficiency and low productivity, and also because those borders allow the spread of weeds and other infestations. In most of these villages, these strips would be redistributed every decade or so as family sizes changed. In Ukraine a minority of these villages had "household tenure" and did not redistribute strips, but this pattern was limited to western Ukraine, and was a matter of considerable conflict in that region; most peasants in the Ukrainian provinces lived in repartitional communes.[11]

In all of those villages, farm work was guided by the village as a whole: the village decided which fields would grow spring crops, winter crops, or lie fallow. Also, until the last two decades of the Tsarist regime, obligations such as taxes were imposed on the village as whole. These practices indicated that in many ways peasant villages already anticipated collective farms. This was one of the reasons why resistance to collectivization was relatively limited, and many peasants willingly formed or joined kolkhozy. In the JEH article, Naumenko wrote that kolkhoz members did not decide what to plant, because the government sent plans dictating what they were to grow (Naumenko 2021a, 161–162), but her statement makes it appear as if the regime forced the peasants to grow crops that were totally new and different. In fact, the kolkhozy grew almost exclusively the same crops they had grown for centuries, including rye, wheat, oats, and barley, as well as crops introduced in the 19th century such as sugar beets. The main change the kolkhoz brought was to replace interstripped fields with larger, consolidated fields, emulating especially farming in the United States, and it did improve efficiency: studies of kolkhozy in 1930 found that they farmed a larger area and produced

11. On this, see Holobuts'kyy (1970, 270), who noted that 51.5 percent of the farmland in the Ukrainian gubernias was under repartitional tenure, and that farms with household tenure were "exceptions." Even in the western part of the Ukrainian Soviet republic, where most peasants held land in non-repartitional 'household tenure,' they farmed the land in interstripped patterns just as in regions where the repartitional commune was dominant as in eastern Ukraine and the Russian republic, and agronomists and officials saw this pattern as a problem that needed to be eliminated: see Tan 2000, especially 926–927. For an example of the conflicts about non-repartition, see Field 1989, ch. 3.

larger crops, employing only half the number of people, than the previous villages (Tauger 2005, esp. 75, 79). Kolkhozy did have many problems as they developed, but so did the previous communal villages, and the kolkhozy system facilitated improvement of agriculture more easily than the old villages. Kolkhozy also allowed large-scale mechanized farming with the Machine-Tractor Stations, similar to "custom cutters" in current U.S. farming (Slyn'ko 1961 and Miller 1970 document the important role of the MTS in Soviet farming even in this early period in Ukraine). Naumenko discusses the use of tractors only in the NBER paper, which acknowledges that the government increased the supply of tractors to Ukraine in the wake of the famine in 1933 to alleviate loss of labor and "boost production" in famine-stricken regions (Markevich et al. 2023, 6, 28–29)—another action that seems not to fit with an "anti-Ukrainian bias."

Thus Naumenko's claims that the kolkhoz system inherently led to famine are based on incorrect assumptions about the earlier character of peasant farming and the structure and operation of kolkhozy. Her sources on how the kolkhoz system allegedly led to famine are also problematic. For example, in the JEH article she cites an archival source, a Gosplan collection of statistical tables on the fulfillment of the first five-year plan in agriculture, according to which "in Ukraine in 1930, 27.9 percent of the harvest was extracted from collectives and 30.3 percent from individual peasants; in 1931, 42.8 percent was extracted from collectives and 32.4 percent from individual peasants; and in 1932, 45.1 percent was extracted from collectives and 40.6 percent from individual peasants" (Naumenko 2021a, 183–184; Markevich et al. 2023 also referred to this document, on p. 1 of its appendix). Yet she never explains what this source defined as "the harvest" and the actual amounts that were "extracted." Fortunately, this Gosplan document collection is available on a website of Soviet historical documents (RGAE 1933). I reviewed the collection carefully, and nowhere does it specify the actual harvest for 1932. It has multiple tables with harvest data and percentages by sector for 1928–1931, and a few tables with columns for 1932, but with no data in those columns. The closest it comes is a table on page 14 that gives harvest yields for the whole Soviet Union for particular crops, but it gives a harvest yield for grain for 1932 that is the same as for 1930, 8.5 centners per hectare, which is most certainly false. The annual report data show clearly that the grain harvest and harvest yields in 1932 were much smaller than in 1930. This substantial inaccuracy clearly casts doubt on the reliability of this document collection.

Furthermore, as discussed above:

- the official harvest data for those years derived from pre-harvest sample forecasts and were matters of considerable dispute, and it was only at the end of 1932 that the government obtained substantial real harvest

data from the kolkhoz annual reports;
- the procurement plans were reduced four times for Ukraine and in most regions even those lowered plans were not fulfilled, and procurements from February 1933 were shifted to be used as seed for kolkhozy;
- a significant part of the procurements went to feed other people in Ukraine, in cities and industries, so they were "extracted" from villages but not from Ukraine;
- substantial amounts of grain were returned to villages for food and seed (see sources above).

This Gosplan source does not address any of these facts, and is therefore useless for explaining famine deaths in 1932.

Then Naumenko in the JEH article describes her statistical calculations that she asserts connect famine mortality to collectivization. These calculations are extremely problematic because they treat key data as static when it was constantly and significantly changing. She asserts that collectivization in Ukraine reached 45 percent of peasant households in May 1930, then presents a graph that appears to show a decline later in 1930, but she never explains this or provides any data in the article about the changing level of collectivization (Naumenko 2021a, 162–163). She refers to "Appendix Table E1," which indicates only that the percentage of rural households in kolkhozy was 16 percent on 1 October 1929, 38.2 percent on 1 May 1930 and 45.4 percent on 20 May 1930, 33.1 percent on 1 January 1931, and 69 percent on 1 June 1932 (Naumenko 2021b, 58). In her CMEPR paper, she has several tables showing statistical estimates of relationships between collectivization and mortality, but all of those numbers are statistical probabilities (Naumenko 2018, 65–71).

In the JEH article, in Table 2, "Size of collective farms and mortality: district-level estimates" (Naumenko 2021a, 185), she claims to base mortality in 1933 on collectivization data from 1930, three years earlier: the percentage of socialized land in 1930, and the per-capita sown area of kolkhozy and individual peasants in 1930. All of those factors, which she treats as static in 1930, actually changed significantly during 1930 and changed even more significantly by 1933. To take just one example, Table 7 below presents the official figures for the percentage of peasant households collectivized on certain dates in 1930, 1931, and at two points in 1932 for the USSR as a whole and for the Ukrainian republic:

TABLE 7. Percentages of peasant households collectivized in Ukraine and USSR, 1930–1932

1930	1 Jan	1 Feb	1 Mar	1 Apr	1 May	1 Jun	1 Jul	1Aug	1 Sep
USSR	18.1	31.7	57.2	38.6	28.0	24.8	22.5	21.9	21.5
Ukraine	15.9	30.5	60.8	46.5	41.5	36.3	31.5	29.6	28.8
1 Oct	1 Nov	1 Dec	1931	1 Jan	1 Feb	1 Mar	1 Apr	1 May	1 Jun
21.8	22.5	24.2		25.9	28.8	35.3	42.0	48.6	52.7
28.8	28.8	30.6		33.1	37.0	45.7	56.0	62.2	64.7
1 Jul	1932	1 Jan	1 Jun	1 Sep					
56.2		63.7	61.5	61.5					
65.6		69.2	69.0	69.7					

Sources: Davies 1980a, 442–443; Davies and Wheatcroft 2004, 488–489; Pyrih 2007, 307–308. The Russian-American document collection also has similar data on changing numbers of peasant households collectivized: Danilov et al. 1999–2004, 2:571–572, 674.

As this table shows, the level of collectivization, in both the USSR as a whole and Ukraine in particular, reached a very high peak by 1 March. This level was partly only "on paper," because many of those peasants had agreed, often under pressure, to sign a document that they had joined a kolkhoz, but had done little or nothing to start forming the kolkhoz before Stalin called off the campaign a few days later. Immediately after Stalin called off the first collectivization campaign, the number of households "collectivized" rapidly fell and continued to decline for the next 9 months. In addition, the number of households in kolkhozy significantly fell even during farm work, and many kolkhozy fell apart and divided their lands among individual households, which would also make averages meaningless (Davies 1980a, 279–281; Tauger 1991a, 133–159). Naumenko's Table 2 showing "households per collective farm" in this context can only be an arbitrarily chosen number and not the reality, because as the data above show, there was no point from 1930 until late 1932 when there was a stable number of households per collective farm.

In Naumenko's Table 2 are categories for sown area per capita in kolkhozy and "individual peasants" in 1930, but she does not indicate what date in 1930 is used for her "per capita" data (2021a, 185). Here again, in contrast to her assumptions, the area cultivated by kolkhozy and sovkhozy both massively increased in 1931–32, as shown in Table 8. This table has the same problem as her data, because it gives the total sown area in 1930 and 1931, years when the level of collectivization underwent significant changes. Yet the general pattern of a large increase in kolkhoz and sovkhoz sown area and a similarly large decrease in the area sown by non-collectivized peasants is fundamentally accurate. Naumenko in Table 2 tries to infer mortality in 1933 from the distribution of cropped land per capita between kolkhozy and non-collectivized peasants in 1930. Yet as Table 8 shows, the distribution of cropped land was utterly different in 1932–33 from in 1930. She also omits the sovkhozy, which had become an important sector by 1932.

TABLE 8. Soviet farmland by sector, 1930–1933 (million hectares)

Sector	1930 area	1931 area	1932 area	1933 area
Sovkhoz grain area	2.9	8.1	9.2	10.8
Sovkhoz total area	3.9	11.0	13.5	14.1
Kolkhoz grain area	29.7	61.0	69.1	75.0
Kolkhoz total area	38.1	79.0	91.5	93.6
Peasant grain area	69.1	35.3	29.5	15.7
Peasant total area	85.2	46.4	31.3	21.9
Source: Davies and Wheatcroft 2005, 453, drawn from Sel'skoe 1936, 259.				

Consequently, no matter how sophisticated her statistical calculations are, her attempt to connect conditions in 1930 with mortality in 1933 in both articles is just a numerical relationship that has nothing to do with the actual reality of the share of peasant households in kolkhozy and the cropped land by sector. This is the case because her presumed stable conditions in 1930 did not correspond to the reality of constant change that year, and because all of the conditions from 1930 that she uses in her calculations were completely different in 1932–1933, and her article never concretely addresses any of these differences. In her calculations in the JEH article and the CMEPR paper, she also omits from those calculations the fact, which as discussed above she partly documented only in the 2018 paper, that kolkhoz procurements in 1932 were much less than those in 1930. In the JEH article she claims that collectivization was the main cause of famine deaths because of grain procurements, but she does not recognize that the procurements from kolkhozy were substantially reduced that year, even though she documented that reduction in her 2018 article. The fact that a worse famine ensued in 1933 after much lower procurements in 1932 than the previous two years, in my view, can be explained only because of the much smaller 1932 harvest, caused first of all by the complex of environmental disasters in 1932, and also partly by the inadequacies of the government's, specialists' and peasants' responses to them.

She also seems to misunderstand or misrepresent the origins of some of the data she uses in her statistical calculations. For example, she wrote: "It is possible that Ukrainians just happened to live in lands better suited for grain production, and therefore more collectivized in 1930" (Naumenko 2021a, 191 n.51). Yet the Soviet regime planned that collectivization would be higher in the primary grain regions in 1930–1931, especially in Ukraine. Soviet leaders considered those regions better prepared for collectivization and they hoped such regions would be more productive as a result of collectivization, and many were in 1930 (Davies 1980, 167, 187–188; Tauger 2005, 79).

"Anti-Ukrainian bias" and famine mortality

All three of these papers focus on the deaths of Ukrainians in the "Great Soviet Famine (1932–33)," as the NBER paper identified it on its first page. Yet on this issue the papers diverge significantly in their interpretations and ignore important implications of their data that contradict their arguments.

In her JEH paper, Naumenko questions claims, which she cites in the article, that the 1932–1933 "Ukrainian famine" was an intentional genocide against Ukrainians. She asserts that Ukrainians and Germans were "discriminated against" because "ethnic Ukrainians were more collectivized" and because both groups, according to her problematic statistics., had somewhat higher mortality in the famine, but she insisted that this was "*not* proof of genocide" (her emphasis). She concludes that "no strong evidence exists that government policies were enforced more harshly on ethnic Ukrainians or Germans" (Naumenko 2021a, 186–193). The CMEPR paper asserts that its data shows that the famine was "man-made" and "support those who argue that ethnic Ukrainians were targeted," but admits that to prove genocide it would be necessary to show "that Stalin had the foresight that his policies would fail and lead to famine mortality years after they were introduced," which she does not document (Naumenko 2018, 1, 39). In contrast to these papers, the NBER paper argues strongly that Ukrainian famine mortality was the direct result of "anti-Ukrainian bias," which the authors claim to find in several aspects of the famine and for which they cite a recent book by the journalist Anne Applebaum, which is full of false claims from end to end (Applebaum 2017; for documentation of those false claims, Tauger 2018).

Yet the implications of what Naumenko and her collaborators wrote in these papers raise serious questions about these claims that they completely ignore. On mortality, the three papers present general data as follows: the JEH paper asserts that the "1933 Soviet famine … killed six to eight million people" and "the 1933 Ukrainian famine killed as many as 2.6 million people out of a population of 32 million" (Naumenko 2021a, 1); the CMEPR paper asserts that "the 1933 Soviet famine killed six to eight million" and that "The famine of 1932–1933 in Ukraine killed as many as 2.6 million people out of a population of approximately 30 million" (Naumenko 2018, abs., 1); the NBER paper asserts that "During the Great Soviet Famine (1932–33), approximately seven million people perished" and that "approximately 2.1 to 3.15 million ethnic Ukrainians" died in the famine (Markevich et al. 2023, 1, 31).

Yet these different data imply two problematic points for the arguments of these papers. First, they indicate that total mortality is uncertain: despite all the archival sources that Naumenko and her collaborators use and all the sophisticated

statistical calculations they cite, they are still unsure how many people died in the famine in Ukraine and outside it. In the NBER paper, the authors acknowledge on several points, including Ukrainian mortality outside Ukraine, that they do not have actual data and they interpolate or estimate "data," and they acknowledge "significant variation in famine mortality across and within provinces." All of these points make their claims speculative and uncertain (Markevich et al. 2023, 13, 17, 18, 19).

Second, the numbers they present—2.1 million to 3.15 million Ukrainian deaths and 6 to 8 million total deaths—imply that non-Ukrainian deaths reached 3 million to 5 million, in other words from an equal number to more than double the number of Ukrainian deaths. If the large numbers of deaths among Ukrainians, in the view of the NBER authors, imply an "anti-Ukrainian bias," then the even larger numbers of deaths of non-Ukrainians should imply a similar bias against non-Ukrainians, yet these three papers neither recognize nor discuss this clear implication from their data.

In the NBER paper, the authors admit that it is "beyond the scope of this paper to provide conclusive evidence on the motivations of anti-Ukrainian bias," but they try to support and explain that bias with two "stylized facts": that "Ukrainians offered stronger resistance to collectivization than other ethnic groups," and that Ukrainian mortality was higher in places "more important for agricultural production," which they claim implies targeting of Ukrainians in such regions (Markevich et al. 2023, 29).

On the first point, again the authors present the results of their statistical calculations but do not present the actual data regarding this resistance. That data is in a set of archival sources from the Soviet security police, the OGPU, compiled after the first collectivization drive. At the outset it is necessary to point out three aspects of this resistance that the authors ignore. First, in the great majority of cases, this "resistance" was non-violent, and basically consisted of peasants protesting against certain aspects of collectivization, such as transfer of livestock to the kolkhozy, and often those protests persuaded the people conducting collectivization to give in to peasants' demands. Second, the total number of peasants and others involved in this resistance was on the order of 2.5 million, out of a total rural population in the USSR of at least 110 million, of whom about 70 million were 16 years old or older. In other words, the total number of protestors did not reach five percent of the adult rural population, which means that the vast majority of peasants did not protest against collectivization. Third, most of the protests took place in March 1930, in other words after the publication of Stalin's article "Dizzy with Success," which sharply criticized the personnel who carried out collectivization for using coercion and excesses, which provided peasants who read it with a basis for protesting and thereby stimulated the rise in protests (Viola

1996, 140ff.; Tauger 2005, 71–76). In other words, while the NBER authors try to show that protests resulted from Ukrainian nationality, they overlook the facts that protests were rare and were at least in part provoked by Stalin himself.

In Table 9, I present these data for Ukraine and other nearby regions and calculate the implied share of the total population involved in this "resistance". Again I use the 1926 census data but I raise the figures slightly to account for population growth, and the figures for peasants involved in disturbances from the OGPU reports are also somewhat approximate as well, but these data still provide a basis for evaluating the relative degrees of resistance in Ukrainian and non-Ukrainian regions.

TABLE 9. Share of population involved in resistance to collectivization in 1930 campaign

Region	1930 rural population estimate, millions	Number of peasants in disturbances 1930	Percentage of rural population involved
Ukrainian SSR	24	956,587	3.99
North Caucasus krai	6	227,000	3.78
Central Blackearth ob.	10.5	315,035	3.0
Lower Volga	4	119,175	2.9
Middle Volga	5	140,383	2.8
Sources: Viola 1996, 140; Poliakov et al. 1991, 48–53 (section containing data from 1926 census).			

These data show that a slightly larger share of the population in the Ukrainian republic were involved in disturbances during the 1930 campaign than in the other regions, but the differences were clearly not very large, approximately 1 percent of the population, and the data indicate that in all of these regions, as in the USSR as a whole, the overwhelming majority of peasants, including in Ukraine, did not participate in this "resistance."

Another source that weakens the NBER argument about "stronger resistance" among Ukrainians is the actual report produced by the OGPU on resistance in 1930, which was completed on 15 March 1931, and marked "completely secret:" "Dokladnaia zapiska Sekretno-politicheskogo otdel OGPU o formakh i dinamike klassovoi bor'by v derevene v 1930 g." (Report of the secret-political department of OGPU on forms and dynamics of class struggle in the village in the year 1930) (Danilov et al. 1999–2004, 2:787–808). This report describes the various categories of peasants' resistance during the collectivization campaign of late 1929 to March 1930, and in each category lists several regions where this resistance took place. The regions they list include Ukraine frequently but not always, just as frequently listed are the North Caucasus, the Volga regions, and the Central Blackearth region, and the lists of regions always end with "and others." This report never states or even implies that Ukraine as a region stood out for a greater share of resistance. The report views this resistance as the result of "class struggle," in other words

the efforts of certain groups within the villages—"kulaks," members of opposition parties, and other "class enemies"—who could show up anywhere in the view of the OGPU.

All of this evidence makes it difficult to accept the NBER paper's claims that Ukrainians offered "stronger resistance to collectivization" and motivated significant anti-Ukrainian bias (Markevich et al. 2023, 29). On the paper's second "stylized fact" that more important agricultural regions suffered higher mortality, I would simply refer readers to the evidence that I presented above about the devastating infestations of plant diseases, insects, rodents, and weeds, which were documented in scientific publications and archival sources, and were particularly severe in Ukraine, especially because of the environmental conditions, including what Naumenko described as favorable weather, in 1932. Since the NBER authors, based on this "stylized fact," attribute higher mortality in Ukraine exclusively to the facts that Ukraine was an important agricultural region and Ukrainians lived there, they are jumping to conclusions about Soviet leaders' attitudes with little or no evidence for those attitudes—the NBER paper points out right at the beginning that "No direct documentary evidence that Stalin 'ordered' a famine has been uncovered" (ibid., 1)—and based on ignorance or suppression of legitimate scientific evidence of major environmental events that clearly were important causes of the famine.

Analysis of Soviet policies and environmental factors makes an even stronger point. Ukraine had a higher level of collectivization not because the Soviet government was trying to punish them. The Soviet leaders thought that collectivization would be an improvement: as I have documented from both published and archival evidence, they saw it as applying the U.S. model of modern mechanized farming in a socialist context. They did not see collectivization as "discrimination" against Ukrainians; they saw it as a reflection of—in the leaders' view—Ukraine's relatively more advanced farming skills that made Ukraine better prepared for collectivization (Davies 1980a, 166, 187–188; Tauger 2006a). And again, Naumenko's minimizing of environmental factors and oversimplification of the environmental circumstances of 1932 leads her to view the higher mortality among Ukrainians as a sign of "discrimination," when in fact it was the result of the devastating combined effects of the environmental disasters discussed above, which were particularly severe in Ukraine.

Conclusion

The issues raised in this essay make two general points. The first one is the explicit point that Naumenko's JEH article and two online papers are incorrect

about the most important aspects of the 1931–1933 famine and several related aspects of Soviet history that are important for those papers' arguments. Her reductive analysis of "weather" overlooks the complexity and significance of much more diverse environmental factors behind the famine. Scientific evidence documented not only drought conditions in part of Ukraine in 1931 but also the serious effects of plant diseases, insects, weeds, and mice, that reduced the 1932 harvest greatly. All of these points were at least partly documented in her sources, but she never cited or acknowledged them, and instead inaccurately oversimplified, minimized, and ignored the crucial impact of these environmental factors on the famine, and the substantial evidence that I and Nazarenko published that documented their effects. Her attempt to blame Soviet policies for the famine involves overlooking or misrepresenting actual Soviet policies toward private peasant food trade, reduced grain procurements, especially in Ukraine, and the extreme variation and changes in collectivization in 1930–fall 1932. The claims in the NBER article that attribute famine mortality in the Ukrainian republic to "anti-Ukrainian bias" are based on statistical inferences from evidence that the authors never present in the article or that they "interpolate" and "estimate," and the evidence regarding several of these issues that I present here or in earlier publications leads to completely different conclusions.

The second general point of this article, however, is the alternative conclusions regarding the 1931–1933 famine that these criticisms outline. Since the peasants freely traded food at village and town bazaars and markets from 1930 onward, since Soviet leaders compromised their communist principles and attempted to support peasants' trade in May 1932 by cutting procurements and fully authorizing free trade by peasants, since peasants continued trade against Soviet restrictions and were not stopped, since the regime reduced Ukrainian peasants' grain procurements three more times, after the May 1932 national reductions, to a level just over half of the previous year's procurements and that were lower per-capita than procurements in the other main grain regions, and yet despite all these clearly pro-peasant policies and practices, the peasants and others in Ukraine, and peasants in much of the rest of the USSR, endured a much worse famine after those reduced 1932 procurements, the underlying explanation has to have been a small 1932 harvest. This conclusion seems especially unavoidable when one considers that the Soviets returned 5.7 million tons of grain to the Soviet countryside, including to Ukraine, in the first half of 1933, from their limited reserves and from grain procured in 1932, much more than in 1932 or 1934.[12]

12. Davies et al. 1995, 652–653, found that the regime provided to villages about 2 million tons of grain from 3 million tons held in grain reserves. The Central Statistical Administration prepared a table on the use of grain obtained in procurements and indicated that the government "returned to agriculture" some

Since these arguments lead to the conclusion that 1932 harvest must have been very small, especially in Ukraine, and since 1932 in most regions was not a year of drought like 1931, all of those specific scientific studies of agricultural conditions, including those cited above and others, provide the most immediate and persuasive explanations for a small 1932 harvest. These disasters, in addition, included not only the usual ones that had struck Russian farming for centuries, and as noted above also Soviet farming in 1921, 1924, and 1928: mainly severe weather like drought, extreme cold, winterkill, dust storms, and hailstorms. In 1932 Ukraine and other parts of the USSR were struck by disasters that the ostensibly favorable weather intensified: massive weed growth, widespread insect infestations, severe outbreaks of plant diseases, infestations of rodents. Now, to some extent, these factors were also intensified by collectivization, because that policy led to large, consolidated crop fields, which enabled many of these infestations to spread more easily and more widely, created more favorable conditions for rodents to hide and reproduce under large grain stacks, and made farm work more difficult for peasants because mechanization, which was the premise for collectivization, lagged behind. Yet these same problems also plagued peasant farming before collectivization, as documented for example in the Tsarist government's famine reports in 1906–1914, discussed above. They also plagued other places with large-scale farming, like the United States in the Dust Bowls of the 1930s. I documented in 2001 that several of these problems also plagued farms in Eastern and Central Europe in 1932, and caused food difficulties there as well (Tauger 2001b, 14).

Yet the environmental factors were fundamental, and the Soviet government and Soviet scientists responded to these crises with organizational and agronomic measures: not only increased production of tractors and other equipment, but also anti-pest measures, and especially development of plant varieties resistant to these threats. In noting these points, I am not trying to exonerate the Soviet regime completely for the famine. While the regime greatly reduced grain procurements in Ukraine, those procurements were clearly one of the important causes of the famine, and if the regime had not taken even that smaller amount grain from Ukrainian villages, the famine could have been greatly reduced or even eliminated. But if the regime had left that grain in Ukraine, then other parts of the USSR would have been even more deprived of food than they were, including Ukrainian cities and industrial sites, and the overall effect would still have been a major famine, even

3.5 million tons of grain from procurements; RGAE f.1562 op.74 d.19 (I have a photocopy of this archival table). These two figures are the basis for the overall total of 5.7 million tons of grain returned to the agricultural sector in Tauger 1991a, 74, 88, which were based on an earlier Soviet publication. Pyrih 2007 contains many documents reporting food and seed aid to Ukraine, as do other document collections like Danilov et al. 1999–2004, vol. 3. All of these data indicate larger transfers of grain to famine regions in 1933 for seed and food than Naumenko cites (e.g., Naumenko 2018, 9; Markevich et al. 2023, 10).

worse in "non-Ukrainian" regions. The biggest mistake of the regime in this period was to turn down the many offers of food imports from other countries, which they had previously accepted in the famines of 1921–23, 1924–25, and 1928–29. That decision made it impossible for Soviet relief efforts to alleviate the famine, both in and outside of Ukraine.

Still, many people in the USSR responded to the famine with efforts to prevent its recurrence. Perhaps the most important example of such an effort was the plant breeding work of the Soviet Ukrainian agronomist Pavel Panteleimonovich Luk'ianenko in the North Caucasus, the region where the 1932–1933 famine may have been most severe. In 1934 he published a study of the rust infestation of 1932 in his region and of the few wheat varieties that resisted it (Luk'ianenko 1934). He then set out to breed resistant varieties, using both Soviet and foreign wheat varieties, especially the semidwarf varieties developed by the Italian breeder Nazareno Strampelli (Tauger 2023). The culmination of this work came in the late 1950s when Luk'ianenko released his first semidwarf varieties, especially Bezostaia-1, which began a Soviet Green Revolution (Tauger 2017a; Luk'ianenko 1990; Rybalkin 2001). Luk'ianenko's varieties were used widely in the USSR and several other countries, both for crop production and breeding, yet his work has been almost completely overlooked in western historiography. Yet the American leader of the Green Revolution, Norman Borlaug, recognized the quality of Luk'ianenko's work.[13] His accomplishments were a long-term result of the 1932–1933 agricultural crisis and famine.

One basic definition of "political economy" involves the interaction of politics and economics. Yet to understand crises in agriculture, one must also take into consideration the environment in its broadest sense. I hope that future scholars who deal with these or other agricultural crises will be open-minded and aware enough to include the environment in their approaches.

References

Antipova, O. A., et al., eds. 2009. *Golod v SSSR 1930–1934*. Moscow: Federal Archival Agency.

Applebaum, Anne. 2017. *Red Famine: Stalin's War on Ukraine*. New York: Doubleday.

Artemov, P. K. 1933. "K voprosu o porazhaemosti zernovykh kul'tur gribnymi bolezniami." *Trudy po prikladnoi botanike, genetike i selektsii, Seriia A: Sotsialistecheskoi rastenievodstvo* 7, Leningrad.

13. Evidence of the wide use of Luk'ianenko's first semidwarf variety, Bezostaia-1, can be found in Bonjean and Angus 2001, 202, 209, 270, 300, 304, 339–340, 356, 364, 387, 394, 721, 768, 840, 857, 859, 864, 887, 949, 963. For Borlaug's recognition, see Tauger 2017a, 114.

Belokurov, Evgenii Vladimirovich. 2014. *Prodovol'stvennaia kampaniia 1911–1912 v Rossii: vlast' i obshchestvo v bor'be s golodom*. M.A. diss., Saint Petersburg State University.

Berelovich, A., and V. Danilov, eds. 1998–2012. *Sovetskaia derevnia glazami VChK-OGPU-NKVD 1918–1939: Dokumeny i materialy*, 4 vols. Moscow: ROSSPEN.

Bonjean, Alain P., and William J. Angus, eds. 2001. *The World Wheat Book: A History of Wheat Breeding*. Paris: Lavoisier.

Carynnyk, Marco, et al., eds., 1988. *The Foreign Office and the Famine: British Documents on Ukraine and the Great Famine of 1932–1933*. Kingston, Canada: Limestone Press.

Danilov, V. P. 1988. *Rural Russia Under the New Regime*. London: Hutchinson.

Danilov, V. P., et al. 1990–1991. *Kooperativno-kolkhoznoe stroitel'stvo v SSSR 1917–1922: Dokumenty i materialy*, 2 vols. Moscow: Nauka.

Danilov, V., R. Manning, L. Viola, et al., eds. 1999–2004. *Tragediia Sovetskoi derevni, Golod v SSSR 1929–1934*, 6 vols. Moscow: ROSSPEN.

Davies, R. W. 1980a. *The Socialist Offensive: The Collectivization of Soviet Agriculture, 1929–1930*. London: Macmillan.

Davies, R. W. 1980b. *The Soviet Collective Farm, 1929–1930*. Cambridge, Mass.: Harvard University Press.

Davies, R. W. 1982. Models of the Economic System in Soviet Practice, 1926–1936. In *L'Industrialisation de L'URSS dans les années trente*, ed. Charles Bettelheim. Paris: Éditions de l'École des hautes étudeś en sciences sociales.

Davies, R. W. 1996. *Crisis and Progress in the Soviet Economy, 1931–1933*. New York: Palgrave.

Davies, R. W., and S. G. Wheatcroft. 2004. *The Years of Hunger: Soviet Agriculture 1931–1933*. New York: Palgrave.

Davies, R. W., S. G. Wheatcroft, and Mark B. Tauger. 1995. Soviet Grain Stocks and the Famine of 1932–1933. *Slavic Review* 54(3): 642–657.

Efremov, Steven. 2012. *The Role of Inflation in Soviet History: Prices, Living Standards, and Political Change*. M.A. Thesis, East Tennessee State University.

Egorov, A. G., and K. M. Bogoliubov. 1984. *Kommunisticheskaia Partiia Sovetskogo Soiuza v Resoliutsiiakh i Resheniiakh S''ezdov, Konferentsii i plenumov TsK*. Moscow: Politizdat.

Ermolov, A. I. 1909. *Nashi neurozhai i prodovol'stvennyi vopros*, parts I and II. St. Petersburg: Tipografiia V. Kirshbauma.

Field, Daniel. 1989. *Rebels in the Name of the Tsar*. Boston: Unwin Hyman.

Holobuts'kyy, V. O. 1970. *Ekonoichna istoriia Ukraïskoï RSR: dozhovtnevyy period*. Kyiv: Izdatel'stvo 'Vysha Shkola'.

Hrynevych, Liudmyla. 2013. *Holod 1928–1929 rr. u Radians'kyy Ukraïni*. Kyiv: Instytut istorii Ukrainy NAN Ukrainy.

Ivnitskii, Nikolai Alekseevich. 2009. *Golod 1932–1933 godov vs SSSR: Ukraina, Kazakhstan, Severnyi Kavkaz, Povolzh'e, Tsentral'no-Chernozemnaia oblast', Zapadnaia Sibir', Ural*. Moscow: Sobranie.

Katzenellenbaum, S. S. 1925. *Russian Currency and Banking, 1914–1924*. London: P. S. King & Son.

Kerblay, Basile. 1968. *Les Marchés Paysans en U.R.S.S*. Paris: Mouton.

Kuleshov, N. N., ed. 1929. *Gibel ozimykh khlebov i meropriiatiia po ee preduprezhdeniiu: Trudy Vsesoiuznogo soveshchaniia po voprosu o gibel ozimykh khebov v 1927–1928 v g. Khar'kov*

[*Failure of Winter Grains and Measures to Prevent Them: Studies of the All-Union Conference on Question of Failure of Winter Crops in 1927–1928 in Khar'kov*]. Leningrad: All-Union Institute of Applied Botany and New Crops and Government Institute of Experimental Agronomy.

Lewin, Moshe. 1974. *Russian Peasants and Soviet Power. A Study of Collectivization*. New York: Norton.

Lih, Lars. 1990. *Bread and Authority in Russia, 1914–1921*. Berkeley, Cal.: University of California Press.

Litoshenko, L. N. 2001. *Sotsializatsiia zemli v Rossii*. Novosibirsk: Sibirskii Khronograf.

Luk'ianenko, P. P. 1934. *O stepeni ugneteniia gibridov ozimoi pshenitsy bujroi rzhavshinoi v 1932 g. v sviazi s rezul'tatami selektsii na immunitet, Krasnodar 1933 g.* [*On the Susceptibility of Winter-Wheat Hybrids to Puccinia Tritica Erikss during 1932 in Connection with Results Obtained in Breeding for Immunity*]. Rostov-na-Donu: North Caucasus Selection Centre of the Seed-Growers Association "Edinenie," Plant-Breeding Section, Winter Wheat Laboratory.

Luk'ianenko, P. P. 1990. *Izbrannye Trudy* [*Selected Works*]. Moscow: Agropromizdat.

Malafeev, A. N. 1964. *Istoriia tsenoobrazovaniia v SSSR (1917–1963 gg.)*. Moscow: Mysl'.

Mal'tsev, A. I. 1926. *Sornye rasteniia SSSR i mery bor'by s nimi*. Leningrad: All-Union Institute of Applied Botany and New Crops.

Markevich, Andrei, Natalya Naumenko, and Nancy Qian. 2023. The Causes of Ukrainian Famine Mortality, 1932–33. *NBER Working Paper* 29089. National Bureau of Economic Research (Cambridge, Mass.). **Link**

Marks, Steven. 2014. The Russian Experience of Money, 1914—1924. In *Russian Culture in War and Revolution, 1914—1922*, eds. Murray Frame, Boris Kolonitskii, Steven G. Marks, and Melissa K. Stockdale, Book 2. Bloomington, Ind.: Slavica.

Miller, Robert. 1970. *One Hundred Thousand Tractors*. Cambridge, Mass.: Harvard University Press.

Ministerstvo vnutrennykh del (MVD). 1906. *Obzor pravitel'stvennykh meropriiatii po bor'be s posledstviiami neurozhaia 1906 goda*. St. Petersburg: MVD.

Ministerstvo vnutrennykh del (MVD). 1908. *Otchet po prodovol'stvennoi kampanii 1906–1907 gg. Denezhno-material'naia chast'* [*Report on Food Supply Campaign, Monetary-Material Part*], t. 1–6. St. Petersburg: MVD.

Ministerstvo vnutrennykh del (MVD). 1913. *Otchet po prodovol'stvennoi kampanii 1911–1912 gg.*, books 1, 2. St. Petersburg: MVD.

Mozzhukhin, I. 1917. *Agraryi vopros v tsifrakh i faktakh deistvitel'nosti*. Moscow: Universal'naia Biblioteka.

Naumenko, Natalya. 2018. The Political Economy of Famine: The Ukrainian Famine of 1933. Center for Micro-Economic Policy Research, George Mason University (Arlington, Va.). **Link**

Naumenko, Natalya. 2021a. The Political Economy of Famine: The Ukrainian Famine of 1933. *Journal of Economic History* 81(1): 156–197.

Naumenko, Natalya. 2021b. The Political Economy of Famine: The Ukrainian Famine of 1933—Appendices. NatalyaNaumenko.com. **Link**

Nazarenko, Nazar. 2019. Sornaia rastitel'nost', bolezni i vrediteli kak factory goloda 1932–1933 godov. *Samarskii nauchnyi vestnik* 8(1): 186–193.

Ostrovskii, A. V. 2013. *Zernovoe proizvodstvo evropeiskoi Rossii v kontse XIX–nachale XX v*. St. Petersburg: Poltorak.

Plekhanov, G. V. 1906. *O zadachakh sotsialistov v bor'be s golodom v Rossii*. St. Petersburg: Schmidt.

Poliakov, Iu. A., et al., eds. 1991. *Vsesoiuznaia perepis' naseleniia 1937 g.: kratkie itogi*. Moscow: Academy of Sciences.

Poznanskii, V. S. 2007. *Sotsial'nye kataklizmy v Sibiri: Golod i epidemii v 20–30e gody XX v*. Novosibirsk: Izdatel'stvo SO RAN.

Pyrih, Ruslan, et al., eds. 1990. *Holod 1932–1933 rokiv na Ukraïni: ochyma istorykiv, movoiu dokumentiv*. Kyïv: Vydavnytsvo politychnoï literatury Ukraïni.

Pyrih, Ruslan, et al., eds. 2007. *Holodomor 1932–1933 rokiv v Ukraïni. Dokumeny i materialy*. Kyïv: Kievo-Mohylians'ka akademiia.

RGAE (Russian State Economic Archive). 1933. *Plan financirovaniia kolkhozy sistemy za 1-uiu piatiletku i ego vypolnenie*. **Link**

Rossman, Jeffrey. 2005. *Worker Resistance Under Stalin*. Cambridge, Mass.: Harvard University Press.

Rubinow, I. M. 1908. *Russia's Wheat Trade*. Washington, D.C.: U.S. Department of Agriculture.

Rybalkin, P. N. 2001. *Pshenitsa i tritikale: Materialy nauchno-prakticheskoi konferentsii "Zelenaia revoliutsiia P.P. Luk'ianenko"* [*Wheat and Triticale: Materials of Scientific-Practical Conference "Green Revolution of P. P. Luk'ianenko"*]. May 28–30. Krasnodar: Sovetskaia Kuban'.

Rykov, Alexei, ed. 1925. *V bor'be s zasukhoi i golodom*. Moscow: Gosudarstvennoe izdatel'stvo.

Sel'skoe. 1936. *Sel'skoe khoziaistvo SSSR: Ezhegodnik 1935*. Moscow: Sel'khozgiz.

Sharova, P. N., et al., eds. 1957. *Kollektivizatsiia sel'skogo khoziaistva: Vazhneishie postanovleniia kommunisticheskoi partii i sovetskogo pravitel'stva 1927–1935*. Moscow: Nauka.

Slyn'ko, I. I. 1961. *Sotsialistychna perebudova i technichna rekonstruktsiia si'lskoho hospodarstva Ukraïny (1927–1932 rr.)*. Kyïv: Akademii Nauk Ukraïns'koï RSR.

Stalin, Joseph. *Works*. 1955. Moscow: Gosizdat.

Tan, Graham. 2000. Transformation versus Tradition: Agrarian Policy and Government-Peasant Relations in Right-Bank Ukraine 1920–1923. *Europe-Asia Studies* 52(5): 915–937.

Tauger, Mark B. 1991a. *Commune to Kolkhoz: Soviet Collectivization and the Transformation of Communal Peasant Farming, 1930–1941*. Ph.D. diss., Department of History, University of California at Los Angeles.

Tauger, Mark B. 1991b. The 1932 Harvest and the Famine of 1933. *Slavic Review* 50(1): 70–89.

Tauger, Mark B. 2001a. Grain Crisis or Famine? The Ukrainian State Commission for Aid to Crop-Failure Victims and the Ukrainian Famine of 1928–1929. In *Provincial Landscapes: Local Dimensions of Soviet Power, 1917–1953*, ed. Donald Raleigh, 146–170. Pittsburgh: University of Pittsburgh Press.

Tauger, Mark B. 2001b. *Natural Disaster and Human Actions in the Soviet Famine of 1931–1933*. Carl Beck Papers in Russian & East European Studies, no. 1506. Pittsburgh: University of Pittsburgh.

Tauger, Mark B. 2001c. Statistical Falsification in the Soviet Union: A Comparative Study of Projections, Biases, and Trust. *Donald Treadgold Papers in Russian, East European, and Central Asian Studies* 34. University of Washington (Seattle).

Tauger, Mark B. 2004. Review of *Sotsializatsiia zemli v Rossii* by L. N. Litoshenko. *Russian Review* 63(2): 335–338.

Tauger, Mark B. 2005. Soviet Peasants and Collectivization, 1930–1939: Resistance and Adaptation. In *Rural Adaptation in Russia*, ed. Stephen Wegren, 65–94. London: Routledge.

Tauger, Mark B. 2006a. Arguing from Errors: On Certain Issues in Robert Davies' and Stephen Wheatcroft's Analysis of the 1932 Soviet Grain Harvest and the Great Soviet Famine of 1931–1933. *Europe-Asia Studies* 58(6): 973–984.

Tauger, Mark B. 2006b. Stalin, Soviet Agriculture, and Collectivization. In *Food and Conflict in Europe in the Age of the Two World Wars*, eds. Frank Trentmann and Fleming Just, 109–142. New York: Palgrave Macmillan.

Tauger, Mark B. 2017a. Pavel Panteleimonovich Luk'ianenko and the Origins of the Soviet Green Revolution. In *The Lysenko Controversy as a Global Phenomenon*, eds. William DeJong-Lambert and Nikolai Krementsov, vol. 1, 97–128. London: Palgrave Macmillan.

Tauger, Mark B. 2017b. La famine soviétique "inconnue" de 1924–1925. In *Famine et transformation agricole en URSS*, 27–74. Paris: Editions Delga.

Tauger, Mark B. 2018. Review of *Red Famine* by Anne Applebaum. History News Network (George Washington University, Washington, D.C.). **Link**

Tauger, Mark B. 2023. Nazareno Strampelli and the First Green Revolution. *Journal of International Development*, April 12. **Link**

Viola, Lynne. 1996. *Peasant Rebels Under Stalin. Collectivization and the Culture of Peasant Resistance*. New York: Oxford University Press.

VKP(b). 1932. *XVII Konferentsiia Vsesoiuznoi Kommunistichesoi Partii (b): Stenograficheskii otchet*. Moscow: Partiinoe izdatel'stvo.

Volkov, A. N., A. O. Bertel'e, and M. F. Gladkii, eds. 1935. *Bor'ba s sornoi rastitel'nost'iu. Materialy vtorogo vsesoiuzogo soveshchaniia po bor'be s sornakami pri VIZR v dekabre 1933 goda*. Moscow and Leningrad: Gosudarsvennoe izdatel'stvo kolkhoznoi i sovkhoznoi literatury.

Vorob'ev, S. O. 1929. *Katastroficheskaia gibel' ozimykh posevov na Ukraine 1927–1928* [*Catastrophic Failure of Winter Sowings in Ukraine*]. Khar'kov: Government of Ukraine.

Wädekin, Karl-Eugen. 1973. *The Private Sector in Soviet Agriculture*. Berkeley, Cal.: University of California Press.

Whitman, John T. 1956. The Kolkhoz Market. *Soviet Studies* 7(4): 384–408.

WSSA (Weed Science Society of America). 2016. WSSA Fact Sheet About Weed Seeds and Their Longevity. WSSA.net. **Link**

Zvezdin, K. K. 1968. Materialy obsledovanie denezhnykh dokhodov i raskhodov sel'skogo naseleniia v 1931–1932 gg. In *Istochnikovedenie istorii Sovetskogo obshchestva*, vol. 2, 319–338. Moscow: Nauka.

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Mark Tauger grew up in Southern California. He earned a BA and MA in historical musicology at UCLA, then accepted a major fellowship there to do history, focusing on the history of agricultural development in the USSR. After he finished his Ph.D. on collective farms, he became a professor at West Virginia University, and a fellow at the Institute for Advanced Study at Princeton. He has written and published extensively on famines, agriculture, and agricultural history. His email address is mtauger@wvu.edu.

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