

The 1947 Soviet famine and the entitlement approach to famines

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This paper presents an analysis of the economics of the 1947 Soviet famine, using data from recently declassified archives. It is argued that the best estimate that can currently be given of the number of excess deaths is the range 1.0–1.5 million. The demographic loss was greater. During the famine, surplus stocks in the hands of the state seem to have been sufficient to have fed all those who died of starvation. The famine was a FAD₂ (preventable food availability decline) famine, which occurred because a drought caused a bad harvest and hence reduced food availability, but, had the priorities of the government been different, there might have been no famine (or a much smaller one) despite the drought. The selection of victims can be understood in terms of the entitlement approach.

Key words: Famine, USSR, Entitlement, Availability, Grain.

JEL classifications: I39, J19, N34, P26.

1. Introduction

A significant feature of the economics literature in the past twenty years has been the attention paid to the economics of famines (Sen, 1981A; Drèze and Sen, 1989; Nolan, 1993; Ravallion, 1997; Drèze, 1999). The stimulus for this work, and the major intellectual innovation in it, has been Sen's entitlement approach. In addition to its important and very positive role in drawing attention to the economics of famines, the entitlement approach also has the great merit of focusing on the process that leads to a minority dying while the majority live. Who dies, where, why, and what can be done to anticipate famines, provide effective relief during them, and prevent their arising, are the key issues that it addresses. This approach was largely inspired by Sen's (1977) case study of the 1943 Bengal famine. One important aspect of Sen's work was to explain that food availability decline (FAD) is not the only cause of famines and that famines can occur even when the

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availability of food does not decline. The entitlement approach, however, is much more than this one simple point. As its author has explained (Sen, 1981A, p. 162) ‘the entitlement approach provides a general framework for analysing famines rather than one particular hypothesis about their causation’.

The recent declassification of relevant archives, the publication of documents from the archives (Popov, 1992, 1994A; Veselova and Panchenko, 1995–6; *Golod*, 1993, 1996) and the work of Russian, Ukrainian and Moldovan historians based on the archives (Volkov, 1991; Zima, 1993, 1996; Popov, 1996; Veselova, 1997A; Bomeshko, 1990; Tsaran and Shishkanu, 1993) has exposed a previously almost unknown famine, the 1947 Soviet famine. Until very recently, the 1947 Soviet famine was largely neglected, both in the literature on the economics of famines and in economic and demographic histories of the USSR.¹

The purpose of this paper is to present a case study of the 1947 Soviet famine, a tragic and important event. One question which it seeks to answer is whether or not it was a FAD famine. As Sen (1981A, p. 1) very sensibly observed, ‘Whether and how starvation relates to food supply is a matter for factual investigation.’ The present paper is one such ‘factual investigation’. Another question on which it attempts to throw light is whether there are elements in Sen’s arguments which are just generalisations of conditions in one part of the world under one set of economic and political institutions, and which are not valid in other parts of the world under different economic and political institutions.²

2. Historical facts

The 1947 Soviet famine took place shortly after a devastating war in which the USSR suffered 24–27 million excess deaths (Ellman and Maksudov, 1994; Harrison, 1996, pp. 160–1). It took place in a country which had already experienced three famines in the

¹ For example, in Sen’s voluminous writings on famines, it does not appear to be mentioned at all. It is mentioned in Ravallion (1997, p. 1205), but the evidence presented in this paper suggests that the entire range of estimates of the number of victims cited by Ravallion is too high. As far as Soviet economic history is concerned, a standard textbook on the Soviet economy, Gregory and Stuart (1994), does not even mention the famine in its relevant section (pp. 126–7). In a widely used textbook on Soviet economic history, Nove (1992), in the relevant section (p. 303) there is no explicit mention of the famine as an established fact, although it is noted that ‘many people went very short of food’ and that ‘Khrushchev later claimed that Stalin ordered grain to be exported when people were starving’. In his demographic history of the USSR, Blum (1994, p. 147) mentions ‘the famine of 1946 [*sic*]’. However, he offers no analysis of it and makes no attempt to estimate the number of victims. The famine is also mentioned in Conquest (1986, p. 335), but he too makes no attempt to estimate the number of victims. Writing prior to the declassification of the archives, he states that ‘We have no way of estimating the casualties.’ In their ‘black book’, Courtois *et al.* (1997, pp. 258–64) do discuss the famine. The number of victims they give, however, while correct (‘at least 500,000’) is formulated in an extremely conservative way, since the actual number of victims was much larger. An up-to-date treatment, based on recent FSU publications, can be found in Channon (1998, pp. 200–4). Another up-to-date, but brief, treatment, is in Davies (1998, p. 64). A longer account, based both on recent Russian publications and on archival research, is Zubkova (1998, ch. 4).

² When Sen wrote his (1977), he thought that the 1943 Bengal famine was (*ibid.*, p. 33) ‘possibly the biggest famine in the last hundred years’. Had this been true, it would have supported the idea that close study of it, and generalisations based on the results of such a study, could be particularly important as a source of lessons for famine fighting. We now know that although significant, it was certainly not the biggest famine in the last hundred years. Sen’s (1981B, p. 460, 1981A, p. 164) belief/suspicion that most famines are entitlement famines, was based on this kind of very limited knowledge of the main famines of the last hundred years. Subsequently (Drèze and Sen, 1989, p. 210), Sen recognised that in the major famine of the last hundred years ‘Food availability decline certainly played an important part.’

Table 1. USSR grain harvest and procurements 1945–6

	1945 ^a	1946 ^b	Change
Harvest (million tons ^c)	47.3 ^d	39.6 ^e	-16.3%
Procurements (million tons)	20.0	17.5 ^f	-12.5%
Harvest remaining at disposal of farms and rural population (human and animal consumption, seed)	27.3	22.1	-19%
Procurements as % of harvest	42.3%	44.2%	+1.9

Notes: ^aIn 1945, the officially estimated harvest was 1.8 million tons less than that of 1944, and only 49.6% of the official figure for 1940. However, Davies *et al.* (1994, p. 288) warn that the official data for grain harvests for 1937–40 are probable exaggerated.

^bIn 1947 the harvest was 65.9 million tons and procurements 27.5 million tons (Popov, 1996, p. 61). The greatly increased harvest and procurements mainly resulted from more favourable weather conditions.

^cThe unit of measurement in this table and also in Tables 2–4 is metric tons (i.e., tonnes of 1,000 kg).

^dAccording to Harrison (1996, p. 262), the 1945 grain harvest was 47.2 million tons. However, *Narodnoe khozyaistvo SSSR v Velikoi Otechestvennoi voine 1941–1945 gg* (Moscow, Goskomstat, 1990, p. 96) gives the grain harvest for 'the USSR' as 47.2 million tons, but notes that in addition the harvest in the Transcarpathian region (which formed part of the USSR from 1945) was 0.1 million tons. This makes a total of 47.3 million tons for the territories comprising the USSR from 1945.

^eAccording to the decree of the USSR Council of Ministers of 3 February 1947 'On the mistakes of the Central Statistical Administration of Gosplan USSR in determining the 1946 grain harvest and measures for improving harvest statistics', the Central Statistical Administration's grain harvest statistics were erroneous and too low. The collective farms undoubtedly had an interest in supplying underestimates of the harvest. Nevertheless, it seems likely that this decree and the measures it suggested for 'improving' harvest statistics were typical Stalinist falsifications of statistics.

^fZima suggests that this is too low. His evidence for this is not conclusive.

Source: Zima (1996, pp. 20–30). Given the chaos that prevailed in the country in the wake of war, demobilisation, population movements and changing frontiers, it is likely that these and other contemporary figures now available to researchers in the archives, which are given to one decimal place, are examples of spurious accuracy.

twentieth century (1917–22,¹ 1931–4 and 1941–5).² It took place in a country ruled by a tyrannical regime which treated the rural population as defeated enemies liable to render tribute to the rulers. It followed a drought which reduced grain output sharply compared with the previous and following years.

Some basic facts about the production and use of grain in 1945–6 are set out in Table 1. Table 1 shows that in 1946 there was a sharp drop in production (caused by a drought) from an already low level. Part of the burden of the drought-induced fall in production fell on the state (state procurements fell), but a greater share fell on the peasantry (the percentage decline in the harvest remaining at the disposal of the farms and rural population was greater than the percentage decline in state procurements).³

¹ The famine in European Russia began in 1919, but in Turkestan (part of the Russian Empire and subsequently of the USSR) famine seems to have begun in 1917 (see Buttino, 1990, 1998). In 1926, the demographic loss to the indigenous peoples from the famine of 1917–20 in Turkestan (1920 boundaries) seems to have been about 1.6 million, which was about 27% of their actual number in 1926. The demographic loss was higher in 1920, but this higher total probably included substantial temporary emigration.

² In his reply (Sen, 1993) to the charge of neglecting socialist famines, Sen (*ibid.*, p. 35) refers to 'the' Soviet famine as if there were just one. (In fairness, it should be pointed out that the phrase 'the Soviet famine' comes from Nolan (1993) to which Sen (1993) is a reply.) Furthermore, in his (1981A, p. 155) Sen writes about 'the Russian [sic] famines of 1932–4' regardless of the impact of famine in that period on Ukraine and Kazakhstan. Ravallion (1997) refers to the 1947 famine as the third Soviet famine, ignoring famine conditions during World War II (see Appendix 1).

³ The other basic food product in this period was potatoes. For a discussion of the situation with respect to potatoes and other vegetables, see Zima (1996, pp. 34–7).

Table 2. *USSR state grain balances, 1945–48 (million tons)^a*

	1945 ^b	1946	1947	1948
<i>Supplies</i>				
Available at beginning of year ^c	13.3	14.5	6.8 ^f	16.6
Procurements and purchases	20.4	17.5	27.9	31.0
Imports	0.5	0.2	0.3 ^g	0.2
From state reserves ^d	0.3	1.7	n.a.	3.3
From state insurance fund and state sorting fund ^e	0.5	1.9	1.4	n.a.
Other	2.2	2.4	n.a.	n.a.
Total supplies	37.2	38.2	37.7	52.8
<i>Uses</i>				
Processed in enterprises of the Ministry of Procurements and the Ministry of the Food Industry	10.2	13.6	12.2	17.1
Released to market fund	2.4	2.3	0.9	1.2
Used for fodder	0.5	0.8	0.5	0.6
Used in industry	0.9	1.2	1.2	1.5
Centralised deliveries	1.2	1.0	0.5	0.3
Exports ^h	0.2	1.2	0.6	2.6
Added to state reserves	1.6	1.3	9.9	5.2
Issued as seed in exchange for other goods	0.5	0.3	0.4	1.0
Issued as seed loans	1.4	2.4	3.1	1.8
Other	3.1	3.3	1.8	1.7
Total uses	22.0	27.4	31.1	33.0
Errors and omissions	0.7	0.3	0.0	-0.1
Available at end of year	14.5	10.5	6.6 ⁱ	19.9

Notes: ^aThese are balances for grain in the hands of the state. They exclude the grain remaining at the disposal of the farms and rural population.

^bThese are calendar years, not agricultural years (the agricultural year ran from 1 July to 30 June).

^cThe figures in this row are what Davies *et al.* (1995) refer to as 'planners' stocks'.

^dPopov (1996, p.91) suggests that this probably only comprises grain from the stores of the Ministry of Procurements and excludes grain released from the stores of other agencies (e.g., the Ministry of Food Reserves). This may explain some of the discrepancies in Table 2, and between Tables 2, 3 and 4.

^eThe 'state sorting fund' (*gossortfond*) was a stock of high-quality seeds.

^fExcludes state reserves of 3.6 million tons.

^gIn December 1946, a contract was concluded with a Chinese firm for the import of a million tons of grain and soya beans and ten thousand tons of meat. The transport was very badly organised, and by 25 March 1947 only 181,700 tons (grain equivalent) had arrived which was only 43% of the plan (Zima, 1996, p.144).

^hZima (1996, p. 149) gives different figures for grain exports. For 1946 and 1947, these are 2.5 million tons (instead of 1.8 million tons) and for 1948 3.2 million tons (instead of 2.6 million tons). Similarly, Bomeshko (1990, p. 52) states that 1946 grain exports were 1.7 million tons. Possible reasons for these discrepancies include different definitions of 'exports' (i.e., commercial only or also including relief; with or without grain loans), different definitions of 'grain' (see Table 4, note c and Source), timing differences, and differences between agreements and deliveries. According to the files of the Ministry of Procurements (RGAE f. 8040, op. 8, d. 360 pp. 22–3), gross exports in the agricultural years 1944–8 were as follows (the figures are in million tons and have been rounded, which explains why totals may differ from the sum of their constituents):

	1944–5	1945–6	1946–7	1947–8
Grain	0.1	1.2	0.3	2.4
Flour	0.1	0.1	0.0	0.0
Groats	0.0	0.0	0.0	0.0
Total in grain equivalent	0.2	1.2	0.4	2.4

ⁱExcludes state reserves.

Source: Popov (1996, pp. 433–8). These data were collected from the Russian State Economic Archive (*Rossiiskii gosudarstvennyi arkhiv ekonomiki* or RGAE) and the State Archive of the Russian Federation (*Gosudarstvennyi arkhiv Rossiiskoi Federatsii* or GARF). The underlying sources are the balances compiled by the USSR People's Commissariat/Ministry of Procurements. The two categories 'Other' and 'Errors and omissions' have been added to make the balances balance.

In order to see what happened to the grain in the hands of the state, it is necessary to look at the USSR state grain balances for 1945–8, which are set out in Table 2.

From Table 2 it can be seen that, in 1946, net grain exports were 1 million tons, a net amount of 0.4 million tons was released from state grain reserves, and 2.4 million tons were issued to the collective and state farms as seed loans (i.e., as grain intended for use as seed, to be returned to the state after the harvest). In 1947, net grain exports fell to 0.3 million tons, large gross additions were made to state grain reserves, and seed issued to the farms as seed loans rose to 3.1 million tons. The increase in seed loans in 1947 indicates the importance the state attached to the maintenance of agricultural production. The sharp decline in net exports in 1947 was a response by the government to the famine.¹

In view of its importance for understanding whether or not the Soviet 1947 famine was a FAD famine, it is important to look at the data for stocks during the famine period. In his study of the 1943 Bengal famine, Goswami (1990) has stressed the importance of accurate stock data. Unfortunately, there appear to be no reliable contemporary stock data for Bengal in 1943, and Goswami's estimates were made many years after the event and inevitably based on somewhat arbitrary assumptions about both population growth and grain consumption. For the USSR in 1947, we have much better, contemporary, data. This is because the USSR had a state-controlled economy for which grain stocks were of great importance and where state agencies kept detailed records of grain stocks, which are now available to researchers in the archives.² The available data are set out in Tables 3 and 4.

From Tables 3 and 4, the following conclusions can be drawn. *First*, in 1947–53 there was a major build-up of state grain reserves. In this period, the Soviet government achieved what it had been unable to achieve in 1929–33 (Davies *et al.*, 1995 *passim*) and what it had taken a formal decision to achieve in August 1944—a major increase in state grain reserves.³ This build-up of reserves began with the harvest of 1947. What was the purpose of this policy? According to the 'top secret' (*sovershenno sekretno*) decree of 11 July 1947 of the Council of Ministers of Ukraine and Central Committee of the Communist Party (bolshevik) of Ukraine on the grain procurement plan from the harvest of 1947, the purposes were fourfold. They were: to allow agricultural production to proceed normally, even when there had been a drought in the preceding year (e.g., by ensuring that there was adequate seed and also food for those engaged in the spring sowing and subsequent harvest); to permit famine relief after a bad agricultural year;⁴ to permit the end of rationing;⁵ and for purposes of national security (Golod, 1996, pp. 252–3). No doubt as

¹ Channon (1998, p. 204) gives the impression that grain exports increased sharply during the famine year 1947. This appears to be erroneous. Table 2 shows a significant increase in grain exports in the calendar year 1948 (according to note h they were in the agricultural year 1947–8) after the worst of the crisis was over. During the crisis, the agricultural year 1946–7, gross exports fell by two-thirds (compared with the previous agricultural year), and in the calendar year 1947 net exports fell by 70% compared with the previous calendar year.

² Contrary to the widespread impression, there are some good quality Soviet statistics—some of which only became available after the collapse of the USSR and the declassification of the relevant archives. For a presentation of the Soviet data on nutrition and mortality in the first two Soviet famines, see Wheatcroft (1997).

³ The Soviet government also achieved in this period a major increase in its reserve of gold and precious metals (Volkogonov, 1995, p. 268).

⁴ The idea that heavy exactions from the peasantry by the state were justified by the need to have state reserves to help the peasantry after a crop failure had been argued by Minister of Finance Witte in 1901. 'Where', Witte asked, 'are we to find the sums to aid the population [in the event of a crop failure] if we conduct the economy [of the state] in such a manner as not to have savings for a rainy day?' (Robbins, 1975, pp. 193–4).

⁵ Rationing was abolished in December 1947.

Table 3. *State grain reserves, 1945–51 (million tons)*

	Total ^a	of which, stored by Ministry of Procurements
1 January 1945	n.a.	n.a.(5.5) ^b
1 July 1945	8.2	2.2 (4.1)
1 January 1946	10.1	5.8 (5.9)
1 July 1946	6.0	3.1 (3.2 ^c)
1 January 1947	n.a. ^d	3.6 (3.8)
1 July 1947	4.7 ^e	1.5 (1.8)
1 January 1948	n.a.	9.5 (9.8)
1 July 1948	10.5	4.8 (5.6)
1 January 1949	18.8	11.2
1 July 1949	13.9	7.4
1 January 1950	20.9	13.1
1 July 1950	16.0	10.3
1 January 1951	21.0	14.6
1 July 1951	16.3 ^f	10.9

Notes: ^aThe figures in this column are for total state grain reserves, of which the main foodgrains (rye and wheat) were only a part. This is obvious from the fact that, for 1 July 1945 and 1 July 1946, they coincide exactly with the figures for total state grain reserves in the report of the Minister of Procurements to Mikoyan (see note c below). The figures in this column for 1 July for the years 1945–51 coincide exactly with those given in Volkogonov (1995, p. 382). Volkogonov cites as his source the Presidential Archive, ‘special file’ (*osobaya papka*) packet no. 734, p. 2. (There is one tiny exception to this agreement. Popov gives the 1 July 1946 total as 6.0 and Volkogonov as 6.1. This is probably a misprint in Volkogonov, or a rounding error, rather than a genuine difference.) Volkogonov (1998, p. 210), the edited English translation of Volkogonov (1995) omits (*op. cit.*, p. 210) the detailed table in the original, just giving figures for 1940 and 1953. The data for ‘total yield’ given in the first part of the same sentence of the translation are misleading—the figures given are for procurements, not ‘total yield’.

^bThe figures in brackets are from the records of the Ministry of Procurements. They purport to be for state reserves of grain and grain products in grain equivalent, but they probably refer just to state reserves of grain and grain products in grain equivalent known to the Ministry of Procurements. They are taken by the author from RGAE f. 8040, op. 8, d. 360, p. 54. What explains the discrepancies between the figures given by Popov in the right-hand column and the figures in brackets found by the author in the archives is uncertain.

^cThis figure corresponds exactly to that cited in the report of the Minister of Procurements to the deputy chairman of the USSR Council of Ministers A. I. Mikoyan of 16 July 1946. See Popov (1992, p. 41). This report gives figures both for planners’ stocks and for state reserves (which were a part of planners’ stocks). Both are given as totals (including both the main food grains and fodder and minor grains) and for the main foodgrains (rye and wheat) alone. The figure of 3.2 is for state reserves of rye and wheat.

^dAccording to Zima (1996, p. 29) on 1 February 1947 state grain reserves were 10 million tons (1.9 million tons higher than on 1 February 1946) of which 4.5 million tons were stored by the Ministry of Food Reserves and 5.5 million tons by the Ministry of Procurements.

^eDuring the war, the 1 July state grain reserves reached their lowest point (2.7 million tons) in 1944 (Popov, 1996, p. 77). On 18 August 1944, a government decree aimed to create an ‘untouchable’ (*neprikosnovennyi*) state grain reserve of 8 million tons (about half a year’s consumption) (Popov, 1996, p. 78, 1997, p. 184).

^fOn 1 July 1952 the corresponding figure was 17.3, and on 1 July 1953 17.8. See Volkogonov (1995, p. 382).

Source: Popov (1996, p. 79). These data were collected from the archives (RGAE and GARF).

the international situation deteriorated after 1947, the last motive grew in importance.¹ As far as the first two motives are concerned, the usefulness of substantial grain stocks for these purposes had been shown in 1936–7, when a bad harvest did not lead to a famine (although there were a few deaths from starvation).² One reason for this was that there was just one bad harvest (the disastrous famine year 1933 was preceded by two successive

¹ The build-up by the USSR of large grain and precious metal reserves in 1947–53 was analogous to the build-up of strategic commodity reserves in the USA in the 1950s.

² According to Osokina (1998, p. 200), in the winter-spring of 1936–7, ‘several thousand families suffered from hunger, thousands of people swelled up from lack of food, and tens of people died from hunger’.

Table 4. *Planners' stocks of grain and grain products in the agricultural years 1945–6, 1946–7 and 1947–8 as recorded by Ministry of Procurements officials (grain equivalent, million tons)^a*

	1945–6	1946–7	1947–8
1 July ^b	6.3	5.7	3.3
1 August	6.0	6.7	6.1
1 September	9.9	9.3	14.2
1 October	15.3	10.6	20.1
1 November	17.1	12.4	20.7
1 December	17.0	12.7	19.6
1 January ^c	15.4	11.8	17.8
1 February	13.8	10.6	16.2
1 March	12.3	9.6	14.7
1 April	10.8	8.3	13.1
1 May	9.6	6.6	11.5
1 June	7.5	4.6	9.2 ^d

Notes: ^aThe definition of 'planners' stocks' in this table corresponds exactly to that of Davies *et al.* (1995, Table 1). This can be seen from the fact that the same archival file also gives data (p. 36) on stocks at 1 July for the years 1928–33, which coincide with the data in Table 1 of Davies *et al.* This implies that the data in this table include not only rye and wheat but also fodder and minor grains.

^b1 July was conventionally taken as the seasonal low point in grain availability. As Davies *et al.* (1995, p. 647) point out, this is not quite correct since the seasonal low point in the availability of grain was usually later. In the six agricultural years 1943–4, 1944–5, 1945–6, 1946–7, 1947–8 and 1948–9, in three (1943–4, 1944–5 and 1945–6) planners' stocks of grain and grain products in grain equivalent as recorded by Ministry of Procurements officials were lower on 1 August than on 1 July. On the other hand, in the other three years, these stocks were higher at 1 August than at 1 July. This suggests that the statement by Davies *et al.* (*ibid.*) that 'During July grain available from the new harvest in the month as a whole is less than grain consumed' is an overstatement. Evidently, the situation varied from year to year in accordance with harvest conditions and the effectiveness of the procurement system.

^cThese figures are higher than the corresponding figures in Table 2 (by 6–13%). Popov has suggested (oral communication) that a possible reason for this is that the different agencies concerned with grain used different accounting methods. Since there are several grains, which can be either aggregated (into 'grain') or disaggregated (into main food grains, i.e., rye and wheat, and fodder and minor grains), there are data for two concepts, 'grain' (i.e., grain alone) and 'grain and grain products' (i.e., grain, flour and groats) and totals are given in two different units ('natural' units—i.e., the sum of the weights of the component grains) and 'grain equivalent' (the use of equivalence coefficients to measure the different grains in a common unit), and since there are different ways of accounting for losses in transport and storage, it is not surprising that there are discrepancies between the sources. See also Source below.

^dAt 1 July 1948, the corresponding figure was 7.4.

Source: RGAE f. 8040, op. 8, d. 360, p. 42. Because these figures are for 'planners' stocks', which consisted of state reserves plus grain in the procurement and distribution system (but excluding grain held by consuming organisations and in the transport system), the figures in this table ought to exceed the corresponding figures in the left-hand column of Table 3. Nevertheless, the data for four dates—1 July 1945, 1 July 1946, 1 July 1947 and 1 July 1948—in Table 4 are less than the corresponding figures in Table 3. There would seem to be two possible explanations. First, that there were state grain reserves on these four dates (and possibly at other dates) not recorded by the Ministry of Procurements' official who drew up the report on which Table 4 is based. For example, stocks held by consuming organisations such as the armed forces, or a special stock for the Far East, or stocks held by other ministries. This explains the heading chosen for Table 4. This explanation is corroborated by the fact that the data for planners' stocks in the Minister of Procurements' report to Mikoyan (see Table 3 note c) for 1 July 1945 and 1 July 1946 both exceed the corresponding figures in Table 4. Secondly, a difference in definition of 'planners' stocks'. Since there were a number of different grains, which were stored both as grain and as products (e.g., flour), and some stocks (those held by consuming organisations and in the transport system) were normally excluded, and 'state reserves' in some statistics are separate from the state insurance fund and the state sorting fund (see Table 2), some definitional difference is possible. This, however, seems unlikely to explain why in some months the data in Table 4 are below those of Table 3, and in other months above them.

bad harvests, in 1931 and 1932, and the famine year 1947 was preceded not only by the bad harvest of 1946 but also by the poor harvest of 1945). Another reason was that the state had substantial grain stocks at 1 July 1936, which were used in 1936–7 to sustain consumption.¹ *Secondly*, this build-up began with the harvest of 1947. *Thirdly*, in the agricultural year 1946–7 state grain reserves fell (by 1.3 million tons), as did planners' stocks (by 2.4 million tons), as one would expect in a food emergency situation.² *Fourthly*, planners' stocks of grain at the end of the 1946–7 agricultural year were substantial and equalled about one-and-a-half months' average total utilisation or two-and-a-half months' stock rundown at the rate planners' stocks were being used up in the first half of 1947. They were 1.3 million tons higher than at the end of the agricultural year 1932–3 (the previous peacetime famine year). This amount—1.3 million tons—was about enough grain to feed 4 million people for one year.³ The prudent minimum level of planners' stocks at 1 July 1947 is uncertain, but a reasonable estimate seems to be about 2.8 million tons (see Appendix 2). This means that surplus planners' stocks⁴ at 1 July 1947, which could have been used to feed people in the agricultural year 1946–7, were about 0.5 million tons, i.e., enough to provide 'a good bread ration' for a million and a half people for one year. In addition, the state seems to have held some additional reserves (see Table 3), which could have been used to feed people in the emergency.⁵ *Fifthly*, surplus stocks rose sharply in the agricultural year 1947–8. *Sixthly*, on 1 July 1946 and 1 July 1947, state grain reserves as a percentage of the harvest of the agricultural year just ended were within the range of end year total stocks as a percentage of the harvest estimated for Tsarist Russia in the years 1905–14 (Kondratiev, 1922, 1991, p. 109) but on 1 July 1948–53 were significantly above it.⁶

How many victims were there? There are estimates for this, based on archival data, by

¹ The precise amount of the stock rundown in 1936–7 is currently unknown. Analysis of food policy in 1936–7 is an important topic for future research.

² Hence, Zubkova (1998, p. 47) is incorrect to write about 'the authorities' stubborn refusal to release grain from the state reserves in face of the growing supply crisis'.

³ Per capita grain requirements depend on the age and gender composition of the population concerned, the availability of other foods, the availability of heating, the weather, the season, and the amount of physical work done. Davies *et al.* (1995, p. 643) use the figure of a third of a ton per person per year as providing 'a good bread ration'. According to Danilov (*Sovremennye*, 1998, p. 127) in Tsarist Russia 0.263 tons of grain per year was the average normal consumption, and in bad years the population could survive on less. Naturally, the lower the figure one chooses, the higher the number of people that might have been saved if some of the stocks had been used for food. To ensure that the estimates of the number of people who might have been saved are not exaggerated, and to ensure comparability with Davies *et al.* (1995), their figure is used in the text.

⁴ By 'surplus planners' stocks' is meant stocks in excess of the minimum level necessary to maintain the rationing system (while rationing existed) or in excess of the minimum level to maintain the normal level of consumption (after rationing was abolished). This definition does not take any account of the need to build up and hold reserves for the reasons explained in the above-mentioned decree of July 1947.

⁵ This assumes that the stocks recorded in contemporary official documents actually existed in a usable state. Officials had incentives to report the procurement and storage of non-existent grain. Grain in store deteriorates under the influence of damp and fungi. Its quantity also declines as a result of theft and consumption by rodents. To find out to what extent the contemporary official data on stocks corresponded to quantities of usable grain would require a separate investigation. On 9 September 1947, the Council of Ministers adopted a top secret decree about the theft of food stocks. This resulted from an audit of stocks held by the Ministry of Food Reserves. Amongst other things, this had revealed cases of reports giving data for food stocks greatly in excess of actual stocks. The implementation of this decree led to the sentencing of more than 10,000 people in 1947–8 (Zima, 1999, p. 97).

⁶ The data on Soviet state grain reserves or planners' stocks are not fully comparable with the estimates for pre-World War I total stocks. The latter included stocks with producers, whereas the former only included what had earlier been referred to as 'visible' stocks. Before World War I, visible stocks were only a small share of total stocks. However, as a result of Soviet policies, by the post-World War II period, it seems likely that what earlier had been termed visible stocks constituted a much larger proportion of total stocks.

both the contemporary Russian historians who have worked on this subject. In Zima (1993), the number of excess deaths was estimated at about a million. In Zima (1996, p. 179), the number was estimated at 'not less than two million'. This number was arrived at by adding to an estimate of direct famine deaths of more than a million an estimate of about half a million disease-related deaths, the diseases being a consequence of the famine. Popov (1994B, 1996) concluded that Russian (not Soviet) excess deaths in 1946–8 from famine were about a million,¹ and that there was a fall in the birth rate of about two million compared with what it would have been under non-famine conditions after the demobilised soldiers returned to their families,² making a total demographic loss (for Russia alone) of about three million. Veselova (1996, p. 13) has cited estimates of Ukrainian excess deaths ranging from a hundred thousand to a million and has herself estimated them at close to a million (Veselova, 1995, p. 188) and over a million (Veselova, 1997A, p. 95, 1997B, p. 59). Tsaran and Shishkanu (1993, p. 10) estimate Moldovan excess deaths as 150,000–200,000. The present author has examined the recently declassified archives of the population registration section of the USSR Ministry of Internal Affairs, and used the recently published archival documents for Moldova and Ukraine, which are the sources for the following analysis.

The famine began in the second half of 1946, after the bad harvest of 1946 and the state's exactions from it. Which month should be considered the beginning of the famine? Recently published contemporary official correspondence shows that the Ministers of State Security of Moldova and Ukraine reported excess deaths which took place in Moldova and Ukraine already in October 1946 (Popov, 1994A, p. 84; Kiselev and Shchagin, 1996, p. 10). If one compares the USSR population registration data for 1946 with those for 1945,³ one sees that, whereas up to and including June 1946, the monthly totals for registered deaths were below the corresponding month of 1945, from July onwards they were above it. From July 1946 onwards, for each month in 1946 the monthly totals for registered deaths are above those for 1945, whereas in January–June inclusive they were below.⁴ Hence it seems reasonable to regard the famine as beginning in July 1946.

What was the number of registered excess deaths in the second half of 1946? That depends on what one takes as the counterfactual. If one takes as the counterfactual the number of registered deaths in the second half of 1945, then the number of registered excess deaths in the second half of 1946 is 99,000 (i.e., in the second half of 1946 there were 99,000 more registered deaths than in the second half of 1945⁵). This is a crude estimate which ignores such factors as a possible decline in mortality under-registration after the war, the gradual decline to be expected in deaths of people injured during the war, and the trend decline in mortality caused by fundamental demographic factors.

As far as 1947 is concerned, the number of registered deaths was 790,000 greater than that for 1946. If one regards as the counterfactual the actual number of registered deaths

¹ In his calculation of the number of excess deaths, Popov made two mistakes, one methodological and one concerned with concrete numbers. The methodological mistake was to treat as excess deaths in 1948, the excess of deaths in 1948 over those in 1947. Since 1947 was the main famine year, the relevant counterfactual for 1948 is a non-famine year such as 1949. As far as the concrete numbers are concerned, he used an erroneous figure for 1948 mortality (see Table 6 note b).

² Blum (1994, pp. 131–2) notes that the USSR, unlike some other countries, did not experience a post-war 'baby boom'. He does not discuss, however, why this was the case.

³ GARF f. 9415, op. 3, d. 1420, p. 35.

⁴ The same is true for Moldova. See *Golod* (1993, pp. 650–1).

⁵ GARF f. 9415, op. 3, d. 1420, p. 13.

Table 5. *Registered mortality in Moldova during the famine*

1. July–December 1945	26,594
2. July–December 1946 ^a	37,632
3. Excess mortality July–December 1946 (i.e., row 2–row 1)	11,038
4. January–September 1946	41,584
5. January–September 1947 ^b	153,622
6. Excess mortality January–September 1947 (i.e., row 5–row 4)	112,038
7. Total excess mortality during the famine (i.e., row 6+row 3)	123,076

Notes: ^aThis figure is derived from a report of May 1947 and is slightly higher than the earlier provisional figures.

^bThese are provisional figures and slightly understate final registered mortality. For example, the February 1947 data only cover 93% of the registration offices—*Golod* (1993, pp. 624, 659).

Source: *Golod* (1993, pp. 650–1, 9).

in 1946 less the above estimate for famine deaths in 1946 (99,000), then the number of registered famine deaths in 1947 was 889,000.

It is known that the famine continued into 1948. This is clear both from survivors' accounts (*Golod*, 1996, pp. 319, 320) and from contemporary official reports.¹ How many excess deaths were there in 1948? If one takes as the counterfactual the actual number of 1946 registered deaths, reduced by the estimated 99,000 famine victims in 1946, then the number of registered famine deaths in 1948 was 181,000. If one takes as the counterfactual the actual number of registered deaths in 1949, then the number of registered excess deaths in 1948 was 169,000.

Hence, it can be seen that the number of registered excess deaths in 1946–8 from the famine, subject to certain assumptions about the counterfactuals, was approximately 1,200,000. Of these, the overwhelming majority—about 76%—were in 1947. The peak of the famine was in February–August 1947. Some relevant data on registered deaths in this period are set out in Tables 5 and 6.

The data in Tables 5 and 6 make it possible to break down the registered excess deaths by republic. Registered excess deaths in Moldova were at least 123,000 (Table 5). As far as Russia and Ukraine are concerned, their excess deaths can be estimated as follows. In 1947, registered deaths in the USSR were 790,000 greater than in 1946. Of these 391,000 or 49% were in Russia, 258,000 or 33% in Ukraine, and 104,000 or 13% in Moldova.² Of the non-Moldovan excess deaths of 686,000 (790,000–104,000), 391,000 or 57% were in Russia, and 258,000 or 38% were in Ukraine. Assume that the additional 88,000 non-Moldovan 1947 excess deaths (see above) were distributed in the same proportions

¹ For example, in his report of 26 March 1948 to the USSR Minister of Internal Affairs on the vital statistics for January 1948, the deputy head of the chief administration of the militia responsible for the population registration system stated that, 'It is necessary to point out that in the month being reported on there were cases of death from dystrophy. In 33 republics, regions and districts the number of registered deaths from this disease was 2,372. In 26 republics, regions and districts there were registered 603 cases of deaths from typhus' (GARF f. 9415, op. 3, d. 1427, p. 19). So-called 'dystrophy' deaths and typhus deaths were famine deaths.

² The balance of 5% was probably mainly in Belarus, which was also affected. (The reason why the excess deaths in Moldova for 1947 as a whole were less than the January–September excess deaths is that in the rest of the year mortality was below the 1946 level.)

Table 6. Registered^a mortality in the USSR 1946–9 (thousands)

	1946			1947			1948			1949		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
USSR	703	1,167	1,870	1,051	1,609	2,660	771	1,180	1,952	690	1,092	1,783
Moldova	8	58	65	15	154	169	5	32	37	4	26	31
Ukraine	115	256	371	223	406	629	114	239	354	103	225	328
Russia	461	626	1,088	660	819	1,479	496	668	1,164 ^b	443	606	1,049

Notes: ^aFor each year, the provisional registered mortality, reported early the next year, is slightly below the final registered mortality, reported the following year as further information became available (an analogous situation still exists in Russia). The data in the table are the final data not the provisional data. This may explain why the mortality figure for 1947 in Popov (1994B, Table 5) is slightly below that in Table 6 above. It probably also explains why the mortality figures in Zima (1996, p. 253) for 1946, 1947 and 1948 are slightly below those of Table 6. For 1946–8, the figures in the table for USSR and Russia total mortality are very close to, but slightly larger than, the (TsSU) data for registered mortality used by Andreev *et al.* (1993, p. 69, 1998, p. 161). The cause of this discrepancy is uncertain.

^bPopov (1994B, Table 5), citing the same archival documents used in collecting the data for Table 6, gives a figure of 1,946,000 for RSFSR registered deaths in 1948. The present author found, in the archive cited, the quite different figure included in this table. Possibly, Popov has simply confused *provisional USSR* data with *final RSFSR* data (the RSFSR figure given by Popov is almost the same as the actual USSR figure).

Source: For 1946 and 1949, GARF f. 9415, op. 3, d. 1438, pp. 111–12. For 1947, GARF f. 9415, op. 3, d. 1427, pp. 168–9. For 1948, GARF f. 9415, op. 3, d. 1432, pp. 121–2.

between the two republics. Then the total excess deaths in 1947 for Russia were 391,000 + 57% of 88,000, which is 441,000. A similar calculation for Ukraine give an estimate of 291,000 1947 excess deaths. Assuming that the 1946 non-Moldovan excess deaths were also distributed between the two republics in the same proportions, then 1946 excess deaths in Russia were 50,000 and in Ukraine 33,000. If one accepts as the estimated registered excess deaths in 1948, the excess of registered deaths in 1948 over those in 1949, then in 1948 there were 26,000 excess deaths in Ukraine and 115,000 in Russia.¹ This gives estimates for the three republics for registered excess deaths for the second half of 1946, and for the whole of 1947 and 1948 of 606,000 for Russia (*circa* 0.6% of the population), 350,000 for Ukraine (*circa* 1% of the population) and 123,000 for Moldova (*circa* 5% of the population²).³ In absolute terms, the excess registered deaths were highest in Russia and lowest in Moldova. As a proportion of the population of the republic concerned, they were highest in Moldova and lowest in Russia.

As for the allocation of excess deaths between urban and rural, of the increase in USSR registered deaths in 1947 over 1946 of 790,000, 44% were urban and 56% were rural. Of the excess of registered deaths in 1948 over 1949, 49% were urban and 51% rural.

How accurate are these mortality figures? It is clear that the population registration system in this period was inaccurate (for the reasons given with the source for Table 1).

¹ The apparent 6,000 excess deaths in Moldova in 1948 are ignored, since all the sources consulted by the author suggest that the Moldovan famine ended in 1947.

² This assumes that the population of Moldova in 1946 was 2.389 million, as estimated by the Moldovan Central Statistical Administration in January 1947 (*Golod*, 1993, p. 358). This estimate is unlikely to have been very accurate. The report from which it is taken stresses that it is a rough estimate. If actual Moldovan excess deaths were, say, 170,000, and the Moldovan population on 1 July 1946 was actually, say, 2.2 million, then the excess deaths would have been *circa* 8% of Moldova's population.

³ The difference between the sum of estimated excess deaths in these three republics (1,079,000) and the national estimate of 1,200,000 is accounted for by excess deaths in other republics (e.g., Belarus) and rounding errors.

Andreev *et al.* (1993, p. 69) assume that mortality under-registration in 1946 was 33%, in 1947 25% and in 1948 19%. Even in stable periods, it was normal in the USSR for infant, elderly and rural deaths to be under-registered (Lutz *et al.*, 1994, ch. 18, 20 and 21). In the famine period, rural mortality under-registration was noted in official documents. For example, in his report on 1947, the head of the population registration section of the USSR Ministry of Internal Affairs stated that (GARF f. 9415, op. 3, d. 1425, p. 5) 'There were cases in which the secretaries of rural soviets refused to register births and deaths. In Krasnoarmeisk and Loshkarsk rural soviets, Stalinsk district, Dnepropetrovsk region, the secretaries of the rural soviets refused to register deaths, saying they were too busy.'

One might be inclined to think that since rural mortality under-registration was a chronic problem, then by Nove's 'law of equal cheating' it should have no effect on calculations of excess deaths in the famine. This is doubtful for two reasons. First, if the extent of under-registration were a fixed proportion of the number of actual deaths, then because the absolute number of deaths in the famine period rose, so would the absolute number of under-registrations. Secondly, during the famine period it is quite possible that relative under-registration increased. This was both because the increased workload led rural officials to decline to register some deaths, which they would have registered under normal conditions, and because many people, especially rural inhabitants, left their homes in search of food. They frequently ended up, as the Moldovan Minister of State Security put it in a report to the USSR Minister of State Security of 2 December 1946 (Popov, 1994A, p. 84) as 'corpses found on streets, roads and in fields'. It seems unlikely that all these corpses were identified and included in the population registration statistics. In addition, many corpses of famine victims probably rotted away in remote areas and were not found for a long time if at all. These arguments suggest that the population registration statistics understate the increment of mortality, especially rural mortality, resulting from the famine.¹

One way of estimating possible increased under-registration during the famine is to consider the rural/urban breakdown. According to Table 6, registered USSR urban mortality in 1947 rose by 49.5%, but registered USSR rural mortality increased by only 37.9%. This is strange, since both contemporary official reports and survivors' accounts give the impression that the famine struck mainly rural inhabitants. Hence, it is plausible to assume that this difference is an artefact resulting from differential under-registration. In that case, the increase in rural mortality that would have been registered in 1947 if the degree of under-registration had remained at the 1946 level was likely to have been at least equal to the increase in registered urban mortality, i.e., 49.5%. If that were the case, then the adjusted (for the increase in under-registration) number of registered rural deaths in 1947 is $1,167,000 \times 149.5\% = 1,744,665$ (rather than the registered 1,609,000). This would suggest that differential under-registration in 1947 resulting from the famine was at least 136,000, and would increase the estimate of 1947 famine deaths from 889,000 to 1,025,000 (889,000 + 136,000). This would increase the estimate for total famine deaths to about 1.3 million. Naturally, if the percentage increase in under-registration is increased (i.e., if it is assumed that the percentage increase in rural deaths that would have

¹ Tsaran and Shishkanu (1993, pp. 9–10) argue that this is the case in Moldova. 'In the villages in the south of the republic there are many common graves in which famine victims are buried. Their memory is not preserved in any official documents. In addition, there are those who died beyond the boundaries of the republic.' As far as the latter point is concerned, in July 1947 the acting representative of the USSR Gosplan in Moldova argued in an official report that (Golod, 1993, p. 696), 'the data on [registered] mortality does not fully reflect the number of deaths because part of the population went to Ukraine in search of food and a considerable number of them died in the [Ukrainian] Stanislav [since 1962 Ivano-Frankovsk], Chernovtsy and Lvov regions.'

been registered if the extent of under-registration had remained unchanged was greater than the percentage increase in registered urban deaths), then that would increase the estimated number of victims still more.

On the other hand, it is possible that in 1946–8 there was a sharp decline in under-registration, as post-war chaos was replaced by order and stability. This is what is implicitly assumed by Andreev *et al.* (1993, p. 69). If this were the case, then the increment in registered mortality might be quite close to the increment in actual mortality or even above it (depending both on the level and the decline of relative under-registration). The level and decline of under-registration assumed by Andreev *et al.* are such as to suggest that the registration data do understate the increment in actual mortality, but only slightly.¹ Whether in fact there was a sharp decline in mortality under-registration in 1946–8 is uncertain. Detailed historical-demographic research is necessary to throw more light on the relationship between registered and actual mortality in these years.

In the present state of knowledge, use of the population registration data suggests that actual famine mortality should be given as a range rather than a point estimate. The reason for this is the uncertainty about the relationship between registered and actual mortality. A specific case of this is possible under-registration of mortality among the detainees.² The lower bound of the range would reduce the estimate for 1948 (200,000) to allow for the fact that if post-war mortality declined for fundamental demographic reasons, then the excess of 1948 mortality over 1949 could be a normal non-famine occurrence, and the excess of 1948 mortality over 1946 mortality might be an artefact created by a decline in mortality under-registration. If the 1948 estimate were reduced to less than 50,000, then the lower bound of the range would be 1,000,000. The upper bound of the range would be formed by assuming that relative under-registration increased in the famine period. Allowance for increased relative mortality under-registration would increase the point estimate of 1.2 million by up to, say, 25%. This produces a range of 1,000,000–1,500,000.³

An alternative way to estimate famine deaths is by demographic interpolation (Andreev *et al.*, 1993, 1998). This uses the census data (from the censuses of 1926, 1937, 1939 and 1959) to reconstruct the vital statistics for 1927–59 on the basis of assumptions about war losses and peacetime vital statistics. This generates time series for births and deaths for 1927–1959. Andreev *et al.* themselves point out, however, that the least reliable of their estimates are those for the immediate post-war period (Andreev *et al.*, 1998, p. 72), which are precisely the ones necessary for estimating excess mortality in the famine. Using these reconstructed data enables one to estimate the effect of shocks, e.g., the 1947 famine. On this basis, Andreev *et al.* (1998, p. 141) estimate excess deaths from the 1947 famine for Russia alone at ‘more than 500,000’.⁴ For the USSR, they do not seem to give any estimate of their own but quote the estimate by a Russian historian of ‘about a million’.

¹ According to Andreev *et al.* (1993, p. 69) the actual increment in mortality in 1947 was 3,000 larger than the increase in registered mortality. Applying their estimates of under-registration to the registration data in Table 6 (for the difference between the two sets of registration data see Table 6 note a) produces an increment in actual mortality in 1947 about 48,000 greater than the increase in registered mortality.

² This question is discussed in Appendix 3.

³ This is much below the number of famine victims in 1931–4. Hence, the statement about the 1946–8 famine by Pikhoya (1998, p. 18) that ‘[i]ts scale was fully comparable with the famine of the early 1930s . . .’ is wrong, at any rate if ‘scale’ is understood demographically. Pikhoya also fails to inform his readers that the most seriously affected part of the USSR was Moldova.

⁴ How Andreev *et al.* arrived at this estimate is obscure. According to their own data (Andreev *et al.*, 1998, p. 162), Russian 1947 deaths were only 420,000 above the average for 1946 and 1948. Perhaps the ‘more than 500,000’ also includes an estimate for December 1946.

However, their own estimates of USSR vital statistics can easily be used to generate their implicit estimate of USSR excess deaths. If one applies to 1947 the method they use to calculate 1933 excess deaths (Andreev *et al.*, 1998, pp. 80–3), then ‘excess deaths’ in 1947 are defined as the excess of deaths in 1947 over the average for 1946 and 1948. Using this method and their vital statistics (Andreev *et al.*, 1993, p. 118), 1947 USSR excess deaths (i.e., the excess of deaths in 1947 over the average for 1946 and 1948) are 978,500. However, since it is known that there were famine deaths also in 1946 and 1948, then if the annual vital statistics are correct, this method underestimates total famine deaths because it ignores famine deaths in those two years.¹ If one assumes that the average number of famine deaths in 1946 and 1948 was 100,000, then famine deaths in 1946–8 using this approach were 978,500 plus three times 100,000, which is approximately 1.3 million. A lower figure for average excess deaths in 1946 and 1948 naturally generates a lower figure for total excess deaths. For example, if average excess deaths in 1946 and 1948 were, say, 70,000, then using this method total famine deaths would have been $978,500 + (3 \times 70,000)$, which equals approximately 1.2 million. If one assumes that Andreev *et al.* bunch in one year excess deaths which actually were spread over a longer period (in the same way they seem to have bunched in 1933 famine deaths actually spread over several years), then total famine deaths in 1946–8 would be about a million, but famine deaths in 1947 (compared with hypothetical mortality under normal conditions) would be less than a million. If one assumes that Andreev *et al.*’s 1947 mortality estimate is accurate, and that their 1946 and 1948 mortality estimates also include some famine deaths, then their demographic interpolation yields a figure of, say, 1.2 million, as explained above. This lack of clarity results from the fact that Andreev *et al.* are Russian demographers who are primarily concerned to estimate annual vital statistics for the Soviet period and calculate the effects of demographic shocks on Russia, rather than historians trying to estimate the effects of particular historical events for the whole of the USSR. (An exception is their analysis of the USSR wartime population loss, which does adopt a historical perspective and does relate to the USSR as a whole.)

The main explanation for the difference between the various estimates of excess deaths is different assumptions about the relationship between registered and actual deaths. If USSR mortality under-registration declined steeply in the post-war years (as assumed by Andreev *et al.*), a million is a reasonable estimate of excess deaths. If it remained constant, 1.2 million is a reasonable estimate, and if under-registration increased in 1947, excess mortality could have been in the range 1.3–1.5 million. Hence, reducing the range of plausible estimates requires additional work on the relationship between registered and actual mortality in 1945–9.²

As is normal in famines, a large proportion of the victims were infants. Of the increase in registered deaths in 1947 over 1946, 30% were children under 1 (GARF f. 9415, op. 3, d 1425, p. 7).³ An important category of victims of this famine was large families where the father had been killed in the war and, hence, was no longer able to provide for his children.

¹ Andreev *et al.* (1998, pp. 105 and 141) state that the famine began in December 1946 and ended in the summer of 1947. Although this was the peak of the famine, it certainly was not its total duration, at any rate not for the USSR, as explained above. Andreev *et al.*’s definition of excess famine deaths (for example for 1933 or 1947) only makes sense if one assumes that the famine deaths were confined to one year. This may be a convenient assumption for demographers, but it is historically inaccurate.

² In their 1998 book, Andreev *et al.* use a new source, which was not available when they wrote their 1993 one, the electoral rolls. To render this compatible with their own estimates, they have to make various *ad hoc* assumptions about numbers in the armed forces, people deprived of electoral rights (imprisoned and exiled) and falsification of the electoral rolls.

³ In March 1947, the infant mortality rate in Moldova reached 36% (Golod, 1993, p. 642).

Hunger drove some starving people to cannibalism.¹ There are reports (*Golod*, 1993, 1996) both of fresh corpses of people who died naturally being used for meat and also of people being murdered for their flesh.

3. Large state supplies as a way to alleviate famines

According to *Genesis* (41: 33–57), Joseph advised Pharaoh to build up stocks of grain in good years to use to feed the people and avoid potential famine in bad years. The same source reports that the Egyptian government accepted this advice, appointed Joseph to implement it, and that it was a success. Similarly, Sen (1981A, p. 79, 1986, p. 127) has argued that ‘no matter how a famine is *caused*, methods of *breaking* it call for a large supply of food in the public distribution system’. This policy—of building up state stocks which are used to feed the poor and maintain prices at a normal level when famine threatens—has frequently been successfully implemented and saved many lives. Examples include England in the early seventeenth century (Fogel, 1992, p. 264) and the USSR in 1936–7. Hence, rash readers of the two passages from Sen cited above or of Drèze and Sen (1989 *passim*), and/or those familiar with the historical examples just cited and/or similar ones, may overgeneralise this policy prescription. It is not universally applicable. Sen himself advocates a range of support strategies, in particular employment creation. He is well aware that a rationing system that is confined to the urban population—and stocks held to maintain it—will not break a famine among the rural population and may worsen it. He has described (Sen, 1981B, p. 445) how in Bengal in 1943 the population of Calcutta was able to obtain enough food, via rationing and ‘controlled’ shops, while about three million agricultural labourers, fishermen and other rural inhabitants, who were excluded from the rationing system and did not have access to ‘controlled’ shops, died of starvation or disease. In the contemporary world, the group excluded from state supplies may be not just rural inhabitants but also an ethnic/religious group different from the group/s that hold/s state power. The importance of inter-group distributional issues is discussed in Sen (1981A, pp. 43–4).

The prescription of ‘a large supply of food in the public distribution system’ assumes that the authorities regard breaking the famine as a major priority. Soviet priorities in 1946–8, however, were different (as were British priorities in 1943).² The revealed top priority of Soviet food policy in 1946–7 (prior to the abolition of rationing) was to enable the rationing system to continue functioning effectively and hence save the lives of those

¹ This is common during famines. For a historical overview, see Sorokin (1975, pp. 108–12). In the Russian famine of 1919–22 (Sorokin, 1975, p. 136) ‘cannibalism was “an everyday occurrence”’. For the Soviet famine of 1932–3, the archives are overflowing with reports of cannibalism (Khlebnyuk, 1996, p. 60). On cannibalism during the siege of Leningrad, see Barber and Harrison (1991, p. 90). In the USSR in 1944 (Zima, 1995, p. 163), ‘[i]n eight regions of Russia and two bordering regions of Kazakhstan cases of cannibalism as a result of psychological derangement caused by hunger were registered.’ There were also cases of cannibalism among the starving population of the occupied territories. In Moldova in 1947 (Bomeshko, 1990, p. 38), ‘The eating of corpses took place on a large scale.’ *Golod* (1993) and *Golod* (1996) contain a large number of contemporary official documents about cannibalism in Moldova and Ukraine during the famine. Cannibalism was also common among German and Romanian prisoners of war in the USSR after the battle of Stalingrad (Beevor, 1998, p. 413).

² Drèze and Sen (1989, p. 260) write that ‘it is remarkable that famines continue to occur in the modern world despite the relative ease with which they can be totally eliminated through public action’. This assumes that eliminating famines is a major priority of governments. In many cases, it isn’t, so that there is nothing ‘remarkable’ about the persistence of famines. Furthermore, the stress in Drèze and Sen (1989) on the possibility of eliminating famines by public action, while sensible from a normative point of view, is one-sided from a positive point of view. Famines are frequently *caused* (or exacerbated) by public action.

who depended on it and enable the state to continue using their services. The revealed second priority was to maintain and when possible build up grain stocks, for the reasons explained in the above-mentioned Ukrainian decree of 11 July 1947. Soviet food policy in 1946–8 was in line with Soviet food policy during previous food emergencies (other than in 1936–7). For example, during World War II (Moskoff, 1990 *passim*), Soviet Power was used to feed the armed forces and provide rations for the urban population (or at any rate that part of it that worked in state enterprises), particularly in Moscow. Rationing, however, was in general not extended to the rural population, which was expected to fend for itself. Similarly, one reaction of the authorities to the food difficulties of 1939–40 was to ban the sale of flour and bread in rural areas (except for cotton- and tobacco-growing regions and the Far North—see Osokina, 1998, p. 208). The Soviet authorities persistently had great difficulties in providing even for the urban population and accepted little responsibility for feeding the peasantry. For example, in earlier periods of food rationing (1928–35 and the civil war), the peasantry had been excluded from the rationing system. They were expected to look after themselves.¹

Hence, under the conditions prevailing in the USSR in 1946–7, the relatively large supply of food in the hands of the state is considered by present-day historians to be one of the *causes* of the famine. Under these conditions, large food supplies in the hands of the state did not constitute an effective method for breaking a famine. In detail, given the priorities of the state, large food supplies in the hands of the state was an inappropriate policy for breaking the famine in the USSR in 1946–8 for five reasons. First, part of the supplies in the hands of the state were the subsistence requirements of the peasantry, obtained by coercion. Secondly, the state used some of its supplies for exports, regardless of domestic famine conditions. Thirdly, the poorest part of the population with the greatest need for famine relief (the peasantry) was excluded from the public distribution system.² During the famine period, rations were available only to part of the population, mainly to state employees. Fourthly, a large supply of food in the public distribution system, under conditions in which much of the public food supply comes from the subsistence requirements of the peasantry and rural entitlements are below urban ones, ignores losses in transport and storage. The latter ensure that marginal quantities of

¹ The view that people should save themselves from starvation by growing their own food, survived the fall of the Soviet Union. Witness the enormous importance in the countries of the FSU of the garden/allotment/dacha/private-plot sector.

² From 1 October 1946, the number of recipients of rations was drastically reduced. The number of rural inhabitants entitled to rations was reduced from 27 million to 4 million (Volkov, 1991, p. 12). In December 1946, 110 million people lived in rural areas, of whom only 4 million were included in the rationing system (Popov, 1996, p. 88). In addition, from 16 September 1946, the prices of rationed foods were increased sharply. The price of rationed black bread (the main food) was increased to three to four times its previous level, and the prices of other rationed foods were increased to two-and-a-half to three times their previous level (Popov, 1992, p. 42). The price of meals in factory canteens was also raised sharply. From 1 November 1946, the proportion of rye and wheat in bread was reduced (Zubkova, 1998, p. 46). The combined share of oats, barley and corn was raised to 40% (except in Moscow and Leningrad, where it was only raised to 25%). The use of criminal sanctions against those who stole state or collective farm food was intensified. A decree of the USSR Council of Ministers and CPSU Central Committee of 27 June 1946 and another one of 25 October 1946, and a decree of the Presidium of the USSR Supreme Soviet of 4 June 1947, were all devoted to tightening up the sanctions for theft of state and collective farm food. Large numbers of people were found guilty of this and received heavy sentences. According to Zima (1999, p. 97), by the end of 1947 about 300,000 people were incarcerated in prisons and camps as a result of implementing the June 1947 decree. In 1946–7, there was also a significant increase in the number of collective farm chairmen tried and sentenced (usually for distributing grain to the members of their collective farm and/or for failing to meet state procurement plans). The purpose of all these measures was to reduce the demand for state supplies, and/or increase the availability of state supplies, and thus maintain the viability of the rationing system under conditions of food availability decline.

subsistence grain extracted from the peasantry for delivery to the towns will cause more deaths among the peasantry than they will save lives amongst the urban population.¹ Fifthly, the argument for a large supply of food in the public distribution system assumes that the authorities use the food in the public distribution system to distribute to the poor and ignores the possibility that they might use (some of) it to maintain surplus (from the point of view of feeding the starving) stocks.

It should be noted, however, that the Soviet authorities did organise some famine relief in 1946–7 (Volkov, 1991; Zima, 1996, ch. 5). They reduced the 1946 grain procurement plan for some badly affected regions (e.g., Moldova²), lent some regions grain (which had to be returned after the 1947 harvest, usually with interest)³, and supported soup kitchens, hospitals and children's institutions, and collective farmers working in the collective farm fields on tasks essential for ensuring the 1947 harvest.⁴ Part of this relief was misused (e.g., returned to the state as procurements or embezzled before reaching the intended recipients). Part of it was delayed (e.g., by bad organisation or snow-covered roads). There was also some foreign assistance. UNRRA provided substantial help for Ukraine and Belarus (\$250 million in 1946–7, part of which was food and part for general post-war reconstruction) and the US Red Cross and the US charity 'Russian Relief' together sent the USSR goods worth 31 million dollars. There was also help from other countries (e.g., Denmark, Sweden and Iran). It seems likely that without the relief the death toll would have been higher than it actually was. Nevertheless, relief efforts were inadequate and failed to prevent substantial mortality. According to Tsaran and Shishkanu (1993, p. 5), famine relief in Moldova after the bad harvests of 1945–6 was much less effective than it had been after the bad harvests of 1891–92 (*sic*). They argue that the weather in both periods was similar, but in the first period it was possible to avoid excess deaths.⁵

4. Categorisation of the famine

Nowadays, historians in Russia, Ukraine and Moldova, such as Popov, Zima, Veselova, and Tsaran and Shishkanu, blame the fact that there was a famine in 1947 on the policies of the Soviet government. If taxes and procurements had been lower, if there had been no exports (these were intended to influence in a pro-Soviet direction the political situation in the recipient countries), if imports had been larger, if the government had used its surplus stocks for famine relief, and if the government had not built up stocks (in the agricultural year 1947–8) at a time when there were still people dying of famine, then

¹ Strictly speaking, in a FAD₂ famine (see Section 4), for a population with equal needs, total famine deaths will be minimised by reducing the overall variance in entitlements to zero. If rural entitlements are above urban ones and remain above subsistence level regardless of the rural–urban deliveries, then overall mortality will be minimised by an extraction rate that *rises* with transport and storage losses. However, in the USSR in 1946–8, rural entitlements were probably below urban ones, and declined—in some cases to below subsistence level—as rural–urban deliveries increased. Hence, losses in transport and storage probably increased the variance in entitlements.

² In August 1946, the gross grain procurement plan for Moldova was reduced by 73% and the net procurement plan was reduced to zero (Bomeshko, 1990, pp. 18–19). (The new low gross procurements were intended for use within the republic, mainly as seed loans—64%—but also as relief—34%.)

³ In 1891–2, too, relief took the form of loans rather than of grants (Robbins, 1975, p. 152). Relief in the form of grain loans, which had to be repaid (in grain) after the new harvest with interest (also in grain), was also distributed in 1933 (*Sovremennye*, 1998, p. 105).

⁴ Hence, it is erroneous to criticise the Soviet government on the ground that (Kenez, 1999, p. 167) 'not only did it fail to organise famine relief, but . . . '.

⁵ The relative effectiveness of relief efforts in the famines of 1891–2 and 1946–7 is discussed in Appendix 4.

probably there would have been no famine (or at any rate a much smaller one). This is absolutely true. Nevertheless, it is equally true that the (peak of) the famine was in 1947, after the bad harvest of 1946. In other post-war years the government was also oppressive, built up stocks and exported grain, but its oppressive, stock and international trade policies did not cause famines then. In this sense, the cause of the famine was the drought which caused the bad harvest of 1946.

If one assumes that the weather was given and treats the policies of the Soviet government as the relevant variable, then the famine was 'caused' by the policies. If one assumes that the policies of the Soviet government were given, and treats the weather as the relevant variable, then the famine was 'caused' by the bad weather. In the present author's opinion, in 1945–53 the policies were given and the factor that determined why some years were famine years and others not was weather-induced fluctuations in output. The same was true of the Tsarist period, for example with respect to the famine of 1892 (even though many contemporaries, and subsequent writers influenced by them, blamed it on the harsh exactions and incompetence of the Tsarist government).

If one wants to know why there was a famine *in 1947* (as opposed to some other year in 1945–53), then the answer is, because of the 1946 drought which caused a bad harvest in 1946 and hence acute food shortages in the agricultural year 1946–7. On the other hand, if one wants to know why the Soviet Union was vulnerable to famines in 1945–53, then the answer is different. It resulted from a combination of six factors. First, the fact that for fundamental meteorological/geographical reasons, some of the most important agricultural areas were vulnerable to recurrent severe droughts. This is a well-known problem of Russian agriculture which pre-dates the USSR and was also relevant after the collapse of the USSR (as was shown, for example, by the drought of 1998). Secondly, the high level of rural taxation (Popov, 1993, pp. 123–77; Zima, 1996, pp. 193–201), and relatively high procurements and low level of procurement prices, which made it difficult for the rural population to provide for itself. Thirdly, the fact that the living standards of the population were low and that the population had insufficient reserves/stocks/realisable assets to enable the whole population to survive a bad harvest, especially when the previous year's harvest had been poor. Fourthly, the restrictions on private trade imposed by the Soviet government. These made it difficult for many people to obtain food. In 1891, private traders had played a positive role in delivering grain to the regions hit by drought (see Appendix 4). Fifthly, in the post-war years, Stalin did not attach high priority to saving the lives of the entire population. Sixthly, the low level of agricultural production. In the 1953–91 period, recurrent droughts did not cause famines, because the post-Stalin Soviet leaderships abandoned the coercive approach to agriculture, pursued a relatively egalitarian incomes policy, attached high priority to maintaining or raising living standards and preventing famines, achieved a major increase in production, and imported grain on a large scale.¹

From the point of view of the modern discussion of the economics of famines, it is noteworthy that the 1947 famine followed a sharp fall in production (the drought-affected 1946 harvest). In this respect, it differs sharply from those famines that happened without

¹ In Ellman (1979, p. 97, 1989, p. 108) attention was drawn to the fact that, 'Considered historically, the most important achievement of post-Stalin [Soviet] agricultural policy has been to eliminate famines in the USSR.' In the terminology of de Waal (1997), one could say that Khrushchev introduced, and Brezhnev maintained, an anti-famine political contract in the USSR. *Pace* Sen, this major achievement was not the result of introducing a free press and a liberal-democratic political system, neither of which existed in the USSR at the time (in the 1950s, 1960s and 1970s). The fact that democratic institutions are not necessary to prevent famine was pointed out by Nolan (1993, pp. 17–18). Of course, Sen was quite right in thinking that dictatorship makes disasters more likely. See also Ellman (1989, pp. 21–2).

a decline in aggregate food availability.¹ The 1947 famine fits into the alternative category of famines that are associated with a sharp fall in domestic food output, i.e., FAD famines.² However, whether or not a particular famine should be considered a 'FAD famine' can be ambiguous. It may be that there was a FAD but that, nevertheless, there were feasible policies that would have prevented the famine, or greatly reduced the number of victims, despite the FAD. Hence, for greater precision, it is convenient to distinguish between FAD₁ and FAD₂. FAD₁ famines are those in which there is no feasible division of the available food which can prevent famine (the famine in Leningrad in 1941–2 probably falls into this category). FAD₂ famines are those in which, although food availability has declined, there are feasible policies that could have prevented the famine (or at any rate substantially reduced the number of victims). For the reasons given in this section, the 1947 famine was a FAD₂ famine.³

Nevertheless, the entitlement approach does help us understand the 1947 famine in some ways. First, the selection of victims can be understood in terms of the entitlement approach. Those who died were those who in the Soviet system had no entitlement to food (for example rural dependants). Those who did have an entitlement to food (the beneficiaries—mainly urban state employees—of the rationing system) usually survived.⁴ The famine deaths were not a direct consequence of a natural disaster, but were mediated by the Soviet entitlement system.⁵ Secondly, there was no inevitable link between the natural disaster and the famine (i.e., it was a FAD₂ rather than a FAD₁). Had the policies of the government been different (lower taxes and procurements, a bigger rundown of stocks in the agricultural year 1946–7 and a slower increase in them in the agricultural year 1947–8, no exports, larger imports) there might well have been no famine (or at any rate a much smaller one) despite the drought.

¹ For references to empirical studies of such famines, see Ravallion (1997, p. 1208, footnote 5).

² If by 'the "food availability" fallacy' (Drèze, 1999, p. xi) is meant the view that food availability declines are important in causing famines, then it is not a fallacy but quite correct. The stress by Nolan (1993) on the importance of production declines in twentieth-century famines is very important and undoubtedly correct. So is his stress on the role of wars and of socialism in causing the main twentieth-century famines. However, his emphasis (Nolan, 1993, p. 23) on government-imposed institutional changes as the cause of socialist famines neglects the fact that even without institutional change socialist famines are entirely feasible, as the 1947 Soviet famine showed.

³ Of course, the question of what is 'feasible' in particular historical contexts is a matter of judgement. Whether the policies necessary to prevent famine in 1946–8 were really politically 'feasible' for the then Soviet government, is debatable.

⁴ From Table 6 it can be seen that the majority of the increase in registered mortality in the famine was in rural areas. Most victims were members of peasant households. The table also shows, however, that a substantial proportion of the increase in registered mortality was in urban areas. Indeed, the percentage increase in registered mortality in 1947 was greater for urban areas than for rural ones. It is likely that this is an artefact created by differential mortality under-registration. To ascertain precisely which groups among the urban population were most affected by famine deaths requires further work. It seems likely that dependants (e.g., infants) were an important group of victims. Data presented in a recent demographic history of Moscow suggest that the death rate rose in 1947 even in Moscow (although by less than in the country as a whole), and that the number of excess deaths in Moscow in 1947 was about 8,000 (Gavrilova, 1998, pp. 194, 208). In Moscow in 1947, infants were a particularly badly affected group. The estimated infant mortality rate rose by 48% (Gavrilova, *ibid.*, p. 208).

⁵ Similarly, the small number of excess deaths in 1936–7 seem to have comprised mainly non-collectivised individual farmers and their households (Osokina, 1998, p. 202). In the USSR in the Stalin period, they had no entitlement to food.

5. Conclusions

- The 1947 (more precisely 1946–8) famine was the fourth and last Soviet famine. It began in July 1946, reached its peak in February–August 1947 and then quickly diminished in intensity, although there were still some famine deaths in 1948.
- The best estimate of excess deaths that can currently be given is the range 1,000,000–1,500,000. The range is relatively wide because of the uncertain relationship between registered mortality and actual mortality. The largest number of excess deaths was in Russia, followed by Ukraine and Moldova. In percentage terms, the largest number of excess deaths was in Moldova and the smallest in Russia.
- The demographic loss was greater than the number of excess deaths since it also includes the fall in the birthrate compared with what it might have been under non-famine conditions. According to a present-day Russian historian, the demographic loss in Russia was three times the number of excess deaths.
- The level of grain stocks at the end of the agricultural year 1946–7 seems to have been in excess of the minimum level of stocks required to maintain the rationing system. Surplus stocks seem to have been sufficient to have fed all those who died of starvation or starvation-induced disease in the agricultural year 1946–7. This was still more the case with the victims who died in the agricultural year 1947–8.
- It is not true that the level of grain stocks in the hands of the state was constant or increased during the famine period. Stocks fell during the main famine period (the agricultural year 1946–7). Nor is it true that grain exports increased in the agricultural year 1946–7. They declined then.
- It is not true that the Soviet authorities paid no attention to famine relief. They did undertake some famine relief, but not enough to prevent large scale mortality from starvation and starvation-related diseases. They also permitted substantial foreign help. Nor is it true that they ignored the needs of agriculture. They increased seed loans in 1947 to enable the spring sowing to go ahead smoothly despite the shortage of seed at the farms.
- Whether or not a particular famine should be considered a ‘FAD famine’ can be ambiguous. It may be that there was a FAD but that nevertheless there were feasible policies that would have prevented the famine, or greatly reduced the number of victims, despite the FAD. Hence for greater precision it is convenient to distinguish between FAD₁ and FAD₂.
- The 1947 famine was a FAD₂ famine. Food availability fell sharply because of a drought in 1946 but official policy made the situation worse than it need have been. Hence
 - (a) it is an additional example for the thesis that FAD famines were important in the twentieth century and an additional counterexample for the thesis that they were not,¹ and

¹ The Soviet famines of 1921–2 and 1931–3 were also FAD famines, as was the Russian famine of 1892 (and the Chinese famine of 1959–61). It is also the case, however, that in 1917–20 many people lost their entitlement to food as a result of war, ethnic conflicts, transport difficulties, and the breakdown/attempted abolition of market relations, and in 1931–4 as a result of the settlement/denomatisation of the Kazakhs, dekulakisation and the grain procurement/collectivisation and international trade policies of the government. Hence, the latter famine can be considered as being of the FAD₂ variety to the extent that the counterfactual policies can be considered politically ‘feasible’. The third Soviet famine is complex. The inhabitants of Leningrad, Kharkiv and Komsomol’sk who died of starvation in the war lost their entitlement to food as a

- (b) there was no inevitable link between the drought and the famine. Had the policies of the government with respect to taxes and procurements, stocks and international trade, been different from what they actually were, there might have been no famine, or only a much smaller one, despite the drought.
- The Joseph–Sen policy of fighting famine by establishing large food supplies in the hands of the state, is frequently effective. However, there can be cases where it is not so, particularly for groups the feeding of which is not a priority of the state. The Soviet 1947 (more precisely 1946–8) famine is one such case. Where (part of) the stocks in the hands of the state are the subsistence requirements of the peasantry, obtained by coercion, the peasantry are excluded from the rationing system, and the state exports grain and holds excess stocks during the famine, then building up or maintaining large state supplies may worsen the famine, at any rate among the peasantry, rather than reducing mortality. The same may apply, in other famines, not to the peasantry but to ethnic/religious groups different from the group/s which hold/s state power.
 - From a positive point of view, stress on the role of public action in eliminating famines is one-sided. Famines are frequently caused (or exacerbated) by public action.
 - Soviet experience in the post-Stalin period shows that a free press and a liberal democratic political system are not necessary to eliminate famines.¹
 - The selection of famine victims in the USSR in 1946–8 can be understood in terms of the entitlement approach. Those who died were those who in the Soviet system had no entitlement to food (such as rural dependants). Those who did have an entitlement to food (the beneficiaries—mostly urban state employees—of the rationing system) usually survived. The famine deaths were not a direct impact of a natural disaster, but were mediated both by Soviet economic policy and by the Soviet entitlement system.
 - Study of the 1947 (more accurately 1946–8) Soviet famine and its relationship to current economic discussion provides yet another illustration of the fact that (Ellman, 1994, p. 18) ‘inductive generalisations based on experience in one part of the world are not necessarily valid in general’.

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result of military action (a siege), the policies of the occupiers (Kharkiv) and the needs of the Red Army and military industry (Komsomol'sk). On the other hand, food availability also fell. It seems reasonable to categorise the famine in Leningrad as FAD₁, in Kharkiv as FAD₂ (with civilised policies by the occupiers, it would not have happened), and in places such as Komsomol'sk as FAD₁ (if one assumes that under wartime conditions there were no 'feasible' alternatives to the policies actually pursued by the Soviet government in the unoccupied areas).

¹ Neither are they sufficient for this purpose, as experience in Sudan in 1985–9 showed. See de Waal (1997, chapter 5).

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Appendix 1: The third Soviet famine¹

There was, of course, no general famine in the USSR throughout 1941–5 but, in addition to the large number of famine deaths in the siege of Leningrad (Harrison 1996, p. 159), there were widespread deaths from starvation or food deficiency diseases among the free population of the unoccupied areas. For example, in October 1944 Beria sent a report (Vylytsan, 1995, p. 171) about the food situation in the Khabarovsk region (in the Soviet Far East) to Stalin and other top leaders. Amongst other things it reported that as a result of food shortages in Komsomol'sk, 'In 1944 on the streets of the town a considerable number of corpses were picked up, and also people in a very poor condition who, when delivered to hospital, died.' Zima (1995) estimated non-Leningrad wartime deaths from starvation and related diseases among the free population in the unoccupied areas at 1.5 million. The situation was worse among the Soviet detainees (about a million Soviet prisoners died in the camps and colonies and in prison in 1941–5—see Zemskov, 1995) and especially among the prisoners of war. Deaths from starvation were also common among the deportees (so-called 'special settlers'—mainly deported nationalities). The food situation was also bad in the occupied areas, particularly for their urban populations. For a discussion of the famine conditions in occupied Kharkiv in 1942 see Moskov (1990, pp. 56–7). Moskov himself estimated famine deaths in occupied Kharkiv in 1941–3 (mainly in 1942) at 10% of the population, and cited as a possibility another estimate according to which they were 27%. Kharkiv was not the only occupied city that experienced famine. According to Overy (1998, p. 134), deaths from starvation in occupied Kyiv were 'almost certainly more'.

One result of the very poor food situation in the unoccupied areas, and also of the spread of infectious diseases and lack of medical facilities (many of which were in the occupied areas and the remainder of which were concentrated in the armed forces) was a very sharp rise in infant mortality. According to Isupov (1994, pp. 103–5), infant mortality in Russia rose by about 50% in 1940–2, and in 1942 had reached a level of about 31%. The latter is a very high figure and virtually the same as Andreev *et al.*'s (1993, p. 135) estimate of Soviet infant mortality in 1933, the worst year of the previous famine.

A controversial issue with respect to the food situation during the war concerns the relative positions of the peasantry and the urban population. Moskov (1990, p. 68) argued that, in general in the occupied areas, the peasantry ate better than the urban population, but that in the unoccupied areas the reverse was the case. However, the available demographic data suggest that in the unoccupied areas registered mortality developments were more favourable in the rural areas than in the

¹ Drèze (1999, p. xx) has argued that 'there is one gaping hole in the literature—the connection between famine and war'. This is only partially true. Sen's own explanation of the 1943 Bengal famine is essentially that it was a by-product of the British–Japanese war. For further attention to the role of wars, see, for example, Nolan (1993, pp. 21–2). For some reason, this paper is missing from the extensive bibliography in Drèze (1999). For a three decades-old popular book on the siege of Leningrad and the famine within it, see Salisbury (1969).

urban areas, at any rate in 1941–2 and in Siberia (Isupov, 1994; Zelenin, 1995). This casts doubt on the hypothesis that in the unoccupied areas the nutritional situation was better in the towns.¹

Appendix 2: What was the prudent minimum level of grain stocks at 1 July 1947?

When the Soviet archives for 1932–3 were declassified, much attention was given to the discovery that the USSR had seemingly large grain stocks at the end of the famine year 1932–3. This was frequently interpreted as yet another crime by Stalin. Davies *et al.* (1995), however, pointed out that substantial grain stocks were necessary at 1 July 1933 since the actual seasonal low point in grain stocks was not at 1 July (the conventional beginning of the new agricultural year) but somewhat later, the exact date depending on harvest conditions and the effectiveness of the procurement system, and significant stocks were necessary to maintain the rationing system and, in their absence, those dependent on the rationing system would have starved.

Both these arguments are correct (although the first one as formulated by Davies *et al.* was overstated—see Table 4 footnote b). This raises the question, what would have been the prudent minimum level of grain stocks at 1 July 1947 to maintain the rationing system, bearing in mind both these factors, and also the need to feed the whole population in 1946–7? There are two ways of answering this question. The first looks directly at the needs of the rationing system. The second looks at the experience of other years.

In February 1947, almost 59 million people were entitled to bread rations. The size of the rations varied over time and between categories of recipients. The range was 1.2 kg per day (for heavy manual workers) to 150 grams per day (for some dependants). These rations on their own were inadequate to sustain life for long periods, and some workers in receipt of rations died at work from hunger. The average ration is not known to the author. If one assumes that it was 700 grams per day, then the daily requirements of the rationing system was $59,000,000 \times 0.7$ kg per day which is 41.3 thousand tons of bread per day or 289,100 tons of bread per week. If one assumes that the seasonal low point in stocks in 1947 was at the end of the second week in July (the 1 August stocks were much above the 1 July stocks—see Table 4) and that the authorities should have been able to anticipate a good and early harvest, then it might seem that the minimum stock level at 1 July to maintain the rationing system would have been at least enough grain to bake 578,200 tons of bread. However, the prudent minimum level of stocks depended not only on the national aggregate figures but also on the geographical location of the stocks, and the time necessary to transport them from producer to consumer areas. Procurements from the new harvest were made in the main producer areas, and took time to transport to the consumer areas. Both the geographical location of the stocks and the time necessary to transport them to the consuming areas are unknown to the author. If one assumes that it took on average three weeks to transport grain from producing areas to consuming areas, and that one week's supplies were needed as a buffer between the old and new harvests, then the minimum level of stocks to maintain the rationing system would have been sufficient grain to produce $6 \times 289,100$ which equals 1.735 million tons of bread. In other words, on the assumptions made above about average rations, the date of the seasonal low point in aggregate grain stocks, the ability of the authorities to correctly anticipate harvest conditions, and the time necessary to transport grain from producer to consumer areas, the minimum prudent level of grain stocks at 1 July 1947 was sufficient grain to bake 1.735 million tons of bread. This is a very parsimonious minimum which excludes, for example, bread needed for works canteens. If one assumes that 1 ton of grain yielded 0.9 tons of flour, and that 1 ton of flour produced 1.4 tons of bread (this was the case in the early 1930s) then the minimum requirement of grain would have been $1.735 / (1.4 \times 0.9) = 1.377$ million tons of grain. If one assumes that the average ration was 800 grams per day, then it would be 1.573 million tons of grain. If one assumes an increase in the efficiency of the baking industry between the early

¹ The interpretation of the wartime mortality data requires further research, for three reasons. First, the data is for registered mortality, and its relationship to actual mortality is uncertain. Secondly, the sharp fall in the rural birthrate, given the high levels of infant and child mortality, automatically reduced the rural crude death rate. Thirdly, during the war mortality among the detainees rose (Zemskov, 1995). If this was registered by place of former residence (see Appendix 3), then since a disproportionate share of those in camps, colonies and prisons had formerly lived in towns, this would have produced an artificial increase in the urban mortality figures.

1930s and 1947 (so that more than 1.4 tons of bread could be produced from 1 ton of flour), then it would be less, and, conversely, if it had declined, it would be more.

The other way of calculating the minimum prudent level of stocks at 1 July 1947 is to look at the experience of other years. One obvious comparison is with the famine period 1931–3. At 1 July 1932, stocks were 1.36 million tons. This was a low figure, which was inadequate to prevent famine in the towns in the spring of 1932. Given that the number of recipients of rations in 1947 was about 50% greater than in 1932, this suggests that $150\% \times 1.36 = 2.04$ million tons would have been an inadequate stock at 1 July 1947 to prevent famine among the urban population in 1946–7 (although it is necessary also to take account of non-ration uses). At the end of the disastrous famine year 1932–3, planners' stocks of grain were 1.997 million tons. However, of this total, the leaders seem to have been aware of only 1.392 million tons prior to July 1933 (Davies *et al.*, 1995). It is this amount which can be taken to be their estimate of the minimum necessary, under conditions of a major famine, to meet the needs of the rationing system and all other needs (e.g., industrial uses, fodder, exports, etc.). This suggests that a minimum prudent level of grain stocks at 1 July 1947 would have been 150% of 1.392, which is *circa* 2.1 million tons. If one were to consider the total stocks that seem to have been available at 1 July 1933 (1.997 million tons) as the policy-determined figure, then the prudent minimum level of stocks at 1 July 1947 would be 150% of 1.997 = 3 million tons. This figure, however, seems to be too high. Not only does it treat as prudential stocks grain which the political leadership appears to have been unaware of in the year 1932–3, but also it takes account of export requirements, and in addition is 300,000 tons above the lowest 1 July grain stock during the war (see Table 3 footnote e).

Taking all these considerations into account suggests that the prudent minimum level of grain stocks at 1 July 1947 to ensure the survival of the population dependent on the rationing system was somewhere in the range 2–3 million tons. Until further information comes to light, about 2.8 million tons seems a reasonable working hypothesis. This is based on the following considerations:

- (a) In January–June 1947, the average monthly rundown in planners' stocks (of grain and grain products in grain equivalent) was 1.4 million tons (see Table 4). This means that 2.8 million tons was equal to 2-months' average rundown of planners' stocks under famine conditions.
- (b) 2.8 million tons is just above the lowest 1 July stock level of state grain reserves during the war (2.7 million tons in 1944—see Table 3 note e). This level of grain stocks had been inadequate to prevent starvation deaths in 1943–4 (see Appendix 1) and, hence, it seems reasonable to take it as a minimum. However, it could be argued that it was a little on the high side as a minimum because the number of people entitled to state bread rations in the spring of 1947 was about 13% less than in the spring of 1944 (*Narodnoe khozyaistvo SSSR v Velikoi Otechestvennoi voine 1941–1945 gg*, Moscow, Goskomstat, 1990, p. 202).
- (c) 2.8 million tons is also (at 7.1%) just below the lowest ratio (8.3%) of end year total stocks to the harvest estimated for Tsarist Russia (54 provinces of European Russia) for the agricultural years 1905–14 (Kondratief, 1922, 1991, p. 109—but see this paper p. 610, footnote 6), none of which was a famine year.

Further research (for example on the geographical location of the stocks, on transport times, and on the knowledge of the leadership prior to the harvest of its likely size and date) may enable this figure to be made more precise. Naturally, estimates of the minimum stock level depend partly on whether one considers only the needs of the rationing system, or of all grain uses (see Table 2).

Appendix 3: Falsification of mortality among the detainees?

As far as deaths among the detainees are concerned, the recorded death rate in the Gulag camps rose almost 50% in 1947 (Getty *et al.*, 1993, p. 1049), but the absolute number of excess deaths in 1947 resulting from this was quite low (about 11,000) and it is likely that they were included in registered deaths. In 1947, the population of the labour colonies was about the same as that of the camps, and the number of recorded excess deaths may well have been similar, but here too it is likely that the recorded excess deaths were included in the population registration system. According to an NKVD (People's Commissariat of Internal Affairs) instruction of 1939, deaths among those detained in camps and colonies was supposed to be recorded by the registration office of the area they had inhabited prior to arrest, on the basis of information supplied by the NKVD. If this procedure was adhered to in 1946–8, it would mean that the total mortality figures would not under-record the

deaths of those who died in camps and colonies, although of course the recorded regional distribution of mortality would be distorted (Isupov, 1994, p. 98). Among the deportees too, there was probably excess mortality in 1947. Whether or not this is included in the national population registration data is uncertain. According to a decree of the Council of People's Commissars of 6 January 1945, heads of households of deportees were obliged to report deaths within three days to the NKVD (Ponomarev, 1996, p. 138). This seems actually to have been implemented, although possibly less than 100%, since the Ministry of the Interior, which administered the population registration system, also had detailed data on mortality among the deportees (Davies, 1997, pp. 169, 246). If the same procedure was followed with deportees as with the Gulag camps and labour colonies, then it is quite likely that these deaths too are included in the national population registration data. Also in this case, the regional distribution would be falsified but the national totals would be correct.

It has been suggested, however, that the recorded mortality totals among the detainees were falsified. In March 1947, the Minister of Internal Affairs reported to Beria on the labour requirements of the Gulag for the second quarter of 1947. He stated that 100,000 additional workers were needed to cover *ubyl'* (literally 'losses'). Volkogonov (1992, p. 371) interprets these 'losses' as 'deaths'. This is a very large number relative to officially recorded deaths in the camps in 1946–7 (54,000). If Volkogonov's interpretation is correct (as is assumed by Conquest, 1997), this would imply that some of those officially recorded as 'freed' in fact died. If so, there may have been some famine victims among the detainees who were excluded from the population registration data. The proportion of inmates of the camps recorded as being freed rose from 19.3% in 1946 to 24.1% in 1947. Hence, the number of recorded excess releases in 1947 is 4.8% of the camp population, i.e., about 40,000. This is a small number compared with the national total of excess deaths in 1947 and would not increase the national mortality total significantly even if all the 40,000 in fact were excess deaths. Mortality and release data for the labour colonies, prisons and deportees have not been available.

Volkogonov's interpretation, however, is most implausible, since 'losses' was a technical term in Gulag statistics, which included transfers to other camps, to other places of detention, and escapes, as well as freed and died (see, for example, Zemskov, 1995, Table 2). More generally, in Soviet demographic statistics of the period, 'losses' include not just deaths, but also other facts leading to a population decline, such as the call-up of conscripts, moving elsewhere for work or education, or reclassification of rural areas as urban. See, for example, the report on the decline in the rural population of Moldova in 1947 by the deputy representative of the USSR Gosplan in Moldova of 14 February 1948 (*Golod*, 1993, p. 729).

The only falsification the present author came across in the archival population registration data concerns the national mortality coefficient for 1948. In his calculation of this figure, the head of the department of population registration of the Ministry of Internal Affairs used a grossly understated estimate of war losses (8 million), which resulted in an overstatement of the population in 1948 and hence an underestimate of the mortality coefficient (the number of registered deaths per thousand of the estimated population). See GARF f. 9415, op. 3, d. 1427, p. 146.

It seems unlikely that the population registration data include prisoners of war (who were not Soviet citizens). This means that if there were excess deaths in 1946–8 among the POWs as a result of famine conditions, the population registration data would probably understate total famine deaths (of those living in the USSR) by this amount. It seems that there were famine conditions in the POW camps in the first quarter of 1947, but it is not yet possible to calculate the number of excess POW deaths in this period.¹

¹ It seems that 609,000 Japanese became prisoners of war as a result of the Soviet–Japanese war, of whom—according to the currently available Russian data—62,000 died in the USSR (Kuznetsov, 1997, pp. 22, 149, 170). On the western front, according to Russian official statistics (Gurkin, 1995, p. 109), 4.3 million Germans and their allies were taken prisoner, of whom 0.6 million died in captivity. According to Bezborodova (1998, p. 10), the number of German POWs who died in the USSR was about 1.1 million. In addition to the POWs, as a result of the war, there were also foreigners interned in the USSR. From 1 December 1946, as a result of the food crisis in the country, food rations in the POW camps were reduced. In January–March 1947, there was a famine in the POW camps. In response, a state of emergency (*chrezvychainoe polozhenie*) was introduced in the POW camps on 28 January 1947 and seems to have lasted until April 1947 (Bezborodova, 1997). Unfortunately, it has not been possible to calculate excess deaths in the first quarter of 1947 in the POW camps, since monthly mortality figures were not available. It should be noted that in addition to the POW camps, there were also POWs in so-called 'special worker battalions' used by the Ministry of Defence.

Appendix 4: A comparison of relief in the 1947 and 1892 famines

As far as Moldova is concerned, the comparison by Tsaran and Shishkanu (1993, p. 5) between effective famine relief in 1892 (after the bad harvest of 1891) and ineffective relief in 1947 (after the bad harvest of 1946) seems to be misleading. In 1891, only a small part of Bessarabia (the province of the Russian Empire roughly corresponding to the Soviet republic of Moldavia and present-day Moldova) was affected by the poor harvest of that year, and Bessarabia was not one of the 16 most seriously affected provinces (Robbins, 1975, pp. 5, 185).

On the other hand, for the Russian Empire/USSR as a whole, the contrast between the effectiveness of Russian relief efforts in 1891–2 and the ineffectiveness of Soviet relief efforts in 1946–7 seems more sensible. In 1892, excess mortality in the Russian Empire seems to have been only about 375,000–400,000 (Robbins, 1975, p. 171). Even allowing for population growth between 1892 and Soviet times, this is a low figure by the standards of Soviet famines. In 1891, the Tsarist government, market forces and local governments reacted quickly and decisively to news of the poor harvest.

Already in February 1891, railway charges for the shipment of grain to areas hit by crop failure in 1890 were reduced. On 25 June, the Committee of Ministers recognised the existence of an ‘extremely serious’ situation. On 28 July, a decree was issued banning rye exports (rye bread was the staple food of the Russian peasantry). By August, thousands of railway freight carriages full of grain, purchased by traders attracted by the prospect of good prices and local governments (*zemstva*) anxious to feed and provide seed for their population, were heading for the famine region.¹ In November, the Emperor took special measures to assist famine relief, including a major public works programme and the appointment of a special plenipotentiary to solve the railway crisis resulting from the movement of large numbers of railway freight carriages to the famine region. Total relief supplies of grain in 1891–2 were about 1.7 million tonnes.

Neither the Tsarist nor Soviet government was unreservedly keen on foreign assistance. The Soviet government neither appealed for nor received ‘famine relief’ but did accept assistance from foreign private sources and from UNRRA for ‘victims of the war’. The Tsarist government, for reasons of national pride, declined to accept gifts from foreign governments, but did accept foreign private charity (e.g., from the USA). Both in 1891–2 and in 1946–7, grain was exported during a famine year, but in both cases much less than usual. (For these and other details about the Russian famine of 1892, see Robbins, 1975.)

Mortality rates in them were much above those in the POW camps. When the state of emergency was lifted, the number of German POWs was just under a million. (In a memo to Stalin of 12 March 1947, Molotov stated that there were then 998,500 German POWs in the USSR [Konasov, 1994].) For many prisoners of war, conditions were worse in the winter of 1945–6 than in the famine winter of 1946–7. According to Kuznetsov (1997, p. 173) mortality among the Japanese prisoners of war peaked in the winter of 1945–6—a year before the famine. Among the German prisoners of war, mortality in December 1945 was almost 1% per month (Bezborodova, 1997, p. 166).

¹ Sen (1981B, p. 461) pointed out that when failure of purchasing power outweighs availability decline, market forces lead to food flowing away from famine regions. He has even suggested (Sen, 1981A, p. 162) that ‘food being exported from famine-stricken areas may be a “natural” characteristic of the market . . .’. (For a more balanced treatment, see Drèze and Sen, 1989, pp. 89–93, 99–100.) However, when purchasing power does not fall (e.g., because of public purchases for the famine region), or falls less than the availability decline, but regional availability does fall, market forces lead to a flow of food to the famine region. The Russian famine of 1891–2 seems to be an example of such a phenomenon.