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**Counting the Soviet Union's War  
Dead: Still 26-27 Million**

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# Counting the Soviet Union's War Dead: Still 26-27 Million

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## *Abstract*

A new estimate of the Soviet population loss in World War II, by Russian historian Igor' Ivlev, is 42 million. This is 15-16 million more than the previous estimate of 26-27 million. The latter, by Russian demographers Andreev, Darskii, and Khar'kova, has been widely accepted for a quarter of a century. I examine the new estimate, show its place in the Soviet demographic accounts side by side with the old one, contrast their sources and methods, and find that the new figure is without foundation. The previous figure stands. On existing knowledge, the Soviet war dead were 26-27 million.

Keywords: population, Soviet Union, war losses, World War II,

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# Counting the Soviet Union's War Dead: Still 26-27 Million

On 22 June 1941, Hitler's Germany launched a terrifying war of annihilation on the Soviet Union. Chief among the aims of the German war was to occupy Ukraine and Russia west of the Urals, and to convert this vast territory into a colony supplying food to the Third Reich. Food would be made available to Germany not only by exterminating the Jews but also by starving out the urban population and industrial employees, who would no longer be required. These plans envisaged the deaths of up to thirty million people in the German-occupied territory (Dallin 1956; Kay 2003). Had Germany won the war, there is no reason to think the occupation regime would have fallen short of its target.

The German war plans failed, but in the process they imposed terrible losses on the Soviet population. During the Cold War, the true number was shrouded in mystery. After World War II Stalin, not wishing to disclose the actual scale of Soviet war losses, announced them as 7 million – a round number that was conveniently just less than German war losses. Later, Khrushchev raised the stakes to 20 million, nearer the truth than 7 million, but still just another fabricated round number.

Not until the time of Gorbachev was a full audit commissioned from the Soviet national statistical agency. This audit, by demographers Andreev, Darskii, and Khar'kova (hereafter ADKh) (1990, 1993), put the figure at 26-27 million, representing one in eight of the prewar population. This figure has been broadly accepted for the last quarter of a century (for discussion see Ellman and Maksudov 1994; Harrison 2003; Bogoyavlenskii 2013a).

This year the journalist Leonid Bershidsky (2017) marked the anniversary of VE Day by reporting a new estimate of the Soviet Union's war dead: 42 million. The new estimate is owed to Igor' Ivlev (2017), who writes on [soldat.ru](http://soldat.ru), the website of the Arkhangel'sk State Social and Memorial Centre "Poisk" ("Search"). Ivlev's number exceeds the previous authoritative estimate by 15-16 million. If accepted, it would raise the ratio of war dead to the prewar population from one in eight to one in five.

The figure of 42 million was recently endorsed by the Russian legislator Nikolai Zemtsov at a parliamentary hearing on 14 February 2017 (BPR 2017). Zemtsov, a member of United Russia, is also co-president of the "Immortal Regiment of Russia," a movement that memorializes those that fell in the war. At the hearing, Zemtsov described the new estimate as "confirmed by a vast quantity of original documents, authoritative publications, and testimony."

Below I will explain the sources and methods underlying Ivlev's revision and I will compare them with the previously accepted estimate. My conclusion is that the new figure has no serious foundation, and the previous figure of 26-27 million should stand.

The reader may wonder why "war dead," an apparently simple concept, is so difficult to fix. The subject is beset with problems. One is that the Soviet Union's war dead include not only millions killed by bullets and bombs, but more millions whose lives were prematurely shortened by hunger, disease, and exhaustion. In the absence of war they would have lived, so these too are war dead. But they are not individually identifiable, because in the Soviet Union in peacetime many deaths from hunger, disease, and exhaustion were normal, and so statistical estimation is required to establish the wartime excess. The estimation depends critically on a counterfactual hypothesis, otherwise known as the answer to a "what if" question: what if there had been no war, how many would have died in its absence? This question has an answer, but not one that is free of debate and judgement.

More problems arise because of the twenty year gap between the Soviet national censuses of population held in 1939 and 1959. Just to establish the numbers that were alive at the beginning and end of the war, we must count forward from 1939 and back from 1959. The authorities were counting at the time, by registering births and deaths in each year, but the registration count was highly imperfect. The censuses provided a periodic check on this, but the censuses themselves were not without defects, and their results were subject to political manipulation, and these factors must also be taken into account. Adding to the complications, the Soviet population was substantially enlarged between the census years, by territorial annexations in 1939-1940 and 1945 (listed by ADKh 1993: 50-53). Finally, Soviet secretiveness meant that the necessary historical documents remained locked away until the end of the 1980s.

Even less examined is what may appear to be a simpler issue: over what period should we count? Apparently, the window opened with the German attack on 22 June 1941, and lasted four years, twelve weeks, and a day, closing with Japan's surrender on 15 August 1945. But this leaves out two things. To open the window only on 22 June 1941 forgets that World War II did not begin on that day, and the Soviet Union was already involved in the war at an earlier stage through its temporary alliance with Nazi Germany, so that the Soviet war dead ought to include the 72,000 Red Army soldiers lost in operations in the Western borderlands between 17 September 1939 and 13 March 1940 (Krivosheev et al. 1993: 125). Similarly, to close the window suddenly on 15 August 1945 would risk understating war losses by leaving out of account those servicemen and civilians hospitalized by war injuries or hunger whose premature deaths had been delayed by a few months. On the other side, to close the window too soon would also risk missing the Soviet prisoners of war and forced labourers displaced by the war, and not present when the war ended, but

nonetheless surviving to be repatriated soon after, leading to overstatement of the war dead.

For all these reasons, the concept of Soviet war dead will always be debated and the number will always be uncertain. However, it does not follow that any number will do. Given the period to be covered, one way or another, the number of war deaths must be fitted into the national demographic accounts. That is, if you want to identify a larger number of war dead, they have to have come from somewhere. More war dead requires more people that were born in order to die (in other words, more people alive at the outbreak of the war, or more war babies), or else fewer people that died of other causes (so fewer normal deaths in wartime, or fewer people alive at the end of the war). Whatever period you choose, over that period the accounts must balance. This provides a logical check on any claim.

The ADKh (1993) estimate provides context. The period ADKh cover begins on 1 July 1941 and extends to 31 December 1945 (so four and a half years). The first week of the war, which for their purposes began on 22 June 1941, is neglected for simplicity. The four and a half months after Japan's surrender are added to give time for those hospitalized by wartime traumas to die or not; and for those displaced by the war to return or not.

Given the starting point, ADKh divide the population at risk of suffering premature death from war-related causes into two parts: those born before the war, and war babies. All the figures that follow are taken from Appendix 1, Table A-1. For those born before the war, ADKh report (in millions):

1. Born before the war: 196.7
2. Of which, surviving: 159.5
3. All wartime deaths: 37.2
4. Of which, normal deaths: 11.9
5. Leaving excess deaths: 25.3

In this calculation, "normal" deaths are those that could have been expected, based on the death rates found for each age group of the population in 1940. A second calculation accounts for war babies:

6. Born in wartime: 16.4
7. Of which, surviving: 11.0
8. All wartime deaths: 5.4
9. Of which, normal deaths: 4.1
10. Leaving excess deaths: 1.3
11. Excess deaths, total:  $25.3 + 1.3 = 26.6$

This arithmetic also exposes the problem that must be overcome to justify a much larger number of war dead. Today's new estimate is greater

than 26-27 million by a margin of 15-16 million. Logically this requires, in some combination, many more people alive at the outbreak of the war, or many more war babies, or many fewer normal deaths, or many fewer people alive at the end of the war.

Ivlev's window is shorter. He opens it on 1 July 1941 (the same as for ADKh), but he closes it six months earlier, on 30 June 1945 (so it is open for exactly four years).<sup>1</sup> His arithmetic (shown in Table A-2) follows a different route from ADKh. But his figures must fit the same framework, as I show next (in millions, Ivlev's figures in bold and ADKh figures in brackets):

1. Born before the war: **205.0** (196.7)
2. Of which, surviving: **158.0** (159.5)
3. All wartime deaths: **47.1** (37.2)
4. Of which, normal deaths: **5.1** (11.9)
5. Leaving excess deaths: **42.0** (25.3)
  
6. Born in wartime: **17.6** (16.4)
7. Of which, surviving: **11.9** (11.0)
8. All wartime deaths: **5.8** (5.4)
9. Of which, normal deaths: **5.8** (4.1)
10. Leaving excess deaths: **0.0** (1.3)
  
11. Excess deaths, total: **42.0** (26.6)

If we now put the question, how does Ivlev find 15.4 million more war dead than ADKh, the immediate answer is (in millions):

More people born before the war (row 1): 8.3  
 Plus more born in wartime (row 6): 1.1  
 Plus fewer surviving (rows 2 and 7): 0.7  
 Plus fewer normal deaths (rows 4 and 9): 5.2  
 Equals more excess deaths (row 11): 15.4

In Appendix 2, I examine each of these figures in turn. There, taking into account sources and methodology, I explain why Ivlev's revisions are unfounded. Here I summarize the conclusions that the appendix supports in more detail:

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<sup>1</sup> Here Ivlev misses the 12,000 dead arising from the Soviet assault on Japanese forces in Manchuria in the last days of World War II in the Far East (Krivosheev et al. 1993: 158). But this is of minor importance in the total sum. Ivlev must also find a way to take into account much larger numbers of Soviet citizens who survived foreign detention and returned to the Soviet Union only after mid-1945. As discussed in the appendix, he does this directly.

*More people born before the war.* Ivlev has no basis for an additional 8.3 million born before the war. His figure overstates the prewar Soviet population in two ways, by extrapolation from the inflated outcome of the 1939 census, and again by double-counting military personnel.

*Plus more born in wartime.* Ivlev's 1.1 million additional war babies is based on a naïve extrapolation from birth registrations in 1941, a poor benchmark year because it was half at an uneasy peace and half disrupted by the turmoil of invasion and mass mobilization. His method has no advantage over the careful estimation of wartime fertility by ADKh

*Plus fewer surviving.* The results are close, but the sources and methods are markedly different. The ADKh methodology is clearly preferable to that of Ivlev, but a difference of 700,000 is not large enough for a substantial effect on the overall balance.

*Plus fewer normal deaths.* Ivlev's estimate of 10.9 million normal deaths in wartime is too low. It fails to reckon with the defects of the registration data and of the benchmark year. It extrapolates them naïvely across the war period. The larger ADKh figure is preferable in every respect.

My overall conclusion is that Ivlev has not seriously challenged what was previously accepted. We should continue to rely on the ADKh figure of 26-27 million as the best estimate of the Soviet wartime loss of population.

It remains to consider why a new, much higher figure for the Soviet war dead should not only emerge at the present time, but also be promoted in Russia among patriotic circles. Here is the puzzle. Twenty-six or twenty-seven million is already such a catastrophic number. Who might expect to gain by finding one that is larger? The exact number has no direct policy application. There is no vested interest that can exploit it directly to lobby for more resources. As for reputation, the standing of the Russian state and its armed forces is not improved by exaggerating either the failure of the Soviet state and Red Army to protect their people from invasion, or the staggering losses incurred in trying to do so.<sup>2</sup>

The only clear beneficiary of the numbers game being played in Russia today is the official narrative of Russia as a victim of the aggressive plans of hostile neighbours, penetrated by their agents and undermined by their values. As World War II recedes into the past, and the generation that survived it passes on, this narrative has tended more and more to take the experience of the war out of its time and placed it above history. This is

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<sup>2</sup> Ivlev's calculation also shows an estimate of 19.4 million Red Army deaths (from Pykhalov et al. 2012, which I have not seen). This number is more than double the 8.7 million found by Krivosheev et al. (1993). Differences over military losses have no direct bearing on the evaluation of war deaths as a whole. Within the total, civilian deaths are simply the residual when military deaths are subtracted.

expressed today in the recruitment of Russia's war dead to an "Immortal Regiment." In Russian society and culture the war dead are eternally present, and so is their pain. It poses the question: what enemy did this to us, and might this enemy do it to us again, and who is on the side of this enemy today?

Behind the exact number of the Soviet war dead stands (in Zemtsov's words) "the deep anguish of our people, which suffered incredible costs and achieved victory over a brutal enemy." But there is no news in old numbers. It is new numbers that make headlines, and these headlines can be of service in the patriotic re-education of Russian society. A new number for the Soviet Union's war dead recalls past aggression against Russia, and the reasons why Russians should give their loyalty to a strong leader and a strong military policy.

## Appendix 1. Results compared

*Table A-1. The Soviet population, 1941 to 1945 (millions): alternative estimates compared*

	Ivlev	ADKh
Start date, 1941	1 July	1 July
End date, 1945	30 June	31 Dec.
Years, total	4.0	4.5
1. Born before the war	205.0	196.7
2. Of which, survived	158.0	159.5
3. All wartime deaths (rows 1 – 2)	47.1	37.2
4. Of which, normal deaths	5.1	11.9
5. Leaving excess deaths (rows 3 – 4)	42.0	25.3
6. War babies	17.6	16.4
7. Of which, survived	11.9	11.0
8. All wartime deaths (rows 6 – 7)	5.8	5.4
9. Of which, normal deaths	5.8	4.1
10. Leaving excess deaths (rows 8 – 9)	0.0	1.3
11. Excess deaths, total (rows 5 + 10)	42.0	26.6

Sources: Ivlev (2017) and ADKh (1993: 73-79).

*Table A-2. The Soviet population, 1 July 1941 to 30 June 1945: Ivlev's arithmetic*

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Born before the war:	
1. Military personnel	5,082,305
2. Civil population	199,920,100
3. Total population (rows 1 + 2)	205,002,405
Born in wartime:	
4. War babies	17,619,776
Of which:	
5. Died	5,760,000
6. Survived (rows 4 – 5)	11,859,776
Survived the war:	
7. Military personnel	12,839,800
8. Civil population	151,165,200
Displaced persons	
Of which:	
9. On Soviet territory, not counted above	4,651,049
10. Returners and defectors abroad	1,153,475
11. Total population (rows 7 + 8 + 9 + 10)	169,809,524
Of which:	
12. War babies (row 6)	11,859,776
13. Born prewar (rows 11 – 12)	157,949,748
Deaths in wartime:	
14. Population if no one died (rows 3 + 4)	222,622,181
15. Total actually survived (row 11)	169,809,524
16. All deaths in wartime (rows 14 – 15)	52,812,657
Of which:	
17. Normal deaths	10,833,240
18. War deaths (rows 16 – 17)	41,979,417

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Source: reproduced with minor rearrangement and abridgement from documents linked to Ivlev (2017) at

[http://www.soldat.ru/data/images/itogi\\_tabl\\_1\\_1.jpg](http://www.soldat.ru/data/images/itogi_tabl_1_1.jpg) and

[http://www.soldat.ru/data/images/itogi\\_tabl\\_1\\_2.jpg](http://www.soldat.ru/data/images/itogi_tabl_1_2.jpg) (accessed 11 May 2017).

## Appendix 2: Sources and Methods

In the text, I show that Ivlev's (2017) 42-million estimate of the Soviet war dead requires a series of revisions to Soviet demographic accounts (in millions):

- More people born before the war: 8.3
- Plus more born in wartime: 1.1
- Plus fewer surviving: 0.7
- Plus fewer normal deaths: 5.2
- Equals more excess deaths: 15.4

Below I review each revision in the order given above, comparing sources and methods with those provided by ADKh (1993).

### *More people born before the war*

Ivlev finds 205.0 million people alive at the outbreak of war, 8.3 million more than the 196.7 million identified by ADKh. This accounts for more than half of his 15-million increment to the estimate of war dead.

For context, the provenance of the ADKh figure for the mid-1941 population is as follows (in millions):

1. Official Jan. 1939 census population: 170.6
2. Less mismeasurement and fabrication: 2.1
3. Equals true Jan. 1939 population: 168.5
4. Plus effects of frontier changes, 1939-1946: 20.3
5. Equals Jan. 1939 population in postwar frontiers: 188.8
6. Plus natural increase to June 1941: 7.9
7. Equals population in July 1941: 196.7

After the war the increment to the Soviet population from the annexations of 1939/40 (row 4) was officially claimed to be 23 million. Ellman and Maksudov (1994: 678-679n) think it likely that the ADKh reduction of 2.7 million represents an allowance for mass emigration from the Western borderlands in the closing stages of the war.

Ivlev's working relies entirely on contemporaneous documents all relating to mid-1941:

1. Civil population: 199.9
2. Plus military personnel: 5.1
3. Equals total population: 205.0

The key here is the figure attributed to the civil population (row 1). The Gosplan document on which Ivlev relies purports to give the regional breakdown and the *total* (without qualification) of the Soviet population, month by month, from May through September 1941. (We see only the final page of the document, which does not show who prepared it, or for whom, or on what date.)

Ivlev insists that the 199.9 million total shown must be the *civil* population only, not counting military personnel. This relies on a chain of reasoning. He claims, correctly, that military personnel were always enumerated separately from the civil population. Their regional distribution, he says, was top secret; this is also correct. In documents produced within Gosplan, he infers, the military contingent would have been presented as “extra-territorial.” Their regional distribution could not have been communicated to Gosplan or shown in Gosplan reports; “otherwise the exact numbers and location of military personnel in every region would have been disclosed [to Gosplan officials], and the declassification of information about this would not have been permitted.” The Gosplan document in question shows a total for the population, and this total is based on an exact regional distribution. Therefore, Ivlev maintains, the total shown cannot have included military personnel, and so it is limited to the civil population. If 199.9 million is the civil population only, the total population must be found by adding military personnel in various categories, which in mid-1941 totaled 5.1 million.

This chain of inferences is plausible, but it is wrong. Specifically, Ivlev is mistaken that the regional distribution of military personnel was so secret that it could not be shared with the statistical apparatus. For this I rely on the work of Dmitrii Bogoyavlenskii (2013b), a demographer at the Higher School of Economics in Moscow, who has written about false accounting in the 1939 national census:

*First* (Bogoyavlenskii shows), there were two main “special” or “centralized contingents” of people who were counted separately from the civil population in the 1939 census: military personnel, and the employees (with their families) and detainees of the Gulag.

*Second*, the regional distribution of the “centralized contingents” was used systematically in census reports to falsify the true regional distribution of the population: for example, to understate the population of the Far North, where many Gulag construction projects and labour camps were located; and to overstate the population of regions that suffered most in the famine of the early 1930s.

*Third*, the national statistical agency in Moscow was not only cognizant of the methodology of fabrication but was also fully involved. (By implication, therefore, its head was in possession of a secret at least as sensitive as the territorial distribution of the armed forces: he knew that the figure for the numerical strength of the Soviet armed forces published at the time was a lie.)

*Fourth*, the “centralized contingents” were never shown separately from the civil population in any Gosplan report of the census, including any that showed a territorial breakdown of the population. The sum of the regional subtotals was *always* the total population of the country as a whole.

For confirmation, Ivlev's 199.9 million figure makes perfect sense as the *total* (not just civil) Soviet population of mid-1941 if you worked as a Gosplan official and were constrained to accept the official figures of the time. Working back from 1941 to 1939, using the numbers accepted within Gosplan at the time (in millions, contemporary Gosplan figures in bold and ADKh figures in brackets):

1. Total population, mid-1941: **199.9** (196.7)
2. Less effects of frontier changes, 1939-1940: **21.8** (20.3)
3. Less census population, Jan. 1939: **170.6** (168.5).
4. Equals residual: natural increase to mid-1941: **7.5** (7.9)

Specifically: Row 2 is a contemporaneous Gosplan estimate of the population increment from border changes in 1939/40, cited by ADKh (1993: 52); it exceeds the comparable figure that ADKh themselves adopt, because in 1941 Gosplan officials did not anticipate the mass emigration from the Western borderlands at the war's end; and it falls short of 23 million, the official figure (mentioned above) for the population increment that was adopted after the war, which did not acknowledge the Western emigration, and also included the people living on additional territories annexed at the end of the war, also not foreseen in 1941. Row 3 is the final total of the population in the 1939 census as reported by the Gosplan statisticians to the government in April 1940, a figure that was somewhat inflated for political reasons. Row 4 is the residual when rows 2 and 3 are subtracted from row 1, and is an entirely plausible figure for the natural increase over 2.5 years; it falls just short of the equivalent ADKh estimate, as it should, because it must exclude the natural increase attributable to postwar annexations.

*Summary.* Ivlev has no foundation for an additional 8.3 million born before the war. His figure overstates the prewar Soviet population in two ways, by extrapolation from the inflated outcome of the 1939 census, and again by double-counting military personnel.

*Plus more born in wartime*

Ivlev finds 17.6 million babies born in four years of war, 1.1 million more than the 16.5 million found over four and a half years by ADKh.

ADKh rely on two methods to estimate wartime births and wartime mortality among war babies. One is to interpolate wartime infant mortality (from birth to four years) on the known wartime death rates among older age groups; based on the number of survivors, they estimate the number of war babies at 16.5 million. The other method is based on anamnestic surveys carried out among women of child-bearing age in wartime, and alive in 1960, and corrected for survivor bias. This also gives 16.5 million as the number of births, so the two approaches give mutual confirmation.

In contrast, Ivlev takes 2.9 million as the total number of births registered in the calendar year 1941 across a territory accounting for 66.0

per cent of the Soviet mid-year population. The figure comes from the Gosplan archive. For the Soviet Union as a whole Ivlev adjusts 2.9 million pro rata to obtain his benchmark -- 4.4 million births in 1941. Taking that as an annual rate, he multiplies it by the four years (mid-1941 to mid-1945) to make 17.6 million wartime births. He does not discuss the accuracy of the registration data; for 1940, ADKh (1993: 55) estimate that births were undercounted by 10 per cent. He does not ask whether the one third of the population not counted could be assumed to show the same fertility pattern as the two thirds that were counted. He does not try to measure wartime changes in women's fertility in the absence of many millions of young males, or to adjust for possible changes. (But possibly he considers that this is reasonable, as discussed in the postscript below.)

*Summary.* Ivlev's 1.1 million additional war babies is based on a naïve extrapolation from birth registrations in 1941, a poor benchmark year because it was half a year of an uneasy peace and half disrupted by the turmoil of invasion and mass mobilization. His method has no advantage over the careful estimation of wartime fertility by ADKh.

*Plus fewer surviving*

Ivlev finds 169.8 million alive in mid-1945m, which is 700,000 fewer than the 170.5 million found by ADKh for the end of 1945. This is remarkably close, and not just with a view to the likely margin of error around the final sum. For, if no other differences were involved, by taking us to the end of 1945, the ADKh figure ought to exceed that of Ivlev by approximately two million babies born in the second half of 1945 (and therefore conceived between October 1944 and March 1945).

ADKh work from the corrected results of the 1959 census, combined with estimated births and deaths year by year, back to the last day of 1945. In other words, this is a standard demographic model.

Ivlev uses only contemporaneous data: Gosplan reports of the population on hand by republics on 1 July 1945. These give a sum of 151.2 million, which, as previously, Ivlev takes to be the size of the civil population. The main problem here is similar to that for 1941: Ivlev assumes, without further discussion, what was measured (and how well it was measured), and what was excluded and needs to be added. He supposes that 12.8 military personnel serving on that date (from military archive records) were excluded and adds them. Finally, Ivlev adds 5.8 million displaced persons not counted in the civil population and not serving in the military, based on work by Viktor Zemskov. These include more than a million that were still located abroad, and some of these would not subsequently return home ("defectors," as shown in Table A-2), so the effect is to count the non-returners among the Soviet Union's war losses; they are considered dead to the motherland, although still physically alive in some other country.

*Summary.* The results are close, but the sources and methods are markedly different. The ADKh methodology is clearly preferable, but a

difference of 700,000 is not large enough to have a substantial effect on the overall balance.

*Plus fewer normal deaths*

Ivlev finds 10.9 million normal deaths in wartime. This falls short of the number identified by ADKh by 5.2 million, and the gap makes the second largest contribution to Ivlev's increment to the total of war dead.

The figure found by ADKh arises in stages. First, they obtain 4.2 million as the total number of deaths in 1940. They compare numbers of deaths and living in each age cohort of the population to derive age-specific mortality rates. Then, they apply the appropriate rate to every cohort of the population in every year of the war. They do this in each year of the war to the survivors of each cohort, making this a full demographic model. This gives 16.0 million normal deaths, a smaller number than would be found by multiplying 4.2 million deaths in 1940 by 4.5 years of war. This is for several reasons: because every age cohort was shrinking at a faster than normal rate (because of the war); and because in each year of the war fewer babies than normal were born, and of these fewer than normal survived so that, while the population shrank, its age distribution shifted towards more robust age groups; and both of these trends restrained normal mortality.

For a benchmark, Ivlev takes normal deaths on Soviet territory in 1941. That is, from Gosplan documents he takes 1.8 million as the total number of deaths registered in 1941 across territory accounting for 66.0 per cent of the Soviet mid-year population. For deaths in the Soviet Union as a whole he adjusts 1.8 million pro rata to 2.7 million. With that as an annual rate, he multiplies it by four years of war (from mid-1941 to mid-1945) to make 10.8 million normal deaths in wartime.

This figure is a very large underestimate. Ivlev's chief mistake is his 2.7 million "normal" deaths in the USSR in 1941. The comparable figure that ADKh obtain for all deaths in the Soviet Union in 1940 is 4.2 million – more than half as much again. The registration system normally undercounted deaths, and in the second half of 1941 normal undercounting would have been increased by the chaos of the war and by the widespread introduction of food rationing, which acted as a disincentive to register deaths. Then, you should not simply multiply a figure for prewar deaths by four (for Ivlev's four years of war) or 4.5 (for the 4.5 years of ADKh) because in each year of the war the Soviet population shrank, and also because in each year fewer babies were born, and survived, so that the population, although shrinking, became more robust on average. The ADKh model takes all this into account, whereas the Ivlev "model" does not.

*Summary.* Ivlev's estimate of 10.9 million normal deaths in wartime is too low. It fails to reckon with the defects of the registration data and of the benchmark year. It extrapolates them naïvely across the war period. The larger ADKh figure is preferable in every respect.

*Postscript: wartime fertility and infant mortality*

As shown in Table A-1, the approaches of Ivlev and ADKh allow us to distinguish and compare two subtotals of the Soviet population, those born before the war, on one hand, and during the war, on the other. On that basis, their statistical fates can be inferred in terms of numbers that survived, died normally, and died prematurely.

A feature of Table A-1 is to show that there is no great difference between Ivlev and ADKh with regard to the numbers and fates of war babies. The major differences arise with regard to the population that was alive when the war broke out.

Nonetheless, as shown in Table A-1 (and also Table A-2), Ivlev's accounting for war babies does yield a mystery: he does not identify any excess deaths among them. This outcome seems arbitrary when contrasted with the accounting of ADKh, which reasonably identifies 1.3 million excess deaths among war babies.

(But 1.3 million, although not zero, is not a large number either. The point is that in peacetime the Soviet Union already suffered very high rates of normal infant mortality, so even an atrocious worsening of conditions in wartime did not add so much to the toll.)

Ivlev's explanations do suggest a form of reasoning for setting wartime excess mortality among infants at zero. I do not completely follow it. Rather than try to interpret, and most likely fail, I will translate and quote. This quotation may also suggest why Ivlev applied his estimate of the number of births on Soviet territory in 1941 across the four years of war, without adjustment, to obtain wartime births in total:<sup>3</sup>

The smaller the population became because of the war, the lower, in theory, must have been fertility and infant mortality. But it turned out that, in 1942-1945, women began to bear the unintended children of their husbands as they gradually returned from the front, and also, in very large numbers, those of casual fathers including of the occupiers. Moreover, intolerable conditions of life inevitably gave rise to greater infant mortality than in 1941. The combination of factors therefore compensated for each other approximately, in such a way that the estimates of fertility and natural mortality of 1941 remained unchanged through the entire period of the war.

These are interesting claims, but it is not clear whether any of them is supported by evidence.

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<sup>3</sup> Ivlev's original (2017) article does not have this passage, which appears in a linked document, available at [http://soldat.ru/data/images/est\\_smertnost\\_220641\\_010745.jpg](http://soldat.ru/data/images/est_smertnost_220641_010745.jpg) (accessed 11 May 2017).

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