The Famine-Genocide of 1932-33: Estimation of Losses and Demographic Impact 9/3/08

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The number of losses due to the 1932-34 Famine in Ukraine has been the subject of many studies and controversies (Commission on the Ukrainian Famine, 1988; Kulchytskyj, 2003; Wolowyna, 2007). The different estimates vary from around 2.6 millions to more than 10 millions. The figure of 10 million, extensively used by the government of Ukraine and some Ukrainian diaspora leaders, seems to be based on statements attributed, among others, to Stalin and the Moscow correspondent of *The New York Times*, Walter Duranty, who in his official reports to the *Times* denied the existence of the Famine, as well as in preliminary studies before key statistical data became available to researchers. This wide discrepancy in the number of Holodomor losses is a source of confusion and complicates efforts to publicize the Holodomor and its recognition as genocide. As pointed out in a recent editorial of the Ukrainian newspaper "Kyiv Post" (2008), it is time to agree on a number.

The estimation of the number of victims of any genocide is fraught with difficulties, both in terms of problems with the data and due to efforts of the guilty parties and their accomplices to hide and/or distort the relevant information. In the case of the Holodomor there were attempts by the Soviet government first to falsify the statistical information and then, when this proved to be impossible, to hide it from the world (especially the 1937 census). In the last two decades the necessary data (population censuses and vital statistics, as well as relevant official documents), became accessible to researchers and recent solid demographic analysis provides more credible estimates of the number of Holodomor losses.

In this chapter we will review the most authoritative efforts to provide a sound estimate of Holodomor losses, and propose a more reliable range for this estimate. We start with an operational definition of Holodomor losses, and also present little known research results by the Institute of Demography and Social Studies of the Ukrainian National Academy of Sciences (Libanova et. al., 2007).

Estimation of Total Holodomor Losses

Before presenting the evidence for a more credible estimate, it is essential to define what is meant by Holodomor losses. This definition needs to address four dimensions or issues: a) time period; b) territory; c) which deaths should be counted; d) should lost births be counted. Regarding the time period, although the brunt of the Famine took place in 1933, the effects of the Famine started sometime in 1932 and continued through part of 1934; thus the period to be used for estimating the losses should be 1932-34. For the territory dimension the obvious answer is the Ukrainian Socialist Soviet Republic (SSR). The inclusion in this estimate of losses during 1932-34 outside the Ukrainian SSR territories, like the heavily populated by Ukrainians Kuban region or other regions of the

Federated Soviet Russian Republic and other Soviet Republics, is problematic for several reasons. First, there are serious problems in measuring losses of Ukrainians due to starvation outside the Ukrainian SSR; second, it is difficult to argue that all of these deaths were caused by the Famine as a genocidal policy against Ukrainians; third, it is difficult to separate which of these deaths were directly caused by a deliberate starvation policy and which were caused by other factors. It should be also pointed out that one of the most widely used estimation methods uses data from two contiguous censuses of the Ukrainian SSR, and thus the estimation of losses is restricted to the Ukrainian SSR.

By definition, victims of the Holodomor are persons whose death was caused by the 1932-33 Famine, that is, persons whose cause of death was starvation. Strictly speaking, using this definition it is practically impossible to estimate the number of these victims, as one would need a classification of all deaths during the Famine period by cause of death. The practical way of determining these deaths is to try to separate "normal" deaths, i.e., deaths that would have occurred had there been no Famine, from the deaths caused by the Famine. This is done by estimating all the deaths occurred during this period and then subtracting the "normal" deaths expected to have occurred had there been no Famine. This difference is referred to as "excess mortality".

A related issue is if the estimate should also include "indirect" deaths caused by the Famine. Two types of "indirect" deaths can be considered: a) births lost during the Famine period as a direct cause of the Famine; b) premature deaths of Famine survivors in later years due to poor health caused by the Famine. There has been a fair amount of discussion in the literature if to include these "indirect" deaths in the estimate of Holodomor victims. It should be noted that the most popular estimation method using two contiguous censuses (1926 and 1937 censuses or 1926 and 1939 censuses) implicitly includes lost births. More sophisticated estimation methods used by demographers in recent years allow one to separate "direct" deaths (called excess mortality due to the Famine) and lost births, and some authors have argued that these births should not be included in the estimate. We argue that they should be included.

When trying to estimate the number of Holodomor victims, the correct question is not how many deaths were caused by the Famine but what would have been the expected population of Ukraine, adjusted by net migration (the difference between out-migrants and in-migrants during this period), at the end of 1934 had there been no Famine. The Famine was directly responsible for lost births due to several mechanisms: a) reduced sexual activity; b) diminished male and female fecundity; c) higher levels of miscarriages; d) births lost due to the death of potential parents. Thus these lost births are actually a direct consequence of the Famine and should be included in the number of Holodomor victims.

The inclusion in the estimate of the second type of "indirect" deaths, i.e., premature deaths in later years, although theoretically justified as Holodomor victims, is more problematic for two reasons: their numbers are quite likely relatively small and they are very difficult to estimate. Some authors have also tried to include in the estimate persons who were deported from Ukraine for a variety of reasons during the Holodomor years

and may have subsequently died. These deaths cannot be objectively attributed to the Famine and should be excluded from the estimate. In sum, we propose the following operational definition of Holodomor victims: they are the sum of excess deaths (deaths above the expected number of deaths if there were no Famine) and lost births (expected births if there were no Famine minus actual births) in the Ukrainian Socialist Soviet Republic during the 1932-34 period.

Methodologies of estimating Holodomor victims can be classified into four categories: a) subjective estimates by politicians and journalists during or shortly after the Holodomor; b) estimates using different types of methodologies before key data (the 1937 and 1939 censuses and vital statistics) became accessible to researchers; c) estimates based on two contiguous censuses; d) more recent estimates based on demographically sophisticated methodologies that reconstruct yearly populations by age and sex. The first three types of estimates have been amply described in the literature. We will only point out that estimates of the first type are not credible due to their subjective nature, and estimates of the second type are problematic because key information was missing and these estimates had to be based on unverifiable assumptions. Estimates of the third type were a significant improvement but their main problem is that they include all losses occurred between the two census dates (1926 to 1937 or 1926 to 1939). Besides including the Holodomor losses during 1932-34, they also include other losses during these wider intercensal periods. Thus they almost certainly overestimate the Holodomor losses, which should be confined to the 1932-34 period.

We will base our analysis on two recent studies, as they provide the most detailed estimates of Holodomor losses using solid demographic techniques. The first study is: Vallin, J., F. Mesle, S. Adamets, S. Pyrozhkov. "A New Estimate of Ukrainian Population Losses during the Crises of the 1930s and 1940s", *Population Studies,* Vol. 56, No. 3 (Nov., 2002). The second study is: Libanova, E., N. M. Levchuk, N. O. Ryhacz, O. P. Rudnyckyj and S. A. Poniakina (2007). *Smertnistj Naselennja Ukrajiny y Trudoaktyvnomu Vici (Mortality of Ukrainian Population in Working Ages).* Institute for Demography and Social Studies, Kyiv. These two studies have several advantages over previous studies: a) the estimates are limited to the Holodomor years (1932-34); b) they provide separate estimates for deaths and lost births; c) extimated deaths are disaggregated by age and sex; d) the very useful indicator of life expectancy at birth by sex is also estimated; e) they were done by professional demographers.

The 2002 study provides the following estimates of Holodomor losses: a) excess deaths, 2.6 millions; b) forced out-migrants, 0.9 million; c) birth deficit, 1.1 million, with a total of 4.6 millions. The results of the 2007 study are: excess deaths, 4.0 millions and birth deficit, 1.0 million, with a total of 5.0 millions. These estimates require some explanation and critical analysis. It should be noted that the estimates from the 2007 study are for the period 1932-34, while the estimates from the 2002 study are for the intercensal period 1926-39. The 2002 study also provides excess mortality estimates by year, and for 1932-34 the excess mortality estimate is reduced from 2.6 to 2.4 millions, that is, most of the excess deaths during 1926-39 occurred during the Holodomor years. Both the lost births and net migration estimates are for the whole intercensal period

1926-39, and thus overestimate to some degree the respective values for the 1932-34 period. The lost births estimate of 1.1 million is probably somewhat lower for the 1932-34 period, and the -0.9 million due to forced migration during 1926-39 is definitely lower for the 1932-34 period.

Due to lack of reliable and complete migration data, in the 2007 study it was assumed that net migration in Ukraine during this period was zero, that is, the number of out-migrants was equal to the number of in-migrants during 1932-34. In the 2002 study, out-migration due to forced migration (displacement of families, deportation of kulaks, deportation of political dissidents, etc.) was estimated in 900 thousands and voluntary net migration was assumed to be zero. However, there are two problems with this estimate: it is for the whole 1926-39 period and the authors did not consider explicitly the possibility of migration to Ukraine from other Soviet republics. One example of such migration was the planned resettlement of peasants from Russia and Belarus to rural areas in Ukraine, in order to populate areas devastated by the Famine, which is estimated in over 100 thousands. Thus the figure of -900 thousands net migrants is likely to be a significant overestimate of net migration during the Famine period. Authors of both studies recognize that estimation of migration during this period is very problematic, and this demographic component requires further research, as this is a crucial element in the estimation of Holodomor victims. In the methodology used in both studies estimation of the number of deaths due to the Famine is significantly affected by net migration. If we assume negative net migration and the actual net migration was zero, then the excess deaths are underestimated by the amount of net migration. For example, in the case of the 2002 study, if the actual net migration was zero instead of -900 thousands, then the estimated number of deaths due the Famine would be close to 3.5 millions (2.6 millions + 0.9 million) instead of 2.6 millions.

The estimates from the 2007 study are straightforward: 4.0 millions excess deaths and 1.0 million lost births, for a total of 5.0 millions for 1932-34. From the 2002 study we have 2.6 millions excess deaths for 1932-34, but the net migration and lost births estimates are for the 1926-39 period, and need to be adjusted to the 1932-34 period. For the number of lost births we will assume 1.0 million instead of 1.1 million, similar to the 2007 study estimated. Given that a significant part of the 900 thousand out-migrants during 1926-39 took place outside of the 1932-34 Holodomor period, and that this figure does not include possible in-migrants during 1932-34, we will assume the conservative estimate of -500 thousand net migrants during 1932-34. This results in an excess deaths estimate of 3.0 millions (2.6 millions + the 400 thousand we deducted from net migration) plus 1.0 million lost births, for a total of 4.0 millions. The final conclusion is that a more objective estimate of Holodomor losses is most likely between 4 and 5 millions. If we assume that the population of the Ukrainian SSR in these years was about 30 millions, these figures represent a loss of between 13% and 17% of the total population.

Although our proposed definition of Holodomor losses excludes losses outside the Ukrainian SSR, let us examine briefly the claim of 3 millions Holodomor losses outside the Ukrainian SSR (Lozynskyj, 2008). The majority of these losses occurred in the Kuban region, where Ukrainian settlements were targeted with starvation policies similar

to the ones in Ukraine. According to the 1926 census the total population of the Kuban region was 3.3 millions, and the proportion of ethnic Ukrainians was estimated in 60%, which translates to 2.0 millions persons. If, as an illustrative example we assume that the losses due the Famine constituted 15% of the total population (close to the average percent for Ukraine) and affected evenly all inhabitants of Kuban, the number of Holodomor losses would be about 495 thousand; if most of the victims were Ukrainians and the Holodomor actions were targeted mainly to areas where Ukrainians lived, this number is reduced to 300 thousand. According to preliminary estimates of Ukrainian demographers, the Ukrainian losses outside of the Ukrainian SSR (Kuban and other regions) number about 1 million; this is a far cry from 3 millions. Thus even if we include losses outside the Ukrainian SSR territories, the total number of losses would be between 5 and 6 millions.

Yearly official birth and death statistics in the Ukrainian SSR between 1927 and 1936 bring closer to home the tragedy of the Holodomor (Kulchytskyj, 2003). Figure 1 shows that in 1927 the number of yearly registered births was slightly below 1,200 thousands and by 1931 it declined to 975 thousands, that is, a reduction of about 200 thousand births in four years (see also Table 1 below). In 1932 the number of births dropped to 780 thousands, a yearly decline of 200 thousands, and in 1933 less than 500 thousand births were registered, a yearly decline of 300 thousand births. In 1934 the number of births increased by about 100 thousands, and in the next two years it increased to 760 thousands in 1935 and to 860 thousands in 1936.

Figure 1.- Number of Yearly Registered Births and Deaths (in 1,000s): Ukraine, 1927-36
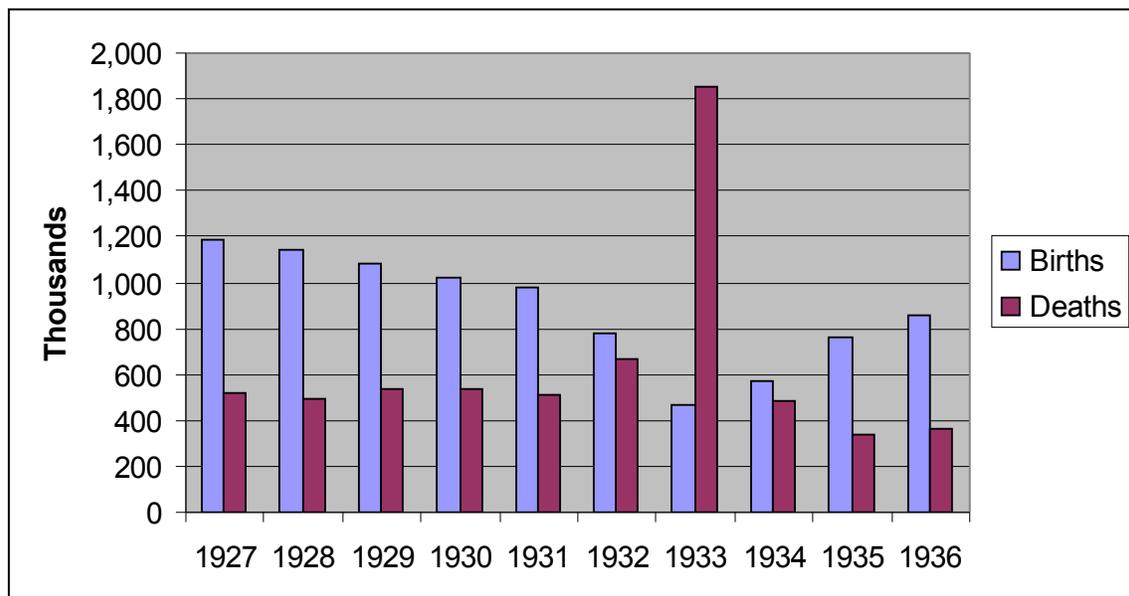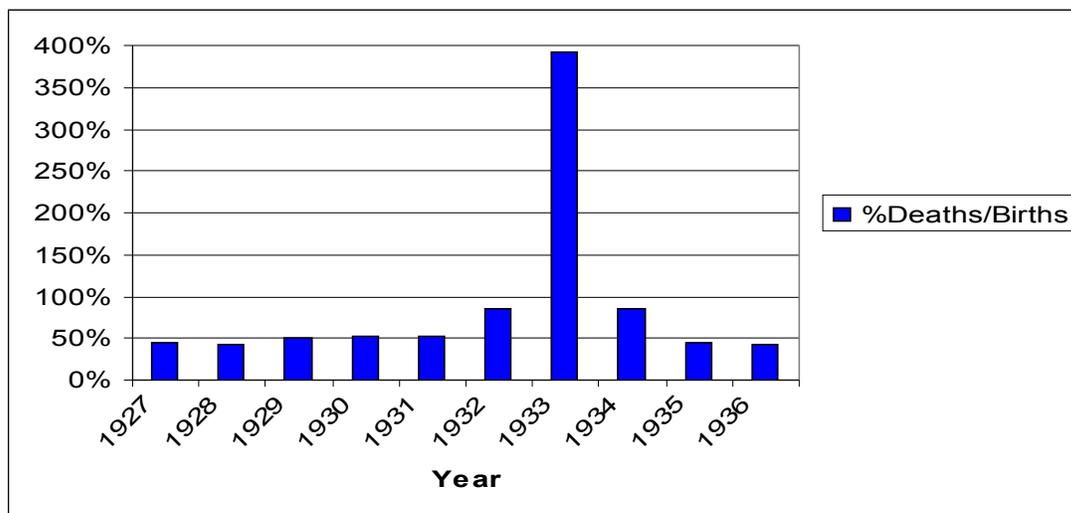

Source: Table 1

The yearly number of registered deaths stayed more or less constant at around half a million per year between 1927 and 1931, increased to 670 thousands in 1932 and reached

a maximum of 1,850 thousands in 1933, that is, it almost tripled from 1932 to 1933. It should be pointed out that the 2002 French study reports similar numbers of deaths for 1932 and 1934 than in Table 1, and 2,100 thousands registered deaths for 1933, compared to 1,850.3 thousands reported in Table 1. There is ample evidence that there was significant under registration of deaths in 1933, due to the fact that in many areas it was physically impossible to keep track of the sudden increase in the number of deaths and, after Soviet authorities realized the magnitude of the impact of the Holodomor, political and bureaucratic measures were taken to reduce the number of registered deaths in Ukraine. Authors of the 2007 study estimated that the number of registered deaths in 1933 had about 90% under registration. If we assume that the number of registered deaths reported by Kulchytskyj for 1933, 1,850.3 thousands reflects the number of officially registered deaths, then a correction using 90% under registration gives 3,552 thousands as the actual number of deaths in 1933 The 2002 study estimated a 23% under registration of deaths in 1933, bringing their estimate of actual deaths during that year from 2,100 thousands to 2,600 thousands. This discrepancy illustrates the difficulties inherent in these kinds of estimates. Independently of which figure is more correct, the sudden increase of deaths in 1933 is staggering.

Figure 2.- Percent of Deaths over Births: Ukraine, 1927-36

Source: Table 1

Another way of looking at these figures is to use the indicator percent of deaths over births. As can be seen in Figure 2 and Table 1 below, between 1927 and 1931 this indicator fluctuates around 50%, that is, during this period there were twice as many births as deaths each year. This indicator increased to 84% in 1932 and jumped to 393% in 1933. It came down to 84% in 1934 and stabilized around 42%-45% in 1935-36. If we take the registered deaths and births at face value, the number of deaths in 1933 was about four times the number of births; if we apply the 90% adjustment reported in the 2007 study and assume some under registration of births, the number of actual deaths in 1933 was about seven times the number of births. This indicator also illustrates the fact that Holodomor losses extended to 1934. For these three years the value of this indicator

is way out of range compared to the other years: 85%, 393% and 85%, for 1932, 1933 and 1934, respectively, compared to a range between 44% and 53% for the other years.

Table 1.- Yearly Numbers of Births and Deaths: Ukraine, 1927-36

Year	In 1,000s			%Deaths/Births
	Births	**Deaths**	**Births-Deaths**	
1927	1,184.5	522.6	661.9	44.1%
1928	1,139.3	495.7	643.6	43.5%
1929	1,081.0	538.7	542.3	49.8%
1930	1,023.0	538.1	484.9	52.6%
1931	975.3	514.7	460.6	52.8%
1932	**782.0**	**668.2**	**113.8**	**85.4%**
1933	**470.7**	**1,850.3**	**-1,379.6**	**393.1%**
1934	**571.6**	**483.4**	**88.2**	**84.6%**
1935	759.1	341.9	417.2	45.0%
1936	859.0	361.3	497.7	42.1%

Source: Kulchytskyj, S, (2003)

These data can also be used to provide further evidence that the estimate of 7 or more million Holodomor losses is unrealistic. We will estimate the expected growth of Ukraine's total population between the 1926 and 1939 censuses (and between 1926 and 1937 censuses), assuming that there was no Holodomor, and compare them with the actual census figures. In this calculation we will assume zero net migration for both intercensal periods. The following total population figures for the three censuses, adjusted by demographers of the Institute for Demography and Social Studies of Ukraine, will be used: 1926 = 29.3 millions, 1937 = 28.9 millions, 1939 = 30.4 millions.

There is no evidence to indicate that during 1927-31 there was significant tampering with the official births and deaths registration system. There was likely some under reporting in these figures (under registration is inherent in vital statistics systems of most countries) and, in order to minimize this effect, we take the difference between births and deaths during those years. If under registration was proportionally similar for births and deaths, this difference minimizes the effect of possible under registration of registered births and deaths. If we assume that without the Holodomor the yearly natural increase (births – deaths) would have been the maximum found during 1926-37, observed in 1927 with 662 thousands, the expected population for 1939 would be equal to:

1926 census population + 12 years x 0.662 million.

This results in the following estimate for the 1939 population of Ukraine:

29.3 millions + 7.9 millions = 37.2 millions.

As the adjusted 1939 census total population was 30.4 millions, we have a total loss of 6.8 millions (37.2 millions – 30.4 millions). A similar calculation using the 1937 census

yields the following results: 1926 census population + 10 years x 0.662 million. This results in the following estimated 1937 population for Ukraine:

29.3 millions + 6.6 millions = 35.9 millions.

As the adjusted 1937 census total is 28.9 millions, we have a total loss of 7.0 millions (35.9 millions – 28.9 millions). As mentioned before, these estimates include implicitly lost births during these intercensal periods.

This upper estimate range of 6.8 – 7.0 millions Holodomor losses is an absolute maximum for several reasons. First, we made the assumption that the maximum natural increase observed in 1927 would repeat itself in all the years during the intercensal periods. Second, although Holodomor losses are likely to constitute the bulk of all losses during these periods, these estimates also include losses like voluntary out migration to other parts of the Soviet Union, massive deportations to Siberia of kulaks in 1930-31, deportations of Poles and Germans in 1934-35, deportations of "enemies of the people" and dissidents, executions of political prisoners and suspect elements, etc. Third, we assumed zero net migration in our calculations, while it is very likely that net migration during these periods was negative, that is, more persons left Ukraine (forcibly or voluntarily) than moved in. If this is the case, these maximum estimates of Holodomor losses should be adjusted down by the number of net migrants. Based on these calculations, we can state that the figure of seven million Holodomor losses in Ukraine is an absolute maximum and that the correct figure is almost certainly lower.
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Demographic Impact of the 1932-33 Famine

The 2002 and 2007 studies provide additional results that allow us to investigate in more detail the demographic impact of the 1932-33 Famine. Of the 4.0 million excess deaths estimated by the 2007 study, close to half (1.9 million) were under 25 years of age; 1.6 million were in the 25-64 age group and 0.5 million were 65 years or more. This translates to 47.5% of total deaths in the 0-24 age group, 40.0% in the 25-64 age group and 12.5% in the 65 or more age group. In a population not affected by an event like the Famine, the respective distribution of deaths in these three age groups would be approximately 27.0%, 37% and 36%. Thus the Famine had a disproportionate effect on children and adolescents.

Table 2 provides data for several comparisons. First, we see that the crude death rate (total number of deaths per 1,000 population) for Ukraine in 1933 was 6 and 8 times the rates in 1928 and in 1939, respectively. If we compare these rates with the respective average rates for Western European countries, in 1928 the rate for Ukraine was about 50% higher, for 1939 it was about 30% higher and in 1933 it was 10 times higher. Second, using these rates and assuming that the population of Ukraine in these three years was roughly 30 millions, we obtain the following estimations of the number of deaths in Ukraine: 585 thousands in 1928 and 3,552 thousands in 1933. If we compare these estimates with the registered deaths in Table 1, we see that in 1928 the registered

deaths were underestimated by close to 20%, while in 1933 the underestimation was 90%.

Table 2.- Crude Death Rates and Infant Mortality Rates for Ukraine and Western European Countries for Selected Years

Year	Crude Death Rate*		Infant Mortality Rate (1,000)	
	Ukraine	W. Europe	Ukraine	W. Europe
1928	19.5	12.7	191.6	98.0
1933	118.4	11.8	415.5	87.2
1939	15.2	11.4	150.0	86.0

* standardized to European standard age structure
Source: Libanova et al. (2007)

Infant mortality rates (number of deaths under 1 year of age per 1,000 births) more than doubled in Ukraine between 1928 and 1933. If we compare them with Western European countries' infant mortality rates, they were almost twice as high in 1928, 75% higher in 1939 and close to five times higher in 1933. The infant mortality rates in Table 2, combined with the number of registered births reported in Table 1, allow us to estimate the number of infant deaths in 1928 and 1933. In 1928 the estimated number of infant deaths was 218.3 thousand, or almost 20% of registered births, while in 1933 the estimated number of infant deaths represented almost 42% of all registered births.

The impact of this massive increase in deaths in such a short time is further illustrated by the indicator life expectancy at birth. This is the average number of years a person is expected to live if mortality conditions at time of birth stay the same during their life time. Given that in most cases mortality of males is different from mortality of females, this indicator is calculated separately for males and females. Both the 2002 and 2007 studies estimated life expectancies by sex for 1933 and also for 1942, the year with the highest losses during World War II in Ukraine. The 2002 study provides these estimates by year, so that we can see the time trend in life expectancies by sex before and after the Holodomor years. In order to provide a frame of reference for these figures, the current life expectancies for the United States are 75 for males and 80 for females, while the respective values for Ukraine are 62 and 74 years.

Table 3.- Life Expectancies at Birth for Ukraine

	1931	**1932**	**1933**	**1934**	1935
Males	43.5	**34.5**	**10.3**	**37.5**	46.4
Females	47.9	**39.4**	**14.7**	**42.0**	52.8

Source: Vallin et. al., 2002

As can be seen in Table 3, mortality increased significantly between 1931 and 1932, as life expectancies decreased by about nine years for each sex. For example, males born in 1931 were expected to live, on the average, 43.5 years, while if born in 1932 they were expected to live nine years less. One year later, being born in 1933 implied an average life expectancy of about 10 years for males and almost 15 years for females. This means that the Holodomor reduced an already very low life expectancy in 1932 to levels of mortality unheard of in 20th century Europe.

In order to put these numbers in perspective, we will compare life expectancies at birth in Ukraine for 1933 and 1942, the year with the highest casualties in Ukraine during World War II (Table 4), and life expectancies for Ukraine and Western European countries in 1933 (Table 5). Here we will use estimates of life expectancies at birth for 1933 and 1942 from the 2007 study, which are somewhat higher than the 2002 estimates:

Table 4.- Life Expectancies at Birth in Ukraine

	1933	1942	difference
Males	11.3	17.7	6.4
Females	14.8	25.6	10.8

Source: Libanova et al., 2007

The estimated number of excess deaths during World War II in Ukraine, 1941-45, has been estimated in 6 to 7 millions, significantly higher than the estimated 3 to 4 million excess deaths caused by the Holodomor. The mortality impact of the Holodomor, however, was more severe, as indicated by a lower life expectancy at birth for 1933 than for 1942. This is mainly due to the fact that a higher proportion of children died during the Holodomor than during World War II

Finally we compare life expectancies at birth in 1933 for Ukraine with the average value of life expectancies a birth for Western European countries:

Table 5.- Life Expectancies at Birth in 1933

	Ukraine	Western Europe	difference
Males	11.3	56.1	44.8
Females	14.8	58.7	31.5

Source: Libanova et al., 2007

These figures show that if Holodomor conditions persisted, persons born in the Ukrainian SSR in 1933 were expected to live, on the average, only ¼ or 1/5 of the expected number of years of life of a person born that same year in a Western European country.

Summary and Conclusions

The estimation of the number of losses due to the 1932-33 Famine-genocide in Ukraine has varied from around 2.6 millions to more than 10 millions. This large interval is due to several factors: a) initial subjective estimates by journalists, politicians and diplomats, with little empirical foundation; b) estimates made by historians and other experts before key data became available; c) use of faulty methodologies; d) estimates influenced by ideological biases towards upper or lower values. A key factor has been the lack of a clear operational definition of Holodomor losses.

We define Holodomor losses as the sum of excess deaths (deaths above the expected number of deaths if there were no Famine) plus lost births (expected births if there were no Famine minus actual births) in the Ukrainian Socialist Soviet Republic during the 1932-34 period. Statistical evidence is presented that Holodomor losses extend to the year 1934 and we argue that lost births during 1932-34 are a direct consequence of the Famine and should be included in the number of losses. We also argue that Holodomor losses should be limited to the Ukrainian SSR. Based on this definition and on the evaluation of the two most comprehensive and demographically solid studies done recently, **the number of Holodomor losses is most likely between 4 and 5 millions.** If we assume that the population of the Ukrainian SSR during 1932-34 was roughly 30 millions, this represents between 13% and 17% of the total population. We also show that it is mathematically practically impossible for the total losses to exceed 7 millions. If one includes in this estimate Holodomor losses in regions outside the Ukrainian SSR that were heavily populated by ethnic Ukrainians, this would add at most one million more to the original estimate.

The demographic impact of the Famine is further illustrated by the following facts. In the years immediately previous to the Holodomor, the yearly number of deaths was about half of the number of births in the Ukrainian SSR. In 1933 the number of deaths reached a value approximately seven times the number of births, that is, there were seven times more deaths than births. In 1933 the life expectancy at birth was 11 years for males and 15 years for females, while in 1942, the deadliest year of War World II in Ukraine, life expectancy at birth for males was 18 years and 26 years for females. In other words, in spite of the fact that more persons died in Ukraine in 1942 than in 1933, the impact of the Holodomor was significantly larger. Close to half of all deaths due to the Holodomor were for persons under 25 years of age, and in 1933 more than 40% of all births died within one year.

The number of Holodomor losses continues to be the subject of debates, and there is no consensus on the actual figure. One problem has been the lack of access for many years to key statistical data, which hindered a serious investigation of this topic. This problem has been solved, as relevant statistical data have become accessible to researchers Recent demographic research allows us to deal with the issue of Holodomor losses in a professional and objective manner, and we can establish a narrow range for this figure with a high degree of certainty.

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