

“Urban and Rural Population Losses in Ukraine  
as a Result of the Holodomor in 1932–34: New Estimates”<sup>1</sup>

The history of research on the Holodomor in Ukraine has traversed a difficult path, from total suppression of the tragedy and concealment of certain categories of archival documents, in Soviet times, to the controversial discussions and polemics of the present.<sup>2</sup> The first works that revealed this event in Ukrainian history to the world, and to Ukraine itself, were Robert Conquest’s 1986 study<sup>3</sup> and the proceedings of the US Congressional hearings in the late 1980s, which included eyewitness accounts and expert analysis of the “Great Famine.”<sup>4</sup> At that time, archival documents were not available to researchers, and thus oral histories were used as the sources for this research. The subsequent publication of thousands of archival materials in Ukraine opened the way for studies based on more than oral history and fragmentary data.<sup>5</sup> As a result, Stanislav Kulchytskyi was able to issue a series of monographs in which he produced a chronological and factual conception of the Holodomor as something distinct from the USSR-wide famine in the early 1930s.<sup>6</sup> Heorhii Papakin investigated the use of blacklisting as an instrument of terror.<sup>7</sup> Cultural aspects of the catastrophic famine have been chronicled by scholars Liudmyla Hrynevych,<sup>8</sup> Vasyl Marochko, and Olha Movchan.<sup>9</sup> Both in Ukraine and abroad, anniversaries of the Holodomor have provided an occasion to prepare publications in

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<sup>1</sup> This article was translated from the Ukrainian original, “Vtraty mis'koho i sil's'koho naselennia Ukraïny vnaslidok Holodomoru v 1932–1934 rr.: novi otsinky,” published in *Ukraïns'kyi istorychnyi zhurnal* [Ukrainian Historical Journal] 4 (2015): 84–112. Table 4 has been modified and is different from Table 4 in the original article. The authors are grateful to the Editor-in-Chief, Dr. Valerii Smolii, for permission to publish the article in English.

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<sup>2</sup> Viktor V. Kondrashin, editor, *Sovremennaia rossiïsko-ukraïnskaia istoriografiia goloda 1932–1933 gg. v SSSR* (Moscow: ROSSPEN, 2011); N. A. Ivnickii, *Golod 1932–1933 gg. v SSSR: Ukraïna, Kazakhstan, Severnyi Kavkaz, Povolzh'e, Tsentral'no-Chernozëmnaia oblast', Zapadnaia Sibir', Ural* (Moscow: Sobranie, 2009); Robert Conquest, *The Harvest of Sorrow: Soviet Collectivization and the Terror Famine* (New York: Oxford University Press, 1986); Andrea Graziosi, *Stalinism, Collectivization, and the Great Famine* (Cambridge, MA: Ukrainian Studies Fund, 2009); Heorhii V. Kas'ianov, *Danse macabre: Holod 1932–1933 rokiv u politytsi, masovii svydymosti ta istoriografii (1980-ti – pochatok 2000-kh)* (Kyiv: Nash chas, 2010).

<sup>3</sup> See Note 2.

<sup>4</sup> United States (Commission on the Ukraine Famine), *Investigation of the Ukrainian Famine, 1932–1933: Report to Congress* (Washington: US GPO, 1988); United States (Commission on the Ukraine Famine), *Oral History Project of the Commission on the Ukraine Famine*, eds. James E. Mace and Leonid Heretz (Washington: US GPO, 1990).

<sup>5</sup> See: “Arkhivni dzherela ta zbirky dokumentiv pro holod 1932–1933 rr. v Ukraïni” and “Osoblyvosti vysvitlennia holodu v istoriografii, khudozhnii literaturi ta obrazotvorchomu mystetstvi in *Holod 1932–1933 rokiv v Ukraïni: prychny ta naslidky*, ed. Volodymyr Lytvyn (Kyiv: Naukova Dumka, 2003); Stanislav Kul'chytskyi, “Zdobutky vitchyznianoï nauky v doslidzhenni Holodomoru (1988–2013 rr.),” in *Holod v Ukraïni u pershii polovyni XX st.: prychny ta naslidky (1921–1923, 1932–1933, 1946–1947): materialy mizhnar. nauk. konf., Kyïv, 20–21 lystopada 2013 r.* (Kyiv: 2013; Hennadii Boriak, *Sources for the Study of the Great Famine in Ukraine* (Cambridge, MA: Ukrainian Studies Fund, 2009).

<sup>6</sup> Stanislav Kulchitskii [Kul'chyts'kyi], *Pochemu on nas unichtozhal?: Stalin i ukraïnskii Golodomor* (Kyiv: Ukraïnskaia Press-gruppa, 2007); Kul'chyts'kyi, *Stalins'kyi «sokrushitel'nyi udar» 1932–1933* (Kyiv: Tempora, 2013); Kul'chyts'kyi, *Holod 1932–1933 rr. v Ukraïni iak henotsyd: movoiu dokumentiv, ochyma svydktiv* (Kyiv: Nash chas, 2008); Kul'chyts'kyi, *Chervonyi vylyk: istoriia komunizmu v Ukraïni vid ioho narodzhennia do zahybeli*, vol. 2 (Kyiv: Tempora, 2013); Kul'chyts'kyi, *Ukraïns'kyi Holodomor v konteksti polityky Kremliia pochatku 1930-kh rr.* (Kyiv: Instytut istorii Ukraïny, 2014).

<sup>7</sup> Heorhii V. Papakin, “Chorna doshka”: *antyselians'ki represii (1932–1933)* (Kyiv: Instytut istorii Ukraïny, 2013).

<sup>8</sup> Liudmyla Hrynevych, *Pochatok nadzvychainykh zakhodiv: Holod 1928–1929 rokiv*, vol. 1 of *Khronika kolektyvnykh svydok ta holodomoru v Ukraïni 1927–1933* (Kyiv: Krytyka, 2008–2012).

<sup>9</sup> Vasyl Marochko and Olha Movchan, *Holodomor 1932–1933 rokiv v Ukraïni: khronika* (Kyiv: Kyiv-Mohyla Academy Publishing House, 2008).

commemoration of the victims and publicize the latest research.<sup>10</sup> Marochko is currently completing his work on a massive encyclopedia of the Holodomor.

Public awareness was greatly enhanced by the publication of the fundamental 19-volume National Book of Memory of the victims of the 1932–33 Holodomor in Ukraine.<sup>11</sup> Its summary volume contains conceptual essays on the subject, and oblast volumes contain both documents and oral accounts from each given region. A unique anthology on the Holodomor, which includes key publications and documents, was produced in Canada for English-speaking readers.<sup>12</sup> Another scholarly accomplishment, which spurred further theoretical work on the issue, was Roman Serbyn's discovery of a text published by Raphael Lemkin, the founder of genocide studies, in which Lemkin, who himself coined the term *genocide*, identifies the Holodomor as a classic example of genocide.<sup>13</sup> Also notable are more recent works by American historians Timothy Snyder and Norman Naimark.<sup>14</sup>

In 2003–15, an electronic archive of the Holodomor was established that contains the full texts of relevant documents (primarily those already published) as well as substantial bibliographic resources and references. This constitutes a definite milestone in the “archival revolution” on the Holodomor that has brought *primary sources* into scholarly circulation.<sup>15</sup> In cooperation with Ukrainian and international researchers, the Harvard Ukrainian Research Institute is using the latest technologies to create an interactive atlas of the Holodomor.<sup>16</sup> In total, the bibliography of works on the Holodomor today numbers over 18 thousand titles,<sup>17</sup> including oral histories, archival documents, and numerous scholarly and popular studies.

Many people believe that a distinction should be made between at least two periods in the history of the 1932–33 famine in the Ukrainian SSR. During the first (which comprises the major part of 1932), famine occurred as a result of grain requisition campaigns and the partial or complete confiscation of grain; this was similar to the famines in other agricultural regions of the USSR. The second period (late 1932 and first half of 1933) was characterized by a catastrophic rise in mortality in Soviet Ukraine, caused by the total seizure of grain and other food stores, a prohibition on leaving the republic, and the malicious use of blacklisting.<sup>18</sup> The seizure of foodstuffs and use of other harsh repressive measures were designed to force Ukrainian peasants to relinquish all their grain to the state and work on the collective farms; essentially, the state used terror by famine to quash

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<sup>10</sup> Lytvyn, *Holod 1932–1933 rokiv v Ukraïni: prychny ta naslidky; Holodomor 1932–1933 rokiv v Ukraïni: prychny, demohrafichni naslidky, pravova otsinka: Mat. mizhnar. nauk. konf., Kyïv, 25–26 veresnia 2008 roku* (Kyiv: Kyiv-Mohyla Academy Publishing House, 2009); *Holod v Ukraïni u pershii polovyni XX st.*

<sup>11</sup> Ihor Iukhnovs'kyi et al, eds., *Natsional'na knyha pam'iaty zhertv Holodomoru 1932–1933 rokiv v Ukraïni* (Kyiv: Vyd-vo Oleny Telihiy, 2008); see also Valerii Vasyli'iev and Roman Podkur, *Natsional'na knyha pam'iaty zhertv Holodomoru 1932–1933 rokiv v Ukraïni*, vol. 7 of *Entsyklopediia istorii Ukraïny* (Kyiv: Naukova Dumka, 2010).

<sup>12</sup> Bohdan Klid and Alexander J. Motyl, comp. and ed., *The Holodomor Reader: A Sourcebook on the Famine of 1932–1933 in Ukraine* (Toronto: CIUS Press, 2012).

<sup>13</sup> Raphael Lemkin, *Soviet Genocide in Ukraine: Article in 28 Languages*, ed. Roman Serbyn, comp. Olesia Stasiuk, Uroky Istorii, a program of the Ukraine 3000 International Charitable Foundation (Kyiv: Maisternia Knyhy, 2009).

<sup>14</sup> Timothy Snyder, *Bloodlands: Europe Between Hitler and Stalin* (New York: Basic Books, 2010); Norman M. Naimark, *Stalin's Genocides* (Princeton, NJ: Princeton University Press, 2010).

<sup>15</sup> *Elektronnyi arkhiv Holodomoru v Ukraïni 1932–1933 rokiv*, Institute of History of Ukraine, National Academy of Sciences of Ukraine, [http://www.history.org.ua/?discussion&nazva=\\_Holod\\_](http://www.history.org.ua/?discussion&nazva=_Holod_).

<sup>16</sup> “About The Great Famine Project” *Mapa: Digital Atlas of Ukraine*, Harvard Ukrainian Research Institute, April 2015, <http://gis.huri.harvard.edu/the-great-famine.html>.

<sup>17</sup> Stanislav Kul'chyts'kyi, L. M. Bur'ian, I. Rikun, eds., *Holodomor v Ukraïni 1932–1933 rr.: bibliohrafichni pokazchchyk* (Odesa–Lviv: Vyd-vo M. P. Kots, 2001) [2nd edn publ. by Odesa: Vyd-vo Studiiia Hegotsiant, 2008]; Mykola Shytiuk and Kateryna Nazarova, *Holodomor 1932–1933 rokiv v Ukraïni v suchasni istoriohrafii (1986–2009 roky)* (Mykolaiv: Vyd-vo MNU, 2012).

<sup>18</sup> Stanislav Kul'chyts'kyi, *Holodomor 1932–1933 rr. iak henotsyd: trudnoshchi usvidomlennia* (Kyiv: Nash chas, 2007); Papakin, “*Chorna doshka*”.

the resistance of the peasantry and to destroy the national identity and economic self-sufficiency of the Ukrainian people.<sup>19</sup>

The majority of works published on the Holodomor contains political and economic analysis, while demographic aspects are less developed. In fact, the demographic cost of Stalin's policy of forced collectivization and accelerated industrialization was very high. According to our estimates, in 1932–34 approximately 8.7 million deaths in the USSR were caused by famine.<sup>20</sup> Three Soviet republics account for nearly 98% of these losses: Ukraine (3.9 m), Russia (3.3 m), and Kazakhstan (1.3 m). In relative losses, that is, per 1,000 population, Ukraine cedes first place to Kazakhstan: losses from starvation constituted 22% of the total population in Kazakhstan, 13% in Ukraine, 3% in Russia, and less than 2% of the population in other republics of the USSR.

Using demographic methods, estimates by different researchers of the toll of the 1932–33 famine in the Ukrainian SSR range from 2.6 to 5 million persons.<sup>21</sup> Until the state archives were opened at the end of the 1980s, estimating the population losses was difficult, due to fragmentary or insufficient demographic information. The situation has changed over the last two decades, as obstacles to studying the formerly forbidden famine topic have gradually begun to disappear. The opening of Union-level and regional archives, and the resulting availability of population statistics from the 1930s, have created new opportunities to estimate the demographic consequences of the Holodomor. For example, access to archival materials from the 1926, 1937, and 1939 censuses, as well as vital statistics and migration data from the 1930s, have made it possible for experts to do more substantive calculations, and to differentiate between losses due to excess deaths and lost births (birth deficits).<sup>22</sup> Thanks to the availability of detailed demographic and statistical data, it has also become

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<sup>19</sup> Kul'chyts'kyi, *Stalins'kyi «sokrushitel'nyi udar»*; Kul'chyts'kyi, *Holod 1932–1933 rr. v Ukraïni iak henotsyd*; V. Vasylenko, *Holodomor 1932–1933 rokiv v Ukraïni iak zlochyn henotsydu: pravova otsinka* (Kyiv: Vyd-vo Oleny Telihy, 2009); Oleksandra Veselova, Vasyl Marochko, Olha Movchan, *Holodomory v Ukraïni, 1921–1923, 1932–1933, 1946–1947: Zlochyny proty narodu* (Drohobych: Vidrodzhennia, 2008).

<sup>20</sup> Omelian Rudnytskyi, Nataliia Levchuk, Oleh Wolowyna, Pavlo Shevchuk, “Famine losses in Ukraine in 1932 to 1933 within the context of the Soviet Union,” in *Famines in European Economic History: The Last Great European Famines Reconsidered*, eds. Declan Curran, Lubomyr Luciuk, and Andrew Newby (London: Routledge, 2015).

<sup>21</sup> Conquest, *The Harvest of Sorrow*; Sergei Maksudov, *Poteri naseleniia SSSR* (Benson, VT: Chalidze, 1989); J. Vallin, F. Meslé, S. Adamets, Serhii Pyrozhkov, “A New Estimate of Ukrainian Population Losses During the Crises of the 1930s and 1940s,” *Population Studies* 56, no. 3 (2002): 249–64.

<sup>22</sup> Omelian Rudnytskyi, “Demografichni naslidky holodu 1932–1933 rr. v Ukraïns'kii RSR,” *Istoriia narodnoho hospodarstva ta ekonomichnoi dumky Ukraïns'koï RSR* 24 (1990): 22–26; Serhii Pyrozhkov, *Trudovoi potentsial v demograficheskomyi izmerenii* (Kyiv: Naukova Dumka, 1992); Serhii Maksudov, “Demografichni vtraty naselennia Ukraïny u 1930–1938 rokakh,” *Ukraïns'kyi istorychnyi zhurnal* 1 (1991): 121–27; Maksudov, “Otsinky vtrat naselennia Ukraïny v roky kolektyvizatsii,” *Filosofs'ka i sotsiologichna dumka* 4 (1992): 118–31; Maksudov, “Nekotorye problemy izucheniiia poter' naseleniia v gody kolektyvizatsii,” in *Problemy narodonaseleniia v zerkale istorii*, eds. V. Elizarov and I. Troitska (Moscow: MAKSPRESS, 2010); Maksudov, “The Influence of New Data on the 1937 and 1939 Censuses in the Calculation of Population Decreases in 1926–1937 and 1939–1945,” paper presented, International Conference on the Soviet Population in the 1920s and 1930 (Toronto, 1995); Kul'chyts'kyi and Maksudov, “Vtraty naselennia Ukraïny vid holodu 1933 r.,” *Ukraïns'kyi istorychnyi zhurnal* 2 (1991): 2–12; Evgenii Andreev, Leonid Darskii, Tatiana Kharkova, *Naselenie Sovetskogo Soiuzu: 1922–1991 gg.* (Moscow: Nauka, 1993); S. Uitcroft [Stephen Wheatcroft], “O demograficheskikh svidetel'stvakh tragedii sovetskoi derevni v 1931–1933 gg.,” in *Tragediia sovetskoi derevni: Kollektivizatsiia i raskulachivanie, dokumenty i materialy v 5 tomakh, 1927–1939*, eds., Viktor Danilov, Roberta Manning, Lynne Viola, vol. 3 (Moscow: ROSSPEN, 2001); Wheatcroft, “Sovremennye predstavleniia o prirode i urovne smertnosti vo vremia goloda 1931–1933 gg. v Ukraine,” in *Komandyry velykoho holodu: Poizdki V. Molotova i L. Kahanovycha v Ukraïnu ta na Pivnichnyi Kavkaz, 1932–1933 rr.*, eds. Valerii Vasyl'ev and Iurii Shapoval (Kyiv: Heneza, 2001); Vallin, Meslé, Adamets, Pyrozhkov, “A New Estimate...”; F. Mesle, Zh. Vallen et al., *Smertnist' ta prychny smerti v Ukraïni u XX stolitti* (Kyiv: Stylos, 2008) [Ukrainian translation of F. Meslé and J. Vallin, *Mortalité et causes de décès en Ukraine au XXe siècle : la crise sanitaire dans les pays de l'ex-URSS* (Paris: Inst. National d'Études Démographiques, 2003)]; R. W. Davies and Stephen Wheatcroft, *The Years of Hunger: Soviet Agriculture, 1931–1933*, book 5 of *The Industrialization of Soviet Russia* (London: Palgrave Macmillan, 2009).

possible to use the population reconstruction method to estimate losses due to excess deaths by age and sex, as well as birth losses by sex.<sup>23</sup>

Most studies of the demographic effects of the 1932–33 famine in Soviet Ukraine focus primarily on losses relative to the entire population. Furthermore, they are usually considered as losses to the peasantry, which suffered most from the undue burden of the grain requisitions and seizure of all food stores; estimates of urban population losses, however, are almost nonexistent. At the same time, archival documents show that the acute food shortage in the early 1930s also had an extremely negative effect on urban living conditions.<sup>24</sup> Urban residents also starved and suffered losses during the famine, albeit noticeably fewer than rural residents. In our opinion, there is an urgent need for in-depth research into the difference in urban-rural population losses in the Ukrainian SSR from the 1932–33 famine, and for identification of possible hypotheses to account for these differences. This would allow us to obtain a fuller and more accurate understanding of the scale of the famine, and of its specific features in the cities and villages of the republic.

This article presents our estimates of Ukraine’s annual demographic losses resulting from the famine in 1932–34,<sup>25</sup> separately by sex and age for the urban and rural populations. Our goal was to calculate population losses, as accurately as possible, based on demographic reconstruction. This entailed the reconstruction of yearly indicators of vital statistics and migration, as well as population, for urban and rural areas during the 1927–39 intercensal period. To our mind, such an approach—in conjunction with a preliminary meticulous analysis of the data quality, and making adjustments where necessary—provides a more precise estimate of the migration component and population losses. Our research uncovered significant differences in the level and dynamics of urban and rural population losses in Soviet Ukraine caused by the Holodomor.

### Data

This research covers the political-administrative territory of Ukraine as it stood when the 6 January 1937 census was conducted—that is, without Western Ukraine and Crimea but including the Moldavian ASSR. To estimate population losses as a result of the Holodomor, the Ukrainian SSR’s demographic dynamics were reconstructed for 1927–38, based on data from the 1926, 1937, and 1939 censuses, as well as the 1931 urban population count, and on data for vital events and migration in 1927–38. Detailed information about births and deaths in the urban and rural populations of Soviet Ukraine was found in the Russian State Archive of the Economy (RGAE) and the Central State Archive of Higher Government Agencies and Administration of Ukraine (TsDAVOVU), and augmented with personal papers of the Ukrainian demographer Yurii Korchak-Chepurkivsky.<sup>26</sup> We also had access to total annual births and deaths by sex for 1927–38, distributions of birth

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<sup>23</sup> For estimates of losses for USSR by age and sex, see: Evgenii Andreev, Leonid Darskii, Tatiana Kharkova, “Istoriia naseleniia SSSR: 1920–1959 gg.,” *Istoriia statistiki*, vol. 3–5(1) (Moscow: Goskomstat SSSR, 1990): 3–181; for Russia, see: Evgenii Andreev, Leonid Darskii, Tatiana Kharkova, *Demograficheskaia istoriia Rossii: 1927–1959* (Moscow: Informatika, 1998); for Ukraine, see: Vallin, Meslé, Adamets, PyrozHKov, “A New Estimate....”

<sup>24</sup> Elena Osokina, *Za fasadom “stalinskogo izobil’iia”: Raspredelenie i rynek v snabzhenii naseleniia v gody industrializatsii: 1927–1941* (Moscow: ROSSPEN, 1999); O. Movchan, V. Hudz’, “Povsiakdenne zhyttia na pidpriemstvakh i novobudovakh,” in *Ukrains’ke radians’ke suspil’stvo 30-kh rr. XX st.*” *narysy povsiakdennoho zhyttia: kolektyvna monohrafiia* (Kyiv: Instytut istorii NAN Ukraïny, 2012); Roman Podkur, Valerii Vasyliiev, Petro Kravchenko, Volodymyr Petrenko, eds., *Nastroï ta povedinka naselennia Podillia v umovakh stalins’koi revoliutsii “zhory”: 1928–1940* (Kyiv: Instytut istorii NAN Ukraïny, 2013).

<sup>25</sup> An explanation of the necessity to estimate population losses for 1932–34 (instead of the traditional 1932–33) is given in the section “Methods,” subsection “General Methodology.”

<sup>26</sup> See Korchak-Chepurkivskyi’s personal archive at the M. V. Ptoukha Institute of Demography and Social Studies at the National Academy of Sciences of Ukraine.

by mother's age and of death by sex and age for all years except 1932, and distribution of infant deaths by birth month and death month for all years except 1932.<sup>27</sup>

Migration statistics are available only for the Ukrainian SSR urban population. In particular, there are annual net migration data for 1927–38, and distributed by sex and age for 1931 and 1933–38, and by migration streams for 1933–38.<sup>28</sup> The reconstruction of rural migration statistics was based on an analysis of numerous studies that estimated various kinds of movement, which allowed us to systematize and reconcile available statistics on the forced and voluntary migration of peasants to and from Soviet Ukraine during the period under investigation.

## Methods

**General methodology.** A few issues needed to be resolved before estimating demographic losses resulting from the Holodomor. First, although we had nearly complete time series of births and deaths for the intercensal period, we needed to carry out a meticulous critical analysis and adjustment of them before they could be used. This was necessary because of the incomplete registration of births and deaths—in particular, massive undercount during the famine years, and also the deliberate falsification of data from the 1939 Census for the Ukrainian SSR by the Soviet government, in order to conceal the extent of the losses caused by the Holodomor. Thus, in order to credibly recreate the demographic dynamics for the 1927–38 period, both the summary census results, as well as vital statistics and migration data had to be adjusted.

Second, there are differences in the ways that population losses have been determined as a result of famine, and in the methodological approaches to calculating them. The demographic effect is not limited only to the rise in mortality, but it also includes lost births. We define the demographic losses caused by the famine as the difference between the reconstructed real numbers of births and deaths (affected by the famine) in 1932–34 and the hypothetical “normal” numbers of births and deaths had there been no famine. In this way, we make a distinction between *direct* population losses from famine, resulting from excess deaths, and *indirect* losses, resulting from lost births.

Third, we estimated Ukraine's demographic losses as a result of the Holodomor for the three-year period from 1932 to 1934, and not for 1932–33, as is traditionally accepted in historiography, both in Ukraine and abroad. We justify expanding the timeframe of famine-related losses because (a) our analysis of month-by-month mortality showed significant levels of mortality in 1934, which exceeded the corresponding 1935 and 1936 rates; and (b) as shown below, the level of indirect losses, that is, lost births, was just as high in 1934 as in 1933.

The following estimation steps, conducted separately for urban and rural populations, were carried out to estimate Ukrainian SSR population losses as a result of the 1932–34 famine: (1) adjustment of the population size and age-sex composition data from the 1926, 1937, and 1939 Censuses and the 1931 urban count;<sup>29</sup> (2) reconstruction and adjustment of birth and death statistics; (3) reconstruction of migration statistics; (4) determining the balance<sup>30</sup> of changes in total population size in 1927–39, taking into account urban-rural reclassification (urban settlements reclassified into rural ones and vice-versa); (5) reconstructing population data by sex and age for every year of the intercensal period; and (6) calculating hypothetical non-crisis births and

<sup>27</sup> Russian State Archive of the Economy (Rossiiskii gosudarstvennyi arkhiv ekonomiki [RGAE]), f. 1562, op. 20, d. 41, 43, 46, 49, 59, 61–62, 80, 86, 88, 121, 125, 127, 153; op. 329, d. 20, 22–23, 54, 56–57, 134, 256, 260, 268 (archive numbering indicates *fond* “collection,” *opis*, “series,” *delo* “file”).

<sup>28</sup> RGAE, f. 1562, op. 20, d. 20, 22, 27, 29–30, 34, 38, 73, 75–76, 118, 143, 145, 147.

<sup>29</sup> Tsentral'noe upravlenie narodo-khoziaistvennogo uchëta USSR (TsUNU UkrSSR), *Pidsumky obliku mis'koï liudnosti URSR 1931 roku* (Kharkiv: Narodne gospodarstvo ta oblik, 1933).

<sup>30</sup> Demographic balance, population reconstruction, and rural-urban reclassifications are covered in corresponding subsections under the section “Methods.”

deaths (had there been no famine) for 1932, 1933, and 1934, estimating the direct and indirect population losses for these years.

***Adjustment of the 1926, 1937, and 1939 Censuses.*** The majority of researchers has acknowledged that the quality of the Soviet Censuses of 1926 and 1937 is completely satisfactory. Korchak-Chepurkivsky was the first to attempt to estimate the extent of the 1926 Census undercount, particularly with respect to the infant population.<sup>31</sup> Drawing on his methods, we calculated that the probable number of children 0–4 years old who were not registered in 1926 amounted to 242,800 persons (0.8% of the total population).

The results of the Soviet Census of 1937—the first conducted after the famine and collectivization—showed the population to be significantly smaller than what had been projected by the Central Administration of National Economic Records and by Joseph Stalin in 1933 and 1934; in fact, these projections motivated the discreditation and destruction of part of the census results. Only toward the end of the 1980s it was discovered that the allegations levelled against the organizers of the 1937 Census and the quality of the census results were unfounded.<sup>32</sup> The absence of population age-sex composition in the 1937 census data prevented us from calculating an adjustment to the undercount of children, as we were able to do for 1926.<sup>33</sup> Therefore, for this adjustment we applied the undercount correction for the total USSR population in 1937 suggested by Andreev et al., which amounted to 0.43% for the urban and rural populations.<sup>34</sup>

Additionally, we made adjustments to the results of the Soviet Censuses of 1926 and 1937 by redistributing military (army) personnel, proportionately to the size of the urban and rural populations. This was done in order to eliminate distortions in the age composition of the urban population, because military garrisons were usually located in cities, and the numbers of military personnel serving in them during the census periods were attributed to the corresponding urban populations.

Another matter was the need to remove unsubstantiated adjustments from the official results of the 1939 Census, which our estimates indicated had deliberately overstated the population of the Ukrainian SSR by 803,600 persons (or 2.6%). The opening of archives in the late 1980s allowed experts to determine the scope and type of these falsifications, which were intended to conceal the effects of the Holodomor.<sup>35</sup> Researchers have established that the falsifications consisted of two basic types of “adjustments”: (1) inflated coefficients of the undercount and of the so-called *control forms*;<sup>36</sup> and (2) redistribution of the population of *special groups*—especially prisoners—in order to conceal the locations where they were clustered (primarily in the Russia’s Far East and Far North). Thus, from archival data we established that the census forms of 798,800 people held in Soviet concentration camps were reallocated, of which 383,600 were falsely assigned to Ukraine.<sup>37</sup> Examining

<sup>31</sup> Korchak-Chepurkivsky, “Sproba analizu.”

<sup>32</sup> Mark Tolts, “Repressirovannaia perepis’,” *Rodina* 11 (1989): 56–61; Andrei Volkov, “Perepis' naseleniia SSSR 1937 g.: Istorii i materialy,” in *Ekspress-informatsiia: Seriia “Istorii statistiki”* [Express-Information: History of Statistics Series], vol. 3–5, part. II (Moscow: Informtsentr Goskomstata SSSR, 1990) [in Russian]; F. Livshits, “Perepis' naseleniia 1937 g.” [Population census of 1937] in *Demograficheskie protsessy v SSSR: Sbornik nauchnykh trudov* [Demographic Processes in the USSR: A Collection of Scholarly Works], ed., Andrei Volkov (Moscow: Nauka, 1990) [in Russian].

<sup>33</sup> Valentina Zhiromskaia and Iurii Poliakov, *Vsesoiuznaia perepis' naseleniia 1937 g.: Obshchie itogi* [All-Union Population Census of 1937: Total Results] (Moscow: ROSSPEN, 2007) [in Russian].

<sup>34</sup> Andreev, Darskii, Kharkova, *Istorii naseleniia SSSR*.

<sup>35</sup> Iurii Poliakov, ed., *Vsesoiuznaia perepis' naseleniia 1939 goda: Osnovnye itogi* [All-Union Population Census of 1939: Main Conclusions] (Moscow: Nauka, 1992) [in Russian]; RGAE. – F. 1562. – Op. 329. – D. 279.

<sup>36</sup> During the 1939 Census, control forms were filled out for people who were residing somewhere other than where they had been living. The completed control forms, which contained a number of questions from the census form, were sent to wherever the people were living at the time of the census. In this way, they checked to be sure there was a census form for each person. If the person was absent, the control form was accepted as equivalent to the census form. Thus, they were able to achieve a maximum population count.

<sup>37</sup> Iurii Simchenko, ed., *Perepis' 1939 g.: Dokumental'nye istochniki Tsentral'nogo Gosudarstvennogo Arkhiva Narodnogo Khoziaistva (TsGANKh) SSSR* [1939 Census: Documentary Sources from the Central State Archive of the National Economy (TsGANKh) of the USSR], parts 1–15 (Moscow: Institut etnologii i etnicheskoi antropologii AN SSSR,

the Census's original count allowed us to determine that when reallocating the census forms, larger numbers were assigned to the regions that suffered most from the famine.<sup>38</sup> In addition, we determined that the census forms of military personnel were also reallocated, with the intent of hiding the locations of military bases and army formations.

A detailed description of our methodology for correcting the results of the 1939 Census, including the age structure of the population, is described in detail in a separate paper;<sup>39</sup> therefore, we shall only provide a general description here. In order to correct population size, we started with the original civilian population, then added the “special groups” (military personnel, civilians connected to the NKVD, employees of the People's Commissariat of Internal Affairs, prisoners, and “special settlement” populations) and eliminated unjustifiably high adjustments. A memorandum addressed to Stalin and Molotov (dated March 1939) from Nikolai Voznesenskii, director of the State Planning Committee under the Council of Ministers of the USSR, and Ivan Sautin, director of its Central Administration for Economic Accounting, refers to a 0.68% adjustment to the control forms and a 1% adjustment to the census undercount. We regard both these figures as inflated, given that the 1939 Census was prepared and conducted quite thoroughly, thus calling into question the need for any adjustment at all. Instead, we accept a reasonable control form adjustment to be 0.38%, as estimated by Andreev et al.;<sup>40</sup> and by our own calculations, the adjustment to the census undercount should be 0.3%.

After factoring in corrections in the three censuses, the urban and rural populations of the Ukrainian SSR at the beginning of 1927 increased by 0.6% and 0.9% over the official numbers, totaling 5,318,600 for urban and 23,969,400 for rural populations, respectively. The urban and rural populations at the beginning of 1937 increased by 0.4%, to 9,720,200 and 19,137,800 persons, respectively. By eliminating the distorting adjustments from the results of the 1939 Census, the Ukrainian SSR population shrank by 1.2% in cities and 3.4% in the countryside, to 11,051,600 and 19,091,000 persons, respectively.

***Adjustment of vital statistics (births and deaths) in 1927–38.*** Reconstruction of the rate of natural population growth was based on births and deaths registered annually between 1927 and 1939, on the age distribution of deaths, and on the distribution of birth by mother's age for all the years in the intercensal period except 1932.<sup>41</sup> Data for 1932 was estimated by extrapolating 1927–31 trends of the respective age-specific indicators. As has already been noted, in order to reconstruct a complete and accurate picture of Ukraine's demographic dynamics in 1927–38, it was necessary to correct the statistics for natural population growth—numbers of registered births and deaths—by estimating their undercount. This was done taking into account the following facts.

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1990) [in Russian]; Mark Tolts, “The Soviet Censuses of 1937 and 1939: Some Problems of Data Evaluation” (paper presented, International Conference on the Soviet Population in the 1920s and 1930, University of Toronto, 27–29 January 1995),

[https://www.academia.edu/1522451/The\\_Soviet\\_Censuses\\_of\\_1937\\_and\\_1939\\_Some\\_Problems\\_of\\_Data\\_Evaluation](https://www.academia.edu/1522451/The_Soviet_Censuses_of_1937_and_1939_Some_Problems_of_Data_Evaluation); D. Bogoiavlenskii, “O prypyskakh v perepisi 1939 goda” [On registrations in the 1939 Census], *Demoskop Weekly* 571–72 (14–31 October 2013), [http://demoscope.ru/weekly/2013/0571/arxiv01.php#\\_ENR\\_XXXVI](http://demoscope.ru/weekly/2013/0571/arxiv01.php#_ENR_XXXVI) [in Russian].

<sup>38</sup> Andreev, Darskii, Kharkova, *Istoriia naselenia SSSR*; Simchenko, ed., *Perepis' 1939 g.*; Valentina Zhiromskaia, “Vsesoiuznye perepisi naseleniia 1926, 1937, 1939 gg.: istoriia podgotovki i provedeniia [The 1926, 1937, and 1939 All-Union Censuses: A history of how they were prepared and conducted], *Istoriia SSSR* [History of the USSR] 3 (1990): 84–103 [in Russian].

<sup>39</sup> Omelian Rudnytskyi, Nataliia Levchuk, Oleh Wolowyna, Pavlo Shevchuk, Alla Kovbasiuk, “Demography of a Man-Made Human Catastrophe: The Case of Massive Famine in Ukraine 1932–1933,” *Canadian Studies in Population* 42, nos. 1–2 (2015): 53–80.

<sup>40</sup> Andreev, Darskii, Kharkova, *Istoriia naselenia SSSR*.

<sup>41</sup> RGAE, f. 1562, op. 329, d. 20; Central Statistical Administration of the Ukrainian SSR [Tsentral'ne statystychnе upravlinnia Ukraïns'koï RSR], *Pryrodnyi rukh naselennia Ukraïny: 1924–1929* [Vital Statistics of Ukraine's Population: 1924–29] (Kharkiv: TsSU UkrRSR and Hospodarstvo Ukraïny, 1927–1932) [in Ukrainian] (also publ. as *Statystyka Ukraïny* 106, 117, 154, 169, 193, and 213).

First, demographic research and data quality control measures implemented by the Central Statistical Administration (TsSU) in the late 1940s revealed a systematic undercount in the registration of vital statistics. Moreover, the undercount of deaths was significantly higher than the undercount of births, leading to an inflated natural growth rate and inflated current population estimates.<sup>42</sup> Second, registration of births and deaths was more accurate in cities than in rural areas; therefore, the urban records of natural population growth were more complete than the rural ones. Third, the undercount of births and deaths during the famine years was significantly greater than in the pre- and post-crisis periods. Widespread starvation and the catastrophic rise of mortality in 1932–34 led to a significant deterioration—and in some places complete collapse—of the vital statistics registration system. For example, a review of the rural vital statistics record in March 1934 showed a severe undercount of deaths; some village councils had even run out of registration forms.<sup>43</sup> This necessitated various methodological approaches on our part to adjust the data for the crisis years of 1932–34, as well as for the non-crisis years 1927–31 and 1935–38. A detailed description of this methodology is given in another article,<sup>44</sup> therefore, only a general overview of the main steps is provided here.

Undercount factors were estimated separately for three components: annual number of births, annual number of infant deaths (up to one year of age), and annual number of deaths after the first year of life. For the non-crisis years of 1927–31 and 1935–38, the infant mortality adjustment was calculated based on Khomenko and Kolner's method,<sup>45</sup> by comparing infant mortality during the first six months of life to corresponding rates in Hungary, which had a similar mortality regime. Adjustment of births was done on the basis of Korchak-Chepurkivsky's correction of infant mortality (1929).<sup>46</sup> The number of deaths at age one year or older was adjusted using the correction developed by TsSU USSR. Also, we added 149,700 men who were executed during the Great Terror (1937–38) to the years 1937 and 1938, as these deaths had not been registered.<sup>47</sup> These calculations were done separately for the urban and rural population of Soviet Ukraine.

For the crisis years of 1932–34, our adjustments were done as follows. First, urban births and deaths of all ages were adjusted using the same methodology as for the non-crisis years. Next, we adjusted the number of births and infant deaths for the entire population. According to our calculations, the undercount of infant deaths constituted nearly 50% of the total number of unregistered births in 1932, 66% in 1933, and 100% of the birth undercount in 1934. For the rural population, adjusted numbers of births and deaths were estimated by subtracting the corresponding numbers for urban populations from the total. The final step for the crisis years consisted in performing an age distribution of the number of undercounted deaths.

The results of these calculations showed that the undercount of total deaths in Ukraine before the start of the crisis—that is, during a relatively “normal” period—was, on average, 7% in urban and 12.8% in rural areas, while the birth undercount was 1.7% and 2.7%, respectively. Then, registration of demographic events deteriorated considerably during the crisis years, especially in rural areas. For example, in 1932 approximately every fifth death (21.9%) and 13.6% of births among rural residents went unrecorded, whereas in cities the

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<sup>42</sup> Central State Archive of Higher Government Bodies and Administration of Ukraine (Tsentral'nyi derzhavnyi arkhiv vyshchykh orhaniv vlady ta upravlinnia [TsDAVOVU] Ukraïny), f. 582, op. 11, spr. 152, 201–202, 274 (archive numbering indicates *fond* “collection,” *opys*, “series,” *sprava* “file”).

<sup>43</sup> RSAE, f. 1562, op. 329.

<sup>44</sup> Rudnytskyi, Levchuk, Wolowyna, Shevchuk, Kovbasiuk, “Demography of a Man-Made Human Catastrophe.”

<sup>45</sup> A. Khomenko and R. Kolner, *Suchasna smertnist' nemovliat v Ukraïni* [Contemporary Infant Mortality in Ukraine] (Kharkiv: Hospodarstvo Ukraïny, 1930) [in Ukrainian].

<sup>46</sup> Iurii Korchak-Chepurkivskyi, *Tablytsi dozhyvannia ta spodivanoho zhyttia liudnosti URSR: 1925–1926* [Life Tables Life Expectancy of the Population of the UkrSSR: 1925–26] (Kharkiv: Central Statistical Administration of the UkrSSR, 1929) [in Ukrainian].

<sup>47</sup> TsDAVOVU, f. 582, op. 11, spr. 152, 201–202, 274; V. M. Nikol's'kyi, *Represyivna diial'nist' orhaniv derzhavnoi bezpeky v Ukraïni (kinets' 1920–1950-kh rr.): Istoryko-statystychni doslidzhennia* [Repressive Activities of Agencies of State Security in Ukraine (late 1920s to the 1950s): Historical and Statistical Investigation] (Donetsk: Donetsk National University Press, 2003) [in Ukrainian].

percentages were 8.1% and 3.2%, respectively. In the next year—1933, at the height of the famine—we estimate that the underregistration of deaths reached 141.2% in rural and 11.9% in urban areas, while undercounts of births increased to 45.6% and 8.4%, respectively. In 1934, these indicators dropped noticeably, with approximately 6.4% of deaths and 2% of births unrecorded in urban areas, and 10.5% and 5.3%, respectively, in rural areas.

***Reconstruction of migration statistics for the urban population in 1927–38.*** Considering the incomplete and, at times, fragmentary nature of the relevant statistics, reconstructing migration is the most difficult task. The intense influx of people to towns and cities throughout the 1920s required the authorities to adapt the systems for tracking movement and registering urban residents. At that time, such records were kept by “address bureaus,” yet they were not found in all the urban centers. In fact, migration data from the address bureaus are only available for large cities and some industrial centers. With the introduction of the internal identification document (“passport”) system in 1932, the main source of data on urban population movement was now a pass issued for urban arrivals and departures, which was to be registered at the passport bureaus.<sup>48</sup> Although the passport system did help to improve the completeness of urban population and migration records, the overall quality of migration statistics remained problematic because of inconsistent data input on the registration form for arrivals and departures, inadequate instructions for registering different groups of migrants (such as temporary arrivals), and other reasons. The registration data we collected on migration of the urban population therefore required systematization and adjustment for the undercount.

The following were used as initial data for reconstruction of the time series on urban migration in Soviet Ukraine during the intercensal period: (1) annual net migration in 1927–38; and (2) distribution of arrivals and departures by sex and age in 1931 and 1933–38.<sup>49</sup> We first determined net migration for the periods between the three censuses and the 1931 urban population count, that is, for 1927–31, 1931–37, and 1937–39.

This was done with a demographic balance equation, in which the difference between starting and ending population numbers for a given period is taken as the sum of natural population growth and in- or out-migration. Net migration for the period was obtained by subtracting natural population growth from the difference in total population. Furthermore, for each year this differential was distributed proportionally to the yearly numbers of registered net migrants in 1927–38. Migrant age and sex composition for 1927–38 was estimated using a detailed population reconstruction as the difference between total and natural growth.

***Reconstruction of migration statistics for the rural population in 1927–38.*** Since no account was ever kept of the movement of peasants, there are no official statistics on rural migration for the period under investigation. We used various methods to calculate net rural migration for two separate periods, 1927–28 and 1929–38. For the first period, net migration was calculated using the demographic balance equation, namely, the difference in population at the start and end of each year, on the one hand, and the natural increase for that same year, on the other.

It was not possible to use the same method to calculate migration for 1929–38, because we did not yet have adjusted figures for rural deaths in 1932–34 (mortality adjustment for the rural population in these years was conducted after the migration calculation). Therefore, to estimate net rural migration in 1929–38, we compiled and analyzed all available archival statistics, as well as data from published materials on the internal and external movement of Soviet Ukraine’s rural population. These sources are described below, divided into internal and external migration streams.

*Internal migration*—migration from rural areas to cities in the Ukrainian SSR. Contemporary migration statistics for the urban population, and particularly the distribution of arrivals and departures among the urban

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<sup>48</sup> V. Popov, “Pasportnaia sistema v SSSR (1932–1976 gg.)” [The ‘passport’ system in the USSR (1932–76)], *Sotsiologicheskie issledovaniia* [Sociological Research] 8 (1995): 3–14 and 9 (1995): 3–13 [in Russian].

<sup>49</sup> RGAE, f. 1562, op. 20, d. 20, 22, 27, 29–30, 34, 38, 73, 75–76, 118, 143, 145, 147.

population by direction of stream,<sup>50</sup> were used to calculate internal migration. Based on these data, we determined the contribution of peasants (rural population) to the growth of Ukraine's cities through migration, for each year of the period under investigation, finding their share to be 75–80%. Multiplying this proportion by the urban population's absolute net migration gave us the overall size of the migration stream from villages to cities: 3,388,000 persons in 1927–38.

Our estimate of *external rural migration* was based on the sum of nine migratory streams:

- 1) Transfer of prisoners out of the Ukrainian SSR in 1929–38. Information on the number of convicts moved to concentration camps and colonies abroad was obtained from research by Zemskov, Nikolsky, and Mazokhin,<sup>51</sup> who calculated it to be –285,000 persons in 1929–38.
- 2) Eviction of kulaks (Ukrainian: *kurkuli*) from the Ukrainian SSR in 1930–33. Based on archival data, we established that 364,000 people were deported in this period.<sup>52</sup>
- 3) Forced relocation of peasants out of Ukraine in 1929–33. Occurring during the years of collectivization and famine, this was the largest migratory stream of the rural population from the Ukrainian SSR (576,000 persons). We based our calculation of this figure on archival statistics and selected publications.<sup>53</sup>
- 4) Organized agricultural resettlement to other Soviet republics in 1927–29. This was a continuation of the earlier process of Ukrainian peasants moving beyond the Urals (to Siberia and the Far East). According to statistics on agricultural resettlement, this amounted to 80,000 people.<sup>54</sup>
- 5) Deportation of ethnic Poles and Germans to Kazakhstan in 1936. Publications attest that 15,000 families were deported from territories in the Soviet Ukrainian oblasts of Vinnytsia and Kyiv that bordered Polish-occupied Western Ukraine.<sup>55</sup>
- 6) Emigration of Jews from the Ukrainian SSR in 1929–38. This is the only migratory stream whose number was determined not directly from archival sources or publications, but by calculation. Using the ethnodemographic balance method, net migration was calculated as the difference between the change in Jewish population during the intercensal period and its natural increase—amounting to –57,000 people.<sup>56</sup>

<sup>50</sup> Ibid., d. 22, 29–30, 38, 73, 76–77, 118, 147.

<sup>51</sup> V. N. Zemskov, *Spetsposelentsy v SSSR, 1930–1960* [Special Settlers in the USSR, 1930–60] (Moscow: Nauka, 2005) [in Russian]; V. M. Nikol's'kyi, “Natsional'ni aspekty politychnykh represii 1937 r. v Ukraïni” [National aspects of political repressions in Ukraine in 1937], *Ukraïns'kyi istorychnyi zhurnal* [Ukrainian Historical Journal] 2 (2001): 74–89 [in Ukrainian]; O. V. Mazokhin, *Statistika repressivnoi deiatel'nosti organov bezopasnosti SSSR (1926–1939)* [Statistics on Repressive Activities of Security Agencies in the USSR (1926–39)], [http://lostempire.ru/index.php?option=com\\_content&task=view&id=255&Itemid=9](http://lostempire.ru/index.php?option=com_content&task=view&id=255&Itemid=9) [in Russian].

<sup>52</sup> Gosudarstvennyi arkhiv Rossiiskoi Federatsii (State Archive of the Russian Federation [GARF], f. 9414, op. 1, d. 1943, 1944; f. 9479, op. 1, d. 2.

<sup>53</sup> RGAE, f. 1562, op. 20, d. 22, 29–30, 73; Ihor Vynnychenko, *Ukraïna 1920–1980 rr.: deportatsii, zaslannia, vyslannia* [Ukraine in the 1920s–80s: Deportations, Exile, Resettlement] (Kyiv: Rada, 1994) [in Ukrainian].

<sup>54</sup> N. I. Platonov, *Pereselencheskaia politika sovetskogo gosudarstva i eï osushchestvlenie v SSSR (1917–iun' 1941)* [Migration Policy of the Soviet State and Its Implementation in the USSR (1917–June 1941)] (Tomsk: Tomsk State University, 1976) [in Russian]; A. Hirshfeld, *Mihratsiini protsesy na Ukraïni (u svitli perepysu 1926 r.)* [Migration in Ukraine (in Light of the 1926 Census)] (Kharkiv: Hospodarstvo Ukraïny, 1930) [in Ukrainian]; L. L. Rybakovskii, *Naselenie Dal'nego Vostoka za 150 let* [The Population of the Far East in 150 Years] (Moscow: Nauka, 1990) [in Russian].

<sup>55</sup> Vynnychenko, *Ukraïna 1920–1980 rr.*; H. Strons'kyi, “Proshchai, Ukraïno! Do 75-oï richnytsi deportatsii poliakiv z Ukraïny do Kazakhstanu” [Goodbye, Ukraine! On the 75th anniversary of the deportation of Poles from Ukraine to Kazakhstan], *Dzerkalo tyzhnia* [Mirror of the Week], Oct. 8, 2011 [in Ukrainian]; Zemskov, *Spetsposelentsy v SSSR*; H. Iefimenko, “Pereselennia ta deportatsii v postholodomorni roky (1933–1936): poraionnyi zriz” [Resettlement and deportation in the post-Holodomor period (1933–36): A county cross-section], *Mapa: Digital Atlas of Ukraine, Harvard Ukrainian Research Institute*, April 2015, <http://gis.huri.harvard.edu/images/pdf/Relocation-1933–1936.pdf> [in Ukrainian].

<sup>56</sup> I. Veitsblit, *Rukh ievreis'koi liudnosti na Ukraïni periodu 1897–1926 rokiv* [Movement of the Jewish People in Ukraine, 1897–26] (Kyiv: Proletar, 1930) [in Ukrainian]; Vynnychenko, *Ukraïna 1920–1980 rr.*; Hirshfeld, *Mihratsiini protsesy na Ukraïni*; T. A. Leskova, “Gosudarstvennoe regulirovanie migratsionnykh protsessov na iuge Dal'nego Vostoka Rossii v 20–30-e gg. XX v. (Istoricheskii opyt)” [State Regulation of Migration Processes in the South of Russia's Far East in the 1920s–30s (Historical Experience)], (Candidate's dissertation, Blagovechvensk State Pedagogical University,

7) Organized conscription of workers taken from rural areas for new construction projects outside of Ukraine in 1935–38. We estimate that such managed migrations involved around 170,000 peasants from Vinnytsia, Kyiv, Chernihiv, and Odesa oblasts, as well as the Moldavian ASSR (which was a part of the Ukrainian SSR at that time).<sup>57</sup>

8) Resettlement of peasants from the Belarusian and Russian Soviet republics into Soviet Ukraine in 1933–34. After the famine, almost 138,000 peasants from Belarus and some regions of Russia were resettled into depopulated villages in Kharkiv, Dnipropetrovsk, Odesa, and Donetsk oblasts.<sup>58</sup>

9) Resettlement of kulaks from Central Asia into the Ukrainian SSR in 1931. In the Soviet Union, it was not only prosperous peasants in European territories who were subjected to “dekulakization” but also those living in Central Asia. Almost 3,000 kulak families from grain-producing regions of Uzbekistan were exiled to “special settlements” in Soviet Ukraine.<sup>59</sup>

In sum, we calculated that total net migration for the Ukrainian SSR during the intercensal period of 1928–38 was negative, amounting to –718,000 persons, including –4,826,400 in rural areas and 4,108,300 in urban areas.<sup>60</sup>

**Constructing population balances for the 1927–39 period, taking into account urban–rural reclassifications.** According to the demographic balance equation, the population at the end of the year is calculated as the size of the population at the beginning of the year plus two basic components: natural and migratory increases or decreases. At this stage, we have already reconstructed the time series of births, deaths, and net migration. In our case, when calculating urban and rural population sizes, it was necessary to also include one other component: urban-to-rural reclassifications (URR). Overlooking this component could significantly distort calculations of population size, as well as estimates of demographic losses.

Urban-to-urban reclassifications occurred in the Ukrainian SSR just before the 1931 urban count and the 1937 and 1939 Censuses. In 1931, TsSU UkrSSR approved a new list of urban population points, with many changing status from “city” to “village,” thus resulting in a reduced urban population. Donetsk and Dnipropetrovsk oblasts were exceptions, where a number of rural settlements acquired city status. As a result of

Russia, 2005) [in Russian]; V. Rudnik, “Migratsionnye protsessy i ikh rol' v formirovanii naseleniia Sibiri” [Migration and Its Role in the Balance of Siberia’s Population] (Candidate’s dissertation, Russian Institute of Finance and Economics, Omsk, Russia, 2006) [in Russian].

<sup>57</sup> I. S. Kozin, *Dovidnyk po orhanizovanomu naboru robochoi syly* [Guide for the Organized Hiring of a Workforce] (Kyiv: Radianske budivnytstvo i pravo, 1936) [in Ukrainian]; Vynnychenko, *Ukraina 1920–1980 rr.*; RGAE, f. 1562, op. 20, d. 73, 75–76, 118, 143, 145.

<sup>58</sup> Central State Archive of Non-Government Organizations in Ukraine (Tsentral'nyi derzhavnyi arkhiv hromads'kykh ob'iednan' Ukraïny [TsDAHOU]), f. 1, op. 2, spr. 6583–6585, 6392; Iefimenko, “Pereseleattia ta deportatsii v postholodomorni roky.”

<sup>59</sup> Vynnychenko, *Ukraina 1920–1980 rr.*; Zemskov, *Spetsposelentsya v SSSR; Holod 1932–1933 rokiv v Ukraïni: Prychyny ta naslidky*.

<sup>60</sup> Our subsequent article on direct losses by oblasts in Soviet Ukraine (Oleh Wolowyna et al., “Regional variations of 1932–34 famine losses in Ukraine,” *Canadian Studies in Population*, 43(2016), no. 3–4: 175–202) has slightly different figures than presented here. More detailed information that we discovered about urban–rural reclassifications during our oblast estimates resulted in some changes in our total urban and rural net migration numbers compared to the previous estimates for Ukraine (Omelian Rudnytskyi, et al., “Demography of a man-made human catastrophe: The case of massive famine in Ukraine, 1932–1933,” *Canadian Studies in Population*, 42(2015), no. 1–2: 53–80; and this article). Namely, the number of 4,108,000 net urban migrants changed to 3,792,200, and the previous number of –4,826,400 net rural migrants changed to –4,400,300. There were also minor adjustments to the total number of deaths, from 8,519,600 to 8,640,100 in rural areas, and from 1,650,000 to 1,639,400 in urban areas, with a total of 10,279,500 deaths in Soviet Ukraine. These adjustments resulted in minor changes to the yearly balances of urban and rural areas by oblast. As result of these changes, the number of direct losses for urban areas decreased by 2%, and the number of direct losses for rural areas increased by 0.2%; the total number of direct losses remained the same.

the URR, the urban population of Soviet Ukraine decreased in 1931 by 245,600 persons.<sup>61</sup> Further changes were made to the list of urban and rural population points in 1936 and 1938, with a significant number of villages becoming cities and the urban population increasing by 615,800 in 1936 and 427,800 in 1938.<sup>62</sup>

Based on reconstructed time series births, deaths, and net migration, and taking into account URR, we calculated the Ukrainian SSR's total urban and rural populations for the 1927–38 period (see Table 1). According to our estimates, the number of urban inhabitants for this period grew from 5.3 million to 11.0 million individuals—that is, it more than doubled—whereas the rural population was reduced from 24 million to 19.1 million individuals (–26%). Thus, the proportion of rural dwellers in the total population decreased from 81.8% to 63.3%. Moreover, during the 12-year intercensal period, the overall population of Soviet Ukraine grew by only 2.7%.

**Table 1. Yearly population balance of urban and rural populations in 1927–38.**

Year	Population on January 1	Total growth	Births	Deaths	URR	Net migration
<i>Urban population</i>						
1927	5,322,400	271,700	165,200	79,300	0	185,700
1928	5,594,100	268,600	156,800	81,600	0	193,400
1929	5,862,700	306,200	155,000	89,300	0	240,600
1930	6,168,900	413,200	149,200	96,700	0	360,700
1931	6,582,100	336,800	154,000	109,000	–245,600	537,500
1932	6,918,900	393,800	172,400	152,400	0	373,700
1933	7,312,700	4,700	126,000	300,100	0	178,700
1934	7,317,400	481,500	153,100	146,700	0	475,200
1935	7,798,900	640,900	199,400	104,600	0	546,200
1936	8,439,800	1,277,000	242,000	111,900	615,800	531,100
1937	9,716,800	489,300	408,000	187,000	0	268,300
1938	10,206,100	835,700	382,200	191,400	427,800	217,200
1939	11,041,800	–	–	–	–	–
1927–38	–	5,719,500	2,463,200	1,650,000	798,000	4108,300
<i>Rural population</i>						
1927	23,994,000	384,800	1,056,300	514,400	0	–157,200
1928	24,378,700	368,000	1,014,000	473,800	0	–172,200
1929	24,746,700	69,500	956,000	507,900	0	–378,600

<sup>61</sup> TsUNU UkrSSR, *Pidsumky obliku mis'koï liudnosti URSR 1931 roku*; All-Ukrainian Central Executive Committee [Vseukraïns'kyi tsentral'nyi vykonavchyi komitet (VTsVK)], *Administratyvno-terytorial'nyi podil USRR za stanom na 1 hrudnia 1933 r.* [Administrative-territorial Structure of the UkrSSR as of December 1, 1933] (Kharkiv: Radians'ke budivnytstvo i pravo, 1933) [in Ukrainian].

<sup>62</sup> VTsVK, *Dovidnyk adminterpodilu USRR za stanom na 15 hrudnia 1935 r.* [Directory of Administrative-Territorial Structure of UkrSSR as of December 15, 1935] (Kyiv: 1936) [in Ukrainian]; Central Administration of National Economic Records of the USSR [Tsentral'noe upravlenie narodo-khoziaistvennogo ucheta SSSR], *Raiionnye tsentry i administrativno-terytorial'noe delenie SSSR na 1 oktiabria 1936 g.* [District Centers and the Administrative-Territorial Structure of the USSR as of October 1, 1936] (Moscow: 1936) [in Russian]; CCCP: Supreme Soviet of the USSR (SS USSR), *Administrativno-terytorial'noe delenie soiuznykh respublik na 1 oktiabria 1938 g.* [Administrative-Territorial Structure of Union Republics as of October 1, 1938] (Moscow: Verkhovnyi Sovet SSSR, 1938) [in Russian]; SS USSR, *Administrativno-terytorial'noe delenie soiuznykh respublik na 1 marta 1939 g.* [Administrative-Territorial Structure of Union Republics as of March 1, 1939] (Moscow: Vedomosti Verkhovnogo Sovet RSFSR, 1939) [in Russian].

1930	24,816,100	-177,100	898,400	500,300	0	-575,200
1931	24,639,100	-170,000	841,400	467,900	245,600	-789,100
1932	24,469,000	-484,900	698,400	642,500	0	-540,900
1933	23,984,100	-3,530,200	516,100	3,815,800	0	-230,500
1934	20,453,900	-327,700	443,900	381,900	0	-389,800
1935	20,126,200	-202,500	569,800	257,700	0	-514,500
1936	19,923,700	-793,200	663,800	271,100	-615,800	-570,100
1937	19,130,500	197,900	820,700	341,900	0	-280,900
1938	19,328,400	-256,600	743,200	344,400	-427,800	-227,500
1939	19,071,800	-	-	-	-	-
1927-38	-	-4,922,200	9221,800	8,519,600	-798,000	-4,826,400

Natural growth and migration contributed unequally to the size of Ukraine's urban and rural populations during this time. The increased number of city dwellers was due to high positive net migration and URR. Only in 1933, urban population growth was very low, 4,700 persons, as the increase due to net migration was offset by the significant reduction in natural growth due to increased mortality. That year, the absolute number of deaths in cities was 300,100 persons, which was 3.3 times greater than the average annual rate for 1927-32.

The rural population in the Ukrainian SSR increased steadily until the early 1930s, thanks to a high natural increase that exceeded the negative net migration. With the start of the crisis, the negative impact of migration, in particular the intensive voluntary and coerced flight from rural areas, grew significantly. In 1933, mortality in Soviet Ukrainian villages reached an extraordinarily high level: 3.8 million deaths, which was 7.7 times greater than the average annual mortality in 1927-31. Together with negative net migration, this led to a drastic reduction of the rural population in 1933—by 14.7%.

***Reconstruction of urban and rural population structure by sex and age in 1927-39.*** A detailed reconstruction of the annual population by sex and age was carried out in two steps. First, we calculated the population numbers by sex and age for the start of every year from 1927 to 1939 inclusive, using the cohort-component method and a hypothesis of zero migration. For the urban population, this calculation was done for the periods 1927-31 and 1931-39, using data from the 1931 urban count as one of our anchor points. The difference between the population size thus calculated for the start of 1939 and the size stated in the 1939 Census constituted the net migration for the intercensal period, which was then redistributed for each cohort. In the second step, the population calculated by sex and age was reconciled with the total population at the start of each year using the demographic balance equation, and net migration was recalculated by age, thus giving us the final population distribution by sex and age.

### **Estimation of urban and rural losses**

Estimation of population losses essentially requires detailed mortality statistics, giving cause of death. For this period, however, they are either absent or of poor quality.<sup>63</sup> As noted above, our estimate of demographic losses due to famine includes: (1) direct losses (excess deaths), namely, the difference between the actual number of deaths and their hypothetical number had there been no famine; and (2) indirect losses (lost births), or the difference between the hypothetical (no famine) and real number of births.

***Annual direct and indirect population losses.*** The hypothetical number of deaths in 1932-34, had there been no famine, can be calculated as the sum of the products of the non-crisis age-specific mortality rates by the

<sup>63</sup> Hennadii Boriak, "Population Losses in the Holodomor and the Destruction of Related Archives: New Archival Evidence," *Harvard Ukrainian Studies* 30, nos. 1-2 (2008): 199-215.

respective non-crisis population age groups. The hypothetical age coefficients of mortality were estimated by linear interpolation of the corresponding rates between 1931 and 1935, that is, from before the start of the famine until after its end, when mortality became stabilized. However, calculating size and structure of the non-crisis population is complicated by the absence of plausible hypotheses for net migration under non-crisis conditions, and its age distribution. Taking this into consideration, we based our calculation of the number of non-crisis deaths not on the hypothetical (non-crisis) population but on the reconstructed population.

The hypothetical number of births in 1932–34 was calculated as the product of interpolated age-specific birth rates between 1931 and 1935 and the hypothetical number of women of childbearing age in 1932–34. It is worth noting here that defining such anchor points for this interpolation and the calculation of non-crisis coefficients was related to the fact that, first, the 1931 birth rate was not yet affected by the famine—although it was already decreasing as per pan-European trends at that time—and second, that the 1935 rate did not yet reflect the impact of the 1936 Soviet ban on abortions.

**Table 2. Yearly excess deaths by urban-rural areas in 1932–34**

	Excess deaths				per 1,000 population			
	1932	1933	1934	1932–34	1932	1933	1934	1932–34*
Total population	250,000	3,529,200	163,300	3,942,500	8.0	119.5	5.9	133.5
Urban population	43,100	193,900	50,600	287,600	6.1	26.5	6.7	39.3
Rural population	207,000	3,335,300	112,700	3,654,900	8.5	150.1	5.6	164.5

\*Consolidated figures: losses due to excess deaths in 1932–34 are divided into average annual population numbers for 1933.

Ukraine's aggregate demographic losses as a result of the 1932–34 famine totaled 4.5 million persons, including 3.9 million excess deaths (Table 2) and 586,000 lost births, with 90% of the losses in 1933. Direct losses of the rural population reached 3.6 million persons, or 92.7% of the total excess deaths in the Ukrainian SSR in 1932–34. Urban losses due to excess deaths in Soviet Ukraine totaled 287,600 persons, which is 12.7 times less than the rural losses.

A more detailed analysis of urban and rural direct losses reveals the following points. First, in rural areas, 91% of the total excess deaths occurred in 1933, while in the cities it was only 67%. Second, rural losses were noticeably higher in 1932 than in 1934, whereas urban losses were somewhat lower. Hence, in terms of per-1,000 population, direct losses in cities totaled 6.1 in 1932 and 6.7 in 1934; in rural areas, the numbers were 8.5 and 5.6, respectively. And third, excess deaths among rural dwellers in 1932 (given per 1,000 population) exceeded the corresponding index for urban dwellers, while the opposite situation was observed in 1934. Namely, the distribution of rural losses varies during the period 1932–34, reflecting the earlier consequences of famine, with a peak concentration of excess deaths occurring in 1933, while in the cities the 1933 peak of the famine was less pronounced and the distribution of losses across the years was more uniform.

**Table 3. Yearly indirect losses by urban-rural areas in 1932–34**

	Lost births				per 1,000 population			
	1932	1933	1934	1932–34	1932	1933	1934	1932–34**
total population	67,100	267,700	251,200	586,000	2.1	9.1	9.0	19.8
urban population	—*	46,200	30,700	66,900	—*	6.3	4.1	9.1
rural population	77,100	221,500	220,500	519,100	3.2	10.0	10.9	23.4

Notes: \*It was impossible to calculate 1932 indirect urban losses, due to problems with the data.

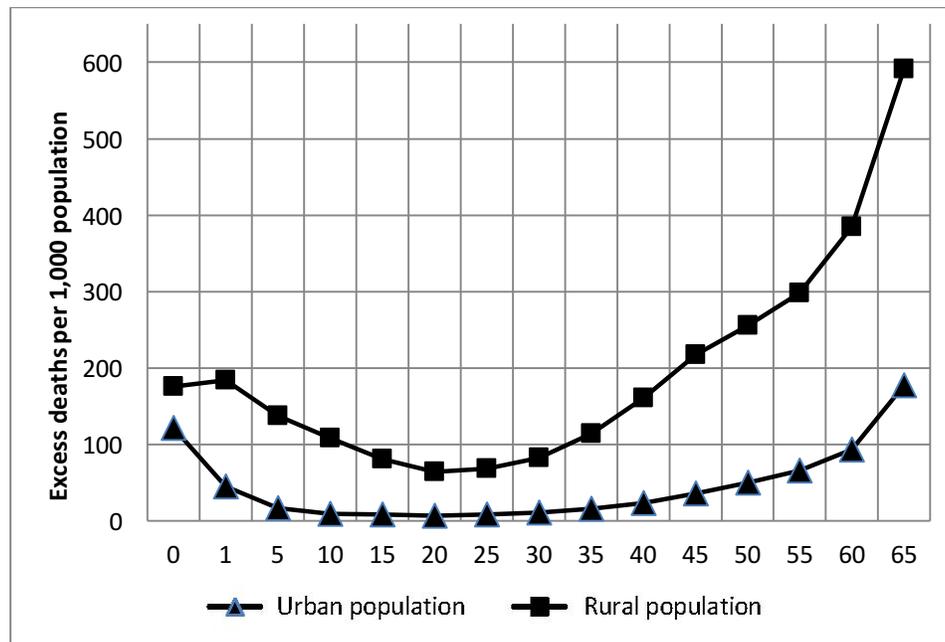
\*\*Cumulative measure: lost births in 1932–34 are divided into average population numbers for 1933.

There were 586,000 lost births or indirect losses in Soviet Ukraine resulting from the 1932–34 famine, including 519,100 in rural and 66,900 in urban areas; in per-1,000 figures, the numbers are 9.1 lost births in urban and 23.4 in rural areas. These losses were due to several factors. First, there was a reduction in the gestation contingent, due to the death of a significant number of women of childbearing age. Second, it is well known that under starvation conditions the likelihood of conception decreases, and also the probability of live births decreases (miscarriages, still-births), ultimately leading to a drastic fall in natality. This also explains the distribution of indirect population losses for the period of the famine—but unlike the one for excess deaths, this distribution is not unimodal. Namely, lost births were rather similar in 1933 and 1934, since a significant portion of the 1934 pregnancies began in 1933, that is, at the peak of the catastrophic hunger.

***Distribution of direct losses by sex and age.*** The distribution of direct population losses is characterized by a significant prevalence of men, who account for 2.4 million (or 61.5%) of the total excess deaths in 1932–34. In per-1,000 population terms, losses due to excess deaths in 1933 totaled 153.5 for men and 88.6 for women. The age distribution of direct losses among men and women is similar for the intervals from 0 to 35–39 years. For example, for 0–4 years of age, excess deaths are quite high, reaching 181 and 146 per 1,000 males and females, respectively. Subsequently, they fall to a minimum level at age 20–24, with 69 excess deaths for men and 27 for women per 1,000 population. Divergence by sex then increases after age 40, with the growth of relative excess deaths significantly more pronounced for men than for women.

***Age differences in losses by settlement type.*** The graph below shows age patterns for urban and rural direct losses in 1933. Both patterns show high losses in children aged 0–4 years, followed by decreased levels in youths and an increase in the older age groups, which is to say that younger children and the elderly suffered the most losses. Excess deaths of children under 10 constituted nearly 25% of the total number of direct losses, both urban and rural.

Yet there are also significant differences in both the scale of the losses and the shape of the curves. In particular, the age profile for urban excess deaths is marked by a minimum level at 10–14 years, with continued relatively low levels until 30–34 years, and subsequent marked growth in intensity. Namely, there were under 10 excess deaths per 1,000 city dwellers aged 10–14, but 178 for those aged 65 and older. The curve for rural excess deaths, on the other hand, is different, with the lowest level of losses observed not at ages 10–14 but at ages 20–24, followed by a drastic increase that is maintained through to the oldest age groups. In terms of numbers per 1,000 population, excess deaths in rural areas shoot up from 64 in the 20–24 age group to 591 among those 65 and older.



**Figure 1. Direct losses by age for Soviet Ukraine's urban and rural populations (per 1,000).**

**Analysis of results.** As we have already indicated, to this day there is no consensus in either Ukrainian or foreign historiography regarding Ukraine's population losses as a result of the 1932–34 famine. We note that there are two kinds of estimates: (1) scholarly ones based on statistical data; and (2) those founded on subjective assumptions and testimonies.

The estimate of Ukraine's direct losses at 7–10 million, which is widespread both within Ukraine and abroad, is dubious and unsupported by statistical data. Estimates of excess deaths obtained using demographic methods lie in the range of 2.6 to 5 million persons (see Table 4). Listed here in order of estimated direct losses from largest to smallest, we start with Conquest's (1986) calculation of 5 million, which was based on an analysis of the dynamics of the ethnic Ukrainian population during the period between the 1926 and 1939 Censuses. Next, according to Pyrozhkov and Perkovsky (1989), Ukraine's direct demographic losses in the 1926–39 intercensal period totalled 4 million persons. Kulchytsky (1989) calculated the sum of 1932–33 direct losses in Soviet Ukraine to be 3.5 million; Rudnytskyi (1990) estimated 3.8 million for 1932–34; and Maksudov (2010) estimated 3.7 million for 1927–37. According to Wheatcroft (2001), losses due to excess deaths in 1932–33 constitute 3–3.5 million persons, while the results of Vallin et al. (2002) show 2.6 million for 1926–39.<sup>64</sup>

**Table 4. Estimates of Direct Losses by Different Researchers**

Author	Year of publication	Period	Direct losses (millions)
Conquest	1986	1926–39	5.0

<sup>64</sup> Conquest, *The Harvest of Sorrow*; Serhii Pyrozhkov and A. Perkovsk'kyi, "Demohrafichni vtraty Ukraïns'koï RSR u 30-ti rr." [The Ukr SSR's demographic losses in the 1930s], *Ukraïns'kyi istorychnyi zhurnal* [Ukrainian Historical Journal] 8 (1989): 24–36 [in Ukrainian]; Stanislav Kul'chitskii [Kul'chytskyi], "Demograficheskie posledstviia goloda 1933 g. na Ukraïne" [Demographic effects of the 1933 famine in Ukraine], *Filosofskaia i sotsiologicheskaia mysli* [Philosophical and Sociological Thought] 6 (1989): 35–41 [in Russian]; Rudnyts'kyi, "Demohrafichni naslidky holodu..."; Andreev, Darskii, and Kharkova, *Demograficheskaia istoriia Rossii*; Wheatcroft, "O demograficheskikh svidetel'stvakh tragedii..."; Vallin, Meslé, Adamets, Pyrozhkov, "A New Estimate..."; Maksudov, "Nekotorye problemy izucheniia..."; Rudnytskyi, Levchuk, Wolowyna, Shevchuk, Kovbasiuk, "Demography of a Man-Made Human Catastrophe."

Pyrozhkov and Perkovsky	1989	1926–39	4.0
Kulchytsky	1989	1932–33	3.5
Rudnytskyi	1990	1932–34	3.8
Wheatcroft	2001	1932–33	3.0–3.5
Vallin et al.	2002	1926–39	2.6
Maksudov	2010	1926–37	3.7
Rudnytskyi et al.	2015	1932–34	3.9

Such divergences, in our opinion, can be explained by a number of factors. First of all, detailed demographic-statistical information was unavailable before access to certain Soviet-era archives was granted, and therefore population losses had been estimated for the broader intercensal period (1927–38) rather than specifically for the famine years (1932–34). Second, the archival statistics that became available in the 1990s require proper critical analysis as well as necessary adjustments and corrections, which researchers do not always carry out. For example, Vallin et al. (2002) calculated Ukraine’s losses on the basis of reconstructed demographic dynamics during the intercensal period of 1926–39, yet in doing so they failed to make necessary adjustments to the official census data—particularly with respect to the undercount of children in the 1926 Census and an overall population overcount in the 1939 census. The use of unadjusted census data, especially from the falsified 1939 Census, significantly affects the results of population loss estimates, making them too low. Third, it is extremely problematic to separate net migration from excess deaths in the intercensal period. Estimates of the extent of migration exchange between Ukraine and other Soviet republics in 1927–38 given by various researchers lie in the range of –150,000 to –930,000 persons, which has a profound effect on calculating the extent of losses. As a case in point, the low estimate of 2.6 million excess deaths in Ukraine by Vallin et al. can be partly explained by their acceptance of large out-migration numbers.<sup>65</sup> On the other hand, compared to other studies, our estimate of 3.9 million excess deaths is based on the proper use of census data, better (more complete) statistics on natural population growth, and more accurate migration estimates.

Until now, the historiography of the Holodomor has considered Ukraine’s population losses as being primarily in rural areas; hence, experts have been much less interested in researching the effects of the famine in cities. However, a more thorough demographic analysis, and demographic reconstruction of the urban and rural population dynamics in the Ukrainian SSR for the period between the 1926 and 1939 censuses, shows that the urban population also starved and suffered losses, albeit to a lesser extent.

Discussion of the reasons for these differences is complicated by the fact that scholarly research, which goes beyond general estimates of population losses and includes comparative analysis of the history of the famine and its effects in urban and rural areas of the Ukrainian SSR, is extremely rare. Above all, insufficient attention has been paid to specifically studying viability and survival under conditions of starvation among different social groups. Also, the collection of oral histories from Holodomor times has traditionally focused only on the rural peasantry. But actually the demographic crisis of 1932–33 resulted from a crisis that affected all spheres of society, even if the force and mechanisms of the destruction varied between the urban and rural settings.

The Bolshevik socioeconomic transformations in the late 1920s and early 1930s destroyed the traditional commodity and monetary relations between cities and villages in Ukraine. Thereafter, their roles and places in the Soviet production and consumption framework were strictly regulated and defined by the state, not by the market. Such a centralized economic model not only ignored the real interests of agricultural producers,

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<sup>65</sup> For a more detailed explanation of the differences between our population loss estimates and the research results of J. Vallin et al. (2002), see: Rudnytskyi, Levchuk, Wolowyna, Shevchuk, Kovbasiuk, “Demography of a Man-Made Human Catastrophe.”

relegating them to the role of powerless commodity suppliers; it also created an artificial economic conflict of interest between workers and peasants. Namely, revenues from the sale of agricultural products were directed by the central planners mainly to the industrial sector of the economy and particularly to its militarization. Urban populations grew rapidly, and the need for food—taken from the villages—grew accordingly. Nonetheless, the state increasingly lacked the financial resources needed to fulfill the plans for accelerated industrialization; meanwhile, falling agricultural productivity on the collective farms exacerbated the problem of overall food scarcity.

In Stalin's opinion, the economic crisis had "class" underpinnings, and therefore he viewed the liquidation of kulaks (Ukrainian: *kurkuli*) and the wholesale collectivization of agricultural production as necessary steps to overcoming the crisis and accumulating the resources required for his industrialization program. In essence, rural productive forces and resources became the main sponsors of industrial expansion. The peasantry was considered a backward and hostile class, whose members' private-ownership interests had to be destroyed in order to force them to work on the collective farms in fulfillment of state procurement quotas. Meanwhile, in propping up the working class as the "vanguard of the socialist economy," the state assumed the role of supplier of material goods. As Kulchytsky notes, "in accumulating finances for industrialization, Stalin's team treated various social-class groups selectively: with elements of paternalism for the working class and elements of terror for the rural producers."<sup>66</sup> The significant difference in social status between the peasantry and the working class, and their roles in the construction of a "socialist economy," were key factors in their unequal treatment as recipients of state support; subsequently, this played an important role in bringing about disparate urban-rural losses during the famine in Ukraine.

First of all, the level of food support provided by the state to the peasantry—which comprised the majority of the population in the Ukrainian SSR as well as in the USSR overall—was significantly lower than to the towns and cities. According to Osokina, in 1931–33 the state allotted much greater quantities annually to inhabitants of cities than to rural inhabitants, on average 12–18 times more flour per person, 12–28 times more groats, 10–14 times more fish, 8–12 times more sugar, and 1.5 times more tea.<sup>67</sup> Such profound inequality stemmed from the theory that the countryside was supposed to be self-sustaining with regard to food production and therefore required fewer provisions from the state. Peasants were expected to deliver grain to the state and still meet their own food needs, whereas workers and civil servants would receive help from the state in the form of rations and low-cost meals and groceries. As the economic situation worsened, food deliveries to rural areas came to depend completely on whether they met their grain quotas. And during the course of the full-blown food crisis, Soviet Ukraine's countryside was subjected to total confiscation of grain and other food stores, accompanied by large-scale persecution of the peasants, which led to wholesale starvation and a catastrophic rise in mortality in rural areas.

Second, centralized food rationing systems existed in the cities and towns, which helped a portion of the urban population to survive the famine conditions. Ration cards had been introduced in the Soviet Union throughout 1928 and 1929, and in early 1931 the ration system (for vital food and non-food items) was extended to the entire urban population of the USSR. The cards were issued to people employed in state-run sectors of the economy: industry, public service and military organizations, and state farms.<sup>68</sup> However, as the food shortages grew, the urban ration system began to fail, primarily because of the rapidly escalating growth of the urban population. One of the factors in this growth was the so-called *orgnabor*, or "organized recruitment." Initiated and promoted by the state, the *orgnabor* selected villagers to work on the construction of industrial enterprises and other city buildings. This allowed peasants to escape from their starving villages and have a chance at survival. However, the exact size of the workforce—which would have to be fed—was unknown, so the

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<sup>66</sup> Kul'chyts'kyi, *Chervonyi vyklyk*, vol. 2, 284.

<sup>67</sup> Osokina, *Za fasadom "stalinskogo izobilia,"* 116.

<sup>68</sup> *Ibid.*, 70, 76, 89.

planning of state provisions was sorely ineffective. Since the size of the rations also depended on existing food stores, during the economic crisis the actual rations ended up being smaller than what was declared.<sup>69</sup> Moreover, the bloated bureaucratic apparatus and weak infrastructure also took their toll, negatively affecting supply and distribution. It was a vicious cycle, in which the centralized ration and distribution system which was established specifically to resolve the food deficit was simultaneously creating and aggravating shortages of food and other goods.<sup>70</sup>

Additionally, decentralized procurement campaigns were organized, aiming to purchase food products directly from producers and to collect them as taxes. This channel was supposed to partially fill the demand for meat, fish, fats/oils, and grains, and to wholly supply the demand for fruits and vegetables. The government tried to manage local food supplies through this method for the “special groups,” despite of the absence of such local stores. Even when the Holodomor was raging in the spring of 1933, the Communist Party was issuing directives to requisition supplies from local reserves so that labourers could be fed.<sup>71</sup> Regardless of the orders from the all-union and republican governments, the decentralized grain procurement quotas were never fulfilled.<sup>72</sup> According to some documents, in 1932 food distribution via this channel had not taken place for four or five months.<sup>73</sup> There is also evidence of food being confiscated from the working class, possibly indicating an attempt to fulfill the plans for decentralized procurements by seizing foodstuffs rather than obtaining them through purchases.<sup>74</sup> In addition, the decentralized procurement campaigns often served as a convenient pretext for reducing the rations supplied by the state to workers in Soviet Ukraine. Moreover, in contrast to the peasants, the workers still had the opportunity to get food with ration cards, and also in closed shops and cafeterias. In 1933, this network for the communal feeding of people covered 45.4% of the Ukrainian SSR’s workers.<sup>75</sup> Thus, while the peasants were being bled dry by excessively high grain quotas and total confiscation of foodstuffs, city dwellers were at the mercy of food supply channels, both centralized and decentralized.

Third, the urban food supply system featured a distinct class hierarchy. Although workers had relatively more opportunities to get food compared to the peasantry, among the various urban social groups the chances of survival during the famine differed greatly. The main criterion for the ration distribution system was the degree of “production significance” of the region, city, and worker category. In this way, the state established official inequality between citizens and reinforced their segregation by ration size—and, concomitantly, by chance of survival. Industries, enterprises, and employees were divided into separate groups and provided for in markedly different ways. Notably, starting in early 1931 there were four rations lists: “Special,” “I,” “II,” and “III.” The special and first lists included the USSR’s leading state industrial enterprises, whose employees had significant advantages when it came to obtaining provisions; in particular, they were given larger portions of foods such as bread, flour, groats, meat, fish, butter, sugar, tea, and eggs. While the people on the first and special lists made up about 40% of all consumers, they were allotted 70–80% of the total available provisions.<sup>76</sup> The second and third lists included small and non-industrial cities, as well as state-run enterprises of the glass, paper, baking,

<sup>69</sup> Movchan and Hudz', “Povsiakdenne zhyttia na pidprijemstvakh i novobudovakh,” 130–131.

<sup>70</sup> Osokina, *Za fasadom “stalinskogo izobiliia,”* 44–46.

<sup>71</sup> F. Turchenko et al., eds., *Natsional'na knyha pam'iaty zhertv Holodomoru 1932–1933 rr. v Ukraïni: Zaporiz'ka oblast'* [National Memory Book for Victims of the 1932–33 Holodomor in Ukraine: Zaporizhia Oblast] (Zaporizhia: Dyke pole, 2008).

<sup>72</sup> Movchan and Hudz', “Povsiakdenne zhyttia na pidprijemstvakh i novobudovakh,” 157; O. Babenko et al., eds., *Natsional'na knyha pam'iaty zhertv Holodomoru 1932–1933 rr. v Ukraïni: Kirovohrads'ka oblast'* [National Memory Book for Victims of the 1932–33 Holodomor in Ukraine: Kirovohrad Oblast] (Kirovohrad: TOV “Imeks LTD,” 2008).

<sup>73</sup> Mykola Shytiuk and Roman Krainik, *Totalitarnyi rezhym i pratsivnyky promyslovosti ta zaliznychnoho transportu Pivdnia Ukraïny v 30-kh rokakh XX stolittia* [Totalitarian Regime and Industrial Workers and the South Ukrainian Railroad in the 1930s] (Mykolaiv: Vyd-vo I. Hudym, 2010) [in Ukrainian].

<sup>74</sup> *Ibid.*, 74–75.

<sup>75</sup> Movchan and Hudz', “Povsiakdenne zhyttia na pidprijemstvakh i novobudovakh,” 151–152.

<sup>76</sup> Osokina, *Za fasadom “stalinskogo izobiliia,”* 90.

and light industries, etc. People on these lists were entitled to receive bread, sugar, groats, and tea from the centralized reserves—in smaller rations than those on the “special” and “first” lists—and the rest of their food they were to obtain from local resources.<sup>77</sup> In other words, workers at large republic- or oblast-level industrial enterprises were more privileged with respect to food supplies than workers at small factories in small cities.

In the Ukrainian SSR, the centralized ration system for the industrial regions was organized on three levels: “first list” (the Donbas, Mariupol, and Kryvyi Rih district), “second list” (Kharkiv, Dnipropetrovsk, Kamianske [today Dniprodzerzhynsk]), and “third list” (Mykolaiv, Zaporizhia with the Dnirobud construction camp, Kyiv, Odesa, Zinovivske [today Kirovohrad], and Shostka).<sup>78</sup> state-run enterprises in the Donbas and Kryvyi Rih regions were supplied at the highest standard, equal to Moscow and Leningrad, while the volume of rations for other places did not always correspond to their economic significance. In fact, it was markedly lower than what was supplied to comparable industrial regions and cities of the Russian SFSR.<sup>79</sup> Furthermore, the hierarchy of the ration system went even beyond the lists of cities and enterprises, for each list also contained a gradation of people ranked by their “production status.” Industrial workers employed at factories and in transportation made up group “A,” with the highest ranking; group “B” included individuals who did physical work but not at factories, and also cooperative craftsmen, healthcare workers, traders, “special pensioners,” and old Bolsheviks. The third group, ranked the lowest, encompassed civil servants (including rural ones), family members of list “A” and “B” workers and civil servants, craftsmen not in cooperatives, artisans, retirees, the disabled, the unemployed, and state farm workers.<sup>80</sup> Every group also included dependents, who received less than the standard rations.

With the continuing escalation of the food crisis, the supply norms approved for the various lists were reduced, certain population groups were moved to lower lists, and some categories were removed entirely—they received no rations at all.<sup>81</sup> In the third quarter of 1933, the centralized food supply for the Ukrainian SSR was fulfilled only to the following levels: 35.5% of flour, 35.9% of groats, 59.9% of meat, and 28.8% of fats. Moreover, 50–70% of the delivered food was allocated to the Donbas,<sup>82</sup> so the rest of the population—supposedly covered by the centralized food distribution system—received significantly less, no more than half its allocation, but on average only one-third. As the supply system tilted further out of balance, the state resorted to various means of saving costs: (1) in 1932, factories that had public cafeterias were converted into closed enterprises that only served their own workers;<sup>83</sup> (2) in the spring of 1933, ration sizes were further reduced, with the aim of eliminating arrears;<sup>84</sup> (3) ration books were confiscated (e.g., by mid-March 1933, 237,000 people from the Ukrainian SSR’s “first list” alone had their cards taken away);<sup>85</sup> (4) dependents were deleted off the centralized ration system; (5) dependents could no longer eat at state-run enterprise cafeterias and other public dining facilities; and so on.<sup>86</sup>

In sum, the food-rationing program in cities was not only hierarchical and selective but also extraordinarily unstable; it protected only certain population groups from starvation, yet throughout 1932–34 the number and size of these groups were drastically reduced. City dwellers who were not covered by the system or who were excluded from the lists teetered between survival and death, just like the villagers. This affected the

<sup>77</sup> Ibid.

<sup>78</sup> Movchan and Hudz', “Povsiakdenne zhyttia na pidpriemstvakh i novobudovakh,” 129–130.

<sup>79</sup> Ibid., 130.

<sup>80</sup> Osokina, *Za fasadom “stalinskogo izobil'ia,”* 90–91.

<sup>81</sup> Movchan and Hudz', “Povsiakdenne zhyttia na pidpriemstvakh i novobudovakh,” 139.

<sup>82</sup> Ibid., 157.

<sup>83</sup> Ibid., 164.

<sup>84</sup> Shytiuk and Krainik, *Totalitarnyi rezhym i pratsivnyky promyslovosti,* 170.

<sup>85</sup> Ibid., 145.

<sup>86</sup> L. Spiridonova et al., eds., *Natsional'na knyha pam'iaty zhertv Holodomoru 1932–1933 rr. v Ukraini: Vinnyts'ka oblast'* [National Memory Book for Victims of the 1932–33 Holodomor in Ukraine: Vinnytsia Oblast] (Vinnytsia: Dp “DFK,” 2008), 907–908 [in Ukrainian].

dynamics of urban population losses during the famine: in 1933, relative losses due to excess deaths were 5.7 times less in cities than in villages, but in 1934 they actually slightly exceeded the corresponding rural rate (6.7 per 1,000 population in cities and 5.6 in villages). The excess deaths in 1932–34 spiked in 1933: this year accounted for 91% of the rural deaths and 67% of the urban deaths. This suggests that compared to rural areas, the 1932–34 famine was much less intense in cities, but lasted slightly longer. A seasonal analysis of excess deaths in 1933 shows that the majority of the losses were concentrated in the six months from March to August; furthermore, 90% of the rural excess deaths occurred during these months, compared to 77.5% of the urban excess deaths.<sup>87</sup>

This article presents the first-ever estimate of direct losses from the Holodomor by sex and age. Our research showed differences not only in intensity between rural and urban losses, but also in their age structure. The high mortality among children was obviously a result of their vulnerability and susceptibility to mass starvation. Direct losses of minors in rural areas per 1,000 population were higher than in cities: 5.7 times higher for children aged 0–4 years, 8 times for ages 5–9, and 12 times for ages 10–14. The considerably lower excess deaths for children in urban areas can be explained not only by the differences in the general ration system for the urban and rural populations, but also by better state financing of urban institutions for children, particularly schools. Thus, according to data from the All-Ukrainian Administration of Public Nutrition (Vukoopkharch) under the UkrSSR Commissariat of Education, in the first half of 1932 the planned centralized meal plan system covered 55% of the urban schoolchildren but only 35% the rural ones. In reality, these rates ranged between 24.8% and 88% in various urban populations of the Ukrainian SSR, much higher than the actual 15–20% in the rural populations.<sup>88</sup>

In general, children's nutrition levels depended on their parents' status and place on the food supply list,<sup>89</sup> and on the given situation with provisioning their particular institutions and population centers, but undeniably the rations designated for children were much smaller, and some types of food were not available for children on the "third list."<sup>90</sup> As for state-run children's institutions (orphanages, penitentiary "colonies" etc.), they received deliveries from centralized and local resources, but as the food crisis became more acute, the supply of foodstuffs deteriorated, especially in rural areas. The state wanted to transfer responsibility for feeding children to the collective farms, but after the confiscation of all local food reserves, such resources were nonexistent. The ration norms for children's institutions and agencies were reduced, and children's institutions were often deleted off the centralized distribution, especially in regions that failed to meet the grain quotas.<sup>91</sup> With the absence of local food reserves, children in the custody of these state-run institutions stopped receiving the centralized deliveries—and decentralized procurements with the right to freely purchase food were banned—they were practically condemned to death by starvation.

Significant differences in the distribution by age of direct losses in the urban and rural population are seen in the mortality of people of young and middle working ages. First, losses due to excess death among 20–24-year-old rural dwellers are nine times higher than among city dwellers. This may be explained by urban post-secondary students being covered by the food-rationing program;<sup>92</sup> they received mainly bread, and were occasionally given groats and sugar from state stores. Students at factory schools, which combined education

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<sup>87</sup> Oleh Volovyna [Wolowyna], "Pomisiachnyi rozpodil demografichnykh vtrat vnaslidok holodu 1933 r. v Ukraïni" [Monthly distribution of demographic losses as a result of the 1933 famine in Ukraine] in *Holod v Ukraïni u pershii polovyni XX st.*, 233–242 [in Ukrainian].

<sup>88</sup> Stanislav Kul'chyts'kyi and Ievheniia Shatalina, "Stanovyshche ditei na Ukraïni u 1931–1933 rr.: Dokumental'na rozpovid'" [Conditions for children in Ukraine in 1931–33: A story in documents] (Kyiv: Instytut istoriï AN URSSR, preprint 9, 1989), 18 [in Ukrainian].

<sup>89</sup> Osokina, *Za fasadom "stalinskogo izobil'ia,"* 91.

<sup>90</sup> *Ibid.*, 252.

<sup>91</sup> Kulchytskyi and Shatalina, "Stanovyshche ditei na Ukraïni u 1931–1933 rr.," 6–7, 12, 16, 21.

<sup>92</sup> Movchan and Hudz', "Povsiakdenne zhyttia na pidpriumstvakh i novobudovakh," 151.

with work, received rations commensurate with those of industrial workers, while students at engineering colleges and universities were fed in accordance with the norms for workers in those sectors; those who studied at non-industrial institutions were fed in accordance with the norms for civil servants.<sup>93</sup> Therefore, for many young people, admission to institutions of higher learning and the opportunity to eat in their cafeterias actually saved their lives; nonetheless, the rations for educational establishments varied significantly and were constantly changing, subject to many factors.

Second, urban losses for all age groups from 15 to 35 years were almost identical and relatively low, with a noticeable increase after 35–40 years; meanwhile, in the countryside, the abrupt rise in excess deaths occurred much earlier, at 25 years. The disparity between losses in the urban and rural population aged 30 to 49 years is 6–7 times. As has already been noted, residents of cities and workers at industrial enterprises had more opportunities to get food; however, their chances for survival were significantly reduced as the rations grew smaller, they were shut out of closed cafeterias, and were taken off rations lists altogether. The situation in rural Ukraine, on the other hand, was truly catastrophic—especially after the 1933 ban on peasants going abroad to Russia or Belarus in search of food.<sup>94</sup> In the rural areas, if collective farms had available resources, it was possible to organize public catering, but this usually happened only when big jobs were being carried out (including sowing and harvesting), and meals were available only to those who actually worked in the fields.

In sum, the differences we identified in the level and age distribution of urban and rural population losses in the Ukrainian SSR in 1932–34 were the result of an intricate complex of political and socioeconomic factors that created different survival opportunities for (rural) peasants and (urban) workers. The significant excess deaths in the rural population are explained primarily by the total government confiscation of grain and provisions and the absence of other means of subsistence, whereas city dwellers' mortality was affected by distorted and sporadic supply and standardized distribution of food. Independent investigations attest that there was a definite social differentiation in urban population mortality during the famine.<sup>95</sup> Facing disaster conditions, the Soviet state did more than simply establish a classist and societal-production hierarchy in the food rationing program, it also divided people into “necessary” and “unnecessary” categories, giving the former a chance at life and condemning the latter to death by starvation.

## Conclusions

Research on the Holodomor has been mainly conducted in two different modes—demographic and historical, with practically no interaction between the two. We have attempted to show the importance of a combined application of demographic and historical methods, to gain a real understanding of the Holodomor and its effects. The results of our demographic analysis show that not only the rural but also the urban population suffered from famine in Soviet Ukraine, with significant differences in the dynamics and age distribution of the respective losses. This raises questions whose answers can be found only by focusing on historical context.

The first question is why people in cities suffered excess deaths, and why these losses were quite substantial in spite of the prevailing notion of the Holodomor as a tragedy of the Ukrainian countryside. Here, historical analysis allows us to establish that the policies enacted by Stalin's government condemned a portion

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<sup>93</sup> Osokina, *Za fasadom “stalinskogo izobil'ia,”* 95, 124.

<sup>94</sup> “Direktiva TsK VKP(b) i SNK SSSR o predotvrashchenii massovogo vyezda golodaiushchikh krest'ian, 22 ianvaria 1933 g.” [Directive of the Central Committee of the All-Union Communist Party (Bolshevik) and the USSR Soviet of People's Commissars dated January 22, 1933 “On the Prevention of a Mass Exodus of Starving Peasants”] in *Tragediia sovetskoi derevni: Kollektivizatsiia i raskulachivanie: Dokumenty i materialy v 5 tomakh, 1927–1939*, 634.

<sup>95</sup> Nataliia Levchuk, “Sotsial'na dyferentsiatsiia smertnosti naseleennia m. Lebedyn pid chas Holodomoru u 1933 r.” [Social differentiation of mortality in the city of Lebedyn during the Holodomor in 1933], *Demohrafiia ta sotsial'na ekonomika* [Demographic and Social Economics] 1 (2015): 137–49 [in Ukrainian].

of the urban population to death by starvation just as they did the inhabitants of the countryside. Our first-ever analysis of the differences in age distribution among the excess urban and rural deaths was produced precisely as a result of combining both demographic and historical research methods, which complement one another. On the one hand, the demographic research showed a significant age variance in the effects of the famine in the urban and rural areas of the Ukrainian SSR, while on the other hand, analysis of historical sources revealed that variable socioeconomic processes, most importantly in the area of food provisioning and distribution, had an unequal effect on the mortality of certain age groups in both the urban or rural population. Using the two methods allowed us to fill in missing pieces, and also to verify and significantly expand our knowledge about the Holodomor.

The second question concerns the interaction between urban and rural populations during the Holodomor period. Combined historical and demographic analysis attests to interconnections between falling agricultural output and the worsening food supply and reduction of ration sizes in the cities. This, in turn, affected the dynamic of urban and rural population excess deaths. As is apparent from the above analysis, in 1933 the relative rates of direct rural losses were five times higher than urban ones, while in 1934 the losses in urban areas somewhat exceeded the corresponding rates in rural areas. In other words, the results of the demographic research support the facts documented in historical sources of the time. Another example of the necessity of viewing Ukrainian villages and cities during the Holodomor as components of a single economic, political, and social space, is the mass migration of villagers in search of food to urban population centers, a phenomenon that has not been fully studied to date.

Thus, we are able to come to two main conclusions. First, research on the Holodomor should focus on the dynamics and effects of the 1932–34 famine in both rural and urban areas of Soviet Ukraine. Second, for a more complete understanding of this catastrophic famine, it is imperative to combine investigations from both demographic and historical perspectives.