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# **LIVING STANDARDS IN THE USSR DURING THE INTERWAR PERIOD**

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## **LIVING STANDARDS IN THE USSR DURING THE INTERWAR PERIOD<sup>1</sup>**

How was life in the Soviet Union in the interwar period? The two interwar decades fall into the years of relative prosperity of the mid-1920s; the years of tumult and disaster (1929 – 1938) with the famines of 1932-22, mass exiles, and repressions; and the initial years of the Second World War. These decades fall into the middle of a demographic transition and the formation of internal administrative borders between the Union republics.

Despite some ongoing debates on data quality, there is a general understanding, that per capita GNP growth was outstanding in the mid-1920s and in the second half of the 1930s. The literature is divided, however, on the conversion of this growth into improved living standards. A number of studies have postulated that after 1928 real consumption never achieved this level. Recent revisions show that the second half of the 1930s was relatively prosperous, so that the living standards of the urban population improved.

An alternative approach is looking at biological indicators, such as life expectancy at birth, child mortality, and child and adult stature as they do not have the biases peculiar to economic indices. In the case of the Soviet Union, they are of special interest because of the non-uniform quality of official statistics and, specifically, the fact, that non-market prices did not reflect product scarcity. In terms of life expectancy, child mortality, and stature, the second half of the 1930s was accompanied by growing living standards and remarkable progress was achieved in public education and healthcare. However, the mass terror of 1937-38 with one million excess deaths was also part of the “high living standards” of the late 1930s.

The conventional view on living standards mostly considers the Soviet Union as a whole, neglecting differences across the Union republics. This chapter attempts to also highlight what the literature says about differences across the Union republics.

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### ***1. What determines the standards of living in the Soviet Union of 1920-s and 1930-s?***

How was life in the Soviet Union in the interwar period? On November 17, 1935, Josef Stalin reflected on this in his speech at the First All-Union Meeting of the *stakhanovites* – workers who produced more than required.<sup>2</sup> He said: “Life has improved, comrades. Life has become more joyous. And when life is joyous, work goes well. Hence the high rates of output. [...] if people in our country lived badly, drably, joylessly, we should have had nothing like the Stakhanov movement.” (Stalin 1978, 89).

Had life in the Soviet Union become better and happier or this was some sort of propaganda? For what groups of population was it better? In what regions? Table 1 shows remarkable progress was made in education and healthcare in first two decades of the Soviet Union. Per capita income growth in the 1920s and 1930s were outstanding against the background of the Great Depression in the West. Soviet industrialization was on the way. The number of people enrolled in schools increased enormously in comparison with the pre-revolutionary period. Healthcare provided better treatment of diseases such as tuberculosis and dysentery. More people had access to university education and technical training, especially engineering and technology. By the second half of the 1930s, the living standards of workers had improved (Allen 1998; 2003; Wheatcroft 2009). So, Stalin had some reasons to be proud in addressing a selected, privileged group of workers.

*[Table 1. Living standards in 1922 and 1939]*

However, the growth of living standards in the countryside was weaker and by 1940 had not achieved 1928 levels.<sup>3</sup> Andreev et al. (1993a, 60–61) estimated demographic losses. Between 1927 and 1941, the Soviet population suffered demographic losses (the difference between actual and counterfactual levels of population, conditional on unborn children and excess deaths during the episodes of famine) of 13.5 million people from direct deaths, of which 7 million were from famine and executions; the worsening of life conditions for some population groups – imprisoned, exiled, suffered from famine, or survived concentration camps with broken health. On top of that, mass purges of the late 1920s and 1930s in all population groups<sup>4</sup> (workers, peasants, white collar workers, Bolsheviks and former Whites, communists and politically uncommitted) made life

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<sup>2</sup>See also (Siegelbaum 1990) on Stakhanov movement in the Soviet Union.

<sup>3</sup> (Allen 1998, 1070, table 1; Bergson 1961, 252)

<sup>4</sup> A comprehensive review on causalities from repressions is given by Zhuravskaya et al. (2023).

stressful and uncertain. In this context, Ellman (2004, 845) notes that consumption is an unsatisfactory proxy for living standards from 1928 to the late 1930s, when the Soviet social system experienced such a dramatic transformation. This major change must be taken into account in assessing the “high living standards” in the years of the Great Terror, 1937-38. Taking a broad view, such controversies make the case of the Soviet Union interesting in terms of the extent to which social systems matter for wellbeing (Prados de la Escosura 2022).

This chapter addresses the following questions. What were real developments of wellbeing in the USSR in the interwar period in terms of the modern understanding of wellbeing? Taking into account substantial regional variations before the revolution,<sup>5</sup> what were regional differences in wellbeing, considering that by mid-1920s, the USSR occupied one-sixth of the Earth’s land surface?

The next section, entitled “The USSR in the interwar period: an overview”, provides some historical background of the interwar period and gives an overview of changes in the external borders of USSR and borders between Union republics in the interwar period. Section “On Soviet official statistics” focuses on the reliability of sources and data quality issues. Section “Population trends” deals with migration and the demographic structure, including birth and death rates, life expectancy, and urban-rural population shares. Income, education and healthcare issues are covered next. Some general discussion on living standards summarizes the chapter.

## ***2. The USSR in the interwar period: historical background and periodization***

By the early 1920s, two specific features of the Soviet Union were its huge territory and the heterogeneity of its population structure (e.g., shares of urban and rural; workers and peasants; levels of literacy; regional differences between Central Russia and Bukhara and Samarkand; changes in external boundaries and administrative-territorial structures).

This section details these two issues, providing a short overview of the formation of the external borders of USSR after the Bolshevik revolt in 1917 and the following dissolution of the Russian empire, and of the administrative borders of the Union republics.

Discussing the economic transformation of the Soviet Union 1913-1945, Wheatcroft and Davies (1994b) suggest five periods:

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<sup>5</sup> See (Mironov and Freeze 2012).

- (a) the eve of WW1 before 1914,
- (b) WW1 and the Civil War (1914 – 1922),
- (c) the mid-1920s (1923 – 1928),
- (d) years of tumult and disaster (1929 – 1938),
- (e) WW2 (1939-1945).

I use these periods here and in the following sections, focusing on (b) – (d).

Period (b) includes the *First World War and the Civil War*. The October Revolution on 7 November 1917 (Gregorian calendar) initiated the dissolution of the Russian empire and the Civil War, and ends with the formal foundation of the Soviet Union on December 22, 1922, and the lagged formal incorporation of the Bukharan and Khorezm People's Soviet Republics into the Soviet Union in 1924. The period started with the final loss of control of the Russian part of Poland, Finland, Lithuania, Latvia, and Estonia, and the Civil War between military forces of the Bolshevik government (the Reds) and those heterogenous movements (the Whites), which did not acknowledge the October Revolution and aimed to remove the Reds. It also included the allied intervention in the Russian Civil War. The Civil War was accompanied by formations and dissolutions of new states on the former territory of the Russian empire. Some pretended to be independent (the Baltic republics, Finland, Poland), others sooner or later fell under control of Bolsheviks, being formally independent, such as the Soviet republics of Ukraine, Belorussia, and the Far-East Republic.

By 1920 the Civil War was mostly ended. The Reds formed territory under its own control. The external border of the area of Soviet influence was formed with the agreements with the frontier independent states – the Baltics, Poland, and Finland. Most of them were former parts of the Russian empire. These agreements fixed the border, which became the external border of the Soviet Union within the next two years. The process was almost accomplished with the formation of the Soviet Union when, on December 29, 1922 representatives of four Soviet republics signed the Declaration and Treaty on the Formation of the Union of Soviet Socialist Republics, which became active the following day. The formation of the external borders ended with the formal inclusion of two remaining puppet states, Bukhara and Khorezm.

Periods (c) and (d) cover the years of the interwar sub-territorial arrangements. For the purpose of the present study, these are important the years the territories of Union republics were formed. The process began with the formation of the Soviet Union at the end of 1922 as the Union of four republics – Russia, Ukraine, Belorussia, and the Transcaucasian Socialist Federative Soviet Republic (TSFSR), which included Armenia, Azerbaijan and Georgia – and was mostly complete by the end of 1936 with the formation of eleven Union republics, mostly within the borders of corresponding post-Soviet independent states. Leaving aside the causes of these arrangements, I provide a short description of the results. This will help the reader, interested in the pre-war economic history of modern Ukraine, Azerbaijan, or Turkmenia, to find a more fine-grained picture of the interwar period, rather than just looking at average numbers for the Soviet Union, partially filling this gap in the literature. This description also provides an orientation for understanding of the official statistics published in the 1920s and 1930s at the level of sub-national regions, which provides a wealth of interesting data.

These periods include the initial formation of the Union; National delimitation in the Soviet Union, from October 27, 1924, which led to the foundation of the Turkmen and Uzbek Soviet Socialist Republic from the territories of Turkestan and the formally independent Bukhara and Khorezm. In 1929, the remaining part of Turkestan, transferred earlier to the Tajik Autonomous Soviet Socialist Republic, also became a Union republic. Finally, on December 5, 1936, with the adoption of 1936 Constitution of the Soviet Union, or the Stalin constitution, Armenia, Azerbaijan, Georgia, Kazakhstan and Kyrgyzstan were “promoted” to Union republics.

Period (e) covers the years of *further territorial expansion and rearrangements*, starting from September 17, 1939, when the Red Army crossed the border of Poland. It includes the post-WW2 delimitation of the borders, including the downgrading the Karelo-Finnish SSR to the level of Autonomous republic within Soviet Russia. It also includes the incorporation of some territories of Poland (September 17, 1939), Lithuania (August 3, 1940), Latvia (August 6, 1940), and Estonia (August 6, 1940). Bessarabia, controlled by Romania since 1918, was incorporated to the Soviet Union and together with the Moldavian ASSR which formed the Union Republic of Moldavia (August 2, 1940). Finally, after the Winter war with Finland some southern areas of Finland and the Karelian Autonomous Soviet Socialist Republic formed the Karelo-Finnish Soviet Socialist Republic (March 31, 1940).

In the following sections, I focus mostly on periods (c) and (d) the second period as more or less stable, considering the Soviet Union and its Union republics in borders by the end of 1936.

This way we exclude some disorder of the civil war with corresponding limitations of statistics and migration processes, related mostly to non-economic causes, such as the Civil War and the consequences of WW1. I also pay less attention to last years before the German invasion of the Soviet Union in June 1941. The incorporation of four Union republics does not add much for understanding the socio-economic transformations within the Soviet Union in the interwar period and adds substantial costs for data work. Major transformations of the external frontiers and borders between the Union republics of the interwar period are given in Table A1.1.

### ***3. Critical note on Soviet official statistics. Conundrum, which deserves attention***

Despite long history of research and the attention paid to the inter-war Soviet economic performance, the official statistics of 1920-1940 is a rich and to a large extent unexplored data collection. On the one hand, it has been established<sup>6</sup> that the Soviet economy is documented very well. For planning and decision-making purposes, statistics of various aspects of Soviet life were collected and analyzed. The data of physical volumes of different products were accurately gathered together and compiled. On the other hand, most of this data remains unpublished, its quality needs attention and specific knowledge, official publications suffer from multiple propaganda biases, and conceptually Soviet national accounting was inconsistent with international standards. In what follows I discuss these issues in detail.

Their availability in official publications varied drastically over time. A substantial amount of official Soviet statistics of the 1920s and 1930s are available in official publications.<sup>7</sup> There was no keeping two sets of books on economic accounting, so data in official publications and the much clearer, more detailed and comprehensive government reports did not contradict each other. Starting from the mid-1930s and until 1956 official publications were restricted. In the three decades since the collapse of the Soviet Union this huge data collection, including archived data and unclassified publications, has mostly been available for research purposes.

Along with availability, quality is an issue. Uncertainty about the quality of the data and, in some cases, of the direction of potential biases leads to their low usability. Firstly, units which reported data for the official statistics agency were also judged on the basis of these reports. This bias is of similar nature to the bias of tax declarations. In case of enterprises, which were interested in demonstrating the achievement of planned targets, this led to overreporting (*pripiski* in Russian).

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<sup>6</sup> See, e.g., Ofer (1987, 1770–73) and Wheatcroft, Davies (1994a).

<sup>7</sup> Two bibliographical guides on sources of the interwar Soviet statistics are (Simchera et al. 2001). Kuboniwa et al. (2019) also provide the overview of data sources.

Second, Soviet statistics served as propaganda. In most cases, primary data were not corrupted, but official publications included various manipulations, aiming to highlight the successes and hide the problems of the Soviet economy. Official statistics choose definitions and methods which helped using published data as the evidence of Soviet success. This made data formally reliable, but hard to interpret. For example, the approach to the reporting of harvests (before or after harvesting) (Ofer 1987; Wheatcroft 2009). Another example was missing data of deaths in population statistics of 1930s, which appeared in official classified publications in the 1960s only (Andreev, Darsky, and Kharkova 1993a). Finally, there were manipulations to hide defense expenditures.

The third cause of data corruption was the data collection process. For example, population accounting became total only by the late 1930s. Before the October Revolution, the government did not keep birth and death records. The system of civil registration was introduced by the Soviet government. Initially it worked only in large cities (Andreev, Darsky, and Kharkova 1993a).

Fourth, the lack of clarity about concepts, frameworks, and definitions. For example, flaws, uncovered by Tolts (1995), in the instructions of population censuses of 1937 and 1939 or data on deaths in prisons and concentration camps, which were unrecorded in civil statistics. Adjustments in 1939 for new territories are unclear or misleading in official publications (Andreev, Darsky, and Kharkova 1993a, 53). Finally, cultural differences also impacted data quality. For example, in rural areas of Eastern republics with the Muslim majority the total amount of young girls and women were underestimated, because they were shield from such strangers as statisticians in the 1926 population census (Andreev, Darsky, and Kharkova 1993a, 20).

Some attention should also be paid to aggregated income and production data with their specific problems. The Soviet Union used its own unique system of national accounting, called *the Balance of the National Economy*. It was developed in early 1920, two decades before the System of National Accounts, the current international standard of national accounting, was adopted in major economies of the West. The concept of national product in this system, driven by ideology, did not include some “unproductive services”, it did not take into account interest rates,<sup>8</sup> and, in contrast to market economies, in the Soviet planned economy prices did not reflect the scarcity of the product. Being non-market driven, they did not balance supply and demand. Such imbalances manifested themselves here and there as shortages of some goods and overproduction of the others in the Soviet economy until the collapse of the Soviet Union. Finally, comparisons of real output in years of intensive structural change can be ambiguous. This effect was noticed by Gerschenkron

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<sup>8</sup> Ivanov (1987) provides comparisons of the two systems.



(1947), who found, that real output growth rates of the Soviet economy in 1928-1937 in constant 1928 prices were much higher, than in 1937 prices. This effect was caused by the fact that machinery in 1928 was much more expensive than in 1937; the contribution of machinery in 1928 prices was much higher than in 1937. Since growth took place mostly because of machinery, aggregated growth was higher in 1928 prices. All these methodological issues make aggregated data difficult for interpretation and for cross-country comparisons. However, this did not disturb planning and control. As Wheatcroft and Harrison (1994a) note, Soviet planners had less interest in aggregated numbers than in individual series of physical volumes.

Summing up, the Soviet data, even taking into account these issues, are worth of the effort of analysis, taking into account these issues. As discussed in the following chapters, with proper attention to details and by uncovering primary data in the archives it is possible to recover or reconstruct an accurate picture. A remarkable example of this is the data of the 1939 population census and its intensive study by Tolts (1995; 2021). Dealing with problems of the second type, it is difficult to fix them completely. However, keeping them in mind helps interpreting data correctly. Finally, the same approach works for methodology issues.

In what follows, I focus on the interwar territory of the Soviet Union as of September 17, 1939, mostly framed by December 30, 1922, including territories of the Bukharan and the Khorezm People Socialist Republics, which joined the USSR on October 27, 1924. I use the “high mortality” version from (Andreev, Darsky, and Kharkova 1993a), taking into account the argumentation of Tolts (1995) on upward biases because of the ambiguity of the population census instructions of 1939. I also follow population trends, made by demographers for Soviet Russia (Andreev, Darsky, and Khar’kova 1998) and Ukraine (Rudnytskyi et al. 2015). Data on income growth comes from Soviet GDP series, available in the Maddison project (Bolt and Zanden 2020), and based on (Markevich and Harrison 2011). Data on education and healthcare are official with comprehensive references to the sources in the text.

#### ***4. Population trends***

Population trends in the interwar period in the Soviet Union reflect two long term global tendencies in Europe: which are population growth and mass displacement (Millward and Baten 2010). Despite the two world wars and revolutions, the population in Europe grew from roughly 500 million persons in 1913 to 600 million in 1950. Population growth was driven by *demographic transition* - a process in which countries pass from a state of high birth and death

rates to a state of low birth and death rates. Even with differences of demographic patterns across countries, mortality in most of them fell faster than fertility, narrowing the difference in birth and death rates across Europe. The other source of population growth was mass population displacement. This was caused by three overlapping and interdependent processes: migration from villages to towns, migration from agriculture to manufacturing, and political forces, including wars, revolutions, collapses of empires, and multiple changes of administrative and territorial divisions. Overall, population growth in Europe was accompanied by advances in real income, life expectancy, literacy, and the level of education.

The Soviet Union was no exception, although, as Morys and Ivanov (2021, 243) noticed, in Europe the Soviet Union was among the last to enter into and exit from this crucial transformational process. Despite huge losses due to the two world wars, the Civil War, famine, and repressions, the population of the Soviet Union in borders of 1946-1991 grew from 159 million in 1913 to 171 million in 1950, or by 12.8%, demonstrating 0.29% annual growth.<sup>9</sup> Income per capita doubled from 2,254 USD in 1913 (PPP 2011) to 4,529 USD in 1950.<sup>10</sup> In terms of growth rates, GDP per capita grew at respectable 1.9% annually on the average. The difference between fertility and mortality in the Soviet Union started to drop in the 1960s. According to the official data, the gap between crude birth rates (CBR) and crude death rates (CDR) in 1913 was 16.8 births per one thousand persons, in 1950 the gap was 17, while by 1965 it had fallen to 11.1.<sup>11</sup> Life expectancy grew from 44 years in 1926 to 69 years in 1959.<sup>12</sup>

There are features, however, which make the case of the Soviet Union specific in the European context. First, the impact of wars was much higher. Millward and Baten (2010, 249) rank USSR together with Yugoslavia as countries which suffered the most in Europe in world wars. The average positive GDP per capita growth rates mask huge short-term welfare losses because of the wars. Wheatcroft (1999, 27) finds this combination of short term welfare losses and the permanent rise of life expectancy highly unusual. Second, political forces played a particularly strong role in the USSR. Finally, the Soviet Union included Union republics with different levels of development in terms of income, stage of demography transition, and education; from the relatively rich, industrialized, and educated Russia and Ukraine to low-income agrarian Kazakhstan and Turkmenistan, the latter having more similarities with neighboring countries in Asia, than those in Europe.

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<sup>9</sup> Official data on population for USSR-15, (CIS Stat 2020, 52; TsSU SSSR 1965, 9).

<sup>10</sup> Maddison Project Database, version 2020, (Bolt and Zanden 2020).

<sup>11</sup> See references to data sources in the footnote to Figure 1.

<sup>12</sup> See Table 4.

*[Figure 1. Crude birth and death rates in Russia and USSR in 1870 – 1990]*

For the Soviet population, the two interwar decades fell in the middle of a demographic transition. Figure 1 represents CBR and CDR from 1870 to 1990.<sup>13</sup> CDR started declining in the 1880s with the steady decline of mortality from the long-standing average CDR level 36 of deaths per one thousand persons to 27.4 in 1913. With some delay, CBR also started moving down from 50 births per one thousand persons (average in 1870—1900) to 43.1 in 1913. CDR and infant mortality, however, remain high relative to Western Europe. By 1914, for example, infant mortality was about 273 infants per 1000 live births before their first birthday, which is much closer to the rate in India, than that in Western Europe or Japan. This rate was close to 255 for Western Europe in early 1800s (Wheatcroft and Davies 1994b, 59).<sup>14</sup> Figure 1 shows the demographic transition took around seven decades, ending by mid-1960s.

In years of WW1, 1914-1917, the number of soldiers, who were killed or died of wounds or disease, was about 1.8 million. Deaths among the civilian population were also higher, but in towns away from the frontline this increase was not sizeable (Wheatcroft and Davies 1994b, 62).<sup>15</sup> In years of the Civil war, 1918-1920, most deaths were caused by disease. Food shortage, overcrowding, and insanitary conditions among refugees weakened resistance to disease, and these conditions were accompanied by a series of epidemics. They intensified in summer 1918 and peaked in 1920. Two million people died in 55 provinces of European Russia from typhus, typhoid, smallpox, dysentery, or cholera. This number was 2,117,000, or about eight times as many as the number of deaths from these diseases (276,000) in the previous three years (Volkov 1930, 190–91). Finally, people suffered from the influenza pandemic, which swept through Europe (Wheatcroft and Davies 1994b, 62–63).

Besides disease, the famine of 1921-22 in the Volga area, the North Caucasus and Ukraine, caused by draught and harvest failure in 1921,<sup>16</sup> led to a large number of deaths. CDR reached 45 deaths per one thousand, which was high, compared to the last decades before WW1. CDR

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<sup>13</sup> Wheatcroft (2009, 38) reviewed alternative sources of mortality data for USSR.

<sup>14</sup> Natkhov and Vasilenok (2023) explain the high infant mortality rates by ethnic-specific infant care practices in Russian families such as the early introduction of solid food, which could lead to lethal gastrointestinal diseases. In contrast, other ethnic groups of the empire did not demonstrate infant mortality rates exceeding those in European countries.

<sup>15</sup> Wheatcroft and Davies (1994b, 62)

<sup>16</sup> See, e.g., (Wheatcroft and Davies 1994b, 62).

exceeded the mortality rate only in 1892, the worst year of the fifth choleric pandemic, which hit southern governments of the Russian empire and overlapped with famine (Figure 1).

Some stabilization was reached by *the middle of the 1920s*. In 1923, death rates fell to 29 from 39 in 1922. The primary cause seems to be a sharp decline of infant mortality from 273 in 1913 to 174 in 1925. Although the drop in mortality rates was a general trend in Europe, in Russia it was especially visible. Brainerd (2010, 110) noted that the Soviet health care system was effective in controlling infectious diseases, which improved child health. Better access to clean water, as one of the outcomes of urbanization, could have played a role. Finally, Brainerd points out the large gains in women's education and the better caloric and nutrient content of the food supply. Birth rates started steep growth from 37 births per one thousand persons in 1920 to 49 in 1925, which is high even comparing with the 1913 level but by 1930 fell again to levels below that of 1913. The result of these factors was a net growth in the population.

The early 1930s, *years of tumult and disaster*, were accompanied by collectivization. Five-six million peasants were exiled in 1930–1933 and found themselves in worse conditions in remote areas. Several hundred thousand of them died in 1930–1933. Collectivization came together with mass confiscations of agricultural products for many peasants who avoided the exile. Attempts of the government to settle nomad farmers in Kazakhstan in collective farms caused a mass loss of cattle, the main source for food in the region. As a result, many Kazakhs died in 1931–1933 or fled Kazakhstan (Wheatcroft and Davies 1994b, 68–69). The extra deaths and growing death rates from 25 deaths per one thousand persons in 1928 to almost 30 in 1932 (Figure 1) is not a surprise. The spike of CDR in 1933 was caused by the shocking famine, affecting most of Ukraine, some of the Volga regions, and the North Caucasus. The total number of peasants who died because of the famine is estimated at several million. Finally, CDR reflect deaths from repressions.

Population dynamics are shown in Figure 2 for (a) USSR, (b) Russia and Ukraine.

[Figure 2. Population of the Soviet Union, Russia and Ukraine in 1897 – 1950]

[Table 2. Population of the Union republics in 1926 and 1939]

The populations of the union republics (borders 1924–1939) in 1926 and 1939 are shown in Table 3. Data are reported in million persons at the beginning of the year, except for the years of population censuses. In such years, data are reported for the day of the census, which are January 28, 1897, December 17, 1926, and January 17, 1939. Figure 2 covers the two world wars, and some years before WW1 and after WW2. This helps compare war-related population losses with losses from famine and other shocks. This also shows long-term population trends more clearly.

Population data are official (marked “official”),<sup>17</sup> developed by the official statistics office, or developed and published after the collapse of the Soviet Union in the academic literature.<sup>18</sup> Official data for some years, specifically in the 1930s, can be found in (Andreev, Darsky, and Kharkova 1993a; 1998). In these cases, publications include explicit references to the archived sources, in which these data can be verified. Figures 2a and 2b show that the difference between “official” and “research” data does not change much in the representation of population trends, except birth and death rates data for 1933, the year of famine.

Figure 1 is helpful in identifying the impact of territorial changes on population levels. Each series belongs to a certain territory. The population of the Soviet Union (Figure 1a) is given both in the 1924–1939 (USSR-11) and the 1946–1991 (USSR-15) borders. In census years (1897, 1926) and some intermediate years, population data were estimated for 1946–1991 borders and published in official publications. Official data from 1939 before and after the extension of the Soviet Union (Figure 1a, series USSR-11 and USSR-15) give an idea of the number of persons in Ukraine, the Baltic countries, and Moldova—about 20 million persons. Andreev, Darskii and Kharkova (1993b) (ADK series of USSR-11 and USSR-15) also publish population data for 1939 before and after the extension, which gives 20,270 persons (= 188,794 - 168,524). The lion’s share of this population increase was in Ukraine with its new territories. According to the official statistics before and after the extension in 1939 (series Ukraine in 1924–39 borders and in 1949–91 borders, Figure 2a) the increase was 9,509 thousand (= 40,469 - 30,960).

Birth and death rates in Figure 1 could help explain the population trends in Figure 1a and 1b. Despite war casualties and extra deaths among refugees, population growth remained positive until 1917. In 1918–1920, mortality rates, driven mostly by disease, exceeded birth rates in the Soviet Union as a whole (1a) and its largest parts, Russia and Ukraine (1b). The recovery of the mid-1920s restored population growth over the territory of the Soviet Union. Accelerating death rates and falling birth rates in early 1930 (Figure 1) slow down population growth, while the

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<sup>17</sup> (TsSU SSSR 1965; 1975; Goskomstat SSSR 1988; CIS Stat 2020)

<sup>18</sup> (Andreev, Darsky, and Kharkova 1993a; 1998; Rudnytskyi et al. 2015)

famine of 1932–33 caused the population fall by more than 6 million persons,<sup>19</sup> with population losses in Ukraine being much higher (Figure 2b). In the years that follow (up to 1939) population growth is positive and started accelerating.

A more detailed decomposition of population numbers is given in Table 3 for Union republics. Fortunately, data for both years in the table are provided in the same borders of 1926 and 1939, so we are able to look at absolute levels and growth rates across Union republics. Union republics varied substantially in population levels and in growth. In terms of levels, Russia and Ukraine dominated, having about 63% (92.7 million) and 20% (29.5 million) of the total population of the Soviet Union in 1926. Kazakhstan was third with 4.1%, (6.0 million) and Belarus had 3.4% (5.0 million). The smallest Union republic by population was Armenia (881,000 or 0.6%). In terms of population growth, leaders were the relatively less developed territories of the Caucasus and Central Asia. Armenia, Kyrgyzstan, and Tajikistan headed the list with 2.8–2.9% annual growth. Russia (1.2%), Belarus (0.9%) and Ukraine (0.1%) were the slowest growing Union republics, bar Kazakhstan. By 1939, the population of Kazakhstan had fallen by more than 300,000 persons.

Population trends in Union republics reflected two overlapping processes. First, different stages of demographic transition in the relatively advanced Russia and Eastern Europe and less advanced Central Asia and Caucasus. Second, the different impacts of famine and collectivization, which hit Ukraine, Russia, and Kazakhstan more strongly than the other republics.

*Figure 3. Share of urban population in USSR in 1897-1950 [#URB\_USSR]*

Population growth also reflects changes in the population structure. One of them is the expanding share of urban population as a consequence of urbanization, represented in Figure 3 for the 1913–1940 territory of the Soviet Union. Urbanization started well before the Revolution of 1917. According to 1897 census data, the urban population share on the territory of the future

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<sup>19</sup> The difference between population levels in 1933 (157 million persons) and 1932 (163 million), high mortality version of Andreev et al. (Andreev, Darsky, and Kharkova 1993b). The literature on famine in 1932–33 and its consequences is large. See, e.g., (Nefedov and Ellman 2019).

Soviet Union was 15%, while by 1913 it reached 18%. The revolution and the Civil War forced many people to leave towns as part of large population displacements, so urban population fell to almost the pre-war population share of 15.3%. The post-war recovery reversed the trend, so urban population expand to 18% in 1928. Then, from the early 1930s, urban growth accelerated so that the proportion of urban population had grown to 32.5% by 1939. A minor reversal of this urban expansion trend in 1940 relative to 1939 is caused by the new territories of Ukraine with a lower level of urbanization.

Several factors are known to be responsible for urbanization, especially industrialization. The first wave of industrialization started well before the revolution of 1917. It was an important factor of urbanization before WW1. Political forces also contributed. WW1 and the Civil war initiated mass migration. In 1918–1920, people emigrated or left towns for rural areas to avoid famine. From 1920, however, the urban population started growing, exceeding the pre-war level. The second wave of industrialization, forced by the government in the late 1920s, demanded more workers. Collectivization and the expropriation of land, cattle, and the means of production of better off peasants (*kulaks*)—known also as dekulakization—also stimulated peasants to leave villages for towns.

Urbanization had profound consequences for population trends because health conditions differed in urban and rural areas. With no sewage in towns before the 1920s, living conditions in towns were unfavorable in comparison with villages. Taking into account that the age structure of urban population was biased in favor of middle age, and gender structure for men, CDR in towns was higher in these age groups. Urbanization, however, provided access to better education and healthcare facilities. With improvements in sanitation and sewer systems being put into operation, urbanization stimulated population growth overall.

*[Figure 3. Share of urban population in USSR in 1913-1940]*

*[Figure 4. Shares of urban population in Union Republics in 1926 and 1939]*

Urbanization in the Union republics is presented in Figure 4. Shares of urbanization in 1926 (horizontal axis) are contrasted with urbanization shares of 1939. The bisecting line helps show if a Union republic increased (above the line) or decreased (below the line) its share of urbanization.

For example, the urbanization shares of the Soviet Union (USSR-11) was 17.9% and grew to 39.8% by 1939. Figure 4 shows that all Union republics demonstrated growing urbanization. The rate, however, differed across Union republics. It is possible to identify three groups. The first one is the “Industrial Giants”—Russia and Ukraine. The urban share of industrializing Russia and Ukraine grew rapidly, and considering that more than 80% of population lived in these two republics, they contributed the most to urban population growth. In 1935, the total share of Russian and Ukrainian large-scale manufacturing in total employment of USSR was 93.7%, capital stock 92.0% and 91.8% of gross output (TsUNKhU Gosplana SSSR 1936, 629–30). The second group demonstrated the highest rates of urbanization with no clear evidence of intensive industrialization—Kazakhstan and Turkmenistan. The share of the urban population in these republics grew faster than in the Industrial Giants. This could be explained partially by collectivization and by the change in status of some settlements from villages or working settlements to towns, such as Karaganda in Kazakhstan and Bayramaly in Turkmenia. The third group includes the other seven republics, which demonstrated relatively moderate growth in urbanization.

*[Figure 5. Rural-to-urban migration in 1928-1935 in USSR in 1928-1935]*

Increasing migration from villages to towns provided a substantial contribution to urbanization in 1930-1932 (Figure 3). Many millions of peasants fled to towns looking for a better life. A detailed examination of rural-to-urban migration in Figure 5 indicates substantial growth of migration to towns, starting from 1929. Due to the introduction of identity cards in 1933 this flow slowed, but reversed quickly in 1934 (Wheatcroft and Davies 1994b, 69).

*[Figure 6. Women’s share in 1897-1959 in USSR]*

*[Figure 7. Women’s share in 1920-1939 in USSR and Russia]*

Another feature of the population structure is the share of women (Figure 6). It grew between 1913 and 1920 because of war casualties and started to fall in 1920s. However, the famine of 1932-33 was more harmful for men (Figure 7). The next spike in the share of women



falls on years after WW2. There were men who were mostly killed in action or died from wounds suffered during fighting.

*[Table 3. Life expectancy in USSR and Russia]*

*[Figure 8. Expectation of life at birth and infant mortality, 1920-1958]*

Life expectancy at birth in the USSR and Russia overall, and separately for men and women, is shown in Table 3, and in Figure 8a. The high death rates of WW1 and the Civil War led to a fall of life expectancy to 23 years, on average in 1920–1922 (Figure 8a), which is well below the life expectancy of 32 years in 1897 (Table 3). In the mid-1920s, however, there was a quick recovery to the pre-war level of 32 years in 1923 and it grew to 39 years by 1928. The years of *tumult and disaster* were characterized by a drastic fall because of the famine of 1932–33, a quick rebound, and slow growth in the second half of 1930s to 44 years in 1939. Life expectancy in the Soviet Union was one of the lowest in Eastern Europe, being compared with Romania (Morys and Ivanov 2021, 261). Wars and famine hit men more than women (Figure 8a). The gap, shown in Figure 8b, increased after the famines and wars. After WW2, the average gap was 5.8 years, which was higher than in 1929–1939 (4.6 years) and just after the Civil War in the early 1920s (2.1 years).

Infant mortality (Figure 8c) demonstrated a steep decline through the first half of the 20<sup>th</sup> century from 265 deaths of infants under one year per thousand live births in 1920 to 168 in 1939, or by more than one third. The remarkable progress was mostly achieved in the 1920s.

This section reviewed the population trends of the Soviet Union and Union republics. These trends were caused by international factors, such as demographic transition, the consequences of WW1, and the regional heterogeneity of the former Russian empire, which transformed to the heterogeneity of the Union republics. International factors overlapped with national ones—the Russian revolution, the Civil war, institutional changes, and episodes of famine and repressions.

Fertility, mortality, migration, the structure of population by gender, and urbanization are interdependent of income, education, and healthcare.

## 5. *Real Income, education, and healthcare*

In the interwar period, the Soviet economy grew rapidly, driven by intensive industrialization. In 1922–1939, GDP per capita grew 7.9% annually on average (Figure 9).<sup>20</sup> This was much higher than the growth of leading economies internationally. Growth rates in Germany were 2.9%, Japan 2.3%, the UK 1.8%, Italy 1.7%, and the US just 0.6%. In terms of per capita GDP levels, by 1940 the Soviet Union caught up from 21% of the US level in 1913 to 28% in 1939, not only because of the rapid post-war recovery and industrialization, but also due to the output fall in Western economies in years of the Great Depression.

Did Soviet industrialization lead to a rise in living standards? Specifically, what happened with real incomes and wages? Were there remarkable improvements in such biological indicators of welfare as nutrition, life expectancy, and stature? Finally, was success in industrialization accompanied by better access to education, healthcare, and basic public services, such as clean water and sanitation?

*[Figure 9. Real GDP per capita of the Soviet Union in the comparative perspective, 1913-1940]*

Harrison (1994, 38) characterized the Russian economy on the eve of WW1 as the least developed among European powers. By 1940, it had become a modern industrial state. Its agricultural sector fell from one half in 1913 to less than one third of the total gross national product while the industrial sector expanded from one fifth to one third, with the most intensive structural transformations happening in 1928–32,<sup>21</sup> which were the years of the Great Depression in major capitalist economies, and of *tumult and disaster* in the Soviet Union. The share of employment in agriculture fell from three quarters to one third.

In 1928–1939, sectoral development was heterogeneous. Industry, construction, and industry-related services grew quickly. This group includes civilian industries (8.7% annually),<sup>22</sup>

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<sup>20</sup> See more on debates about the reliability of alternative measures of Soviet growth rates in (Davies, Harrison, and Wheatcroft 1994; Markevich and Harrison 2011; Ofer 1987). In this section I use the recent release of Maddison's project data (Bolt and Zanden 2020). For the Soviet Union it is based on studies of Markevich and Harrison (2011) and Moorsteen and Powell (Moorsteen and Powell 1966).

<sup>21</sup> See Table 4 (Davies, Harrison, and Wheatcroft 1994, 272).

<sup>22</sup> Calculated with the series of sectoral gross and net national product in 1937 prices in table P-1 of Moorsten and Powell (1966, 622–23).

munitions industries (43%), transportation and communications (13.2%), finance (9.2%), and military services (16.1%). Education (11.6%) and healthcare (12.2%) also demonstrated remarkable progress. The rapid growth of investment in education explains the remarkable success in the eradication of illiteracy. The total share of literacy of persons 9 years old or older increased from 51.1% in 1926 to 81.2% in 1939 (Table 4).

*[Table 4. Literacy of persons of 9 years old and older (%)]*

[Figure 10. Water Supply and Sewage in towns, 1917 – 1940]

Urban water supply and sewage also improved (Figure 10). In 1917 only 23 towns had a sewage system. By 1928, this number increased to 43, and by 1940 to 185. The total number of municipal water supply systems grew from 215 in 1917 to 292 in 1928 and 512 in 1940. Although some of the late 1930s growth was due to the incorporation of the developed territories of the Baltic countries, Romania, and Poland, access to modern water supply and sewage systems nevertheless improved.

In contrast, housing output (2.4%)<sup>23</sup> and trade and restaurants (2.7%) stagnated. This heterogeneity is also apparent in the difference between residential and non-residential capital growth rates, 1.4% and 9.8% respectively. Considering the mass rural-urban migration (Figure 3) it is not surprised that urban housing conditions worsened, with living area diminishing from 5.9 m<sup>2</sup> per person in 1926 to 4.6 m<sup>2</sup> in 1939 (Table 5). Chapman (1963, 166) also reported that urban per capita housing space in 1937 was 79% of the level of 1928.

*[Table 5. Living area in cities and towns, 1926 and 1940]*

The conventional measures of living standards are per capita consumption and real wages. Until mid-1990s, the literature<sup>24</sup> on progress in living standards in the 1920s and 1930s was

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<sup>23</sup> Moorsten and Powell (1966, 622–23)

<sup>24</sup> The literature, based on the empirical studies of Bergson (1961), Chapman (1963) and Gregory (1983).

pessimistic. Harrison (1994, 51–53) summarized this view. In 1928, the last year of the *mid-1920s period*, living standards stood below the pre-WW1 level, being worse for urban residents than for rural ones. The situation changed after 1928. The non-marked forms of the government procurement of food and fodder led to a terrible drop of consumption in the rural areas, especially in the famine years of 1932-33.<sup>25</sup> Chapman (1963, 166) reported real per capita wages in 1928-1954 at 1937 prices. Her data showed that in 1937 real wages, when measured in 1937 prices, were about 57% of the level of 1928. In 1940 they were just 54%. Bergson (1961, 252) demonstrated that in 1937 household consumption per *capita* was 97% the level of 1928, when measured in 1937 prices, and the fall of per *worker* consumption was even lower, just 76%. Taking into account reduced unemployment and diminishing per capita consumption, this sharp decline of household consumption per employed worker seems reasonable (Harrison 1994, 53). Growing investments in heavy industries and military expenditure at the expense of consumption is the main point of this literature.

However, some groups gained from industrialization, such as peasants who escaped famine, and workers, promoted to skilled supervisory or administrative positions, such as *stakhanovites*, (Harrison 1994, 53). Allen (2003, 148–50) added that workers could gain more or less depending to the industry they belong to. For example, employee in coal mining, administration, education, railroads, maritime, construction and credit gained the most, while textile and food processing demonstrated some fall.

Allen (1998; 2003, 132–49) has revised this pessimistic view, proving that real incomes and consumption improved in the second half of the 1930s, using economic, demographic, and biological indicators. First, he reported the remarkable growth of calories available per person per day, starting from 1933. By 1940, it approached 3,200, which was higher than the pre-WW1 level of 2,500–2,600 (Allen 2003, 135, Figure 7.1). Second, he revised Bergson’s calculations of real per capita consumption with the more advanced Fisher Ideal Index of consumption. The revised consumption index with adjusted market prices indicates that the level of per capita consumption of consumer goods in 1937 grew by 30% relative to 1928. Finally, he breaks down farm and

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<sup>25</sup> The evidence of disaster in the countryside in early 1930s in comparison with the relative prosperity of previous decades, including the war years, is provided by Osokina (2021). Aiming to survive in the early 1930s, peasants purchased basic food—mostly rye flour—through a system of special shops, *torgsin*’s, paying with golden coins, earned and saved in previous decades. The Soviet government used *torgsins* as the channel for the accumulation of “hard assets” to pay for modern imported equipment for industrialization. “Torgsin” comes from the Russian phrase, *TORG*[ovlia] *SIN*[ostrantsami], meaning trade with foreigners. The system of special shops, where a consumer was allowed to pay with foreign currencies, gold, or silver, was established in 1931 to supply foreign diplomats and sailors within the Soviet Union. Access to *torgsin*’s was later extended to any person, who wanted paying with foreign currency, gold, or silver. *Torgsins* were supplied from state funds of consumption goods as a priority in comparison with regular state retail shops.

nonfarm consumption in 1928–1939 and shows that by 1937 both measures grew relative to the level of 1928 (Figure 11).<sup>26</sup> He also pointed out that life expectancy at birth grew after 1934 and reached 42 years overall, exceeding the 1928 level. Taking into account that growing life expectancy reflects the growing birth rates and relatively low death rates of the second half of 1930 (Figure 1), this gives evidence in favor of some improvements of living standards. Considering real wages of workers in three Soviet cities, Moscow, Leningrad (Saint-Peterburg), and Kursk, Allen and Khaustova (2019) found that wages grew in mid-1920s, but dropped between 1928 and 1937.

Wheatcroft (2009) considers a wide range of welfare indicators on the basis of new data he collected, including food consumption surveys. Food consumption in calories grew, from 1922 to 1928 (Wheatcroft 2009, 32). However, until 1953 consumption never achieved the 1928 level.

*[Figure 11. Farm and non-farm consumption per head, 1928-1939]*

Biological measures of wellbeing—infant mortality, nutrition, child and adult stature—complement such economic indicators such as real wages or per capita consumption. Biological measures do not suffer from biases of deflation, such as the Gerschenkron effect, aggregation and national accounting problems and other problems, specific for the Soviet Union and discussed in the section on Soviet statistics. Biological measures are also easier for international comparisons.<sup>27</sup> Brainerd (2010) reassessed the standards of living in the Soviet Union, including the interwar period, using multiple records of stature for children and adults. She contributed to the literature on biological indicators of wellbeing in Russia and the Soviet Union.<sup>28</sup> The evidence she provides<sup>29</sup> supports the Allen’s (2003) vision of improvements of wellbeing in late 1930s. Brainerd (2010, 110–12) explains these improvements with the efficiency of the Soviet health system in controlling infections,<sup>30</sup> large gains in women’s education, and better access to clean water with urbanization.

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<sup>26</sup> Ellman (2004) has criticized the Allen’s approach on the analysis of consumption trends.

<sup>27</sup> Biological measures, however have specific biases. For example, Bodenhorn et al (2017) show that selection bias impacts conclusions in the literature on the decline of average heights in the United States in 1830-1890s. Section “Critical note on Soviet official statistics” also mentions sources for such biases in the Soviet Union, which are the specificity of data collection process on birth and death rates. Data of Brainerd (2010) on heights is also not representative for the Soviet Union.

<sup>28</sup> See also (Mironov and Freeze 2012; Mironov and A’Hearn 2008; Wheatcroft 1999; 2009)

<sup>29</sup> Wheatcroft (2009, 40) also reports on improvements in stature in the second half of 1930s.

<sup>30</sup> See (Chernichovsky, Ofer, and Potapchik 1996) on the review of the Soviet health system.

## ***6. Living standards of the Soviet Union in the interwar period and global development.***

### ***Discussion and conclusions***

The last two centuries were an extraordinary time in human history.<sup>31</sup> Living standards demonstrated significant improvement everywhere in the world, and the Soviet Union was no exception. The interwar period overlapped with a demographic transition, which started before the October Revolution and ended in the mid-1960s. Major changes in Europe included mass education, improvements in healthcare, increasingly widespread water supply and sewage in towns. Global crises, such as the First World War, impacted living standards through mass migrations, excess deaths, and disease. The First World War partially triggered the Russian revolution of October 1917 with the subsequent reforms, repressions, purges, and the Civil War (Millward and Baten 2010).

Economic development and the improvements in living standards were driven by complex interactions of three major forces, geography, global trends, and the consequences of the Russian revolution. The Russian Empire and the Soviet Union—which inherited 95% of its territory—was a large country with the substantial variation in climatic conditions, nationalities and cultures, differences in levels of development across regions, and multiple national movements which became active in late 19<sup>th</sup> century and especially after the First Russian revolution of 1905–1907.

Global trends include demographic transition, industrialization, migration, and the consequences of WW1. Demographic transition started in last decades of 19<sup>th</sup> century and ended by the 1960s. Industrialization started well before the revolution, triggered migration from villages to towns, expanding industry at the expense of agriculture, and stimulated education and literacy, which led to global progress in healthcare and sanitation. Finally, the consequences of WW1, including the most important for Russia, the October Revolution of November 7, 1917.

The October Revolution triggered political changes and reforms, and led to the Civil war, purges, repressions, and political terror. War communism and mass requisitions of food and fodder from villages lead to episodes of famine. Political changes also led to state control in economics, which helped the government reallocate resources to heavy industries and force industrialization. Political changes included some steps in the direction of social welfare, which guaranteed a certain level of public services, including education and healthcare, for all. These elements started working in the 1920s and were efficient. Success in education was substantial. By the late 1930s, mortality fell and life expectancy started growing. Recent studies show that the interwar period

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<sup>31</sup> (Prados de la Escosura and Cha 2021)

included years of disasters, which alternated with relatively quiet and prosperous years, such as the mid-1920s or 1934-1939. The development of national statistics provided the data necessary for state planning and control. Because of this the statistics on Soviet economic history are well documented.

### ***New directions & further research.***

The quantitative dimension of the research includes historical national accounts, such as the work of Maddison (1995) and his long running research project (Bolt and Zanden 2014). Dealing with the GDP data of the Soviet Union, developed by CIA until 1991, Maddison (1998) regretted that the corresponding CIA project was terminated in 1991. Unfortunately, since then there has been no further movement in the direction and updates of Soviet GDP data in 1928–1990. This revision is needed because since 1991 new rich historical statistics have become available, and because conceptually the series should be upgraded from the obsolete standards of *the Balance of the National Economy* to the level of SNA 2008.

One more step in this direction is the extension of the GDP series for the Union republics. Little is known about the GDP of interwar Kazakhstan or Ukraine. For Russia, the series only starts in 1961. Consideration of the Union republics creates additional opportunities for research in regional inequality.

Attention to the level of Union republics would help shed new light on the issue of the Soviet legacy in former Union republics, which can be expected in technological backwards or recent studies of life satisfaction.<sup>32</sup>

Rich data from regular households surveys, which has been explored by Wheatcroft (2009), could look at inequality between and within regions. The data of this survey are dispersed in various archives. Last but not least, is the economics of the Civil war 1918–1922. Territories under Bolshevik's control were surveyed and represented in official publications of TsSU in 1918–1926. While in 1918–1920, huge areas fell under control of the Whites. Economic activities did not stop and in some regions, statistics offices continued collecting data, and former branches of the State Bank of the Russian empire also provided financial services for governments of the Committee of Members of the Constituent Assembly in Kazan, various governments of Kolchak or Semenov in Siberia and Far East. Little is known about the economics in 1920–1922 of the Far East Republic

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<sup>32</sup> See, e.g., (Nikolova, Popova, and Otrachshenko 2019; Otrachshenko, Nikolova, and Popova 2021).

with a huge area (1,200,000 km<sup>2</sup>) and substantial population (1.7 million persons), which merged with Soviet Russia in October 1922.

### ***Further Readings***

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## Tables

Table 1. Living standards in 1922 and 1939

No		1922	1939 <sup>(1)</sup>
1	Population (thousands of persons at the end of the year) <sup>(2)</sup>	137 684	168 524
2	Territory (million km <sup>2</sup> ) <sup>(3)</sup>	21.67	21.67
3	Population Density (persons per km <sup>2</sup> )	6.35	7.78
4	GDP per capita <sup>(4)</sup> (in 2011 USD)	974	3 634
5	Life Expectancy at birth <sup>(5)</sup>	44	47
6	Literacy of persons of 9 years old and older (%) <sup>(6)</sup>	51.1	81.2
7	Birth rate (births per 1000 population) <sup>(2)</sup>	45.1	39.4
8	Death rate (deaths per 1000 population) <sup>(2)</sup>	43.3	22.9
9	Infant mortality rate (The number of deaths of infants under one year of age per 1,000 live births) <sup>(8)</sup>	252	168
10	Share of urban population by the end of the year <sup>(7)</sup>	16.2	32.9

### Sources and notes:

(1) Within the USSR territorial borders between September 24, 1924 and September 17, 1939.

(2) (Andreev, Darsky, and Kharkova 1993a, 119), high mortality level scenario. In 1922 includes population of Bukharan (around 2.5 million persons) and Khorezm (0.8 million) People's Soviet republics, which formally joined the Soviet Union on September 24, 1924.

(3) Officially, by January 1, 1923 the territory of the Soviet Union was 21.38 million km<sup>2</sup>. An area of 21.67 million km<sup>2</sup> is consistent with population data in line 1 and includes the territories of Bukharan (0.18 million km<sup>2</sup>) and Khorezm (0.06 million km<sup>2</sup>) People's Soviet republics, which formally joined the Soviet Union in 24 September 1924 (TsSU SSSR 1965, 9).

(4) Maddison Project Database, version 2020, (Bolt and Zanden 2020). Data for the Soviet Union originally comes from (Markevich and Harrison 2011, 1913-1928; Moorsteen and Powell 1966, T-47; 1928-1940). The level of GDP per capita of 1922 seems questionable for long-run comparisons, because it reflects the negative shocks of WW1 and the Civil war. In 1913, GDP per capita of the Soviet Union, adjusted for USSR-15, was 2,254 in 2011 USD.

(5) Data on 1922 are given for 1926 and the European part of the USSR only; (TsSU SSSR 1975, 139).

(6) Data on 1922 are given on the basis December 17, 1926 census; 1939 on the basis of the January 17, 1939 census; (TsSU SSSR 1965, 176).

(7) 1922 - (TsSU SSSR 1975, 7), by the end of the year; 1939 - (TsSU SSSR 1965, 9), on the population census on 17 January 1939.

(8) (Andreev, Darskij, and Kharkova 1992, 149), high mortality level scenario

Table 2. Population of the Union republics in 1926 and 1939 (thousands)

	1926	1939
<b>USSR-11*</b>	147 028	167 936
Armenia	881	1 282
Azerbaijan	2 314	3 205
Belarus	4 983	5 569
Georgia	2 677	3 540
<u>Kazakhstan</u>	5 987	5 615
Kyrgyzstan	1 002	1 458
Moldova**	242	288
<u>Russia</u>	92 737	107 978
Tajikistan	1 032	1 484
Turkmenistan	998	1 252
<u>Ukraine***</u>	29 515	29 826
Uzbekistan	4 660	6 440

Sources: (TsSU SSSR 1965, 34–37; Andreev, Darsky, and Khar’kova 1998, table 5.6; Rudnytskyi et al. 2015, table 5; Tolts 2021, table 3), author’s calculations. See Appendix 1 and, specifically, Table A2 of for details.

Notes: Data are related to the borders of the Soviet Union between 1924 and 1939.

(\*) USSR-11 refers to the territory of the Soviet Union from October 27, 1924 to September 17, 1939, which included 11 Union republics by 1936 (see comment to Table 2).

(\*\*) Moldova here is Moldavian Autonomous Soviet Socialist Republic. It was a part of the Ukrainian SSR before August 2, 1940, and later part of the Moldavian SSR. See Table 2 of the main text for details.

(\*\*\*) Excluding population of the territory of the Ukrainian SSR, which was included in the Moldavian SSR after August 2, 1940 (see also Table 2 of the main text).

Historical names of the Union republics in 1926 and 1939 are given in Appendix A1.



Table 3. Life Expectancy at birth in USSR and Russia

	Overall	Men	Women
1896-1897	32	31	33
1926-1927	44	42	47
1938-1939	47	44	50
1958-1959	69	64	72
1970-1971	70	65	74

a. USSR

	Overall	Men	Women
1896-1897	31	29	32
1926-1927	43	40	46
1938-1939	n/a	n/a	n/a
1958-1959	68	63	71
1970-1971	69	63	74

b. Russia

Sources: USSR - (TsSU SSSR 1975, 139); Russia - (Goskomstat of Russia 1998, 164, table 24).

Notes:

USSR:

1896–1897 – data are given for 50 governments of the European part of the Russian Empire.

1926–1927 – for European part of USSR (TsSU SSSR 1975, 139).

1938–1939 – for USSR within the boundaries as of 17<sup>th</sup> January 1939 (1924–1939).

Starting from 1958, data are given for USSR within the boundaries of 1946-1991.

Russia: data for 1896–1897 and 1926 are based on life tables, compiled for European Russia

within the boundaries of RSFSR as of January 1, 1927 (Goskomstat of Russia 1998, 165–66).

*Table 4. Literacy of persons of 9 years old and older (%)*

TOTAL	TOTAL	MEN	WOMEN
9 February 1897	24	35.8	12.4
17 December 1926	51.1	66.5	37.1
17 January 1939	81.2	90.8	72.5
15 January 1959	92	97.2	88
URBAN			
9 February 1897	82.3	63.3	39.3
17 December 1926	76.3	85.3	67.6
17 January 1939	89.5	95.7	83.9
15 January 1959	94.5	98.4	91.5
RURAL			
9 February 1897	19.6	31.3	8.6
17 December 1926	45.2	61.9	30
17 January 1939	76.7	88.1	66.5
15 January 1959	89.6	96	84.7

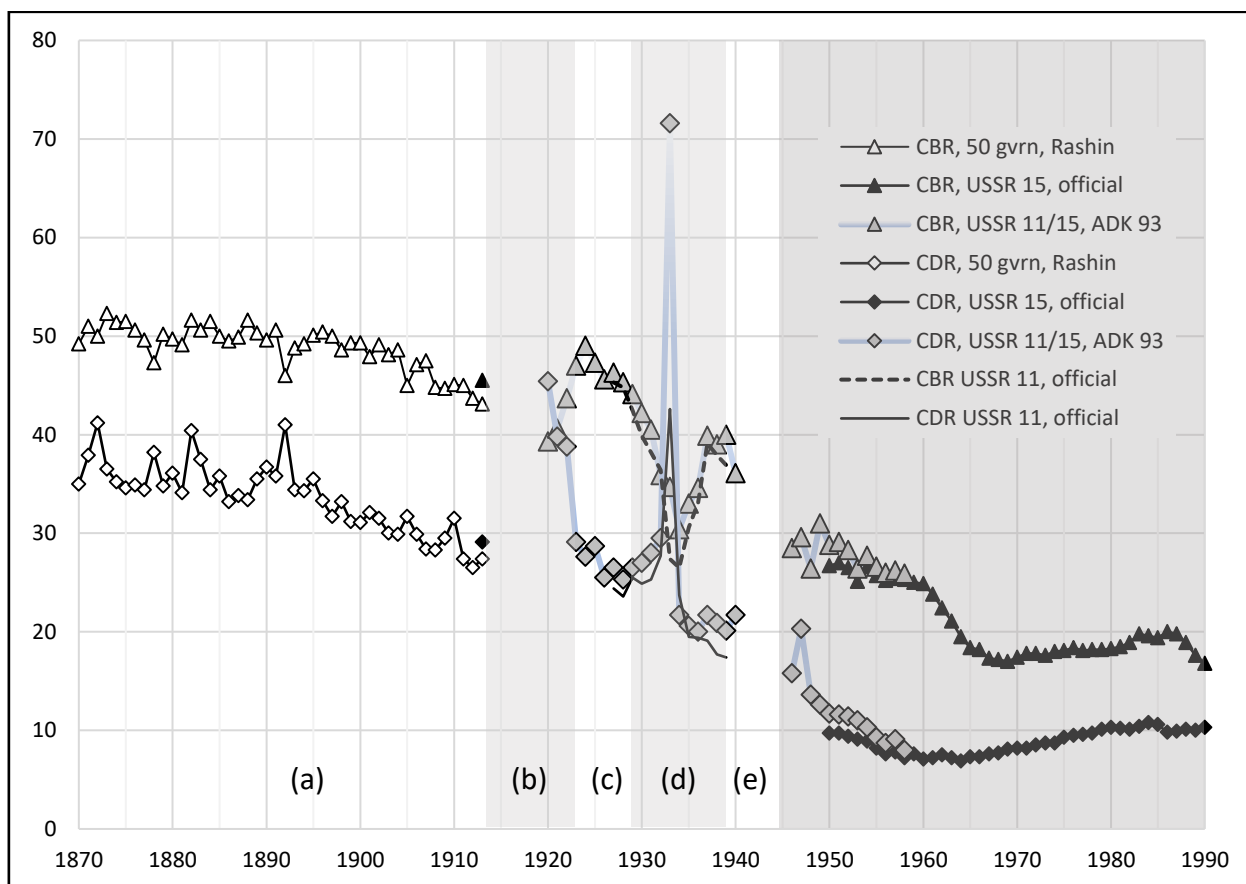
*Source: (TsSU SSSR 1965, 178–81)*

Table 5. Living area in cities and towns, 1926 and 1940

	1926	1939
Urban housing stock, million m <sup>2</sup>	153.8	254.2
Urban population, million persons	26.09	55.45
Living floor, m <sup>2</sup> per person	5.89	4.58

Sources: Russian State Archive of Economics (RGAE), fond 1562, op. 41, issue 65

Figure 1. Crude birth and death rates in Russia and USSR in 1870 – 1990 (births/deaths per 1000 persons)



*Sources:*

50 gvrn, Rashin - (Rashin 1956, 155–56, Table 114), data are given for 50 provinces of the European part of the Russian Empire.

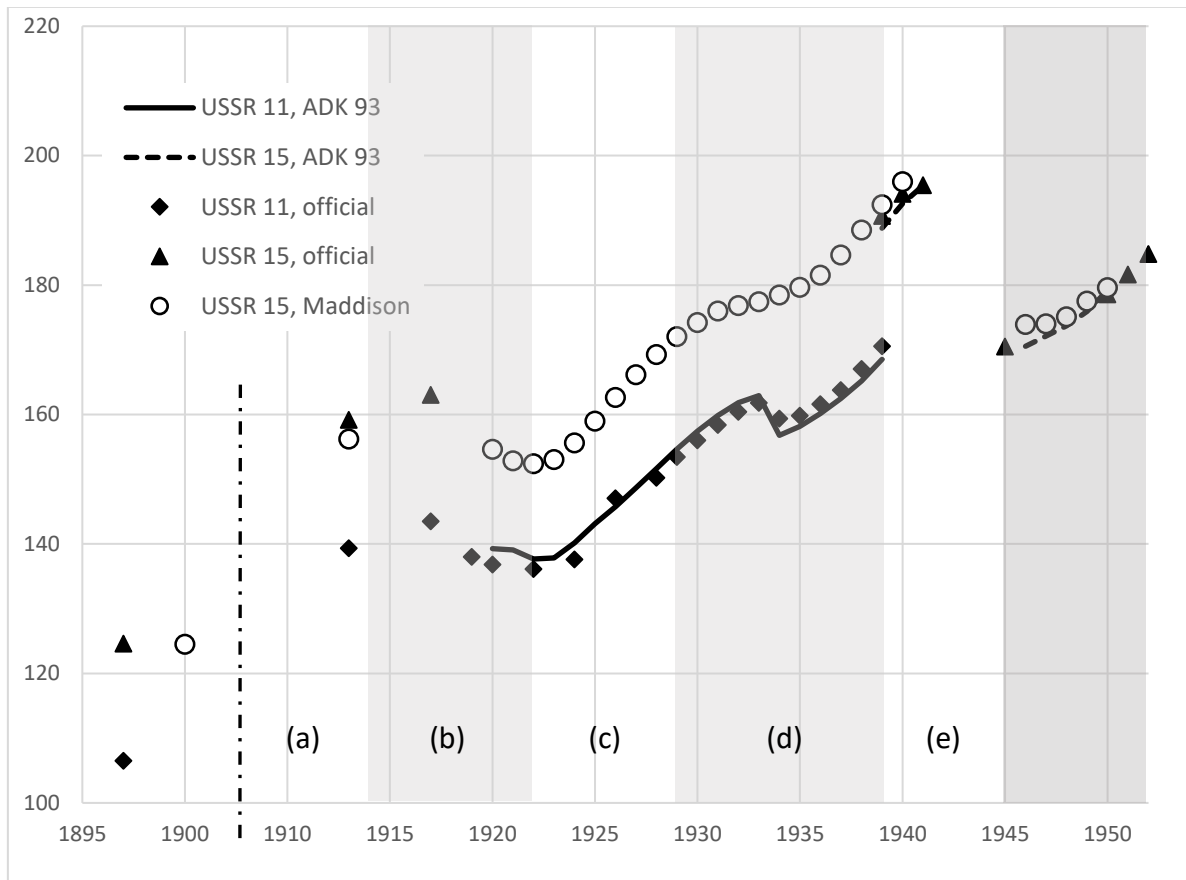
*Notes:* Crude Birth Rates (CBR) and Crude Death Rates (CDR) are defined as the number of live births/deaths occurring among the population of a given geographical area during a given year, per 1,000 of the mid-year total population of the given geographical area during the same year (OECD Glossary Statistics Terms; <https://stats.oecd.org/glossary/detail.asp?ID=491>)

USSR-11 refers to the territory of the Soviet Union from October 27, 1924 to September 17, 1939, which included 11 Union republics by 1936 (see comment to Table 2). USSR-15 refers to the territory of the Soviet Union after 1946, which included the territory of 15 Union republics by 1989 (Table 2) within the borders of 1946–1991. USSR-11/15 is similar to USSR-11 until 1939, and USSR-15 from 1940 onwards. Official data for USSR-11 in 1926–1939, developed by TsSU for internal use in 1964, were later published in (Andreev, Darsky, and Kharkova 1993a, 40, Table 15).

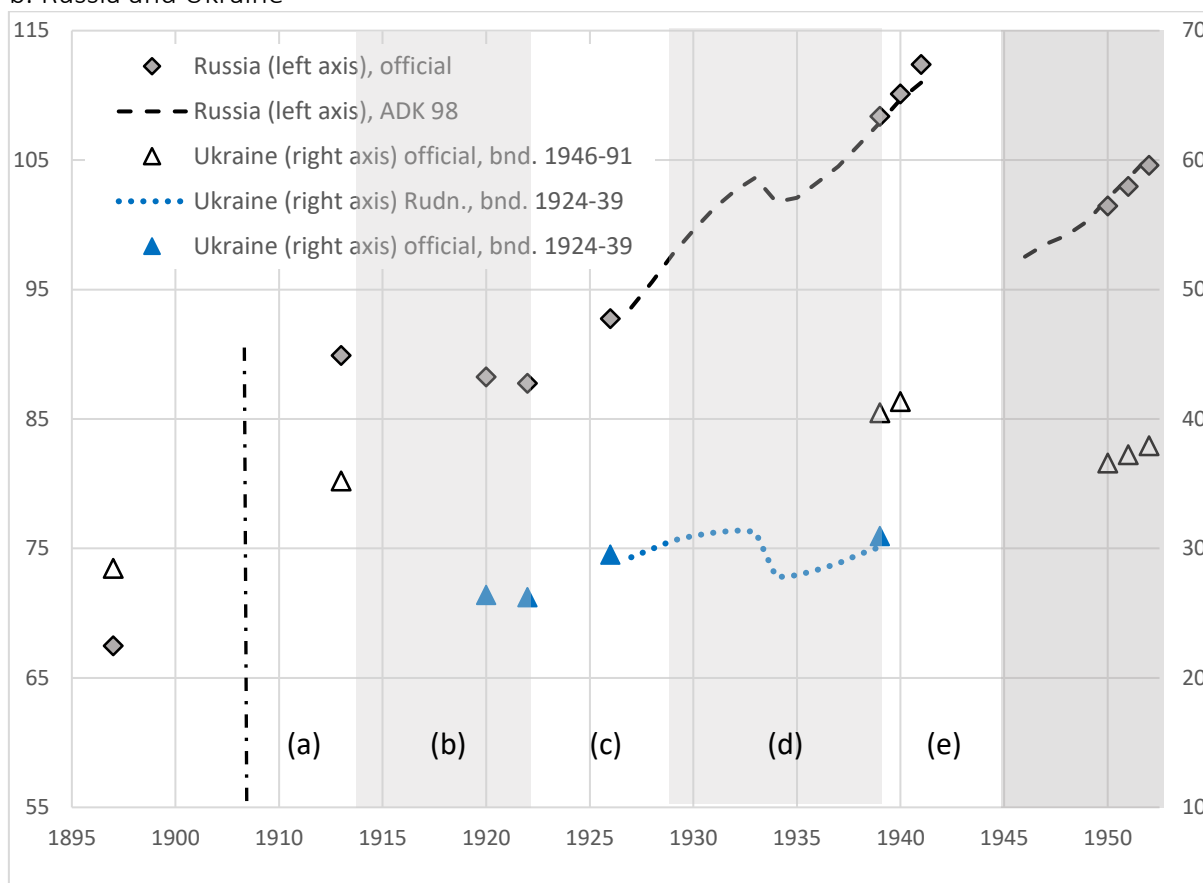
For readability some alternative CDR and CBR series, available in the literature, are skipped.

Figure 2. Population of the Soviet Union, Russia and Ukraine in 1897 – 1950 (millions of persons at the beginning of year)

a. USSR



## b. Russia and Ukraine



### Sources:

USSR-11, ADK 93 - (Andreev, Darsky, and Kharkova 1993a, 118–19), high mortality version;

USSR-15, ADK 93 - (Andreev, Darsky, and Kharkova 1993a, 118–19);

USSR-11, official - (Andreev, Darsky, and Kharkova 1993a, 40, table 15; TsSU SSSR 1965, 9–10; 1975, 7).

USSR-15, official - (CIS Stat 2020, 52; TsSU SSSR 1965, 9).

USSR-15, Maddison – (Bolt and Zanden 2020).

Russia, official - (Goskomstat SSSR 1988, 8–15; Andreev, Darsky, and Khar'kova 1998, 95, table 5.6).

Russia, ADK 98 - (Andreev, Darsky, and Khar'kova 1998, tables 5.5 & 6.4)

Ukraine official - (Goskomstat SSSR 1988, 8–15)

Ukraine Rudn. - (Rudnytskyi et al. 2015).

### Comments:

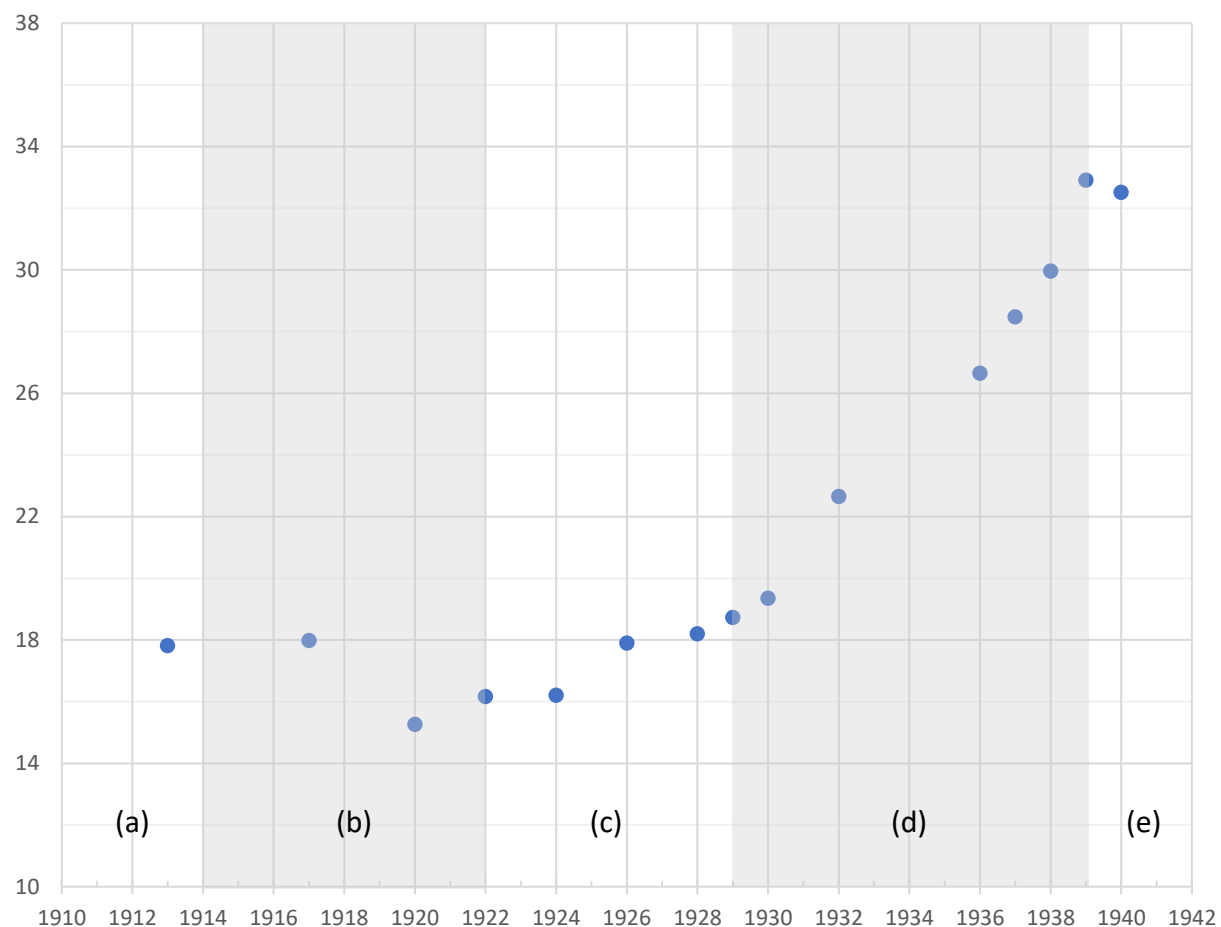
Data for 1926 and 1939 are given by the date of corresponding population censuses, December 17, 1926 and January 17, 1939.

USSR-11 refers to the territory of the Soviet Union from November 24, 1924 to September 17, 1939, which included 11 Union republics by 1936 (Table 2).

USSR-15 refers to the territory of the Soviet Union in 1946–1991, which included 15 Union republics by 1989 (Table 2) within the borders of 1946–1991.

Historical names of the Union republics are given in Appendix A1.

Figure 3. Share of urban population in USSR in 1913-1940



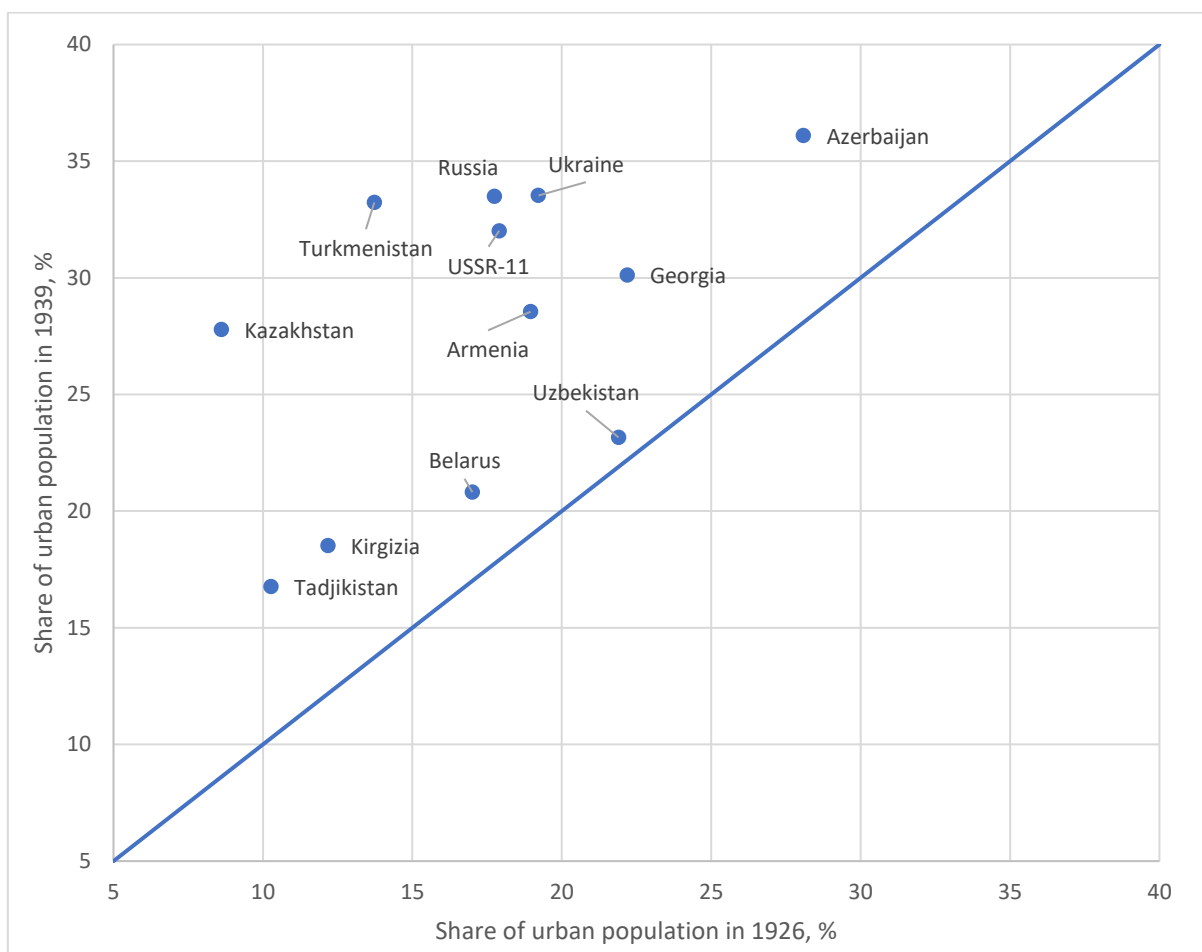
Sources: (TsSU SSSR 1965, 9–10; 1975, 7)

Comments:

Data before 1940 are related to the borders of the Soviet Union between 1924 and 1939, and from 1940 the 1946–1991 borders.

Population data are given at the beginning of the year, except years of population censuses, when data are given by the date of the census, or February 9, 1897; December 17, 1926; January 15, 1939; and January 15, 1959.

Figure 4. Shares of urban population in Union Republics in 1926 and 1939

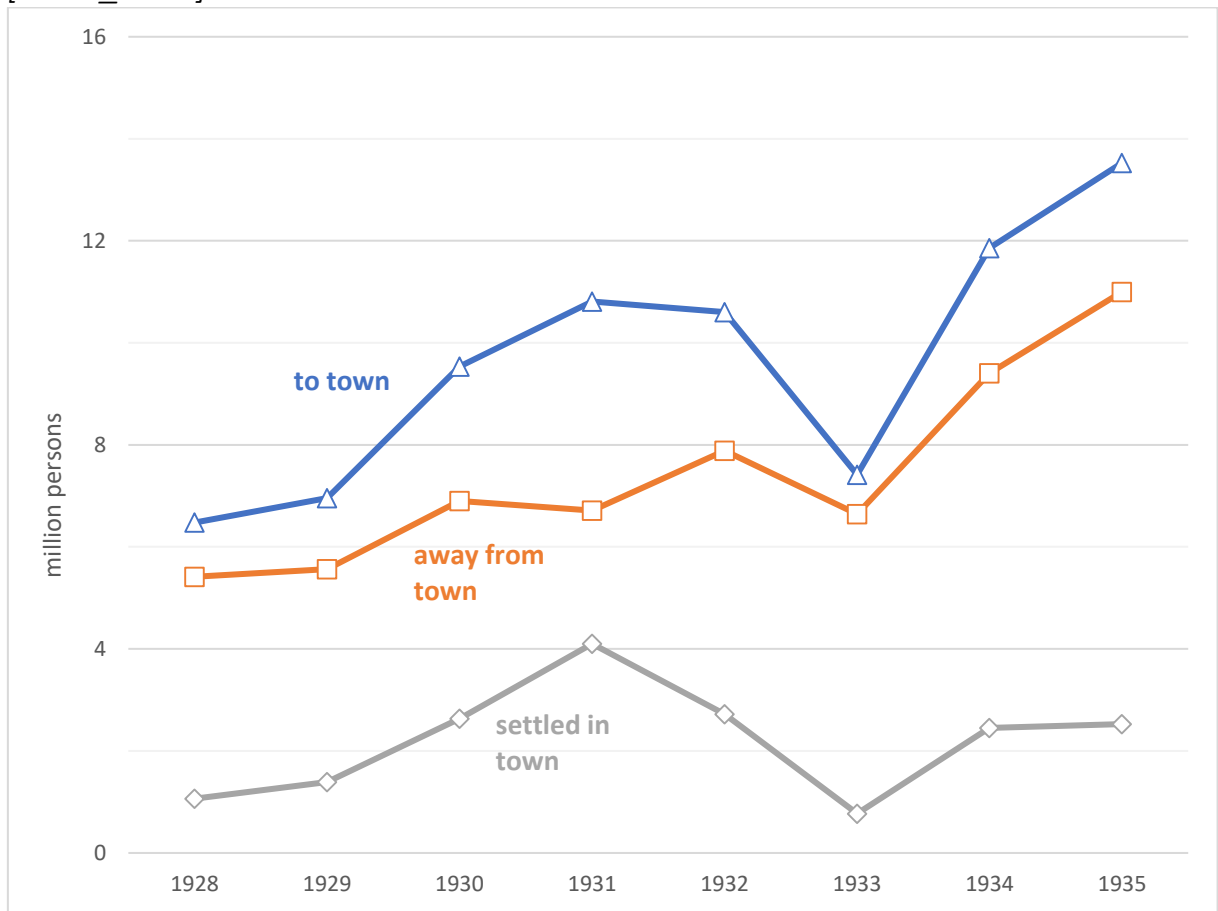


Sources: (Goskomstat SSSR 1988, 145)

Comments: Historical names of the Union republics in 1926 and 1939 are given in Appendix A1.

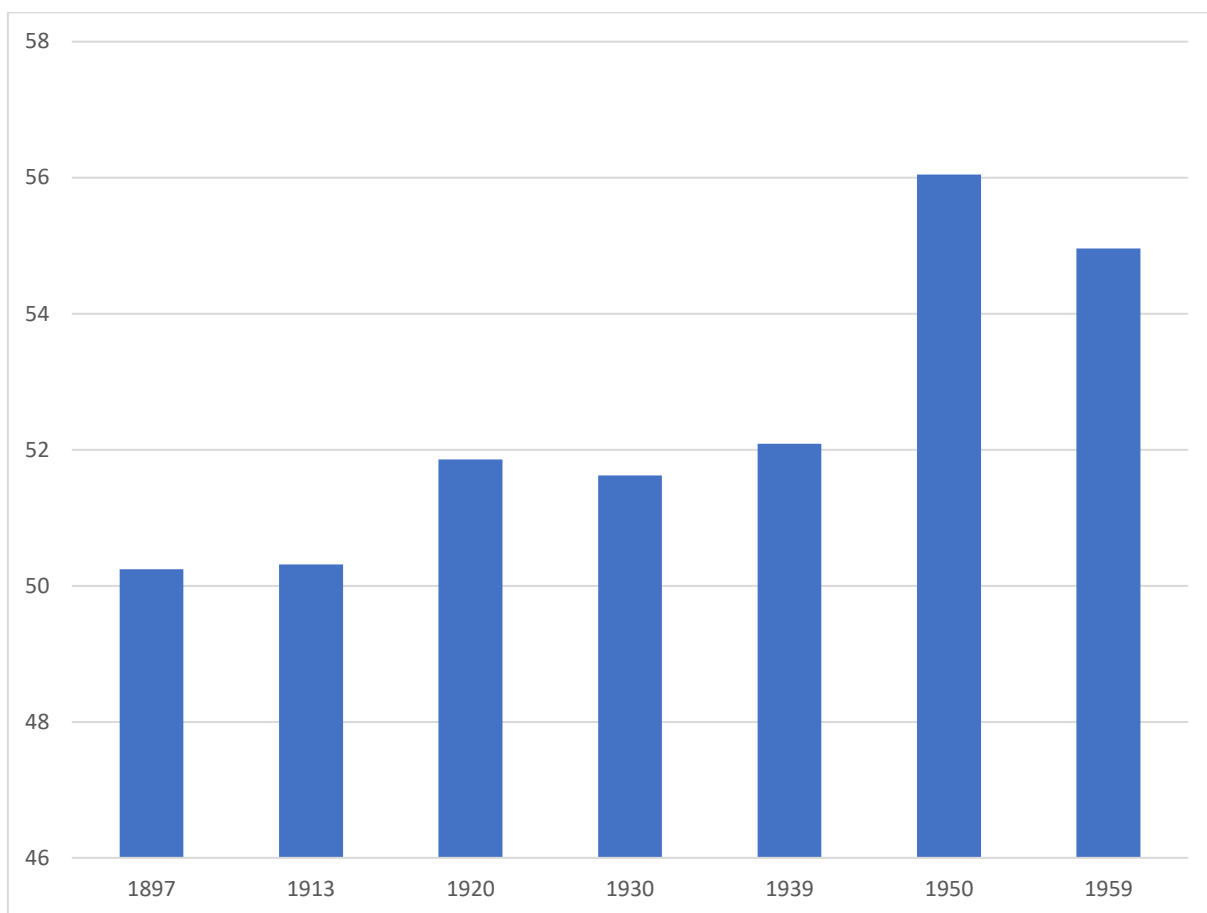


Figure 5. Rural-to-urban migration in 1928-1935 in USSR in 1928-1935  
[#URB\_USSR]



Source: (TsUNKhU Gosplana SSSR 1936, 545)

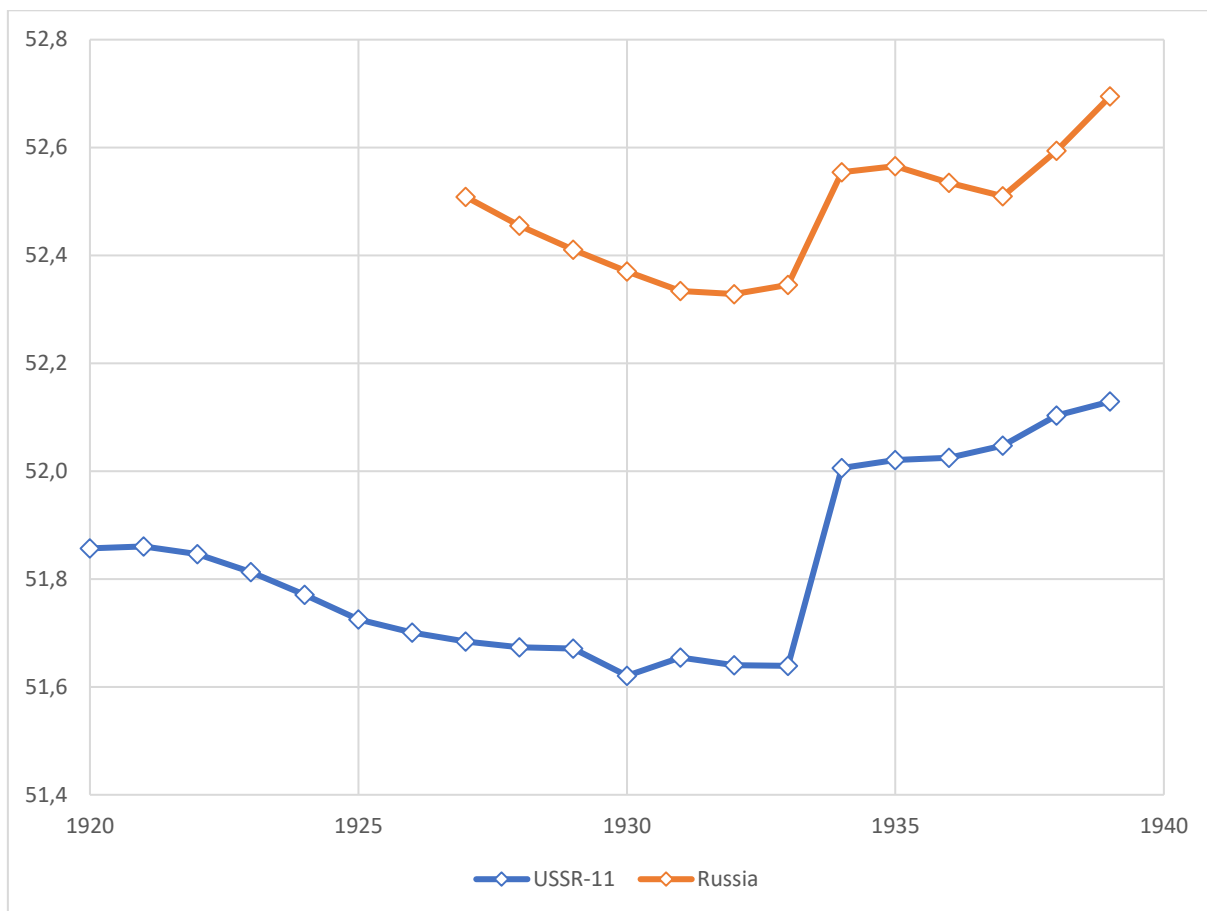
Figure 6. Women's share in 1897-1959 in USSR  
(% of total population)



Sources: 1897, 1913 - (Goskomstat SSSR 1988, 144); 1920-1959 - (Andreev, Darsky, and Kharkova 1993a).

Comments: Data for 1920 and 1930 are for the borders of the Soviet Union between 1924 and 1939, the rest are for the 1946–1991 borders.

Figure 7. Women's share in 1920-1939 in USSR and Russia  
(% of total population)



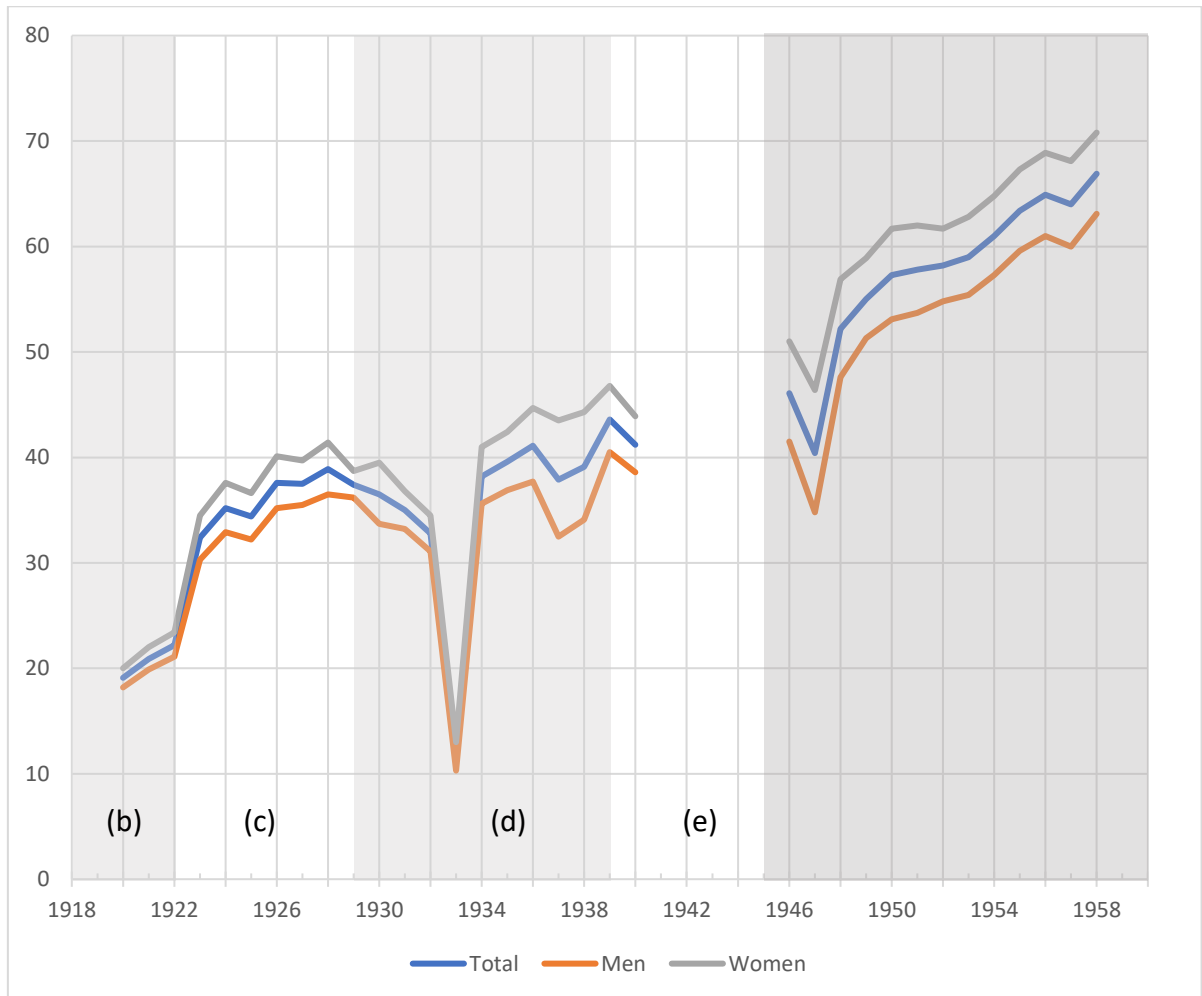
Sources: (Andreev, Darsky, and Kharkova 1993a; 1998).

Comments: Data are related to the borders of the Soviet Union between 1924 and 1939.

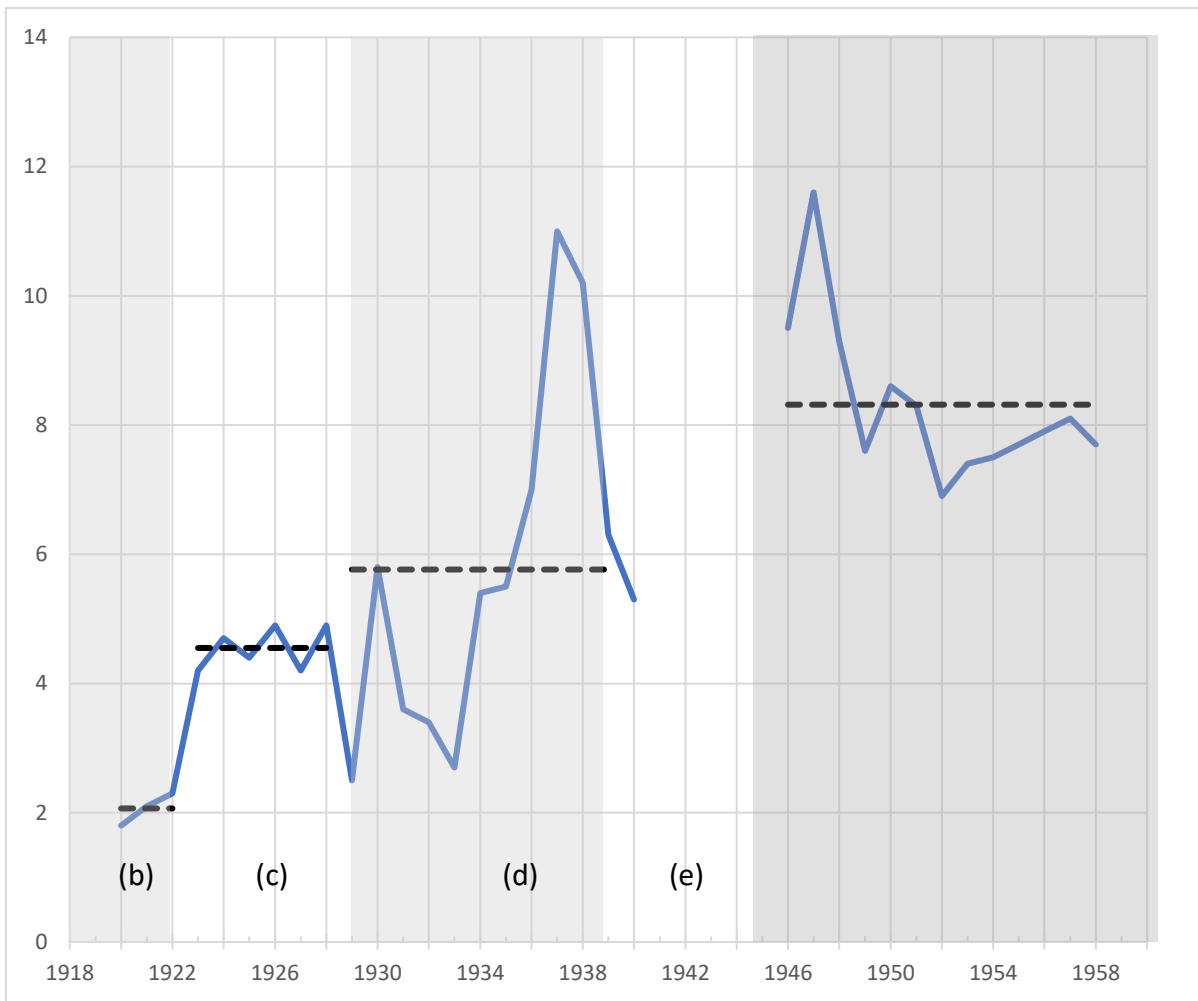
Figure 8. Expectations of life at birth and infant mortality, 1920-1958

a. Expectation of life at birth for men and women

Average years of life

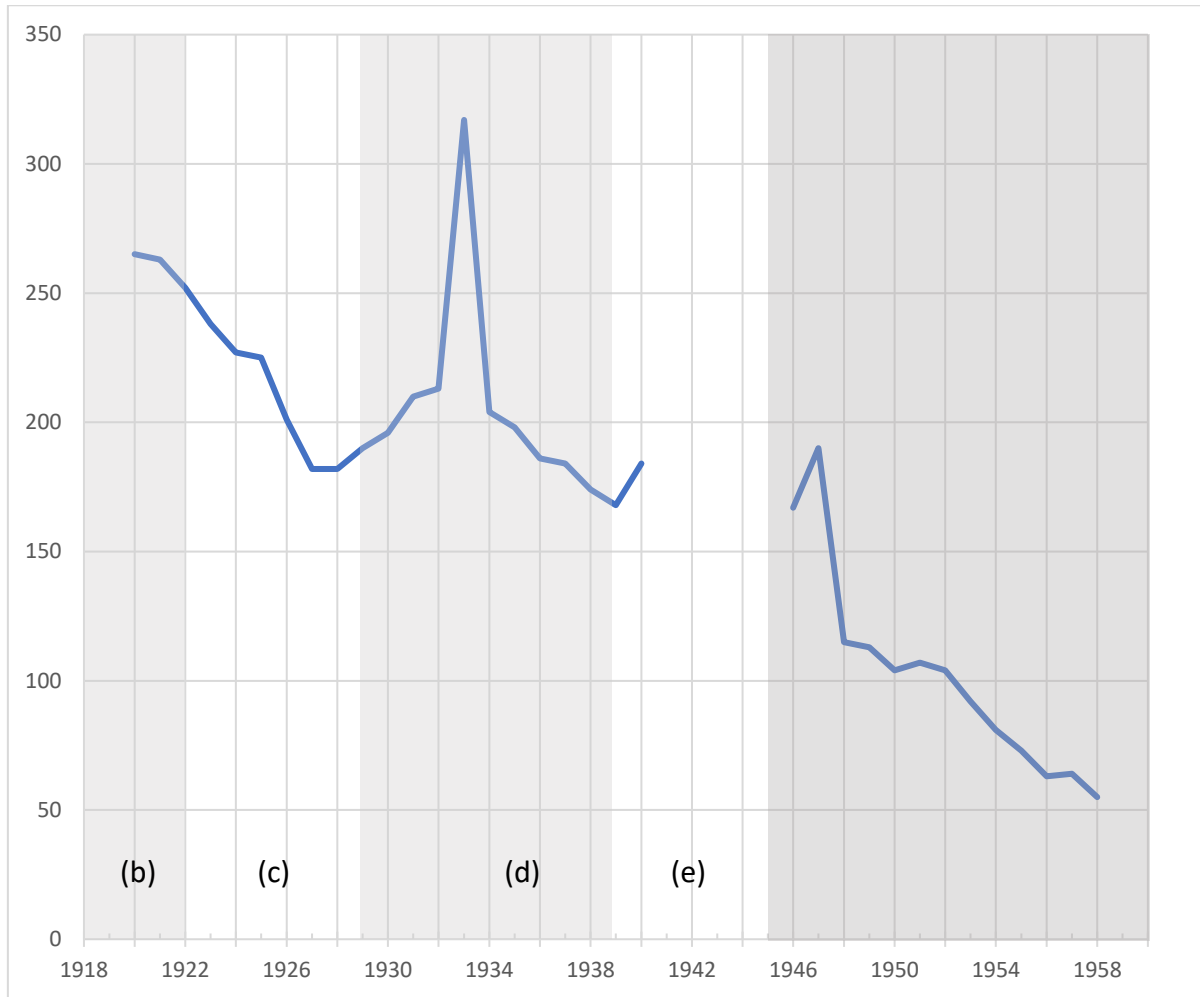


b. The gap in expectation of life at birth between men and women  
Average years of life



c. Infant mortality

The number of deaths of infants under one year of age per 1,000 live births

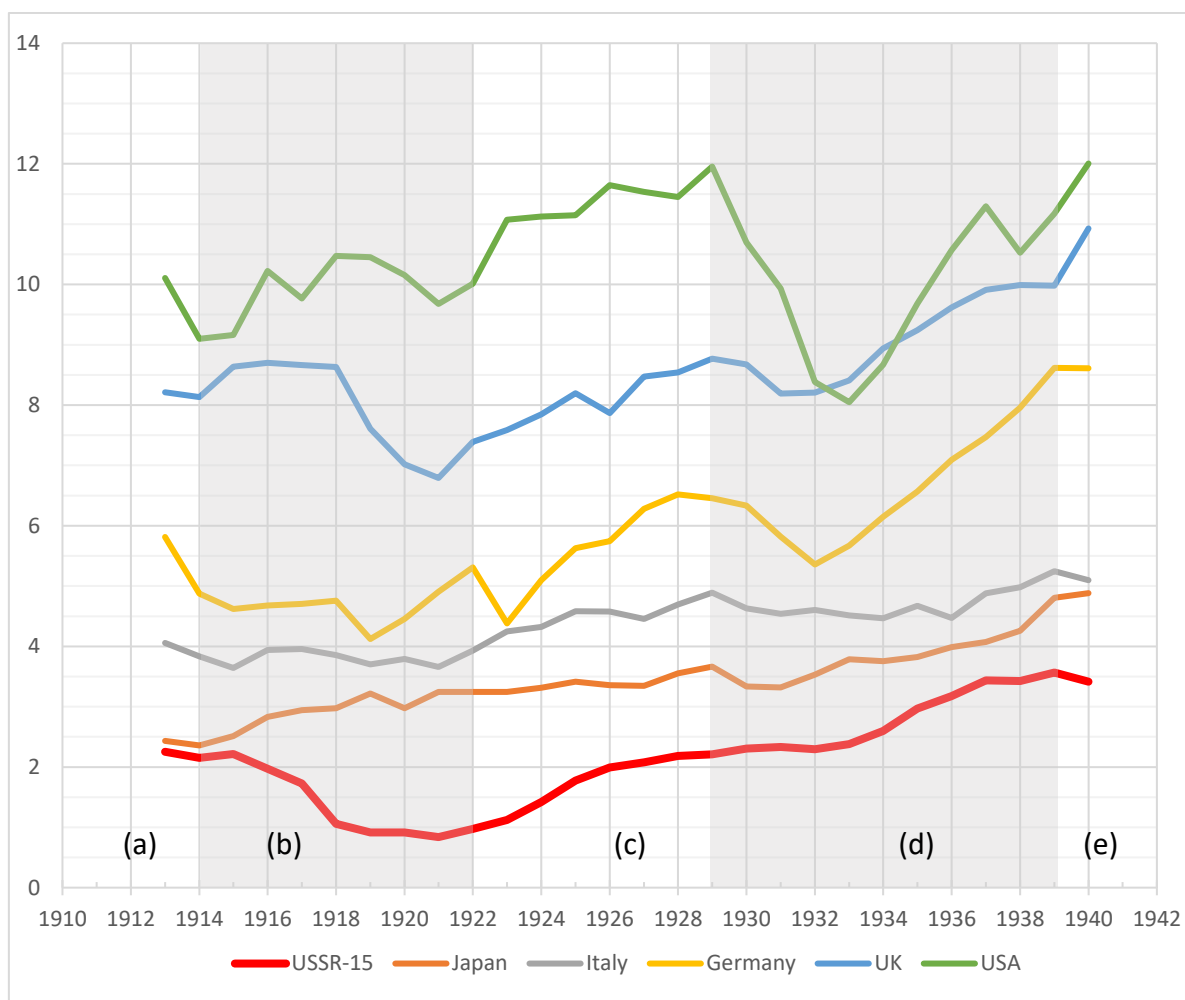


Source: (Andreev, Darskij, and Kharkova 1992, 148–49), high mortality level scenario

Notes: Data for 1920–1938 refer to the territory of the Soviet Union from November 24, 1924 to September 17, 1939, which included 11 Union republics by 1936 (Table 2).

Starting from 1929, data refer to the territory of the Soviet Union in 1946–1991, which included the territory of 15 Union republics by 1989 (Table 2) within the borders of 1946–1991.

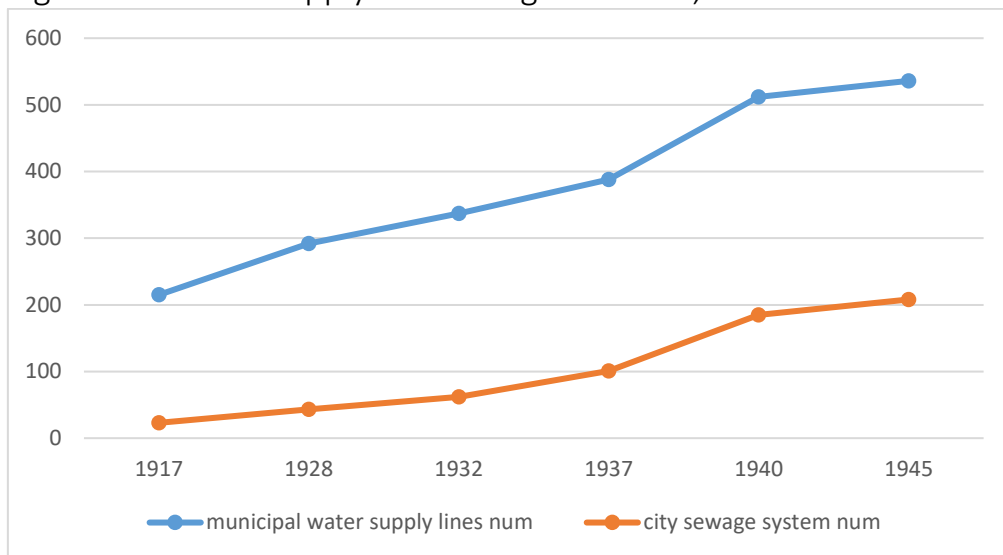
Figure 9. Real GDP per capita of the Soviet Union in the comparative perspective, 1913-1940 (thousands of 2011 USD)



Source: Maddison Project Database, version 2020, (Bolt and Zanden 2020). Data for the Soviet Union originally come from (Markevich and Harrison 2011, 1913–1928; Moorsteen and Powell 1966,T-47; 1928–1940).

Note: Data for the Soviet Union refer to the territory of the Soviet Union in 1946–1991, which includes the territory of 15 Union republics by 1989 (Table 2) within the borders of 1946–1991.

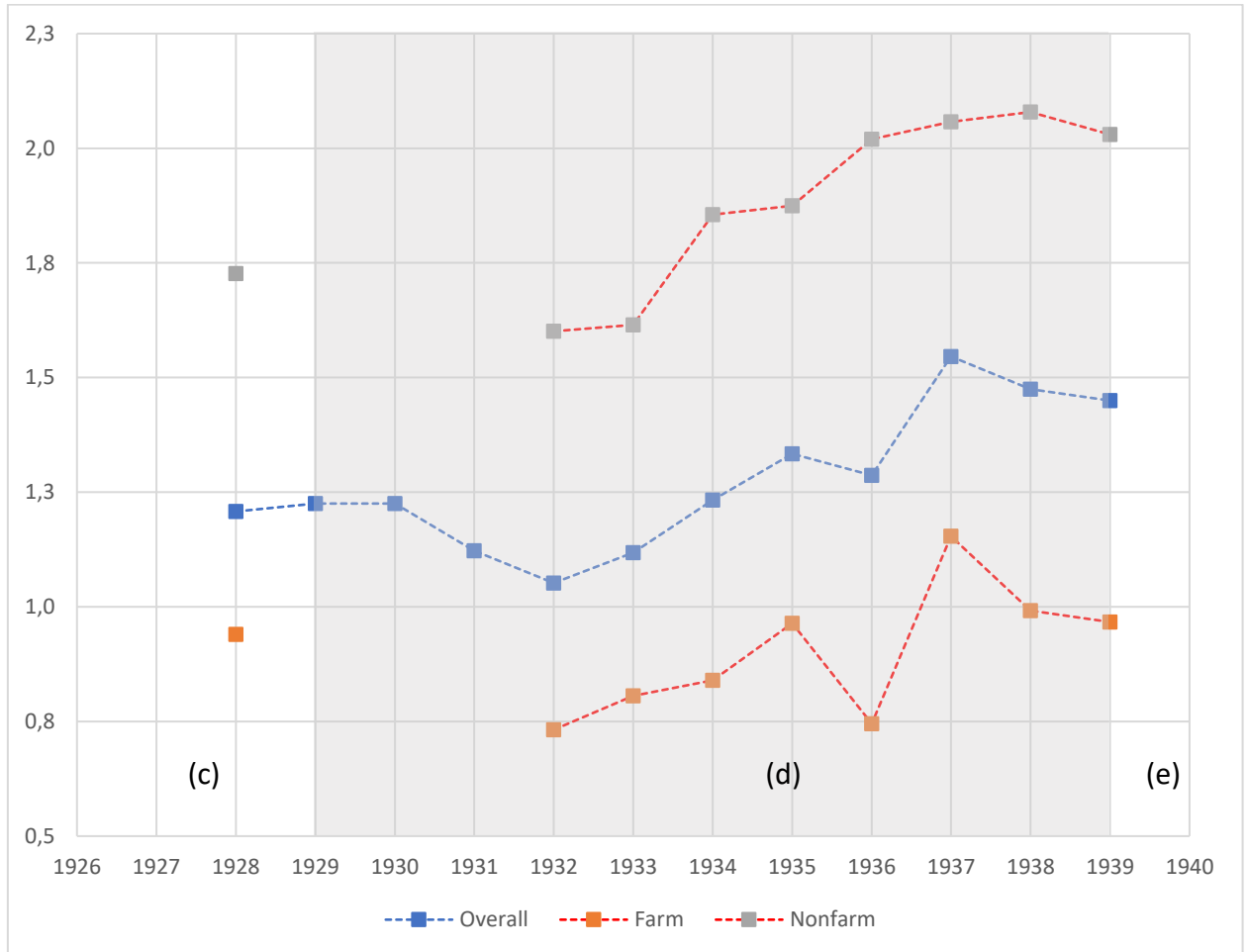
Figure 10. Water Supply and Sewage in towns, 1917 - 1945



Sources: The Russian State Archive of Economics, Fond 1562, op. 41, file 65



Figure 11. Farm and non-farm consumption per head, 1928-1939  
(1937 thousand rubles per person per year)



Source: (Allen 1998, 1077, Table 1)

## Appendix

### Appendix A1. The USSR in the interwar period: an overview

Table A1.1. #TERR. Territorial Entities of the Soviet Union In 1920-1989

Present country name	1920	1922	1924	1926	1929	1936	1940	1989
Armenia	<i>SSR of Armenia</i> (29.11.1920)/Erivan	SSR of Armenia (12.03.1922) [ <b><u>TSFSR</u></b> ] (30.12.1922)/Erivan	SSR of Armenia [ <b><u>TSFSR</u></b> ]/Erivan	SSR of Armenia [ <b><u>TSFSR</u></b> ]/Erivan	SSR of Armenia [ <b><u>TSFSR</u></b> ]/Erivan	<b><u>Armenian SSR</u></b> (05.12.1936)/Yerevan (renamed from Erivan in 1936)	<b><u>Armenian SSR</u></b> /Yerevan	<b><u>Armenian SSR</u></b> /Yerevan
Azerbaijan	<i>Azerbaijan SSR</i> (28.04.1920)/Baku	Azerbaijan SSR (12.03.1922) [ <b><u>TSFSR</u></b> ] (30.12.1922)/Baku	Azerbaijan SSR [ <b><u>TSFSR</u></b> ]/Baku	Azerbaijan SSR [ <b><u>TSFSR</u></b> ]/Baku	Azerbaijan SSR [ <b><u>TSFSR</u></b> ]/Baku	<b><u>Azerbaijan SSR</u></b> (05.12.1936)/Baku	<b><u>Azerbaijan SSR</u></b> /Baku	<b><u>Azerbaijan SSR</u></b> /Baku
Belarus	<i>Byelorussian SSR</i> (31.08.1920)/Minsk	<b><u>Byelorussian SSR</u></b> (30.12.1922)/Minsk	<b><u>Bvelorussian SSR</u></b> /Minsk	<b><u>Bvelorussian SSR</u></b> /Minsk	<b><u>Bvelorussian SSR</u></b> /Minsk	<b><u>Bvelorussian SSR</u></b> /Minsk	<b><u>Bvelorussian SSR</u></b> /Minsk	<b><u>Bvelorussian SSR</u></b> /Minsk
Georgia	<i>Democratic Republic of Georgia</i> (26.05.1918)/Tiflis	SSR of Georgia (25.02.1921) [ <b><u>TSFSR</u></b> ] (30.12.1922)/Tiflis	SSR of Georgia [ <b><u>TSFSR</u></b> ]/Tiflis	SSR of Georgia [ <b><u>TSFSR</u></b> ]/Tiflis	SSR of Georgia [ <b><u>TSFSR</u></b> ]/Tiflis	<b><u>Georgian SSR</u></b> (05.12.1936)/Tbilisi (renamed from Tiflis in 1936)	<b><u>Georgian SSR</u></b> /Tbilisi	<b><u>Georgian SSR</u></b> /Tbilisi
Kazakhstan	<i>Kirghiz Autonomous SSR</i> (26.08.1920) [ <b><u>RSFSR</u></b> ]/Orenburg	Kirghiz Autonomous SSR [ <b><u>RSFSR</u></b> ]/Orenburg	Kirghiz Autonomous SSR [ <b><u>RSFSR</u></b> ]/Orenburg	Kazakh Autonomous SSR (06.1925) [ <b><u>RSFSR</u></b> ]/Kzyl-Orda (17.07.1925)	Kazakh Autonomous SSR [ <b><u>RSFSR</u></b> ]/Alma-Ata (1927)	<b><u>Kazakh SSR</u></b> (05.12.1936)/Alma-Ata	<b><u>Kazakh SSR</u></b> /Alma-Ata	<b><u>Kazakh SSR</u></b> /Alma-Ata

Kyrgyzstan	<i>Parts of Semirechye oblast and Sirdaryo oblast of Turkestan ASSR [RSFSR]</i>	Parts of Dzhetyysui oblast (renamed from Semirechye oblast in 22.10.1922 ) and Sirdaryo oblast of Turkestan ASSR [ <b>RSFSR</b> ]	Kara-Kirghiz Autonomous Oblast (14.10.1924)[ <b>RSFSR</b> ]/Pishpek	Kirghiz Autonomous Oblast (25.05.1925), Kirghiz Autonomous SSR (01.02.1926) [ <b>RSFSR</b> ]/Frunze (renamed from Pishpek in 25.05.1926)	Kirghiz Autonomous SSR [ <b>RSFSR</b> ]/Frunze	<b>Kirghiz SSR</b> (05.12.1936)/Frunze	<b>Kirghiz SSR</b> /Frunze	<b>Kirghiz SSR</b> /Frunze
Latvia	<i>Republic of Latvia (18.11.1918)/Riga</i>	<i>Republic of Latvia/Riga</i>	<i>Republic of Latvia/Riga</i>	<i>Republic of Latvia/Riga</i>	<i>Republic of Latvia/Riga</i>	<i>Republic of Latvia/Riga</i>	<b>Latvian SSR (05.08.1940)</b> /Riga	<b>Latvian SSR</b> /Riga
Lithuania	<i>Lithuania (16.12.1918)/Kaunas (de facto, provisional capital)</i>	<i>Lithuania/Kaunas (de facto, provisional capital)</i>	<i>Lithuania/Kaunas (de facto, provisional capital)</i>	<i>Lithuania/Kaunas (de facto, provisional capital)</i>	<i>Lithuania/Kaunas (de facto, provisional capital)</i>	<i>Lithuania/Kaunas (de facto, provisional capital)</i>	<b>Lithuanian SSR</b> (03.08.1940)/Vilnius (09.1939)	<b>Lithuanian SSR</b> /Vilnius
Moldova	<i>part of Odessa Governorate [Ukrainian SSR]; Bessarabia (disputed territory, controlled by Romania)</i>	Balta okrug of Odessa Governorate [ <b>Ukrainian SSR</b> ]/Balta; <i>Bessarabia (disputed territory, controlled by Romania)</i>	Moldavian Autonomous Soviet Socialist Republic (12.10.1924) [ <b>Ukrainian SSR</b> ]/Balta; <i>Bessarabia (disputed territory, controlled by Romania)</i>	Moldavian Autonomous Soviet Socialist Republic [ <b>Ukrainian SSR</b> ]/Balta; <i>Bessarabia (disputed territory, controlled by Romania)</i>	Moldavian Autonomous Soviet Socialist Republic [ <b>Ukrainian SSR</b> ]/Tiraspol (from 1929); <i>Bessarabia (disputed territory, controlled by Romania)</i>	Moldavian Autonomous Soviet Socialist Republic [ <b>Ukrainian SSR</b> ]/Tiraspol; <i>Bessarabia (disputed territory, controlled by Romania)</i>	<b>Moldavian SSR</b> (02.08.1940)/Kishinev	<b>Moldavian SSR</b> /Kishinev
Russia	<i>Russian Socialist Federative Soviet Republic (07.11.1917)/Moscow ; Far Eastern Republic (06.04.1920)/Verkhneudinsk (1920), Chita (1920-1922)</i>	<b>Russian Socialist Federative Soviet Republic, RSFSR</b> (30.12.1922)/Moscow	<b>Russian Socialist Federative Soviet Republic, RSFSR</b> /Moscow	<b>Russian Socialist Federative Soviet Republic, RSFSR</b> /Moscow	<b>Russian Socialist Federative Soviet Republic, RSFSR</b> /Moscow	<b>Russian Soviet Federative Republic, RSFSR</b> /Moscow	<b>RSFSR</b> /Moscow; <b>Karelo-Finnish SSR</b> (31.03.1940)/Petrozavodsk	<b>RSFSR</b> /Moscow

Tajikistan	<i>part of Turkestan ASSR (30.04.1918) [RSFSR]; part of Bukharan PSR (08.10.1920)</i>	part of Fergana Oblast of Turkestan ASSR [ <b>RSFSR</b> ]; part of Bukharan PSR	Tajik Autonomous Soviet Socialist Republic (14.10.1924) [ <b>Uzbek SSR</b> ]/Diushanbe	Tajik Autonomous Soviet Socialist Republic [ <b>Uzbek SSR</b> ]/Diushanbe	<b>Tajik SSR</b> (05.12.1929)/Stalinabad (Diushanbe was renamed Stalinabad in 1929)	<b>Tajik SSR</b> /Stalinabad	<b>Tajik SSR</b> /Stalinabad	<b>Tajik SSR</b> /Dushanbe (Stalinabad was renamed to Dushanbe in 1961)
Turkmenistan	<i>Transcaspian Oblast of Turkestan Autonomous Soviet Socialist Republic (30.04.1918) [RSFSR]; part of Bukharan People's Soviet Republic; part of Khorezm People's Soviet Republic</i>	Turkmen oblast of Turkestan ASSR [ <b>RSFSR</b> ]; Turkmen Autonomous Oblast [Bukharan PSR]; Turkmen Autonomous Oblast [Khorezm PSR]	<b>Turkmen SSR</b> (27.10.1924) /Ashkhabad	<b>Turkmen SSR</b> /Ashkhabad	<b>Turkmen SSR</b> /Ashkhabad	<b>Turkmen SSR</b> /Ashkhabad	<b>Turkmen SSR</b> /Ashkhabad	<b>Turkmen SSR</b> /Ashkhabad
Ukraine	<i>Ukrainian SSR (10.03.1919)/Kharkov; Western Ukraine; parts of Bessarabia (disputed territory, controlled by Romania)</i>	<b>Ukrainian SSR</b> (30.12.1922)/Kharkov; Western Ukraine (Poland); parts of Bessarabia (disputed territory, controlled by Romania)	<b>Ukrainian SSR</b> /Kharkov; Western Ukraine (Poland); parts of Bessarabia (disputed territory, controlled by Romania)	<b>Ukrainian SSR</b> /Kharkov; Western Ukraine (Poland); parts of Bessarabia (disputed territory, controlled by Romania)	<b>Ukrainian SSR</b> /Kharkov; Western Ukraine (Poland); parts of Bessarabia (disputed territory, controlled by Romania)	<b>Ukrainian SSR</b> /Kyiv (from 24.06.1934); Western Ukraine (Poland); parts of Bessarabia (disputed territory, controlled by Romania)	<b>Ukrainian SSR</b> /Kyiv	<b>Ukrainian SSR</b> /Kyiv
Uzbekistan	<i>part of Turkestan Autonomous Soviet Socialist Republic [RSFSR], Bukharan People's Soviet Republic, Bukharan PSR; Khorezm People's Soviet Republic, Khorezm PSR</i>	part of Turkestan Autonomous Soviet Socialist Republic, Turkestan ASSR [ <b>RSFSR</b> ], part of Bukharan PSR; part of Khorezm PSR	<b>Uzbek SSR</b> (27.10.1924)/Bukhara	<b>Uzbek SSR</b> /Samarkand (since May 1925)	<b>Uzbek SSR</b> /Samarkand	<b>Uzbek SSR</b> /Tashkent (since 17.08.1930)	<b>Uzbek SSR</b> /Tashkent	<b>Uzbek SSR</b> /Tashkent
Estonia	<i>Republic of Estonia (24.02.1918)/Tallinn</i>	<i>Republic of Estonia/Tallinn</i>	<i>Republic of Estonia/Tallinn</i>	<i>Republic of Estonia/Tallinn</i>	<i>Republic of Estonia/Tallinn</i>	<i>Republic of Estonia/Tallinn</i>	<b>Estonian SSR</b> (06.08.1940)/Tallinn	<b>Estonian SSR</b> /Tallinn

*Comments:*

Table rows match post-Soviet countries (former Union republics) in their modern borders. Each cell includes the historical names of territorial entities in a certain year. The date of the foundation of this entity is mentioned in parenthesis. If applicable, the capital of this entity is given after a slash. The date a certain city was declared the capital is given in parenthesis. If this entity was not a part of the Soviet Union for whatever reason it is given in italics. For example, SSR of Armenia was founded on November 29, 1920. Its capital was Erivan. Since the Soviet Union was founded later, in 1920 Armenia was not a part of the Soviet Union.

If a certain territory included more than one entity, and *for whatever reason* it is important to highlight this, such entities are split by a semicolon. For example, in 1920, Russia included the Russian Socialist Federative Soviet Republic, which was proclaimed immediately after the October revolution on November 7, 1917, and the Far Eastern Republic, which was founded on April 6, 1920, having a capital in Verkhnedudinsk (Ulan-Ude) and later Chita, and which merged with RSFSR on November 15, 1922.

If a certain territory was “promoted” to the level of Union republic, it is given in bold and underlined. The date of this promotion is given in parenthesis. For example, Russia, or RSFSR, became a Union republic on December 30, 1922.

If an entity is subordinated to a certain Union republic, the corresponding Union republic is given in square brackets. For example, in 1922–1936 SSR of Armenia was a part of the Transcaucasian Socialist Federative Soviet Republic (TSFSR), or from 1924 to 1940 the Moldavian Autonomous Soviet Socialist Republic was a part of the Ukrainian SSR.

The case of Turkmenia illustrates *why it makes sense* to highlight some territories within a country cell. In 1924, the Turkmen SSR was founded by the merger of the Turkestan Autonomous Soviet Socialist Republic, part of RSFSR; the Turkmen Autonomous Oblast, part of formally the independent Bukharan People's Soviet Republic; and the other Turkmen Autonomous Oblast, part of the formally independent Khorezm People's Soviet Republic. Another illustrative example is Moldova. The Moldavian SSR was founded on August 2, 1940 by the merger of some territories of the Moldavian Autonomous SSR, part of Ukrainian SSR, and Bessarabia—the Bessarabia Governorate of the Russian Empire before the October Revolution, then disputed territory, controlled by Romania until August 1940. The remaining territory of Moldavian Autonomous SSR was included in the Odessa Oblast of the USSR.

The final point is about capitals. In some cases, capitals moved. For example, until June 24, 1934, the capital of Ukrainian SSR was Kharkov (Kharkiv), and later Kiev (Kyiv). In other cases, capital cities were renamed, or the spelling of the names were changed. For example, in 1936 capitals of Georgia (Tiflis) and Armenia (Erivan) were renamed Tbilisi and Yerevan.

## Appendix A2. Population of the Union republics in 1926 and 1939

Considering multiple territorial changes of the Union republics in the interwar period, and manipulations with the official publications, some additional attention is needed for the construction of consistent population numbers.

The departure point is the official publication of the population censuses data (TsSU SSSR 1965) 1926 and 1939, adjusted for the borders of the Soviet Union and the Union republics as on January 17, 1939, revised by Soviet demographers in the 1960s (Andreev, Darsky, and Kharkova 1993a; 1998). Table A1 represents them, including the part of the Moldavian Autonomous SSR, which was resubordinated from Ukraine to Moldova in 1940.

*Table A2.1. Population of the Union republics, population censuses of 1926 and 1939*

a. Population census of 17 December 1926  
(thousands of persons)

	<b>Total</b>	<b>Urban</b>	<b>Rural</b>	<b>Urban share, %</b>
USSR-11*	147 028	26 314	120 714	17.9%
Armenia	881	167	714	19.0%
Azerbaijan	2 314	650	1 664	28.1%
Belarus	4 983	848	4 135	17.0%
Georgia	2 677	594	2 083	22.2%
Kazakhstan	5 987	519	5 468	8.7%
Kyrgyzstan	1 002	122	880	12.2%
Moldova**	242	31	211	12.8%
Russia	92 737	16 455	76 282	17.7%
Tajikistan	1 032	106	926	10.3%
Turkmenistan	998	137	861	13.7%
Ukraine	29 515	5 672	23 843	19.2%
Uzbekistan	4 660	1 013	3 647	21.7%

b. Population census of 17 January 1939  
(thousands of persons)

	<b>Total</b>	<b>Urban</b>	<b>Rural</b>	<b>Urban share, %</b>
USSR-11*	170 557	56 125	114 432	32.9%
Armenia	1 282	366	916	28.5%
Azerbaijan	3 205	1 157	2 048	36.1%
Belarus	5 569	1 375	4 194	24.7%

Georgia	3 540	1 066	2 474	30.1%
Kazakhstan	5 990	1 672	4 318	27.9%
Kyrgyzstan	1 458	270	1 188	18.5%
Moldova**	288	75	213	26.0%
Russia	108 263	36 289	71 974	33.5%
Tajikistan	1 484	249	1 235	16.8%
Turkmenistan	1 252	416	836	33.2%
Ukraine***	31 786	11 702	20 084	36.8%
Uzbekistan	6 440	1 488	4 952	23.1%

*Sources:* 1926 and 1939 – population on the days of the censuses of December 17, 1926 and January 17, 1939 (TsSU SSSR 1965, 34–37)

1939 adjusted: population data for 1939, adjusted with recent updates for Kazakhstan, Russia and Ukraine as follows. For Kazakhstan  $6\,515 = 5\,990$  (column 2) + 375 (the number of prisoners in forced labor camps whose census forms were reallocated from Russia to Kazakhstan; see Tolts (2021, Table 3)). For Russia this data are obtained from (Andreev, Darsky, and Khar’kova 1998, Table 5.6), Ukraine  $29\,826 = 30\,114$  (Rudnytskyi et al. 2015, Table 5) – 288 (row “Moldova” in column (2)). The total sum for USSR 167,936,000 is 0.35% lower than 168,524,000 (Andreev, Darsky, and Kharkova 1993a, Appendix 1, high mortality case by January 1, 1939).

*Notes:* Data are related to the borders of the Soviet Union between 1924 and 1939.

(\*) USSR-11 refers to the territory of the Soviet Union from October 27, 1924 to September 17, 1939, which included 11 Union republics by 1936 (see comment to Table 2).

(\*\*) Moldova here is the part of the Moldavian Autonomous SSR, which belonged to the Ukrainian SSR before August 2, 1940, and was included in the Moldavian SSR afterwards. See Table 2 of the main text for details.

(\*\*\*) Excluding population of the territory of the Ukrainian SSR, which was included in the Moldavian SSR after August 2, 1940 (see also Table 2 of the main text).

*Table A2.2. Population of the Union republics by 17 January 1939. Adjustments for Kazakhstan, Russia, and Ukraine (thousands)*

	1926	1939	1939 adjusted
<b>USSR-11*</b>	147 028	170 557	167 936
Armenia	881	1 282	1 282
Azerbaijan	2 314	3 205	3 205
Belarus	4 983	5 569	5 569
Georgia	2 677	3 540	3 540
Kazakhstan	5 987	5 990	5 615

Kyrgyzstan	1 002	1 458	1 458
Moldova**	242	288	288
Russia	92 737	108 263	107 978
Tajikistan	1 032	1 484	1 484
Turkmenistan	998	1 252	1 252
Ukraine***	29 515	31 786	29 826
Uzbekistan	4 660	6 440	6 440

*Sources:* 1926 and 1939 – population on the days of the censuses of December 17, 1926 and January 17, 1939 (TsSU SSSR 1965, 34–37)

1939 adjusted: population data for 1939, adjusted with recent updates for Kazakhstan, Russia and Ukraine as follows. For Kazakhstan  $6\,515 = 5\,990$  (column 2) + 375 (the number of prisoners in forced labor camps whose census forms were reallocated from Russia to Kazakhstan; see Tolts (2021, Table 3)). For Russia this data are obtained from (Andreev, Darsky, and Khar'kova 1998, Table 5.6), Ukraine  $29\,826 = 30\,114$  (Rudnytskyi et al. 2015, Table 5) – 288 (row “Moldova” in column (2)). The total sum for USSR 167,936,000 is 0.35% lower than 168,524,000 (Andreev, Darsky, and Kharkova 1993a, Appendix 1, high mortality case by January 1, 1939).

*Notes:* Data are related to the borders of the Soviet Union between 1924 and 1939.

(\*) USSR-11 refers to the territory of the Soviet Union from October 27, 1924 to September 17, 1939, which included 11 Union republics by 1936 (see comment to Table 2).

(\*\*) Moldova here is the part of the Moldavian Autonomous SSR, which belonged to the Ukrainian SSR before August 2, 1940, and was included in the Moldavian SSR afterwards. See Table 2 of the main text for details.

(\*\*\*) Excluding population of the territory of the Ukrainian SSR, which was included in the Moldavian SSR after August 2, 1940 (see also Table 2 of the main text).

*Table A2.3. Sex structure, population censuses of 1926 and 1939*

a. Population census of 17 December 1926

	<b>Total</b> (thousands of persons)	<b>Men</b> (thousands of persons)	<b>Women</b> (thousands of persons)	<b>Women's share</b> (%)
USSR-11*	147 028	71 043	75 985	48.3
Armenia	881	449	432	51.0
Azerbaijan	2 314	1 213	1 101	52.4
Belarus	4 983	2 440	2 543	49.0
Georgia	2 677	1 353	1 324	50.5
Kazakhstan	5 987	3 063	2 924	51.2
Kyrgyzstan	1 002	521	481	52.0
Moldova**	242	119	123	49.2



Russia	92 737	44 001	48 736	47.4
Tajikistan	1 032	546	486	52.9
Turkmenistan	998	530	468	53.1
Ukraine	29 515	14 338	15 177	48.6
Uzbekistan	4 660	2 470	2 190	53.0

b. Population census of 17 January 1939

	<b>Total</b> (thousands)	<b>Men</b> (thousands)	<b>Women</b> (thousands)	<b>Women's share</b> (%)
USSR-11*	170 557	81 695	88 862	47.9
Armenia	1 282	649	633	50.6
Azerbaijan	3 205	1 643	1 562	51.3
Belarus	5 569	2 697	2 872	48.4
Georgia	3 540	1 765	1 775	49.9
Kazakhstan	5 990	3 112	2 878	52.0
Kyrgyzstan	1 458	742	716	50.9
Moldova**	288	136	152	47.2
Russia	108 263	51 048	57 215	47.2
Tajikistan	1 484	769	715	51.8
Turkmenistan	1 252	645	607	51.5
Ukraine***	31 786	15 160	16 626	47.7
Uzbekistan	6 440	3 329	3 111	51.7

Source: (TsSU SSSR 1965, 168–71).

Notes: Data are related to the borders of the Soviet Union between 1924 and 1939.

(\*) USSR-11 refers to the territory of the Soviet Union from October 27, 1924 to September 17, 1939, which included 11 Union republics by 1936 (see comment to Table 2).

(\*\*) Moldova here is the part of the Moldavian Autonomous SSR, which belonged to the Ukrainian SSR before August 2, 1940, and was included in the Moldavian SSR afterwards. See Table 2 of the main text for details.

(\*\*\*) Excluding population of the territory of the Ukrainian SSR, which was included in the Moldavian SSR after August 2, 1940 (see also Table 2 of the main text).

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