

# Russia's Home Front, 1914-1922: The Economy

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Between 1913 and 1919 a country with the largest territory, the third largest population, and the fourth largest economy of any in the world was reduced to an average level not seen in Europe since the Middle Ages, and found today only in the poorest countries of Africa and Asia.<sup>1</sup> By the time recovery was under way, 13 million people – nearly one in ten of the prewar population – had suffered premature death.<sup>2</sup> Meanwhile, powerful political and social forces propelled the economy onto a new trajectory away from a relatively decentralized market economy with predominantly private ownership of land and capital towards state ownership, permanent mobilization, and the allocation of resources by centralized plans. In due course this became the basis for an industrialized, nuclear-armed, global superpower.

In this chapter we tell the story of Russia's economy through the Great War, Civil War, and postwar recovery. In the first section we review briefly the economic background of the war. The second section addresses the most important trends of the war up to 1917; we find that the Russian economy declined gently, but its performance was no worse than that of other continental powers. Third, we turn to the period of the Civil War, which saw the greatest economic disaster of Russia's turbulent twentieth century, reverting the economy to a level not seen in Europe since medieval times. Finally, we consider the historical significance of Russia's experiment with "war communism."

## Economic Background to the War

From 1885 to 1905, Russia was one of Europe's most rapidly growing economies. Economic activity expanded at 4 percent annually. Allowing for

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<sup>1</sup> The authors thank Johann Custodis, R. W. Davies, Peter Gatrell, Paul R. Gregory, Silvana Malle, Elena Osokina, and the editors for advice, and their respective institutions for research support.

<sup>2</sup> Andrei Markevich and Mark Harrison, "Great War, Civil War, and Recovery: Russia's National Income, 1913 to 1928," *Journal of Economic History* 71, 3 (2011): 679.

population growth, average incomes rose by more than three fifths over the period.<sup>3</sup>

In 1905 the Russian economy went into a severe slump; average incomes did not recover fully until just before the outbreak of the war. The crisis was primarily internal; although financial markets were increasingly integrated across Europe, Russia was not yet part of a pan-European business cycle.<sup>4</sup> In 1905 and 1906 an unprecedented wave of worker strikes and demonstrations combined with an upsurge of traditional peasant protests; the latter had been rumbling in the provinces since 1902.<sup>5</sup> The main targets of these protests were landlords, industrial employers, and the government. Everything got much worse for the government when Japan's navy sank two thirds of the Russian fleet in the straits of Tsushima in May 1905. For several years Russia was gripped by civil conflicts, conservative repressions, and risky constitutional and land reforms.<sup>6</sup> The effects on economic growth were predictable: private spending fell sharply for a while.<sup>7</sup> From 1909, however, the economy was growing again.

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<sup>3</sup> Paul R. Gregory, *Russian National Income, 1885-1913* (Cambridge: Cambridge University Press, 1982) 56-57.

<sup>4</sup> That is, changes in the level of economic activity were not particularly synchronized between Russia and its neighbours. See Marc Flandreau, Juan Flores, Clemens Jobst, and David Khoudour-Casteras, "Business Cycles, 1870-1914," in *The Cambridge Economic History of Modern Europe*, edited by Stephen Broadberry and Kevin H. O'Rourke, vol. 2: *1870 to the Present* (Cambridge, Cambridge University Press, 2010); V. I. Bovykin, *Rossiia nakanune velikikh svershenii. K izucheniiu sotsial'no-ekonomicheskikh predposylok Velikoi Oktiabr'skoi Sotsialisticheskoi revolutsii* (Moscow: Nauka, 1988), 120-33.

<sup>5</sup> S. M. Dubrovskii, *Stolypinskaia zemel'naia reforma. Iz istorii sel'skogo khoziaistva i krest'ianstva Rossii v nachale XX veka* (Moscow: Akademiia nauk SSSR, 1963), 518, reports annual data of urban and rural protests in this period.

<sup>6</sup> Leopold Haimson, "The Problem of Social Stability in Urban Russia, 1905-1917." *Slavic Review* 23, 4 (1964) and 24, 1 (1965); Judith Pallot, *Land Reform in Russia, 1906-1917: Peasant Responses to Stolypin's Project of Rural Transformation* (Oxford: Oxford University Press, 1999).

<sup>7</sup> Gregory, *Russian National Income*, 56-57. In the years 1905 to 1909 private consumption and investment per head ran at 89.91 rubles per head of the population, at 1913 prices, compared with 97.05 rubles in 1900 to 1904.

An evaluation of the Russian economy in 1913 would find substantial negatives. Despite rapid growth, Russia remained the poorest of the great powers. The income of the empire's "average" citizen in 1913 was 123 rubles; in real terms this was at most 60 percent of the level enjoyed by Italy's average citizen, 40 percent of Germany's, and 30 percent of Britain's.<sup>8</sup> Agriculture contributed 44 percent of the economy's total output and employed 77 percent of its workforce.<sup>9</sup> Grains accounted for 90 percent of arable farming and 70 percent of human calorie consumption.<sup>10</sup> Farming was poorly integrated into the market economy; as late as 1913, home consumption of non-market farm produce still accounted for one third of national income.<sup>11</sup> Farmers sold the unconsumed balance of food grains, vegetables and fibres, meat, and dairy produce to the growing urban sector and to the export market for cash. In return they purchased manufactured consumer goods and implements provided by domestic industry or supplied from imports.

Industrialization was under way, but factory production was heavily concentrated with 70 percent supplied from a few regions of central and northeastern Russia and Ukraine.<sup>12</sup> Despite rapid expansion of schooling the country was well behind its European counterparts in terms of human capital; at the outbreak of war, just 40 percent of those aged more than 9

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<sup>8</sup> The figure of 123 rubles is from Markevich and Harrison, "Great War, Civil War," 684. International comparisons are based on the historical dataset created by the late Angus Maddison and available at <http://www.ggdc.net/maddison/>. For more discussion see Peter Gatrell, "Poor Russia, Poor Show: Mobilising a Backward Economy for War, 1913-1917," in *The Economics of World War I*, edited by Stephen Broadberry and Mark Harrison (Cambridge: Cambridge University Press, 2005), 238.

<sup>9</sup> Output is from Markevich and Harrison, "Great War, Civil War," 680; employment is from R. W. Davies, ed., *From Tsarism to the New Economic Policy: Continuity and Change in the Economy of the USSR* (Basingstoke and London: Macmillan, 1990), 251.

<sup>10</sup> S. G. Wheatcroft, "Agriculture," in *From Tsarism to the New Economic Policy: Continuity and Change in the Economy of the USSR*, edited by R. W. Davies (Basingstoke and London: Macmillan, 1990), 81

<sup>11</sup> Gregory, *Russian National Income*, 57.

<sup>12</sup> Davies, ed., *From Tsarism*, 297.

years could read.<sup>13</sup> Autocratic, mercantilist, and protectionist, Russia's government gave more attention to building warships and bottling vodka than these should have merited. There was modern public finance, with two thirds of government debt held at home, but tax revenues were derived mainly from imports and inelastic items traded in the retail market such as alcoholic spirits, sugar, kerosene, matches and tobacco.<sup>14</sup> An income tax was mooted but not implemented.<sup>15</sup>

Russia entered the twentieth century with an inauspicious institutional legacy. Circumstances too were unfavourable from time to time. Nonetheless the Russian economy was undergoing modern economic growth and structural change at a rate more rapid than in western Europe. Living standards were rising in both town and country. A civil society of voluntary organizations was emerging, not restricted to the "middle class."<sup>16</sup> Grinding poverty could still be found but was increasingly localized in the villages of south-central Russia, where it was relieved by outward migration. Russia did not yet have a modern constitution but improving state capacity was reflected in investments in education and transportation, healthy public finances, sustainable deficits, and a declining ratio of public debt to GDP.<sup>17</sup> Barriers to sustained growth were disappearing one by one.<sup>18</sup> Substantial

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<sup>13</sup> Latika Chaudhary, Aldo Musacchio, Steven Nafziger and Se Yan, "Big BRICs, Weak Foundations: The Beginning of Public Elementary Education in Brazil, Russia, India and China," Harvard Business School Working Paper no. 11-083 (2011), 22.

<sup>14</sup> Peter Gatrell, *The Tsarist Economy, 1850-1917* (London: Batsford, 1986), 201, 219.

<sup>15</sup> Gregory, *Russian National Income*, 146.

<sup>16</sup> Joseph Bradley, *Voluntary Associations in Tsarist Russia: Science, Patriotism, and Civil Society* (Cambridge, Mass.: Harvard University Press, 2009).

<sup>17</sup> Ferguson, Niall, *The Pity of War: Explaining World War I* (New York: Basic Books, 1999), 127; Gregory M. Dempster, "The Fiscal Background of the Russian Revolution." *European Review of Economic History* 10, 1 (2006): 35-50.

<sup>18</sup> Paul R. Gregory, *Before Command: An Economic History of Russia from Emancipation to the First Five Year Plan* (Princeton: Princeton University Press, 1994), 14-54.

inflows of foreign capital into private ventures and the public purse expressed international confidence in Russia's prospects.

But economic development takes time, and time was not given to Russia. From the point of view of the coming war, 1905 was a warning of the danger of domestic instability in combination with foreign military setbacks. As Russia faced the possibility of war with Germany in 1914, conservatives warned of the anarchy that might then ensue. In February, former interior minister Pëtr Durnovo famously warned Nicholas II that war with Germany would create "exceptionally favourable conditions" for revolutionary agitation.<sup>19</sup>

## The Great War: Gradual Decline

Conservative warnings were not ignored, but it was wrongly thought that they applied with equal or greater force to the industrialized powers. According to the British journalist Norman Angell, modern war had become unprofitable, and a drawn-out conflict had become impossible. Industrialized economies, he argued, were so bound together by trade and other ties that a conflict of any duration would lead quickly to collapse, starvation, and revolution. The Russian banker I. S. Bliokh believed it was agrarian economies, such as Russia, with a large population of subsistence farmers and a cushion of net food exports, that would stand up best when global trade was disrupted and the industrialized economies fell down.<sup>20</sup> Self-preservation, it was thought, would lead the European powers to limit the duration and expense of warfare on the models of the Austro-Prussian, Franco-Prussian, Russo-Turkish, and Russo-Japanese wars (1866, 1870, 1877/78, and 1904/05). For all these reasons the catastrophe that fell upon Russia in the years after 1914 was largely unforeseen.

When Europe went to war in 1914 it turned out to be the more developed, industrial economies that were most easily adapted to a conflict in which national resources were mobilized and vast, multi-million armies stood and slugged it out to the last man standing. By the second year of the war the governments of Germany, France, and Britain had diverted one third

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<sup>19</sup> Gatrell, Peter, *Russia's First World War: An Economic and Social History* (Harlow: Pearson Longman, 2005), 11-12. Durnovo's warning was published in *Krasnaya nov'* no. 6 (1922).

<sup>20</sup> Norman Angell, *The Great Illusion: A Study of the Relation of Military Power to National Advantage* (London: Heinemann, 1910); Jean De Bloch [I. S. Bliokh], *The Future of War* (Boston: World Peace Foundation, 1912; originally published in 1898).

or more of their national expenditures from peaceful to wartime uses.<sup>21</sup> These expenditures were of a scale unimagined in any previous epoch.

In the first years of the Great War Russia achieved great military victories and suffered great defeats; these were followed by something of a stalemate. At this time the economy suffered, but not unduly. The economic growth of the prewar years was halted, but there was no precipitate collapse. Table 1 shows that, even in 1917, by which time a definite deterioration had set in, average incomes across the Russian empire were still no more than 20 percent below their prewar level. This was a better performance than that achieved, not only by a poorer country, Turkey, but also by richer countries such France, Germany, Austria, and Hungary.<sup>22</sup>

The impact of the war on the Russian economy can be easily understood as the net effects of a battery of nearly simultaneous shocks. The first shock was the military mobilization, which drafted fifteen million men into the army, mainly from the countryside, and with them millions of horses. These were a loss to the supply side of agriculture. The loss may be overstated, however. In Russian agriculture both humans and horses were idle for much of the year and were fully employed only at harvest time when there was a sudden peak of time-critical tasks of reaping and threshing.<sup>23</sup> On the demand side, the men and horses in the army still required to be fed, and military morale was critically affected by the regularity of the troops' provisioning.

A second shock followed, as initial Russian advances against the rump of the German army not engaged in the west were quickly exhausted and followed by alarming defeats. Russia lost territory to Germany (in Poland and

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<sup>21</sup> Stephen Broadberry and Mark Harrison, "The Economics of World War I: An Overview," in *The Economics of World War I*, edited by Stephen Broadberry and Mark Harrison (Cambridge: Cambridge University Press, 2005), 15.

<sup>22</sup> Markevich and Harrison, "Great War, Civil War," 690.

<sup>23</sup> Robert C. Allen, *Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution* (Princeton: Princeton University Press, 2003), 69-72; for discussion of tractive power as a constraint on grain cultivation in Russia, see Holland Hunter and Janusz M. Szyrmer, *Faulty Foundations: Soviet Economic Policies, 1928-1940* (Princeton: Princeton University Press, 1992), 104-113. As noted by Lars T. Lih, *Bread and Authority in Russia, 1914-1921* (Berkeley: University of California Press, 1990), 259, even in 1920 "in the major agricultural regions the amount of sown acreage per plow or per unit of livestock hardly decreased."

the Baltic region) and to Austria-Hungary in the southwest.<sup>24</sup> This territory was previously home to 11.7 million people, of whom two to three million sought refuge in Russia. A still larger number fled the regions that, although not occupied, were too close to the front for safety, making a total figure of 9.7 million up to 1917.<sup>25</sup> The territory lost was chiefly farmland, so on the supply side Russian's agricultural production was directly reduced by about 6 percent.<sup>26</sup> On the demand side, the refugees swelled the population under control of the Imperial government and so the demand for food.

Public finances administered a third shock. There was a vast expansion of government outlays. In 1913 outlays and revenues (including transfers) were balanced at around 3.4 billion rubles each, or 17 percent of Russia's 20-billion-ruble national income. Government outlays reached 30.6 billion rubles in 1917. By means of these outlays, the government aimed to siphon the economy's available resources away from peacetime uses into the war's insatiable hunger for blood and treasure. Price increases also greatly inflated the nominal value of the national income, so 30.6 billion rubles represented perhaps one third of Russia's national income in that year.<sup>27</sup> The larger part of these outlays, 24.9 billion rubles, was uncovered by taxes.<sup>28</sup> The

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<sup>24</sup> Gatrell, "Poor Russia, Poor Show," 239.

<sup>25</sup> Peter Gatrell, *A Whole Empire Walking: Refugees in Russia During the First World War* (Bloomington: Indiana University Press, 1999), 211-215.

<sup>26</sup> Markevich and Harrison, "Great War, Civil War," 680.

<sup>27</sup> There is no reliable figure for the nominal national income of Russia in 1917. Markevich and Harrison, "Great War, Civil War," 680, put the net national income of the territory under control of the imperial government in 1917 at 14,653 million rubles in prewar prices. From Table 1, the monthly average price level in 1917 may be estimated as 6.1 times the level of 1913, but this calculation is fragile since the price level was changing so rapidly within the year; according to monthly estimates the December figure was more than four times that of January. Taking these figures at face value, the nominal GDP against which government outlays should be measured was 89.2 billion rubles. The resulting percentage figure can be compared with Gatrell's unsourced claim ("Poor Russia, Poor Show," 235) that government outlays in three and a half years of war amounted to 24 percent of national income.

<sup>28</sup> Gatrell, "Poor Russia, Poor Show," 247.

government borrowed extensively both at home and abroad, but a substantial residual deficit was covered by printing money.<sup>29</sup>

The uses of public finance propagated this shock through the economy. All the increase in government outlays represented expenditure on the war itself. A detailed breakdown is not available, but the main object of war expenditures was inevitably the feeding, equipping, and moving of the multi-million Russian army. As Table 1 indicates, Industry and transport expanded but the expansion was not maintained. Within industry there were sharp increases in the output of machinery (including guns, shells, aircraft, and railway locomotives), chemicals (for munitions) and textiles (for uniforms); the sectors providing materials and fuels maintained themselves; and the other sectors providing consumer goods and agricultural implements declined sharply.<sup>30</sup>

Similar trends were at work in transport; overall railway traffic was boosted dramatically by military transports, but commercial traffic declined.<sup>31</sup> The decline and collapse of civilian industry and transport had crucial implications for rural-urban trade and the task of feeding the cities. Growing urban food shortages led to unrest; the protests triggered the February Revolution and the fall of tsarist government.

Much has been written about the institutions of Russia's industrial mobilization.<sup>32</sup> But the observable outcomes seem to have reflected the operation of the wartime market mechanism more than any visible hand of design or regulation. Relative wages in industry behaved much as one might predict, for example, with larger increases in the sectors producing munitions, smaller increases for other military goods, and declines in the civilian sector.<sup>33</sup>

Further shocks were administered through the economy's foreign relations. International trade was disrupted and the export of food (much of

<sup>29</sup> A. L. Sidorov, *Finansovoe polozhenie Rossii v gody pervoi mirovoi voiny* (Moscow: Akademiia nauk SSSR, 1960), 168.

<sup>30</sup> Markevich and Harrison, "Great War, Civil War," appendix tables A23 to A36.

<sup>31</sup> Bovykin, *Rossiiia nakanune*, 141; A. L. Sidorov, *Ekonomicheskoe polozhenie Rossii v gody pervoi mirovoi voiny* (Moscow: Nauka, 1973), 634.

<sup>32</sup> Lewis H. Siegelbaum, *The Politics of Industrial Mobilization in Russia, 1914-17* (London: Palgrave Macmillan, 1983), pp.90-98.

<sup>33</sup> Gatrell, "Poor Russia, Poor Show," 254.

it previously to Germany) was halted. The foreign purchasing power available to the Russian economy collapsed. This was of unexpected importance. Initially the government expected the war to be short, and did not anticipate a major munitions programme or the need to build capacity in Russia's military industries. In 1915 the need to mobilize for a protracted struggle sank in; with this came heightened awareness of the limitations of the Russian economy, especially in chemicals. Despite large increases in production, Russian industry turned out to be too small to supply all the goods required for operation of a modern multi-million army in the field. As a result, military operations depended substantially on imported hardware.<sup>34</sup>

Given the collapse of Russia's exports, the need for foreign purchasing power was met by two expedients. One was to curtail peacetime imports of the metals and fibres used in civilian industry, and of manufactured consumer goods and implements for the home market. The other was to borrow \$4.5 billion, nearly all from Britain and France.<sup>35</sup> When Soviet Russia turned its back on these debts in 1918, it was perhaps the largest default up to that time, and it also turned out to be the longest in history, dragging on until the Soviet Union returned to the international bond market with a token repayment in 1987.<sup>36</sup>

Despite such measures, the total of demands on output exceeded what was available from both domestic and foreign sources, so a persistent inflation began. Table 2 shows that the monthly change of the price level started at around 2.1 percent from the outbreak of war through 1915, and accelerated to 5.8 percent through 1916 to the February 1917 Revolution.

One expected source of relaxation did not materialize. In 1913, Russia exported 10 million tons of grain, more than one tenth of the harvest (the

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<sup>34</sup> Jonathan R. Adelman, *Prelude to the Cold War: The Tsarist, Soviet, and U.S. Armies in the Two World Wars* (Boulder: Lynne Rienner, 1988), 36, cites figures showing that in World War I the Russian army imported one fifth of its bullets, two fifths of its rifles, and three fifths of its machine guns, airplanes, and motors. See also Sidorov, *Ekonomicheskoe polozhenie*, 109-126, 357, 361; Gatrell, *Russia's First World War*, 126.

<sup>35</sup> Harvey E. Fisk, *The Inter-Ally Debts: An Analysis of War and Post-War Public Finance* (New York-Paris: Bankers Trust Co., 1924), facing page 1.

<sup>36</sup> "Perhaps the biggest" according to Niall Ferguson, *The Cash Nexus: Money and Power in the Modern World, 1700-2000* (London: Allen Lane, 2001), 308; the longest in history according to Carmen M. Reinhart and Kenneth S. Rogoff, *This Time Is Different: Eight Centuries of Financial Folly* (Princeton: Princeton University Press, 2009), 12, 61).

size of which has been disputed, however).<sup>37</sup> It was anticipated, therefore, that the wartime loss of trade would reduce the pressure of demand for food, making the grain formerly exported available for the government to feed the army and the war workers in industry. To the surprise of many, the former exports did not appear for sale on the domestic market.

This was only partly because of the losses on the supply side. The decline in agricultural produce sold to urban households and firms and government purchasing agents was much larger than could be explained by production alone. Also important was an adverse shift in the terms of trade facing the peasants, driven by the rising price of consumer goods and implements relative to foodstuffs. Inflation was driving up the price of the manufactured consumers goods and implements that farmers sought in the market place. Because the mobilization of industrial capacity had displaced their production, such goods were increasingly unavailable. When they were available at any price, urban residents were able to buy them up first. Under these circumstances, peasant households lost their most important incentives to sell food and to produce for sale. A peasant correspondent wrote of the money available in the market:

The richness caused by the money is like the money itself: it is of paper, and has no weight, and good only to be counted. It goes like water, and leaves no trace.<sup>38</sup>

As a result, the urban-rural market began to disintegrate, with further negative effects on the incentives to produce food and agricultural raw materials for industry.

This problem was not unique to Russia. It appeared in varying degrees in all the belligerent countries that retained a significant sector of peasant farmers including Germany, Austria, Hungary, and Turkey. It was particularly acute in Russia, however. It worsened continuously during the Civil War, was ameliorated by the restoration of a peacetime market economy, and then returned with a vengeance in the late 1920s as Stalin mobilized the economy for rapid industrialization.<sup>39</sup>

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<sup>37</sup> Davies, ed., *From Tsarism*, 269-273.

<sup>38</sup> Quoted by Gatrell, *Russia's First World War*, 75.

<sup>39</sup> On other countries in World War I see Broadberry and Harrison, "Economics of World War I," 18-22. On the 1920s see Mark Harrison, "The Peasantry and Industrialization," in *From Tsarism to the New Economic Policy*:

The tsarist government made various attempts to regulate the food market without success. Residents of Petrograd and Moscow were given bread cards in 1916, but their effectiveness depended on the availability of bread to be distributed. The government experimented with regional grain quotas to be supplied at low fixed prices, at first voluntarily and from November 1916 compulsorily, but in the absence of enforcement the experiment was unsuccessful.<sup>40</sup> In order to channel the supply of food at low prices, in March 1917 the provisional government declared a state monopoly of grain. At those prices, however, the peasants would not have sold food to anyone, and the state monopoly was ineffective. "Until the October Revolution," concludes Silvana Malle, "market rules virtually prevailed."<sup>41</sup> The food that the government failed to acquire remained in the countryside. Since yields also tended to decline, it remains to be shown whether the peasants' own food consumption rose or fell as a result.<sup>42</sup>

In summary, the war set in motion powerful forces that operated simultaneously on the Russian economy, some to depress it and others to cause it to fall apart. Despite these trends, it should be remembered that until 1917 the Russian economy had a comparatively good war. Similar forces were at work in all the agrarian economies of Europe. Only offshore Britain, with its inherited advantages of wealth, naval superiority, and access to transatlantic trade, was able to expand economic activity in wartime.

## The Civil War: Catastrophe and Beyond

With the two revolutions of 1917, the Russian economy was struck by one blow after another. The economic decline that accompanied the civil war went faster and farther anything that went before. Comparing 1917 with 1913, output per head fell by one fifth in four years. Over the two years that followed, from 1917 to 1919, output per head halved. As Table 3 shows, this decline was most marked in the sectors that had previously benefited from

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*Continuity and Change in the Economy of the USSR*, edited by R. W. Davies (Basingstoke and London: Macmillan, 1990).

<sup>40</sup> Edward Hallett Carr, *The Bolshevik Revolution, 1917-1923*, vol. 2 (London: Macmillan, 1952), 120; Gatrell, "Poor Russia," 258-259.

<sup>41</sup> Silvana Malle, *The Economic Organization of War Communism, 1918-1921* (Cambridge, UK: Cambridge University Press, 1985), 324.

<sup>42</sup> A. M. Anfimov, *Rossiiskaia derevnia v gody Pervoi mirovoi voiny (1914-Fevral' 1917)* (Moscow: Izdatelstvo sotsialno-ekonomicheskoi literatury, 1962), 241-275; Gatrell, *Russia's First World War*, 74-75, 168-169.

war mobilization, that is, in large scale industry and transport, which utterly collapsed. It would be only a small overstatement to claim that in 1919 the Russian economy had no factory industry, no building work, and no railway transport. Farming and small industry kept going at a low level. Only soldiering prospered.<sup>43</sup>

Having fallen so far, it might appear that the economy could fall no further. Measured in the prices of 1913, the average income per person within the future frontiers of the Soviet Union between the wars was now less than 50 rubles, compared with 122 rubles in the last prewar year. In the spirit of the late Angus Maddison, the pioneer of long-run cross-country comparisons, we can translate 50 rubles into approximately 600 international dollars at 1990 prices. Trying to estimate the national income of countries in the distant past or with few economic records, Maddison took 400 dollars as the bare minimum that would just sustain human life over the 25-year average span typical of traditional societies.<sup>44</sup> Searching Maddison's database, we find that the people of Western Europe lived, on average, well above this level as early as 1500 (at 770 dollars) and increasingly thereafter. We find the rest of Eurasia at or near the 600 dollar level, with Russia and Eastern Europe moving above it during in the eighteenth century, and the countries of South and East Asia during the twentieth. In today's world a few countries continue to subsist at or below the 600 dollar level, but none are in Europe.

In fact, worse was to come. After a run of disastrous harvests, famine conditions began to appear in the summer of 1920 (in some regions perhaps as early as 1919).<sup>45</sup> In Petrograd in the spring of 1919 an average worker's daily intake was below 1,600 calories, about half the level before the war.<sup>46</sup> Spreading hunger coincided with a wave of deaths from typhus, typhoid, dysentery and cholera. In 1921 the grain harvest collapsed further, particularly in the southern and eastern producer regions. Cormac Ó Gráda

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<sup>43</sup> Markevich and Harrison, "Great War, Civil War," 680.

<sup>44</sup> E.g. Angus Maddison, *Growth and Interaction in the World Economy: The Roots of Modernity* (Washington DC: AEI Press, 2005), 5-7. For the Maddison dataset see note 4.

<sup>45</sup> Serguei Adamets, *Guerre civile et famine en Russie: Le pouvoir bolchévique et la population face à la catastrophe démographique de 1917-1923* (Paris: Institute d'études slaves, 2003), 150.

<sup>46</sup> Boris Mironov, *Blagosostoianie naseleniia i revoliutsii v Rossii, XVIII-nachalo XX veka* (Moscow: Novyi khronograf, 2010), 444.

has shown that famine is much more likely after two consecutive harvest failures, when the countryside has exhausted its reserves.<sup>47</sup> More than five million people may have died in Russia at this time from the combination of hunger and disease.<sup>48</sup>

In the year of the famine, food availability per head of the population was less than half the prewar level.<sup>49</sup> This was the average; the incidence of the decline was highly uneven. There was urban, then regional famine. Despite falling harvests, procurement brigades stripped the grain producing regions of food.<sup>50</sup> Worst affected were the Volga and Ukraine. Those who stayed in the towns were forced into a “crisis mode of consumption.”<sup>51</sup>

The Russian economy was hammered by new shocks between 1917 and 1921. The sequence in which the hammers fell, and the causal links among them are contentious. Circumstances played an essential role in Russia’s misfortunes. The Bolsheviks wished to escape from a war with the continental powers. But Russia’s enemies did not let the Bolsheviks go at the price they anticipated, and the friends of the old Russia did not wish to let the new Russia go its own way at any price. A peace treaty signed with Germany in March 1918 provoked military intervention by Russia's former allies. Its humiliating terms drove the Bolsheviks' coalition partners into

<sup>47</sup> Cormac Ó Gráda, “Making Famine History,” *Journal of Economic Literature* 45, 1 (2007): 5-38, 7-9.

<sup>48</sup> S. G. Wheatcroft and R. W. Davies, “Population,” in *The Economic Transformation of the Soviet Union, 1913-1945*, edited by R. W. Davies, Mark Harrison, and S. G. Wheatcroft (Cambridge: Cambridge University Press, 1994), 63.

<sup>49</sup> Markevich and Harrison, “Great War, Civil War,” 684.

<sup>50</sup> L. N. Litoshenko, *Sotsializatsiia zemli v Rossii* (Novosibirsk: Sibirskii khronograph, 2001), 261-274; this book was written in the 1920s, but its publication was delayed by more than 70 years by the author’s arrest in 1930 (he died in a labour camp in 1943). See also Malle, *Economic Organization*, 399-410; Orlando Figes, *Peasant Russia, Civil War: The Volga Countryside in revolution, 1917-1921* (Oxford: Oxford University Press, 1989), 248-273; V. V. Kabanov, *Krest’ianskoe khoziaistvo v usloviakh “voennogo kommunizma”* (Moscow: Nauka, 1988), 174-189.

<sup>51</sup> Julie Hessler, *A Social History of Soviet Trade: Trade Policy, Retail Practices, and Consumption, 1917-1953* (Princeton: Princeton University Press, 2004), 38-48; see also Igor’ Narskii, *Zhizn’ v katastrofe. Budni naseleniia Urala v 1917-1922* (Moscow: Rosspen, 2001), 386-559.

opposition. At the same time the Bolsheviks were not just passive victims; they too had choices, which they made in their own way.

We can list the shocks that fell upon the economy as follows. First, the declaration of the Bolshevik regime was followed immediately by severe territorial losses. Soviet Russia ceded independence to Finland and Poland; Germany seized Ukraine, which provided two fifths of the 1913 grain harvest and three fifths of the grain sold across Russia's regional and national borders to the industrialized food-deficit regions and to the export market.<sup>52</sup>

Although the Great War ended in Germany's defeat, this did not return Ukraine to Moscow. Instead, a civil war took its place, and during 1918 Ukraine and the Russian Far East were occupied by the military organizations of a wide range of monarchist, nationalist, anarchist movements and foreign expeditionary forces. The anti-Bolshevik forces from the south soon controlled the Volga region, and Siberia and the Urals from the east. However, by 1920 these forces were retreating or disintegrating on all fronts.

Second, public finance was already collapsing before the Bolshevik seizure of power; during 1917 inflation accelerated to more than 15 percent a month (Table 2). The new government presided over a catastrophe. Against their promises, the Bolsheviks had to continue to pay for war; as soon as they managed to close down the war against foreign enemies, they had a civil war on their hands. They also inherited the responsibility assumed by the Imperial government for purchasing food grains from the countryside at low prices and making it available to the urban population; they felt this responsibility more keenly, no doubt, being aware that the same urban population had already throw out two governments that had failed to meet this obligation. They had no conventional means of paying the costs of either combat or the food supply. Tax revenues had fallen away, and the Bolshevik had no credit to speak of. There remained inflation and confiscation.

On taking power, the Bolsheviks did not try immediately to centralize the economy, but they did launch an immediate assault on the system of property. This was a third shock to the economy. Initial targets included the landed estates of the aristocracy and the land and treasures of the church. On paper, Bolshevik legislation transferred these assets to the state; in practice, much of them ended up in private hands. Land, for example, was

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<sup>52</sup> Davies, ed., *From Tsarism*, 271, 273. These tables show that in 1913 the "southern producer region" contributed 33.6 million to the nationwide harvest of 79.7 million tons of grain, and 8.7 million to the 14.4 million tons of combined surpluses from the southern, central, and eastern producer regions.

largely confiscated by the peasant community organizations and the land thrown into the communal pot often included the enclosed land of the Stolypin farmers.<sup>53</sup> The Bolsheviks gained a degree of peasant loyalty from this, but they did not gain any revenue and specifically they did not gain any bread for the workers or the soldiers of the new Red Army.

The Bolsheviks attacked the banks on the basis, apparently, of two beliefs, both of which turned out to be illusions. One belief was that “bankers know everything,” that is, the combined balance sheets and transaction ledgers of Russia’s central bank and commercial saving and investment banks would reveal all the data necessary to control the economy. If so, all that was required for this was to centralize financial intermediation under a Russian state monobank. The other belief was that the banks held a large volume of realizable or liquid private assets that could be confiscated and put immediately to use.<sup>54</sup> In fact the Bolsheviks had to develop a centralized industrial system of industrial management and control from scratch. As for the stolen wealth of the bourgeoisie, it made little contribution to the shortages of budget revenue or foreign currency.

The system of urban food distribution was already failing when the Bolsheviks took it over.<sup>55</sup> They adopted the food plans of the previous administration but added a new element: violent and eventually systematic coercion. Trotskii’s order of February 1918 to stamp out private trade in foodstuffs by confiscating stocks and shooting traders that resisted provided a foretaste of what was coming.<sup>56</sup> From the early summer grain was requisitioned to feed the urban population. This practice was formalized in the following year in the system, known as *prodrazverstka* (food allocation), under which the central government assigned compulsory quotas for the

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<sup>53</sup> Kabanov, *Krest’ianskoe khoziaistvo*, 47-70.

<sup>54</sup> The story of the Bolshevik confiscation of bank deposits and other assets of the middle class has been told by Sean McMeekin, *History’s Greatest Heist: The Looting of Russia by the Bolsheviks* (New Haven: Yale University Press, 2009), and Elena Osokina, *Zoloto dlia industrializatsii: Torgsin* (Moscow: Rosspen, 2009).

<sup>55</sup> N. D. Kondrat’ev, *Rynok khlebov i ego regulirovanie v gody voiny i revolutsii* (Moscow: Nauka, 1991; originally published in 1922), 302-306; Carr, *Bolshevik Revolution*, 120; Lih, *Bread and Authority*, 32-121.

<sup>56</sup> Carr, *Bolshevik Revolution*, 123; Malle, Silvana, “War Communism,” in *The Critical Companion to the Russian Revolution, 1914-1921*, edited by Edward Acton and William Rosenberg (London: Arnold, 1997), 647, 651.

collection of grain from each region. Quotas were estimated on the basis that all grain not required for seed and to meet peasant consumption would be sold to the state at prices fixed far below the market equilibrium. It has been said that the quotas removed any incentive for peasants to cultivate grain above their own requirements, although Lars Lih has pointed out that, without any supplies to purchase in exchange, there was already no incentive.<sup>57</sup> In turn the peasants reduced the area sown, worsening the food balance further.<sup>58</sup>

The relationship between the peasants and the regime degenerated into violence. The Bolsheviks continuously overestimated rural food stocks so that, when they failed to raise food, they blamed the peasants for withholding it. At first they specifically accused a minority of richer peasants, the so-called kulaks, of speculating in food by withholding it intentionally so as to raise its price. Since rural food stocks were smaller and more scattered than the government believed, such measures tended to victimize many ordinary peasants without improving supplies. The government gave implicit recognition to this by moving to a system of collective responsibility of villages and whole regions for compulsory grain deliveries. Black markets developed where urban residents bartered their products and property with peasants for additional food.

Inflation continued at more than 20 percent a month, so that the use of money fell away and the money stock lost nearly all its real value.<sup>59</sup> As Table 2 shows, by August 1921 more than 80,000 rubles were required to buy goods that would have been available before the war for a single ruble.

As urban conditions worsened, factories began distributing products to the workers instead of wages; eventually this became known as the “naturalization” of wages.<sup>60</sup> By the end of the war, money wages had fallen

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<sup>57</sup> Lih, *Bread and Authority*, 259.

<sup>58</sup> Litoshenko, *Sotsializatsiia zemli*, 261-274; Lih, *Bread and Authority*, 171-194.

<sup>59</sup> Carr, *Bolshevik Revolution*, 258-263; László Szamuely, *First Models of the Socialist Economic Systems: Principles and Theories* (Budapest: Akadémiai Kiadó, 1974), 21.

<sup>60</sup> Malle, *Economic Organization*, 199n.

to 4 percent of their real prewar value, with workers surviving on public and private inventories and barter.<sup>61</sup>

Other groups of workers blamed the factory owners, expelled them, declared the factories to be state property, and introduced management by elected workers' representatives. The latter proved to be ineffective; labour discipline and production collapsed.<sup>62</sup> In order to control the situation the Bolsheviks traveled further towards political coercion, extreme economic centralization, and the militarization of labour. Having nationalized the banks in January 1918, in April they enacted state monopolies in foreign trade as well as internal trade in foodstuffs. In June they brought the "commanding heights" of large scale industry into the public sector. By November 1920 public ownership extended to the smallest firms and artisan establishments with one or two workers.<sup>63</sup>

As the former owners of industrial capital and their agents fled, the Bolsheviks created a new bureaucracy to manage their new industrial assets, which were organized under chief committees, known as *glavki*, for the main classes of commodity. The *glavki* assigned compulsory quotas for trusts and their factories to deliver output and receive supplies, and watched the results.<sup>64</sup> The application of Bolshevik methods to the management of industry had pathetic results. The best that can be said is that the new government and methods of administration eventually stabilized industrial production at around 25 percent of its prewar level, but were unable to restore it.

How this shrunken industrial base supported a modern war against the forces of counter-revolution and peripheral nationalism is at first sight a

<sup>61</sup> A. A. Il'iukhov, *Kak platili bol'sheviki: Politika sovetskoi vlasti v sfere oplaty truda v 1917-1941 gg* (Moscow: Rosspen, 2010), 24.

<sup>62</sup> L. V. Borisova, *Trudovye otnosheniia v Sovetskoi Rossii (1918-1924)* (Moscow: Sobranie, 2006), 38; Narskii, *Zhizn' v katastrofe*, 82-83. See also Carr, *Bolshevik Revolution*, 62-79. For a factory-level study, see Andrei Markevich and Andrei Sokolov, "*Magnitka bliz Sadovogo kol'tsa.*" *Stimuly k rabote na moskovskom zavode "Serp i molot", 1883-2001 gg.* (Moscow: Rosspen, 2005), 66-106.

<sup>63</sup> A. V. Venediktov *Organizatsiia sotsialisticheskoi promyshlennosti v SSSR*, vol. 1 (Leningrad: Leningradskii gosudarstvennyi universitet, 1957), 473; Malle, *Economic Organization*, 65.

<sup>64</sup> Venediktov, *Organizatsiia*, 328-432. See also Malle, *Economic Organization*, 202-292.

mystery. In fact, this was largely a pre-modern war. The soldiers were ordinary citizens pressed into service on either side; only the officers had professional training, and any trooper with such training became an officer overnight. Combat stocks were largely those left over from the Great War, looted, abandoned, and retrieved or looted again by either side. A large part of “war production” was cannibalization and repair.<sup>65</sup> The fact that the Bolsheviks emerged victorious from the civil war owed more to their enemies' moral and material weaknesses than to their own strengths.

A final blow was independent of human agency. In 1921 the central and eastern producer regions were severely affected by unusually adverse weather conditions that lowered yields.<sup>66</sup> This natural shock came after several years of shrinking harvests. The famine of 1921 was thus a product of many forces: the years of fighting, the Bolshevik policies of economic and social mobilization, and bad luck. It remains difficult to disentangle their relative contributions to the great tragedy of the famine. Economic recovery was delayed for the same reasons, and began only with 1922.

## War Communism in Retrospect

The New Economic Policy was announced in March 1921 under crisis conditions. Famine had begun. In early 1922 inflation accelerated to 40 percent a month (Table 2). Recovery awaited the better harvest of autumn 1922, when inflation slowed momentarily before speeding up to 80 percent a month in the following year. In the mid-1920s, harvests recovered, inflation was beaten, and the channels of urban-rural exchange were reopened. Even so, when the Bolsheviks officially endorsed the “optimal” variant of the first Five-Year Plan in April 1929, average incomes and grain marketings were still below the prewar level.<sup>67</sup>

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<sup>65</sup> In 1919 Russian industry produced 1.1 million rifles, the same number as in 1917, but it would appear that repairs accounted for more than half. In 1919, 6,270 machine guns were produced (including a few dozen repairs); this was barely more than half the 1917 figure. In 1919, 357 million cartridges were produced, less than one third of the 1917 figure. Figures for 1917 are from Gatrell, *Russia's First World War*, 120 and for 1919, from Malle, *Economic Organization*, 476.

<sup>66</sup> Wheatcroft, “Agriculture”; Davies, ed., *From Tsarism*, 283.

<sup>67</sup> Harrison, “Peasantry”; Markevich and Harrison, “Great War, Civil War,” 688.

When the Bolsheviks came to reevaluate the performance of the Russian economy in the Great War and Civil War, politics trumped economics. Thus, in the Great War the economy performed relatively well, but eventually Russia lost the war and the government was overthrown, so this period was remembered as a failure. Under war communism, in contrast, there was an unparalleled economic disaster but this was glossed over on the basis that despite everything the Bolsheviks clung to power, overcame their enemies, and restored the capacity of the state.<sup>68</sup> Lenin's successors would openly look back on the experience of war communism as a period of heroic achievement. Less obviously, they correctly identified the peasantry as the Achilles' heel of pre-revolutionary Russia, and made extraordinary exertions to ensure that this failure would not be repeated in the event of another war.

The reasons for the catastrophic performance of the Russian economy in the civil war have been much debated. At first sight the explanation is obvious: there was a civil war. At the same time, the outbreak of the civil war is not well identified as the cause of the Russian economic disaster of 1918. Notably, total output fell most precipitously *before* the Red and White armies clashed most fiercely. The decline was concentrated in the sectors subject to early nationalization; half of the decline in large scale industry over the entire period took place in 1918 alone. Turning to agriculture, L. N. Litoshenko observed long ago that, while peasant sowings declined by one fifth from 1917 to 1919 in the provinces where fighting took place, they also declined by 12 percent in those untouched by violence.<sup>69</sup> Figures given by Silvana Malle for food-surplus provinces of the central black-earth region in 1918 and 1919 show the same pattern: rye yields fell by more than 30 percent where there was fighting, and also by more than 20 percent where there was none. She concluded that "institutional factors exerted a general negative influence on productivity" while military factors did not help but were "not decisive."<sup>70</sup>

While this subject awaits a definitive study, it seems likely that the Bolsheviks' confrontational policies of war communism, including rule by decree and the widespread confiscation of property, were the first cause of

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<sup>68</sup> More recently Lih, *Bread and Authority*, 269, has argued that, although Russia's Great War and Revolution had "many long term destructive consequences," history should recognize the Bolsheviks' achievement in building a "serviceable state apparatus out of nothing" despite their inexperience.

<sup>69</sup> Litoshenko, *Sotsializatsiia zemli*, 368-369.

<sup>70</sup> Malle, *Economic Organization*, 425-450; the quotation is on page 437

economic disruption. It is equally significant for this that the economy failed to revive when the fighting stopped. The most important reason for this appears to be that the policy of surplus confiscation under war communism, giving little or nothing in exchange, left the peasants with no reason to produce food above subsistence.

“War communism” is the term now generally used for the economic system of Soviet Russia during the civil war. This term was not used at the time, and was first applied afterwards, when the civil war had already drawn to a close.<sup>71</sup> Why was it introduced? War communism has been presented as a product of circumstances, or of a distinct Marxist ideology, or of both together. As an example of the first approach, Maurice Dobb called war communism “an empirical creation, not the a priori product of theory ... an improvisation in face of economic scarcity and military urgency in conditions of exhausting civil war ... a temporary deviation from the normal course under pressure of circumstances.”<sup>72</sup>

This view implies that under similar circumstances anyone would have done what the Bolsheviks did. Lenin himself claimed this after the event, in the spring of 1921. Advocating a shift toward a more liberalized internal market, Lenin described the existing structure as “that peculiar war communism, forced on us by extreme want, ruin and war.”<sup>73</sup> He went on to define its core as the centralized system of confiscating the peasants' food surpluses in order to feed the urban workers and the soldiers of the Red Army. He meant that war communism was a temporary phenomenon; war communism was not real communism, but a necessary evil required by wartime circumstances. He intended thereby to distance himself from it, while inaugurating the more relaxed regime that was quickly designated the New Economic Policy.

Lenin's hindsight was self-serving, however, and Dobb was wrong. Christopher Read has shown that, on a close reading of his writings in the spring of 1918, Lenin believed that Russia's Civil War was already over. The military resistance to the Revolution had been broken, he thought. What was necessary now was to consolidate power, which would involve suppressing

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<sup>71</sup> For this reason Lih, *Bread and Authority*, 266, warns against its use.

<sup>72</sup> Dobb, *Soviet Economic Development Since 1917*, 6th edn (London: Routledge and Kegan Paul), 122-123.

<sup>73</sup> V. I. Lenin, “The Tax in Kind (The Significance of the New Policy and its Conditions,” in *Collected Works*, vol. 32, 329-365 (Moscow: Progress, 1965; originally published in 1921).

economic resistance, enforcing a command economy, and imposing “iron discipline.”<sup>74</sup> These measures sound little different from those actually implemented. In other words, Lenin was willing to call such ruthless centralization a wartime expedient after the event, but beforehand it was the policy that he recommended when peace, he thought, was in prospect.

The argument that the Bolsheviks did what anyone would do under the circumstances of the time retains some superficial plausibility because under similar circumstances other governments also tried to control the food market and suppress their internal enemies. At the same time the Bolsheviks did far more than others under the same circumstances. They embarked on policies of confiscation as soon as the revolution was declared. They intensified their policies in the face of resistance, and intensified them again when resistance slackened. Taken to extremes, their actions contributed to the polarization that the Bolsheviks then blamed for their own excesses.<sup>75</sup> They abandoned war communism not when the civil war came to an end, but intensified it during 1920, and gave it up only when the sailors of Kronstadt and the peasants of Tambov threatened a new civil war.

This does not prove that every Bolsheviks had always expected to introduce something like war communism. It does confirm that Lenin advocated it even when it was not dictated by a foreign emergency, and that he and other Bolsheviks were first movers in the process that led to it. They valued it when they had it, and they would have chosen to persist indefinitely with it if forces beyond their control had not challenged it. Certainly, the claim that war communism was an accidental assortment of pragmatic responses to circumstances is no longer tenable, if ever it was.

The late Alec Nove suggested that it makes most sense to understand war communism as the outcome of interplay between Bolsheviks ideas and the circumstances the Bolsheviks faced. He maintained that not all Bolsheviks had the same beliefs, and that extreme circumstances favoured those with

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<sup>74</sup> Christopher Read, “Leninism, Stalinism and the Problem of Transition: Spring 1918 and ‘The Immediate Tasks of the Soviet Government’,” Working Paper (University of Warwick, 2012); V. I. Lenin, “The Immediate Tasks of the Soviet Government,” in *Collected Works*, vol. 27, 235-77 (Moscow: Progress, 1965; originally published in 1918).

<sup>75</sup> Szamuely, *First Models*; Peter J. Boettke, *The Political Economy of Soviet Socialism: The Formative Years, 1918-1928* (Boston: Kluwer Academic, 1990).

more extreme views; this is surely correct.<sup>76</sup> In a similar spirit Peter Holquist has argued that “Unlike other combatants – Germany, Hungary, or Italy – Russia’s revolution came *during* war, not after it.”<sup>77</sup>

Stalin himself learned important lessons from his experience in the Civil War as a leader with major political responsibilities at the front. One lesson that he drew was that government control over the economy and the civilian population is vital to assure the supply of the frontline forces. Arriving in Tsaritsyn (later Stalingrad) in June 1918 on a tour of the southern front, Stalin’s first actions were to order grain collections and send supplies to Moscow. In October, he told a *Pravda* correspondent: “An army cannot exist for long without a strong rear. For the front to be firm, it is necessary that the army should regularly receive sustainment, munitions and food from the rear.”<sup>78</sup> A few years later, Stalin consciously adopted policies that resembled war communism in several respects. Most important were the warlike mobilization of resources under a centralized dictatorship to assure the stability of the rear, and the confiscation of peasant food surpluses to assure the supply of the front.

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<sup>76</sup> Nove, Alec, *An Economic History of the USSR, 1917-1991*, 3rd edn. (Harmondsworth: Penguin Books, 1992), 46-48, 78-82.

<sup>77</sup> Peter Holquist, *Making War, Forging Revolution: Russia's Continuum of Crisis, 1914-1921* (Cambridge, Mass.: Harvard University Press, 2002), 282-288.

<sup>78</sup> James J. Schneider, *The Structure of Strategic Revolution: Total War and the Roots of the Soviet Warfare State* (Novato, California: Presidio Press, 1994), 234-237.

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## Tables

*Table 1. Net national income within the borders of the Russian Empire, 1914 to 1917, by sector, at 1913 prices and percent of 1913*

	Industry			Services				National income	
	Agriculture	Large-scale	Small-scale	Construction	Transport	Other civilian	Military	Total	Per head
1914	92	106	98	101	106	97	169	98	96
1915	94	111	78	75	128	97	452	102	99
1916	81	94	88	58	137	86	640	94	92
1917	79	73	78	42	80	76	562	82	81

Source: Calculated from Markevich and Harrison, "Great War, Civil War," 680 and 684. Russian empire territory excludes Finland and Poland.

*Table 2. Inflation in Russia, 1914 to 1924*

First day of:	Price level as a multiple of 1913	Rate of change of prices over preceding period, percent per month.
January 1916	1.42 <sup>a</sup>	2.1 <sup>a</sup>
March 1917	3.15	5.8
November 1917	10.2	15.8 <sup>b</sup>
July 1921	80.7 thousand	22.6
January 1922	288 thousand	23.6
January 1923	21.2 million	43.1
May 1923	54.7 million	26.7
February 1924	16.3 billion	88.3

Source: Figures are from Jacek Rostowski and Judith Shapiro, "Secondary Currencies in the Soviet Hyperinflation and Stabilization of 1921-24." Working Paper (University of London: School of Slavonic and East European Studies and Goldsmiths' College, 1991), 4, except as noted.

<sup>a</sup> These figures are inferred from Rostowski and Shapiro's "guess" that the price level of 1 August 1914 was unchanged from the previous year.

<sup>b</sup> This figure is corrected from the original (15.2 percent).

*Table 3. Net national income within the borders of the interwar Soviet Union, 1914 and 1917 to 1922, by sector, at 1913 prices and percent of 1913*

	Industry			Services				National income	
	Agriculture	Large-scale	Small-scale	Construction	Transport	Other civilian	Military	Total	Per head
1917	80	73	78	42	79	76	562	82	77
1918	61	31	74	14	21	50	29	50	47
1919	53	17	49	11	27	41	175	43	41
1920	50	17	44	7	17	38	340	42	41
1921	45	16	49	7	21	35	251	38	37
1922	54	22	54	13	27	43	128	44	43

Source: Calculated from Markevich and Harrison, "Great War, Civil War," 680 and 684. Soviet interwar territory uses the borders of 1925, including Khiva and Bokhara. Compared with Table 1, the most important difference is the lower level of national income per head in 1917 on Soviet territory compared with the Russian Empire; this is explained by the large number of refugees that fled from the Empire's western borderlands into the interior, and so found themselves on the territory of the future Soviet Union.