

ISSN 1883-1656

Центр Российских Исследований
RRC Working Paper Series
No. 66



Russian Industrial Statistics

Manabu SUHARA

March 2017

RUSSIAN RESEARCH CENTER
INSTITUTE OF ECONOMIC RESEARCH
HITOTSUBASHI UNIVERSITY
Kunitachi, Tokyo, JAPAN

Introduction

Historical Russian statistics on industry are discussed in this paper. Russia attained impressive economic development in the century from the emancipation of Russian serfs to around 1960, although growth was interrupted by the October Revolution, the Civil War, and World War II. The mainspring of Russia's advancement was industrial growth. The mainly agrarian economy, in which the rural population accounted for about 80% of the total at the end of the 19th century, underwent a complete change in economic structure. This Russian success, however, came to an end at the end of the 1950s and beginning of the 1960s. The mining and manufacturing industries, which until then had led the economy, lost vigor, and the industrial economy as a whole withered. This deterioration led to the collapse of the Soviet Union by the end of the 20th century and the start of systemic transformation to capitalism. In this paper we look back at the history of Russia from the viewpoint of industrial statistics. In the first section, we adopt a general view of industrial statistics in Russia under the Tsarist regime. Some estimates of production indices for the industry of the Russian Empire are presented and compared. Then in the second section, production, labor, and capital statistics for Russian industry in the Soviet era are discussed, followed by the third section, in which changes in industrial statistics for Russia's new era are summarized.

1. Russian Industrial Statistics in Imperial Times

Efforts to compile official industrial statistics in the Russian Empire date back to the early 18th century. Precisely, in 1719, the government of Peter the Great established two central offices of *Berg-kollegiia* and *Manufactur-kollegiia* for the purpose of developing and controlling industry, which had been emerging in many places in Russia at that time. Thereafter, a 1724 decree required all factory owners engaged in manufacturing and mining to submit business reports twice a year to the *Manufactur-kollegiia* and *Berg-kollegiia* respectively.¹ However, it is generally considered that “the historical value of the so-called factory reports in the 18th century is not very high” (Arima, 1973, p. 10), on the grounds that there were no consistent rules about which factories or workshops (*zavedinie*) should be included in the survey, there were frequent changes to stipulations about items to be reported, and there was insufficient consideration given to guaranteeing the accuracy of the statements among other problems.

¹ See Rybakov's (1976, p. 26) book. The following descriptions on the history of industrial statistics were written based on Arima (1973), Rybakov (1976) and Tomioka (1998).

In the early 19th century, attempts were made to achieve full-scale improvement of Russia's official industrial statistics. The Tsar government at that time clearly recognized the need to understand actual industry conditions across the Russian Empire, stimulated by the development of the Industrial Revolution in the United Kingdom. In 1802, eight government ministries, including the Ministry of Foreign Affairs, Interior Affairs, and Finance, were founded. Alongside this administrative reform, the existent *Berg-kollegiia* and *Manufactur-kollegiia* were closed down and manufacturing came under the control of the Interior Ministry, while mining came under the management of the Finance Ministry. In addition, in 1804, a special decree was issued on factory reports from prefectural governors to the Interior Minister. This decree stipulated that the factory reports, which factory owners previously had to submit directly to the government, had to be collected by prefectural police, compiled by local administrations, and submitted to the central government under the name of the prefectural governor. In addition, two copies of the reports were to be prepared, one of which should be retained by the prefectural governments for use in local administration.

While the initial destination of the manufacturing reports was the industry division of the State Economy Department of the Interior Ministry, in 1811, after some changes to the administrative framework, the destination was changed to the Manufacturing and Interior Commerce Department of the Interior Ministry. Moreover, in 1819, the latter department as a whole was moved to the Finance Ministry and accordingly, the responsibility for compiling and managing manufacturing statistics fell to the Finance Ministry. Under the Finance Ministry, the department was renamed the Commerce and Manufacturing Department in 1864. However, in 1900, the department was abolished and the responsibility for control of manufacturing was passed to the Industry Bureau of the Finance Ministry. In 1863, the Variable Amount Tax Collection Department was established within the Finance Ministry to manage the collection of indirect taxes, and was assigned the duty of gathering and managing statistics on such products as vodka, tobacco, sugar, matches, and kerosene.

On the other hand, the responsibility for compiling mining statistics fell to the Mining Department (named the Mining and Salt Department during 1811-1863) of the Finance Ministry. However, in 1874, the Mining Department was transferred from the Finance Ministry to the State Property Ministry. In this way, manufacturing and mining in the times of the Russian Empire were supervised by various authorities depending on the kinds of products. In other words, the Tsar government, unlike in Soviet times, had no intention of uniform control of industry as a whole and hence industrial statistics were compiled by various authorities.

What kind of information did the Tsar government assemble on Russian industry? Specific items in the factory reports in the early 19th century included the following: date of report; family name, first name and patronymic of factory owner; types of products; location of factory; self-ownership versus borrowings against estates and buildings; conditions of the buildings used

(made of stone or wood, number of floors in the buildings, and size of the buildings); names and shapes of products; number of production instruments; amount of output and sales annually (for domestic and foreign markets); inventory at the year-end; amount of raw materials and source of purchase; number of craftsmen, artisans, and apprentices; distinction between free-contract workers, serf workers, and registered workers; and information about product invention (Rybakov, 1976, pp. 33-34). This list of questions was basically maintained until the end of the 19th century, although the precise details of the questionnaires might have changed at different times. On an ad hoc basis, the authorities published industrial statistics by nationwide aggregate. Some of these publications became yearbooks of the late 19th century, as mentioned later in this section. Here, a noteworthy point concerns the disposal by the central authorities of the factory reports. The Commerce and Manufacturing Department of the Finance ministry, for example, seemed to have disposed part of the factory reports sent from local authorities from time to time “because of space in archives” and such a situation seemed to continue at least around 1880. Hence, a substantial part of the original materials from the first part of the 19th century appears to have been lost (Rybakov, 1976, pp. 57-58).

Statistics, that were compiled and published by the central authorities, are given the generic name “factory statistics” (*fabrichno-zavodskaiia statistika*). It is well known that Vladimir Lenin made active use of the factory statistics to analyze Russian industry in his book, *The Development of Capitalism in Russia*, especially the 7th chapter about the development of mechanical industry. At the same time, Lenin strongly criticized the factory statistics, arguing that “we have no intention at all of defending our existing factory statistics system, which has existed from the days prior to the Emancipation of the serfs and now is completely obsolete and inefficient in terms of quality as well as structure” (*Collected Works of Lenin, Vol. 4*, p. 5). Examples of problems pointed out by Lenin were obscure definitions of such terms as “factory,” “worker,” and “value of production,” and inefficient systemic design to guarantee the accuracy of the reports. These defects are almost identical to the deficiencies in the 18th -century factory reports mentioned earlier in this section, and therefore, there was little progress in the Russian statistical system.²

However, at the end of the 19th century or beginning of the 20th century, some appreciable improvements were introduced. For example, with regard to the “factory” being the object of the statistical survey, an 1895 notification by the Finance ministry clearly defined as having “at least 15 (or 16) workers” or as having “mechanical motive force even if it had less than 15 workers,” and this definition gradually prevailed.³ At about the same time, a new system was introduced in which

² For details of criticism leveled against the factory statistics, see Tomioka (1998, especially, Ch. 4, Sections. 1 and 4).

³ Categorization, based on the number of workers and the existence of mechanization, was used even after the October Revolution. In the Soviet Union, for example, a large-scale industrial enterprise was defined as that with a labor force of 16 workers or more in the presence of mechanization, or 30 workers or more without mechanization (*Socialist Construction 1934 edition*, p. 25).

factory inspectors were required to examine factory reports so as to improve their accuracy. In addition, in 1900, an All-Russian Industry Census was implemented; its importance had been emphasized by Lenin as “a uniform survey throughout the country performed by special investigators” (*Collected Works of Lenin, Vol. 4, p. 36*). In Addition, a second industry census was carried out in 1908. These censuses undertook detailed investigations, such as the distinction between workers within versus outside the establishment, and the calculation of net production as the amount of production less the cost of materials. Lenin, who harshly criticized the factory statistics on the one hand, stated that “although we regarded our factory statistics as extremely unsatisfactory, we have no intention of insisting that these existing sources do not deserve our attention and examination. Exactly the reverse is true” (*Collected Works of Lenin, Vol. 4, p. 38*). The main volumes of the 19th century and the early 20th century factory statistics were listed by Zaionchkovskii (1978, pp. 129-132).

At the end of this paper are displayed several statistical tables concerning Imperial Russian industry, the sources of which, apart from sources shown by Zaionchkovskii, are as follows: *Collection of Materials of the Factory Industry in Russia*, issued by the Commerce and Manufacturing Department of the Finance Ministry; *Statistics of Excise-Paying Production Industries for 18xx*, issued by the Variable Amount Tax Collection Department of the Finance Ministry; and *Collected Statistical Information of Mining in Russia for 18xx*, issued by the Mining Scholarly Committee, an official civil committee. In addition to these so-called factory statistics, a three-volume book, titled *Dynamics of Russian and Soviet Industry Related to the Development of the National Economy over 40 Years (1887-1926)*, and compiled by distinguished statisticians in the Soviet era, is an important statistical reference revealing the actual situation of industry in the Russian Empire. This book, whose nine editors were Bazarov, Varzar, Groman, Kafengauz, Mezhulauk, Rukhimovich, Sereda, Strumilin and Shtern, was a product of work carried out in the late 1920s. The first volume (published in 1929) deals with 1900, when the first industrial census was implemented, whereas the second volume (also published in 1929) deals with the second census year of 1908. The third volume (published in 1930) covers 1912, 1913, 1915, 1920, and 1925/26. This book examined official statistics at the time in great detail and provided new statistical information by processing available data. Thus, *Dynamics of Russian and Soviet Industry* is an extremely valuable resource for industrial statistics in the Russian Empire.

Statistical Table 1.1 at the end of this paper shows annual output of Russia’s main industrial products since 1860, and is compiled using available statistical data of that time, whereas Statistical Table 1.2 displays the numbers of workers in industrial branches in selected years. For the period when original statistics were published there was no clearly defined method of classifying industrial branches, and the branch classification in Statistical Tables 1.1 and 1.2 was made using the classification in Soviet times (Suhara, 2013, p. 518). As a reference, we calculated the value of

output in 1900 for each product shown in Statistical Table 1.1 using estimated wholesale prices for 1900 given in Suhara (2013, p. 519). Ordering products by value of output, the first is flour (251.5 million rubles), followed by ginned cotton consumption (157.7 million rubles), steel (146.7 million rubles), woolen yarn (125.9 million rubles) and sugar (119.3 million rubles). These data suggest the importance of textiles, processed food and ferrous metals in Russian industry in 1900, and their importance is confirmed by the number of workers by industrial branch (Statistical Table 1.2).⁴

Chart 1.1 Estimations of Industrial Production Indices for Imperial Russia

Index (Publication Year)	Estimation Period	Covered Area	Number of Items	Weight	Weight Base Year	Averaging Formula
Kondrat'ev (1929)	1885–1913	Imperial Russia	21	Value added	1900	Geometric mean
Kafengauz (1929?, 1994)	1887–1913	USSR at the end of the 1920s	29	Labor force Gross output value	1887	Arithmetic mean
Goldsmith (1961)	1860–1913	Imperial Russia	20	Value added	1887, 1900, 1908	Arithmetic mean
Nutter (1962)	1860–1913 (every 5 years)	Imperial Russia	26	Value added	1913	Arithmetic mean
Suhara (2013)	1860–1913	Imperial Russia	31	Gross output value Labor force	1887, 1890, 1900, 1908, 1912	Geometric mean

Source: Suhara (2013, p. 481).

In the following part of this section, we discuss the estimation of industrial production indices for the Russian Empire using the above-mentioned statistical data.⁵ There was no official industrial production index for the entire country, like in Soviet times or the present times. Naturally, the government collected and held statistical information on individual products, among other issues, as the factory statistics at that time showed. However, the accumulation of the information was not the goal itself but was primarily a means to control industry and enable smooth collection of tax. Hence, the statistics were not comprehensive and systematic, and there was no official construction of production indices for the intensive representation of industrial production. Thus, in order to gauge accurately the tempo of Russian industry's development and to compare it with that of other countries, the estimation of production indices came later, as a point of academic interest. Chart 1.1 shows some (it may be appropriate to state “almost all”) estimates of industrial production indices for Imperial Russia. All these indices are calculated based on the Laspeyres formula, in which the output series of representative products are multiplied by weights in the base years and summed to obtain an index for a year. We add brief explanations for the individual estimations in the order of

⁴ Apart from the so-called factory industry, household industry (often called *kustar*’ industry) also existed in the Russian Empire. This is discussed later in this section.

⁵ The following descriptions in this section are based on Suhara (2013, Ch. 8).

the year of publication, based on Chart 1.1.

The so-called Kondrat'ev index was probably the first attempt to estimate a production index for Russian industry. Nikolai Kondrat'ev at that time was director of the Conjecture Institute, which will be mentioned below. In order to calculate the index 21 items, such as coal, crude oil, pig iron, steel, cotton yarn, cotton cloth, raw sugar, refined sugar, and tobacco, are utilized. An especially interesting point of this index is that surrogates for value added in 1900 for every product were calculated and were used as weights for the aggregation. However, the estimation period of the index was not that long: from 1885 to 1913.

Unfortunately, details are not available with regard to Kafengauz's estimates, whereas his calculated growth rate of industrial production was the highest among the cited estimates. He took into consideration the production of industrial items related to railways (locomotives, passenger cars, and freight cars), which other estimations did not utilize. This might have raised the growth rate of his index. Although the estimation was made in the late 1920s, the publication of Kafengauz's book was withheld by the Stalinist regime and his work remained in obscurity for a long time until the end of the 20th century.

The estimation by Goldsmith is an extended version of the Kondrat'ev index. While the estimation period of the latter was relatively short, Goldsmith recalculated the index going back to 1860. Partly because of this, the Goldsmith estimation is regarded currently as the final and most authoritative production index for Russian industry in Imperial times. However, as Goldsmith's estimation methods have several unclear and ambiguous points, Suhara (2013) was dissatisfied with them and estimated a new production index for Russian industry.

Nutter's estimates were calculated as an avocation of the original goal of his book, which was the estimation of a production index for Soviet industry. On other words, he applied his methodology of estimation for Soviet industry to the outputs of individual items in Imperial times back to 1860. For that reason, he qualified his method as followed: "None of our discussion of industrial development in prerevolutionary Russia should be taken as definitive, since we have not undertaken an exhaustive study of this period" (Nutter, 1962, p. 343). Certainly, although his estimation period is protracted from 1860 to 1913, it may not be desirable that the base year of weight for the index is 1913, the end year of the estimation. In addition, he estimated indices not for all the years of the estimation period but only every 5 years, like 1860, 1865, 1870, and so on.

In Suhara's estimation, the number of sample items increased relative to existing indices. Suhara's dissatisfaction with the Goldsmith index is based on the following five points. (1) Although the Goldsmith index is explained as a backwardly extended version of the Kondrat'ev index, the sources of output data for the extended period (1860-1885) are not specified in his paper, and even when sources were specified, it is not conceivable that the necessary data are available only from those mentioned sources. (2) It is not clearly explained how value-added for each product is

calculated in the 3 base years of 1887, 1900, and 1908. (3) The explanations are ambiguous as to how the three index series based on the 3 base years are connected. (4) It is not revealed how the reference base years (the year when the index number is fixed to 1 or 100) of the production indices for individual products are decided. Finally, (5) As the three base years (which are probably identical to the reference base years in Goldsmith's case) are biased to the later part of the estimation period, the growth rate of the calculated production index using arithmetic averages is surely smaller than the index using geometric averages. Nevertheless, Goldsmith employed arithmetic averages, which would bring much arbitrariness to the constructed index.

Although Suhara estimated his index due to his dissatisfaction with the Goldsmith index, said to be the definitive version, Suhara's calculation results do not differ substantially from Goldsmith's estimates, as is shown in Chart 1.2. That is, the average annual growth rates for Russian industry of the two estimations are almost the same at 4.7%. When the estimation period is divided into two parts, Suhara's estimates slightly emphasize Russian industrial growth in the second half compared to those of Goldsmith. As Nutter's estimates also display a similar tendency, Russia's actual industrial growth seems to have displayed this tendency.

Chart 1.2 Comparison of Production Indices (Average Annual Growth Rates, %)

	Kondrat'ev	Kafengauz	Goldsmith	Nutter	Suhara
1860—1888			4.0	5.1	3.7
1888—1913	6.1	6.5	5.5	6.1	5.8
1860—1913			4.7	5.6	4.7

Source: Suhara (2013, p. 536).

From the foregoing discussion it could be concluded that at present, the index numbers of the Goldsmith or Suhara estimations are appropriate for the industrial production of the Russian Empire. However, these conclusions require some caution. First, estimated index numbers for the years before 1880 are much less reliable than those after 1880 with respect to both these estimations. This is due to the deficiency of data on output of industrial products and on labor force or value-added as weights. Further developments in research in this direction are needed.

Second, and even more importantly, all the estimates shown in Chart 1.2 are indices only for the so-called factory industry and not for industry as a whole, because they do not take into account household industry (the *kustar'* industry), which still extensively remained in Russia at that time. It may be difficult to define *kustaria* (the plural of *kustar'*) precisely, but here, we widely call people

who were engaged in household industry in both urban and rural areas as *kustaria*. Many of those who comprised *kustaria* were peasants who spent only a little time of the year in making handicrafts. As stated earlier in this section, while industries that were due to be surveyed by the factory statistics system were typically relatively large-scale factories, the *kustar*' industry made daily necessities by hand on a small scale, such as tableware, furniture, accessories, and clothes. In order to know the whole amount of industrial production in the Russian Empire, we have to assess the size of the *kustar*' industry and its changes over time. That is certainly no easy task. Although there might be statistics that clarify the actual circumstances of the *kustar*' industry in a prefecture or local district (most of this kind of statistics were so-called *zemstvo* statistics), there are no nationwide statistics. The definition of *kustar*' varied considerably in the statistics of every locality, and there were no time-series data. With regard to rough figures, Lenin, for example, estimated that the total number of *kustar*' in Russia as a whole (probably around 1890) was "more than 4 million," (*Collected Works of Lenin, Vol. 3, p. 470*). When we recall that even in 1890, the number of the factory industry workers was 1.43 million workers (as shown in Statistical Table 1.2), we understand that the *kustar*' industry had considerable weight at that time, even taking into consideration that peasants comprised a substantial part of *kustar*'.⁶ Suhara (2013, p. 544) pointed out that M. N. Pokrovskii, a Russian historian, had calculated that the "national income" of small-scale industry was 600 million rubles in 1894, whereas that of industry as a whole was 1.852 billion rubles. According to Goldsmith, S. G. Strumilin, a Soviet statistician, estimated the increase of production in small-scale industry from 1887 to 1913 at an average annual growth rate of 3.75%, which was about two-thirds that of the factory industry. Goldsmith himself conjectured that "in the generation before World War I the value of output of small industry averaged approximately one-third of that of factory industry, declining from a proportion of almost one-half to not much over one-fifth" (Goldsmith, 1961, p. 468).

From discussions above, we can conclude that a hypothetical production index for Russian industry as a whole shows growth rate of less than those shown in Chart 1.2 by 0.5-1%. Despite this conclusion, there was remarkable development of industrial production in the Russian Empire from the latter half of the 19th century to the early 20th century. Taking the figures in Chart 1.2 as they are, the growth rates for Russia were higher than those for Japan and almost the same as those for the United States, which had the highest growth rate among Western advanced countries. In per capita terms, it can be concluded that Russia achieved better results than did the United States, because the population growth rates in the United State at that time were extraordinarily high (Suhara, 2013, Ch. 9).

⁶ Note that, since the boundary between the factory and *kustar*' industry was ambiguous, factory statistics substantially included the production of the *kustar*' industry, as Lenin repeatedly pointed out in his book, *The Development of Capitalism in Russia*. (see *Collected Works of Lenin, Vol. 3, Ch. 6*).

2. Russian Industrial Statistics in Soviet Times

This section deals with industrial statistics for Russia when it formed part of the Soviet Union. Here, we refer to Russia in the Soviet era as the Russian Soviet Federated Socialist Republic (RSFSR) or simply, the Russian Republic. While official statistics for the USSR as a whole were published by the Central Statistical Agency (TsSU),⁷ statistical authorities of Soviet constituent republics (for example, TsSU of the RSFSR) were installed as part of the TsSU. Statistics for the RSFSR published by the TsSU of the RSFSR can be considered to have the same character as Soviet statistics. Thus, we advance our discussions in this section by assuming we can identify the characteristics of Russian statistics with those of Soviet statistics.

Generally, since statistical information in the Soviet era was exclusively published by the central statistical authorities, like the TsSU, it might be natural to consider that we have to rely solely on this kind of information. However, it is not necessarily appropriate to state that there was no other numerical information except official statistics throughout the Soviet era. For example, in the 1920s, various kinds of statistics were published. Specifically, apart from the TsSU, economic statistics were issued periodically by the VSNKh (Supreme Council of the National Economy), the Gosplan (State Planning Commission), the Narkomfin (Finance Ministry), the Narkomsel'khoz (Agriculture Ministry), Tsentrosoiuz, which was a civilian organization of consumer cooperatives, and the Conjunction Institute (affiliated to the Finance Ministry), which is referred to in the previous section.

On the contrary to the “golden age of statistics,” during the period from the second half of the 1930s to the first half of the 1950s, when the Stalinist regime was maintained, the Soviet central statistical authorities were almost completely silent. Instead, the sole source of statistical information on the Soviet economy was press reports on speeches by leaders of the Communist Party or cabinet ministers on the results of five-year plans and the like. During this period, the TsSU was absorbed into Gosplan, and renamed TUNKhU (the Central Administration of Accounting of the National Economy) in 1930, which was symbolic of making statistics subservient to the plans.

The situation changed dramatically following criticism of Stalin by Khrushchev in 1956 and shortly thereafter publication of a statistical book entitled “National Economy of the USSR.” Michael Kaser (1972, pp. 50-51) pointed out that a significant event in terms of the disclosure of statistical information was a summons served on statisticians to attend a special conference in 1954. The conference was held on a large scale in response to pressure from economists and economic bureaucrats who were disadvantaged by being unable to show their full abilities in analyzing the national economy because of the concealment of statistical data. As stated above, in 1956, a book

⁷ The TsSU was renamed several times. It was called the State Statistics Committee (*Goskomstat*) in the Gorbachev era.

entitled “National Economy of the USSR” was issued with a subtitle of “statistical anthology.” That book was revised in the following year to “yearbook” and continued to be published until 1990. In addition, in 1957, a Statistical Yearbook for the Russia Republic began to be published. Although remarkable progress was made in this period with regard to the disclosure of statistical information, statistics from the early days of the USSR to the Stalinist period have never been disclosed in detail, and meager information has been published only for benchmark years, like 1913, 1928, 1932, 1937, and 1940. In addition, the Soviet authorities were not very eager to publicize information that seemed to be unfavorable to themselves. For these reasons, only production, labor, and capital statistics that are available serially for relatively long time are displayed at the end of the paper.

The definition of industry (*promyshlennost'*) in the Soviet Union was highly peculiar. According to a statistics glossary in the Soviet era, industry was defined as “one branch of material production in which labor by men is done in order to obtain material goods that exist mainly in nature and cannot be reproduced artificially, or to process such goods or agricultural products” (Nazarov *et al.*, 1981, p. 73). In this definition “one branch of material production... to process such goods or agricultural products” is thought to refer to so-called manufacturing, whereas in the first half of the definition, the expression “to obtain material goods that exist mainly in nature and cannot be reproduced artificially” could be interpreted as mining (extractive industry). What kinds of resources are extracted for industry? A. Ezhov, a well-known Soviet economic statistician, specified these resources as “coal, crude oil, char coal, shale, natural gas,... salt, fish, mineral water, timber” (Ezhov, 1957, p. 40). It may be reasonable that underground resources like coal and oil are mentioned, but the inclusion of such goods as fish and timber attracts our attention, as not only manufacturing and mining but also fishing and forestry (or at least parts thereof) were included in industry in the Soviet Union. In fact, such items as “fish catch (*ulov ryby*)” and “timber hauled (*vyvozka drevesiny*)” were included in Soviet industrial production statistics, the former designated as a product of the food-processing industry and the latter, as a product of the wood, pulp, and paper industry. Thus, while in the industrial production index of the United States, published by the Federal Reserve Board, includes the concept of “total industry,” or the summation of manufacturing, mining, and utilities (electricity, gas, and water supply), in the case of the Soviet Union, industry is defined using an even wider concept. Incidentally, even in Russia’s Imperial period, it was common practice for electricity and water supply to be included in industry.⁸ In the following, we discuss such Soviet-style “industrial statistics.”

It is thought that the Soviet Union inherited from Imperial Russia not only the definition of industry but also the branch classifications within industry. In 1918, just after its foundation, the TsSU decided to classify industry into 29 branches, after which the classification methodology was

⁸ It seems there was no case in which “fish catch” or “timber hauled” was included in the industrial statistics of Imperial Russia.

modified several times. However, most of the modifications were straightforward changes, such as the integration of several branches into one and conversely the splintering of one branch into several. Therefore, it can be said that the basic classification framework was maintained. In January 1976, the last classification modification of the Soviet era was made, and this classification continued in use even after the collapse of the Soviet Union in 1991 until around 2003. According to this classification method, industry was divided into 16 branches, namely “electricity,” “fuels,” “ferrous metals,” “nonferrous metals,” “chemicals,” “machinery,” “wood, pulp, and paper,” “construction materials,” “glass and ceramics,” “light industry,” “food processing,” “microbial,” “milling, sawing, and compound feed,” “pharmaceuticals,” “printing,” and “others” (Nazarov *et al.*, 1981, p.56). However, official output data on industry, published in the Statistical Yearbooks of both the RSFSR and Soviet Union, were mostly concerned with the first 10 branches, except the glass and ceramic industry. As for the other six branches, only fragmented information was published from time to time, and systematic data about those branches were never disclosed.⁹ Hence, we discuss these 10 industrial branches in the following part.

As is well known to students of the Soviet and Russian economies, Soviet official statistics tended to overestimate economic growth. Since statistics, naturally, form the basis of managing a planned economy, Soviet leadership certainly would have desired the most accurate statistics possible. However, official statistics were particularly helpful as a propaganda tool for leaders to demonstrate the superiority of socialism. Therefore, there was no incentive for leaders to alter the compilation methods for statistical figures and to match reality better (at least until the *Perestroika* period), even though the statistics lacked accuracy and showed a tendency to exaggerate the performance of the Soviet economy. In some cases, the statistical authorities, probably listening to the voice of conscience, have carried out improvements in the quality of statistical data, but it could be said that the improvements were restricted to within a certain range so as not to cause serious damage to the perceptions of superiority of socialism.

It seems there was hardly any case in which figures were rewritten outright in the official statistics. It seems to have been common to suspend publication of figures in cases in which statistics based on reports were judged unfavorable to the authorities, rather than modifying the figures. Naturally, this would have caused frustration to outside watchers who wanted to use the statistics to analyze and judge the situation of the Soviet economy. Official statistics were continually haunted by further ambiguity, such as ambiguity of definitions, and failure to give notice about altered

⁹ Although physical output data of individual products in the nonferrous metals branch were disclosed in the same way as were products in other branches until the mid-1930s, thereafter, no output data for nonferrous metals were published and this situation continues to the present. The reasons are conjectured to be that nonferrous metal products are related to military production, and that the labor camps managed by the Gulag formed a substantial factor of nonferrous metals production.

definitions, which brought much trouble to statistics users.¹⁰ The tendency to glorify the performance of the Soviet economy was prominent particularly in industrial production, especially industrial production index statistics. The industrial production index in the Soviet Union was an ordinary Laspeyres index, which was calculated by multiplying prices for individual products in a base year by physical output of products in the current year and aggregating them. However, as discussed in detail later in this section, the industrial index had a history of having been harshly accused of exaggerating economic growth. As it might not be so useful to display these official production statistics as is, here, we show our own estimates of industrial production as well as the official indices (see Statistical Tables 2.1 and 2.2 at the end of the paper).

Production indices that have been published by Soviet statistical authorities were estimated by summing up “gross production (*valovaia produktsiia*)” of industrial enterprises, calculated by means of the “factory method” (*zavodskii metod*). Gross production of an industrial enterprise based on the factory method was defined as a summation of two kinds of amounts. One was “the value of all finished products and semi-processed products produced in an industrial enterprise during a certain period minus the value of self-produced products spent in producing industrial products within the enterprise in the same period,” and the other was the “value of work of industrial nature by commission from other enterprises or nonindustrial organizations within the enterprise” (*Soviet Statistical Yearbook: 1959 edition*, p. 831). In calculating of gross production, a set of fixed prices (base year prices) were used.

As the summation of the gross production of individual enterprises defined above was the gross production of industry as a whole, double counting within an enterprise was excluded in the gross production of enterprises, whereas double counting of intermediate products among enterprises was not excluded. Hence, we can regard the gross production of industry not as an indicator of value added but as an indicator of gross output. In addition, we have to pay attention to the fact that, unlike an ordinary production index, in the production indices of the Soviet Union, the objects of calculation were not sample products but all products produced; with this meaning, we could call the index a “global index.” How did the production index compiled in this manner bring about serious overestimation of economic growth? Four main reasons are identified, as follows.

The first reason is the Gerschenkron effect, which refers to the issue of weight in the production index. Generally, so-called Laspeyres bias arises in a Laspeyres index. In particular, in the process of industrialization in developing countries, the bias becomes serious. That is, economic

¹⁰ G. Grossman called the attitude of statistical authorities that could mislead readers of statistics by intentional obscurity “descriptive distortion,” distinguishing it from “numerical distortion” in which figures were rewritten arbitrarily outright (Grossman, 1960, p. 107). Apart from such “descriptive distortion,” there was utterly unnecessary and meaningless concealment of statistical data in Soviet statistics. For example, in various Statistical Yearbooks, rough production indices for industry rounded to decimal places were listed one after another with changes only to the reference base years, instead of showing the time series of real production values.

growth is exaggerated in a production index employing an older price system in which prices for industrial goods, like machinery, are relatively high and prices for agricultural products are relatively low. Actually, official Soviet statistics used 1926/27 prices until the post-World War II period to 1950. This problem was pointed out not only by Gerschenkron (1951) himself but also by I. Krasnolobov (1940), a Soviet statistician, who referred to this question casually.

The second reason is confusion in the first days of planning. In the early days of the planned economy the all-Union price list that was called later the 1926/27 price list did not in fact exist. Actually, different price lists by enterprise and region, were used to calculate gross production. In addition, individual prices were not necessarily 1926/27 prices, but were even current or previous year prices. In forestry, for example, 1932 prices were used. This confusion, which continued at least until the price reform of 1936, is certain to have produced an upward bias in the industrial production index. The largest differences between official growth rates for industry and growth rates estimated later by Suhara (2013, p. 334) were shown for the first 5-year plan period (1928-1932).

The third reason is the evaluation of new products in a global index. The official production index in the Soviet Union was a global index, in the afore-mentioned sense. If it was a global index, it should have been calculated using imaginary base year prices estimated by some kind of method for new products that did not exist in the base year. However, in practice, this was an arduous process. It is thought that prices at the time of the introduction of new products were used effectively in the Soviet Union from the time of its establishment to its collapse. Prices at the time of introduction caused an overestimation of production growth in two ways. First, they tended to be comparatively expensive due to the small amount of production as well as the inclusion of development costs. Second, the early days of the Soviet Union, especially the 1930s, were a period of considerable inflation, and therefore, the later were new products introduced, the higher nominal prices they had.

The fourth reason involves pseudo new products, or new products with only superficially novel functions or designs. In the Soviet Union, where there was no competition, enterprises in effect had the power to decide prices for industrial products, and this tendency was highly noticeable for new products. The reason was that the price authorities, who were supposed to have the right to decide prices, were actually unable to know the production methods of new products. Hence, enterprises recklessly manufactured pseudo new products and earned gains from doing so. In addition, the authorities were happy, as they wanted innovation in enterprises. In 1955, the temporary prices system was introduced for the purpose of further encouraging innovation, and enterprises came to abuse this system to realize more gains. After the 1965 reform especially, as further importance was attached to profit in enterprises, this tendency became more salient.

Since the first two abovementioned reasons for the upward bias in official Soviet statistics were problems in the Stalinist period, it can be considered that the overestimation of growth that

continued in the post-Stalinist period was caused mainly by the last two abovementioned reasons. Apart from these four main reasons, other reasons include the selection of gross output or value added as weights when averaging production indices for individual products; the coverage of the index, such as the change of territory (i.e. Soviet Union gradually expanded its territory); and military production.

Suhara (2013), considering these issues, constructed an independent production index for Soviet industry. In this paper, we estimated an industrial production index for the RSFSR, which could be regarded as an index with the least possible bias, using output data of individual industrial products in Russia and the same methodology as used by Suhara.¹¹ The estimation results are summarized in Statistical Tables 2.1 and 2.2 at the end of the paper. Statistical Table 2.1 displays the official production index and newly estimated indices for industry as a whole (two estimated indices for the entire industry and for civil (non-military) industry only and the latter is more reliable). As shown in the final row of Statistical Table 2.1, industrial production for the RSFSR is said to have increased about 215 times from 1913 to 1990, according to official index, whereas our estimation indicates it was only about 33 times. Similarly, starting from 1928, when the first 5-year-plan began, the official index showed the rate of increase as 159 times, while ours indicated it was only 28 times. If we divide the period from 1928 to 1990 into two (1928-1960 and 1960-1990), the average annual growth rate for the first period was 11.4% using the official index and 8.2% in our estimation. For the second period, the average annual growth rate was 5.5% using official index and 2.7% in our estimation. That is, even based on our index, Russian industry achieved rapid growth in the first period, but slumped in the second period. The average annual growth rate, especially for the last 15 years of the period (1975-1990), was a mere 0.7%. The discrepancy between the two indices was 3.2% for the first period and 2.8% for the second period. It cannot be said that the upward bias in the official statistics decreased in the second period, taking the considerable decline in growth into account.

Production indices for 10 industrial branches are shown in Statistical Table 2.2. Unfortunately, official indices by branch were not available until 1940, while the index for nonferrous metals has never been published. Average annual growth rates calculated from production indices for 1940-1990 are entered in the final row of the table. Considering these figures only, enable us to understand how discrepancies between the official index and our estimated index are different across industrial branches. For example, differences in average annual growth rates of the two indices for the electricity and fuels are quite minimal, and in the ferrous metals and food processing branches differences are also small. On the contrary, there is a large gap in the machinery branch. Hence, we can say that upward bias in the official statistics is largest for this branch. As mentioned earlier in

¹¹ Our estimation employs the same figures as Suhara's estimation with regard to prices for individual products and value added share of each industrial branch, utilized as weights.

this section, the main reasons for the bias were new products, especially pseudo new products. In the machinery branch, pseudo new products with superficially altered design were most easily manufactured. It is conceivable that the figures in Statistical Table 2.2 reflect this fact.

As we wrap up our discussions of the production index here, we touch on quantitative relationships between the entire Soviet Union and the RSFSR in terms of industrial production. How much weight did Russian industry have in the USSR? Chart 2.1 shows gross values of industrial output of the Soviet Union and the RSFSR in the 1980s in 1982 prices. Unfortunately, data on the gross value of industrial output for the RSFSR were not found in the *RSFSR Statistical Yearbooks* but for this period. According to the data, industrial production in the RSFSR amounted to about 60% of the production in the USSR as a whole. As the population in the RSFSR accounted for some 52% of the entire USSR at that time, per capita industrial production in Russia was more or less above the average of the Soviet Union, as expected.

Chart 2.1 Gross Value of Industrial Output (billion rubles, 1982 prices)

	1980	1985	1986	1987	1988	1989	1990
Soviet Union	679	811	846	879	913	928	918
Russia	411	484	506	523	544	551	550
%	60.5	59.7	59.8	59.5	59.6	59.4	59.9

Source: *Soviet Statistical Yearbook, 1990 edition*, p. 348; *RSFSR Statistical Yearbook, 1990 edition*, p. 11.

Next, we briefly show statistics on the two production factors, capital and labor, in this order. According to explanations in *Soviet Statistical Yearbooks*, fixed capital was defined as physical valuables that were produced by social labor and were in use for a long time, specifically, buildings, structures, transmission installations, machinery and equipment, transportation means, instruments, inventory, livestock, and so on. According to the *RSFSR Statistical Yearbook (1970 edition, p. 65)*, as of the end of 1970, fixed capital was comprised of buildings (30.4%), structures – (19.3%), transmission installations – (9.0%), machinery and equipment – (34.2%), measuring devices and experimental apparatuses – (1.2%), and transportation means – (4.7%).

In fact, it is extremely difficult to obtain long-term statistics for fixed capital in the RSFSR, especially for the period prior to World War II. Statistical Tables 2.3 and 2.4 display the long-term changes in the volume of fixed capital available from the *RSFSR Statistical Yearbooks*. Statistical Table 2.3 shows changes in shares of fixed capital for industrial branches to total industrial fixed capital in the RSFSR, whereas Statistical Table 2.4 shows real growth for fixed capital in each branch. Statistical Table 2.3 is divided into three sections, reflecting the fact that at least two reappraisals were held in 1960 and 1973 in the Soviet Union (the RSFSR). That is, while all data

prior to 1957 in the table are obtained from the *RSFSR Statistical Yearbook 1958 edition* (p. 52) and assessed at appraisal prices before 1960, the percentage share data after 1960 are calculated based on 1960 prices, and the data in the third section of the table are based on 1973 prices. For this reason, the table is divided into three parts. For the same reason, in Statistical Table 2.4, the growth of fixed capital by industrial branch is measured using base prices from 1960 and 1973.

If it is true that there was serious overestimation of growth in the industrial production statistics for the Soviet Union (the RSFSR), then it is conceivable that the real value of machinery and equipment, which accounted for at least one-third of total fixed capital in 1970, and other fixed capital were also overestimated. Due attention must be given to the fact the data in Statistical Table 2.4, said to be real growth rates in the official Statistical Yearbooks, could be considerably inflated.¹²

We now shift topic to labor statistics. In Soviet statistics, people engaged in economic activities were classified into four categories: blue- and white-collar workers (*rabochie i sluzhashchie*), who worked for state enterprises, institutions or organizations; *kolkhozniki*, who were engaged in public and subsidiary activities in collective farms; family members of workers and *kolkhozniki*, who were engaged only in subsidiary agricultural activities; and others, who were peasants not belonging to the state or collective farms, and people engaged in personal economic activities. While all working people in industry were *rabochie i sluzhashchie*, they were called in particular industrial production personnel (*promyshlennyyi proizvodstvennyi personal*, PPP). PPP were further divided into blue-collar workers (*rabochie*), apprentices (*ucheniki*), junior service personnel (*mladshii obsluzhivaiushchii personal*),¹³ security guards (*rabotniki okhrany*), white-collar workers (*sluzhashchie*), engineers (*inzhenerno-tekhnicheskie rabotniki*), and managers (*rukovoditeli*). Blue-collar workers, apprentices, junior service personnel, and security guards were collectively called *rabochie*, whereas white-collar workers, engineers, and managers were collectively called "*sluzhashchie*." It follows that the terms *rabochie* and *sluzhashchie* have two meanings. The expression *rabochie i sluzhashchie*, which often appeared in Soviet statistical books, referred to PPP as a whole, and in this case *rabochie* and *sluzhashchie* were used in a broad sense. When *rabochie* was used by itself, in most cases, it referred to the narrow sense of the word. When it was used by itself and in a broad sense, it was common for the following note to be attached: "including apprentices, junior service personnel, and security guards." The same applied to *sluzhashchie*. As this has potential for confusion, care must be taken in the analysis.

¹² For a debate between US and UK scholars about the inflation of value of fixed capital, see Suhara (1989).

¹³ "Junior service personnel" refers to people engaged in offering services to workers in an industrial enterprise, like cloakroom clerks or drivers of company automobiles.

Chart 2.2 Three Series of the Average Annual Number of PPP in the USSR and RSFSR (thousands)

	USSR			RSFSR		
	First series	Second series	Third series	First series	Second series	Third series
1928	3,773	4,339	4,339		3,126	3,126
1932	8,000	9,374	9,374			
1937	10,112	11,641	11,641			
1940	10,967	13,079	13,079	7,576	9,025	9,025
1945	9,508	10,665	10,665		8,076	8,076
1950	14,144	15,317	15,317	10,051	10,827	10,827
1952	15,556	16,873	16,889	11,014		
1953	16,261	17,617	17,641			
1955	17,367	18,868	18,984	12,155	13,123	13,199
1956	18,500	19,561	19,641			
1957	19,144	20,192	20,312	13,267		
1958	19,675	20,807	20,988	13,571	14,260	
1959	20,207	21,400	21,670	13,887	14,623	
1960	22,291	22,291	22,620	15,139	15,139	15,335
1961	23,475	23,475	23,820	15,809	15,809	16,008
1962	24,297	24,297	24,677	16,314	16,314	16,539
1963	25,057	25,057	25,442	16,763	16,763	16,990
1964	25,933	25,933	26,313	17,242	17,242	17,467
1965		27,056	27,447		17,846	18,082

Source: *Soviet Statistical Yearbook*, various issues; *Labor in USSR 1968 edition*, pp. 24-25, 42-43; *RSFSR Statistical Yearbook*, various issues; *Labor in RSFSR 1973 edition*, pp. 16-17; *Labor in RSFSR 1985 edition*, p. 29.

Three series of average annual numbers of PPP appeared in both the *Soviet Statistical Yearbooks* and the *RSFSR Statistical Yearbooks*. The first series included the figures for PPP published in both yearbooks until the 1964 editions, the second series appeared in the 1965 to 1967 editions (as well as a labor statistics collection, *Labor in the Soviet Union, 1968 edition*), and the last series appeared in the 1968 edition. The series for 1928-1965 are shown in Chart 2.2, which shows that the second series differs considerably from the first, whereas the differences between the second and third are not so large. According to the explanation given in the statistical yearbooks as to why the second series differs from the first, there were enterprises managed by producers' cooperatives (*promyslovaia kooperatsiia*) as well as state enterprises. These producer cooperative enterprises were twice subsumed to the state management system (in 1956 and 1960) and as a result, they totally disappeared in 1960. The first series, which was until 1964, included statistics that carefully discriminated between state enterprises and producer cooperative enterprises. In other words, workers in producer cooperatives were not regarded as PPP members until their enterprises entered the state management system. According to the statistical yearbooks, about 600,000 workers were transferred in 1956 to the state enterprise system in the entire Soviet Union, and in 1960, about 1.4 million workers were transferred. As shown in Chart 2.2, from 1955 to 1956, and from 1959 to 1960,

the number of PPP increased abruptly, certainly for that reason. As opposed to the first series, the second series, which was disclosed in the 1965-1967 editions, recalculated the number of PPP based on the principle that the members of producer cooperative enterprises were considered PPP going back to the past. As a result, in every year before 1960, the number of PPP increased.

It seems that differences between the second and third series appeared from the early 1960s. However, the changes themselves were rather insignificant; for example, the number of PPP in 1960 changed from 22,291,000 to 22,620,000 workers in the Soviet Union as a whole. A brief note was added to the *RSFSR Statistical Yearbooks* stating that the modification in the third series was caused by changes in branch classification methods across the industrial, agricultural, and construction sectors. It seems that we have been unable to know the reason if we had consulted only the *Soviet Statistical Yearbooks*. Such user-unfriendly characteristic was one of the hallmarks of Soviet statistics. As shown in Chart 2.2 or Statistical Table 2.5, while we can collect average annual PPP numbers in the Soviet Union from official yearbooks for all years after 1950, for the RSFSR, we cannot obtain all the figures of the third series for that period.

The RSFSR's share of PPP in the entire USSR, calculated using figures in Statistical Table 2.5, decreased from 70.7% in 1950 to 59.5% in 1990. Hence, it can be said that the tempo of industrialization in USSR-constituent republics excluding the RSFSR was faster than that of the RSFSR. Statistical Table 2.6 shows the number of PPP in the Soviet Union and the RSFSR by industrial branch. It is noticeable that the share of machinery grew larger over time in both the Soviet Union and the RSFSR. In 1990, the share was 42.8% in the Soviet Union, and as high as 46.0% in the RSFSR.

Average monthly wages of PPP are shown in Statistical Table 2.7, whereas average monthly wages by industrial branch are displayed in Statistical Table 2.8. These tables show figures based on the third series of the number of PPP, that is, wages published in the USSR Statistical Yearbooks and the *RSFSR Statistical Yearbooks* from the 1968 editions onward. In any event, special caution is required dealing with Soviet labor statistics.

3. Russian Industrial Statistics in the Present Time

In this section, we take a general view of industrial statistics in present-day Russia. The chaos in the early days of systemic transformation of the Russian economy, naturally had a negative impact on the field of statistics. The accuracy of statistics was badly marred by deficiencies in personnel and funding. It became impossible to conduct a complete inspection of enterprises carried out in the Soviet era, and a sampling survey came to be used instead as a matter of course. Hyperinflation immediately after the collapse of the Soviet Union made it noticeably difficult to

gauge price indices accurately. Hence, there was a conspicuous increase in uncertainty about the measurement of real value in many branches of statistics, such as production and capital. On the other hand, there was a positive change in that the statistical authorities opened up to the outside world. For example, in introducing the System of National Accounts instead of the former system of Net Material Product, the Russian statistical authorities maintained technical exchanges with foreign institutions and specialists in order to improve the quality of statistics. In addition, great progress was made with regard to information disclosure. For example, in the nonferrous metals branch of the industrial sector, which had been covered by a heavy veil of mystery in the old days, much information has been published, although physical output of nonferrous metals remains unavailable.

By the 2000s, the confusion has subsided gradually, and a new branch classification method (the classification of economic activities) was introduced into Russian statistics. For some time after the birth of present-day Russia, the Soviet classification method known as the “All-Union Branch Classification of the National Economy” was used. For the industrial sector, statistics of the 10 main industrial branches based on this method were periodically published even in the new Russia. However, in the second half of the 1990s, preparations were steadily made for the introduction of a new method, and finally in 2003, the “All-Russian Classification of Types of Economic Activities (*Obshcherossiiskii klassifikator vidov ekonomicheskoi deiatel'nosti*),” was introduced, based on the European Union (EU) classification of economic activities. Actually, this classification method began to be used in the industrial statistics published by the Russian statistical authorities from around 2005. Statistical Tables 3.1 and 3.2 show production indices based on the old and new branch classification methods.

In this section, we briefly survey how these two classification methods differ concerning industry. The main differences in new method are as follows.¹⁴ First, instead of the former “industry” (*promyshlennost'*), the three major groups of “mining and quarrying,” “manufacturing,” and “electricity, gas and water supply” (more precisely, “production and allocation of electricity, gas, and running water”) are newly established (hereafter in this section, major groups are enclosed in quotation marks). Practically, the aggregate of the three groups can be considered a new concept of industry. “Mining and quarrying” includes oil and gas mining from the former fuels branch (oil and gas refining was moved to “manufacturing”), the coal, shale, and peat industry, the mining of ore and non-ore materials for ferrous and nonferrous metals (e.g., iron ore and copper ore, which formerly belonged to ferrous and nonferrous metals, respectively), the mining of materials for cement, ceramics, lime, gypsum, glass, and so on, which formerly belonged to the construction materials branch, and the salt industry, which was formerly included in the food processing branch. Newly

¹⁴ The following descriptions are based on the supplement of the *Russian Statistical Yearbook 2004 edition, Otdel'nye statisticheskie pokazateli deiatel'nosti organizatsii Rossiiskoi Federatsii po vidom ekonomicheskoi deiatel'nosti*.

classified branches in the “Mining” group are further divided into the two intermediate groups of fuel energy and non-fuel energy (see Statistical Table 3.2).

“Manufacturing” as a major group in the new classification contains 15 intermediate groups (see, e.g., Statistical Table 3.2). Of the industrial sectors in the old classification, the following are included in “manufacturing”; oil and gas refinery industry; the ferrous and nonferrous metals branches excluding ore mining, the chemicals branch excluding domestic chemicals and rubber shoe-producing sectors; most parts of the machinery branch excluding the repair sector; the wood, pulp and paper branch excluding wood provision; most parts of both the construction materials branch and the glass and ceramics branch excluding material mining sectors; the entire light industry branch; the whole food processing branch except the salt industry and fishery; and all other industries based on the old classification except the mining of precious metals.

The third major group of “electricity, gas, and water supply” consists of the former electricity branch as well as the water supply sector, which was included in “others” in the old classification.

Of the various industrial sectors included in the old classification, the wood provision sector (which was included in the wood, pulp, and paper branch, hereafter the same meaning in parentheses), tea-leaf processing (food processing branch), and part of fishery (food processing branch) are classified into a major group in the new classification of “agriculture, hunting and forestry”; part of fishery (food processing branch) is classified as “fishery”; rubber shoe production (chemicals branch), and many repair sectors in the former machinery and many repair sectors in the former light industry branch are classified as “wholesale and retail trade and repair of transportation means”; domestic chemicals (chemicals branch), software production (machinery branches), and the repair and general service of computers (machinery branch) are classified as “trade in real estate, leasing and provision of other services”; and the cleaning and dyeing of sheets and so on (others) is classified as “provision of other public and private services.” The above-mentioned points are the main changes in the industry classification system. As stated earlier in this section, the new industrial classification conforms to that of the EU, and therefore, necessary attention has been paid to consistency with the worldwide standards of the International Standard of Industrial Classification of all Economic Activities of the United Nations (UN) or the Central Product Classification of the UN. It can be considered that Russia has achieved extensive improvement in its statistics in terms of international comparability.

In the second half of the 1990s, that is, just before the change in industrial classification, a new corporate statistical system called “annual structural corporate statistics” was introduced gradually from the industrial sector to other sectors. According to an explanation from the statistical authorities, the new system models annual enterprise statistics on the EU method, and survey items are similar to EU standards. Specifically, an enterprise has to answer detailed questions on the

formation history of the enterprise, its organizational structure, production and shipment of products, cost of labor and services and so on, based on the survey system. As mentioned earlier in this section, this system was introduced in industry in 1998-1999, was extended to construction and trade in 2000-2001, and from 2002, was extended to all sectors except small-scale enterprises and financial institutions. Surveys were conducted especially in 2002-2004 using both the old and new classification methods for the purpose of using the results for the conversion in other periods between the two methods. In addition to this system, a new type of survey called “short-term corporate statistics” was introduced in large- and medium-scale enterprises from 1998 (Rosstat, 2006, pp. 96-104).

From a statistics users' point of view, the switchover to the new industrial classification can result in an inconvenient loss of continuity with the previous statistics. Hence, it would be indispensable for the industrial authorities to apply the new classification retrospectively. The degree of progress in the work seems to differ depending on sectors. That is, for industrial production, as observed in Statistical Tables 3.1 and 3.2, while production indices based on the old classification were published until 2004, production indices based on the new classification were also calculated retrospectively back to 1991. These production indices seem to be statistics in which the new classification was applied retrospectively to the oldest year. As for other fields of statistics, the retrospective work cannot delve as deeply into the past. For example, for capital statistics, we can obtain data based on the new classification only for 2003 and after, as observed in Statistical Table 3.4 (data based on the old classification are available up to 2005, see Statistical Table 3.3). On the other hand, for labor statistics, data based on the new classification exist only from 2000, as shown in Statistical Tables 3.6 and 3.8 (data based on the old classification are available up to 2004, as observed in Statistical Tables 3.5 and 3.7). Incidentally, by comparing Statistical Table 3.5 and 3.6, we understand that the sum total of employees in mining, manufacturing and electricity, gas, and water supply exceeds the number of PPP based on the old classification by 6-7% in 2000-2004. Similarly, the volume of capital data based on the new classification was more than that based on the old classification by 11-12%.

In summary, evaluation of the current situation of Russian industrial statistics shows a gradual improvement in quality approaching international standards, although there are differences in the speed with which improvement has occurred, depending on the fields.

References

[Literature in Japanese]

- Arima, Tatsuro [1973] *A Study of the History of Russian Industry*, Tokyo University Press.
- Suhara, Manabu [1989] "The Vintage of Capital Stock in the Soviet Union," *Keizai shushi* (College of Economics, Nihon University), Vol., 58, No. 4, Jan.
- [2013] *A Study of Soviet Industry*, Ochanomizu shobo.
- Tomioaka, Shoichi [1998] *A Study of Russian Economic History*, Yuhikaku.
- Collected Works of Lenin, Vol. 3* [1954] Translated by the Institute of Marxism and Leninism, Otsuki shoten, Tokyo.
- Collected Works of Lenin, Vol. 4* [1954] Translated by the Institute of Marxism and Leninism, Otsuki shotenn, Tokyo.

[Literature in English]

- Gerschenkron, Alexander [1951] *A Dollar Index of Soviet Machinery Output, 1927–28 to 1937, R–197*, Rand Corporation, Santa Monica, California.
- Goldsmith, Raymond W. [1961] "The Economic Growth of Tsarist Russia 1860-1913," *Economic Development and Cultural Change*, Vol. 9, No. 3.
- Grossman, Gregory [1960] *Soviet Statistics of Physical Output of Industrial Commodities: Their Compilation and Quality*, Princeton University Press, Princeton, New Jersey.
- Kaser, Michael [1972] "Publication of Soviet Statistics," in Vladimir G. Treml and John P. Hardt (eds.) *Soviet Economic Statistics*, Duke University Press, Durham, North Carolina.
- Nutter, G. Warren [1962] *Growth of Industrial Production in the Soviet Union*, Princeton University Press, Princeton, New Jersey.
- Weitzman, Martin L. [1970] "Soviet Postwar Economic Growth and Capital-Labor Substitution," *American Economic Review*, Vol. 60, No. 4.

[Literature in Russian]

- Ezhov, A. I. [1957] *Statistika promyshlennosti, Izdanie 3-e*, Gosstatizdat, Moscow.
- Krasnolobov, I. M. [1940] "Faktory rosta narodnogo dokhoda v sotsialisticheskom obshchestvo," *Problemy ekonomiki*, No. 9, Sept.
- Nazarov, M. G. et al. (eds.) [1981] *Sotsial'no-ekonomicheskaiia statistika. Slovar'*, Finansy i statistika, Moscow.
- Rosstat [2006] *Metodologicheskie polozheniia po statistike, vypusk piatyi*, Rosstat, Moscow.
- Rybakov, Iu, Ia. [1976] *Promyshlennaia statistika Rossii XIX v.*, «Nauka», Moscow.
- Zaionchkovskii, P. A. ed. [1978] *Spravochniki po istorii dorevoliutsionnoi Rossii*, 2nd ed., «Kniga»,

Moscow.

[Materials]

Collection of Materials of the Factory Industry in Russia for 18xx : Departament trgovli i manufaktur, Ministerstvo finansov, *Svod dannykh o fabrichno-zavodskoi promyshlennosti Rossii za 18xx g.* St.Petersburg.

Statistics of Excise-Paying Production Industries for 18xx : Ministerstvo finansov, Departament neokladnykh sborov, *Statistika proizvodstv, obлагаemykh aktsizom za 18xx g.*, St. Petersburg.

Collected Statistical Information of Mining in Russia for 18xx : Gornyi uchenyi komitet, *Sbornik statisticheskikh svedenii o gornozavodskoi promyshlennosti Rossii v 18xx g.*, St. Petersburg.

Dynamics of Russian and Soviet Industry Related to the Development of the National Economy over 40 Years (1887-1926) : Bazarov, V. A., V. E. Varzar, B. G. Groman (pred. Redkollegii), L. B. Kafengauz, V. I. Mezhlauk, M. L. Rukhimovich, S. P. Sereda, S. G. Strumilin, A. B. Shtern, *Dinamika rossiiskoi i sovetskoi promyshlennosti v sviazi s razvitiem narodnogo khoziaistva za sorok let (1887-1926 gg.)*. chast' I, II, III, 1929-30, Moscow, Leningrad.

Socialist Construction 1934 edition : TsUNKhU Gosplana, *Sotsialisticheskoe stroitel'stvo SSSR*: Moscow.

Soviet Statistical Yearbook : Goskomstat SSSR, *Narodnoe khoziaistvo SSSR v 19xx g.*, Moscow.

Labor in the Soviet Union 1968 edition : TsSU SSSR, *Trud v SSSR*, 1968, Moscow.

Labor in the Soviet Union 1988 edition : Goskomstat SSSR, *Trud v SSSR*, 1988, Moscow.

RSFSR Statistical Yearbook : TsSU RSFSR, *Narodnoe khoziaistvo RSFSR v 19xx g.*, Moscow.

Labor in the RSFSR 1973 edition : TsSU RSFSR, *Trud v RSFSR*, Moscow.

Labor in the RSFSR 1985 edition : TsSU RSFSR, *Trud v RSFSR*, Moscow.

Russian Statistical Yearbook : Rosstat, *Rossiiskii statisticheskii ezhegodnik: 20xx*, Moscow.

Russian Industry 20xx edition : Rosstat, *Promyshlennost' Rossii: 20xx*, Moscow.

[以下, 統計表を順番に (Statistical Table 1.1, ..., 1.3, 2.1, ..., 2.8, 3.1, ...3.8) 並べてください。]

Statistical Table 1.1 Output of Main Industrial Products for the Russian Empire: 1860-1913										
	1	2	3	4	5	6	7	8	9	10
	Fuels		Ferrous Metals			Nonferrous Metals				
	Crude Petroleum	Coal	Pig Iron	Iron	Steel	Rails	Copper	Lead	Zinc	Gold
	mill.m.t.	mill.m.t.	th.m.t.	th.m.t.	th.m.t.	th.m.t.	th.m.t.	th.m.t.	th.m.t.	metric ton
1860	0.004	0.30	335	210.4	2	10.7	5.20	1.09	1.84	24.4
1861	0.004	0.38	319	194.2	2	5.7	4.93	0.81	2.54	23.8
1862	0.004	0.35	250	172.5	2		4.75	0.88	2.58	23.9
1863	0.01	0.36	279	197.4	2	12.3	4.82	1.17	2.47	23.9
1864	0.01	0.40	300	182.0	4	22.6	4.51	1.35	2.94	22.9
1865	0.01	0.38	299	175.5	4	23.1	4.15	1.63	3.09	25.8
1866	0.01	0.45	304	185.7	4	14.2	4.42	1.71	3.14	27.2
1867	0.02	0.44	288	187.7	6	7.1	4.24	1.74	2.95	27.0
1868	0.03	0.45	324	222.7	10	23.6	4.39	1.64	3.25	28.0
1869	0.04	0.60	329	235.9	8	42.3	4.26	1.07	3.63	33.2
1870	0.03	0.69	360	248.5	9	40.7	5.05	1.65	3.78	35.4
1871	0.03	0.83	359	255.5	7	38.5	4.52	1.77	2.73	39.3
1872	0.03	1.09	399	268.1	9	30.5	3.72	1.22	3.03	41.4
1873	0.07	1.17	385	255.8	9	26.3	3.66	0.94	3.38	33.2
1874	0.09	1.29	380	299.3	9	48.9	3.27	1.34	4.13	33.2
1875	0.13	1.70	427	303.8	13	43.8	3.65	1.08	3.99	32.7
1876	0.19	1.82	442	292.7	18	43.9	3.87	1.17	4.62	33.6
1877	0.25	1.79	400	266.6	44	41.7	3.50	1.20	4.73	41.2
1878	0.33	2.52	417	273.5	64	72.4	3.52	1.40	4.65	42.1
1879	0.40	2.92	433	280.1	210	153.9	3.12	1.36	4.32	43.1
1880	0.35	3.29	448	292.1	307	202.6	3.20	1.15	4.39	43.3
1881	0.66	3.49	469	292.2	293	207.4	3.46	0.99	4.55	36.8
1882	0.83	3.78	463	297.3	248	162.6	3.59	0.57	4.47	36.1
1883	0.99	3.98	483	322.8	222	116.5	4.36	0.54	3.67	34.9
1884	1.48	3.93	510	362.2	207	92.0	6.22	0.63	4.32	35.7
1885	1.91	4.27	504	362.3	193	94.7	4.72	0.71	4.59	33.0
1886	1.90	4.58	516	363.0	242	112.9	4.57	0.78	4.20	33.4
1887	2.36	4.53	598	369.4	226	87.9	4.99	0.99	3.62	34.9
1888	3.01	5.19	647	364.5	222	64.3	4.60	0.80	3.87	35.2
1889	3.28	6.21	726	427.8	259	95.7	4.80	0.58	3.69	37.2
1890	3.78	6.01	916	433.2	378	173.0	5.73	0.84	3.77	39.4
1891	4.53	6.23	983	448.0	434	171.1	5.46	0.56	3.68	39.1
1892	4.69	6.95	1050	497.4	515	197.3	5.32	0.88	4.37	43.0
1893	5.53	7.61	1125	499.0	631	237.3	5.46	0.84	4.50	44.9
1894	4.92	8.76	1309	502.6	703	250.0	5.41	0.74	5.01	42.9
1895	6.745	9.10	1429	440.4	879	302.2	5.85	0.41	5.03	41.1
1896	6.80	9.38	1595	498.0	1022	366.6	5.83	0.26	6.26	37.2
1897	7.28	11.20	1849	512.2	1225	398.8	6.94	0.45	5.88	38.2
1898	8.33	12.31	2216	481.5	1619	468.4	7.29	0.24	5.66	38.8
1899	8.96	13.97	2682	519.7	1897	464.0	7.53	0.32	6.33	38.9
1900	10.38	16.16	2916	489.4	2216	496.1	8.26	0.22	5.96	38.8
1901	11.56	16.53	2837	382.3	2228	481.5	8.47	0.16	6.10	39.1
1902	11.08	16.47	2569	310.7	2184	419.5	8.82	0.23	8.27	34.9
1903	10.42	17.86	2464	279.0	2434	337.9	9.23	0.11	9.89	34.7
1904	10.89	19.61	2954	261.3	2766	420.1	9.84	0.09	10.61	33.9
1905	7.56	18.67	2717	160.3	2266	383.1	8.51	0.78	7.91	33.5
1906	8.17	21.73	2691	157.4	2496	299.5	9.35	1.01	10.09	36.8
1907	8.66	26.00	2822	155.5	2671	330.9	13.29	0.50	10.12	37.8
1908	8.74	25.91	2814	142.0	2698	361.2	16.23	0.52	9.96	42.4
1909	9.30	26.82	2872	117.9	2940	500.0	18.44	1.06	9.61	48.7
1910	9.63	25.43	3041	55.3	3314	505.2	22.69	1.31	10.84	53.9
1911	9.18	28.42	3595	44.2	3949	507.9	26.44	1.24	12.21	52.0
1912	9.29	31.13	4199		4503	623.9	32.66	1.62	20.32	47.8
1913	9.23	36.05	4636		4918	640.9	33.10	1.53	19.36	49.2

Note: Output for products with * refers to that for fiscal year (September of the previous year to August of the current year).

Source: Suhara (2013, pp. 545-548).

11	12	13	14	15	16	17	18	19	20	21
Chemicals						Construction Materials			Textile Industry	
Phosphoric Fertilizer	Sulfuric Acid	Soda Ash	White Lead	Zinc Oxide	Matches	Cement	Bricks	Window Glass	Ginned Cotton Consumption	Woolen Yarn
th.m.t.	th.m.t.	th.m.t.	th.m.t.	th.m.t.	billions	th.m.t.	millions	mill.m ²	th.m.t.	th.m.t.
0	5.1	0	0	0					46.5	
		0							43.3	
		0							13.9	
		0							17.7	
		0							26.8	
0	6.5	0.35	0	0					26.0	
									48.3	
									54.0	
									41.9	
		1.28							52.5	
0	7.9	1.32	0	0					45.9	
		0.77							68.2	
									59.0	
									57.8	
									76.4	
0	15.5	0.63	0	0					85.4	
									77.1	
		0.56							72.6	
		0.54							117.6	
		0.40							105.6	
0	23.0	0.89							94.1	
		0.67							148.6	
		0.81							127.0	
		1.00							146.6	
									120.8	
0	36.7	5.00							124.0	
									137.4	
		11.1							184.4	
0.86	43.5	18.0	3.10	1.01	59.3				136.9	
		18.6			139.7				170.8	
1.36	40.0	20.1	3.05	0.90	142.9	173.1	833	3.1	136.4	13.4
		19.6		0.84	144.7		764		151.6	
1.07	36.5	27.7	3.01	0.23	146.6		744		163.7	
6.94	44.3	46.1	3.58	0.25	137.0	137	760		186.7	17.9
		45.9			157.5				190.3	
18.7	52.0	47.8	5.77		167.1		1617		201.4	28.5
		58.6			166.7				224.2	
	59.8	61.1	7.95	0.29	182.3		2474		224.5	
					183.2				233.3	
		69.8			186.3				264.2	
48.1	105.7	86.2	8.32		208.8	803	1768	14.3	262.2	54.9
					231.6				264.1	
					233.9				285.5	
					237.3				294.8	
					236.2				298.8	
80.5	177.7	86.9	8.76		224.1	865	1531	15.8	273.3	64.9
					245.4				296.1	
					251.7				319.3	
		109.1	9.03	2.12	275.5	902	1388	16.8	346.5	70.2
					273.8				348.5	
112.9	249.7	132.2	12.15	2.85	295.5	1210	1763	23.8	361.8	73.8
123.3	275.3	148.2	11.25	3.74	306.2	1484	2114	25.3	350.5	75.4
150.1	283.7	164.2	11.08	3.78	311.2	1757	2341	27.2	420.9	82.0
115.0	292.2	160.0	18.00		322.5	2131	3090		424.2	110.2

22	23	24	25	26	27	28	29	30	31	
Processed Food										
Raw Sugar Consumption*	Refined Sugar*	Vegetable Oil	Flour	Starch & Syrup	Crude Alcohol*	Beer	Salt	Cigarettes	Makhorka	
th.m.t.	th.m.t.	th.m.t.	mill.m.t.	th.m.t.	th.kiloliter	th.kiloliter	th.m.t.	billions	th.20-kg crates	
57.3					350.7		429.7	0.34		
57.3					350.7		431.8	0.36		
47.5					350.7		749.2	0.41		
35.9					350.7		506.6	0.50		
53.0					384.8		363.0	0.52		
72.9					314.3		501.9	0.51		
55.2					286.1		646.6	0.66		
104.5					385.9		724.5	0.71		
122.7					320.6		602.8	0.81		
82.8					369.6		651.6	1.07		
105.4					385.1		475.3	1.14		
122.7					344.2		456.7	1.40		
89.6					404.3		650.5	1.57		
122.1					405.6		755.5	1.64		
128.3					386.4		725.5	1.86		
132.0					387.0		585.4	2.02		
155.7					339.8		683.7	1.84		
207.5					325.8		474.3	2.50		
173.7					342.2		781.7	2.02		
181.8					438.3		817.9	2.24		
205.5					402.4		779.3	2.24		
203.1					381.0		831.1	2.19	964.9	
261.1					400.7		1667	2.43	1305	
287.3					397.3		1138	2.66	2188	
308.9					413.4		1024	2.90	2237	
343.3					413.7		1133	3.13	2112	
475.7					386.5		1197	3.25	2182	
425.1	280.7		2.45		367.3	355.5	1157	3.34	2184	
389.0	279.7	60.3	2.43	88	434.9		1113	3.47	2135	
465.1	292.9				403.3		1394	3.69	2111	
403.1	302.1	44.6	2.47	106	386.8	396.2	1390	3.74	2093	
466.4	306.1	47.1	2.37	110	385.3		1351	3.82	2125	
485.7	311.4	54.6	2.33	131	336.4		1459	4.25	1878	
399.5	321.9	63.3	2.66	133	340.5	344.8	1351	4.58	2095	
578.5	359.0				379.3		1354	4.98	2062	
528.6	351.4	81.4	3.89	110	371.1		1540	5.70	2326	
679.5	367.3		4.45		393.1	536.4	1347	5.93	2277	
634.6	381.3		5.12	87.4	380.1	565.7	1562	6.09	2257	
654.4	429.1				365.5	537.4	1505	5.71	2304	
682.7	445.3				360.2	591.3	1681	7.70	2340	
794.1	471.0	126.7	3.71	89.4	413.0	587.2	1968	8.62	2484	
806.6	506.4				425.3	574.4	1706	9.67	2623	
959.4	562.6				385.3	570.6	1847	10.76	2372	
1053	556.6				360.9	668.2	1659	9.94	2956	
1041	574.2				404.9	667.4	1908	11.82	3089	
854	611.7	195.2	4.86	100	419.0	729.1	1844	11.77	2984	
872	641.1				452.6	879.6	1790	15.05	3225	
1279	676.7				485.5	930.0	1872	14.36	3098	
1257	672.8	236.5	5.25	106.6	522.6	876.0	1847	14.60	3537	
1129	709.7		5.55		560.1	925.3	2243	20.39	3626	
1033	811.5	226.6	4.86	130.6	523.7	1019.8	2051	16.73	3698	
1882	801.5	252.1	5.35	131.4	606.7	1099.0	2011	19.84	3699	
1848	852.1	262.3	5.39	130.7	547.4	1066.6	1858	22.53	4262	
1235	934.7	325.0		125	606.3	1161.2	1981	25.89	4390	

Statistical Table 1.2 Number of Workers for Each Industrial Branch of the Russian Empire (thousands)

	1887		1890		1900		1908		1912	
	thousands	%	thousands	%	thousands	%	thousands	%	thousands	%
1 Fuels	36,883	2.8	46,565	3.3	183,280	9.0	263,940	10.9	276,074	10.5
2 Ferrous Metals	223,531	17.0	234,031	16.4	200,341	9.8	180,713	7.5	201,170	7.7
3 Nonferrous Metals	99,407	7.5	105,058	7.4	108,401	5.3	96,840	4.0	109,151	4.2
4 Chemicals	28,978	2.2	36,119	2.5	60,710	3.0	71,278	3.0	68,120	2.6
5 Construction Materials	67,346	5.1	72,361	5.1	130,652	6.4	134,011	5.6	175,918	6.7
6 Textile Industry	399,178	30.3	433,320	30.4	619,330	30.3	771,137	31.9	800,469	30.6
7 Processed Food	254,205	19.3	255,771	17.9	315,417	15.4	396,121	16.4	329,437	12.6
8 Total Industry	1,318,048	100.0	1,425,888	100.0	2,042,905	100.0	2,413,808	100.0	2,618,562	100.0

Note: Counted for the entire Russian Empire apart from Finland. The branch classification is based on the Soviet statistics method with a few exceptions.
 Source: Suhara (2013, pp. 518, 524).

Statistical Table 1.3 Industrial Production Indices for the Russian Empire (index for 1900 = 100)

	1	2	3	4	5
	Kondrat'ev	Kafengauz	Goldsmith	Nutter	Suhara
1860			14.0	9.6	14.9
1861			13.5		14.3
1862			10.8		8.9
1863			11.6		9.9
1864			12.0		12.0
1865			11.9	7.2	11.8
1866			15.6		14.9
1867			15.9		16.9
1868			15.4		15.7
1869			17.4		17.8
1870			17.3	10.8	17.6
1871			19.7		20.3
1872			19.5		20.3
1873			18.9		20.0
1874			21.2		23.0
1875			22.2	16.7	24.6
1876			22.3		23.6
1877			22.3		23.7
1878			27.7		29.4
1879			28.9		31.3
1880			29.1	22.6	31.9
1881			34.6		37.1
1882			33.6		36.2
1883			36.7		38.1
1884			35.2		36.2
1885	33.7		37.6	32.3	37.2
1886	34.7		38.9		41.0
1887	39.7	33.1	44.0		45.6
1888	37.1	36.6	41.6	38.4	40.8
1889	43.8	40.2	46.4		47.9
1890	44.7	40.4	50.7	41.9	45.8
1891	48.0	42.8	53.4		48.5
1892	51.0	46.2	55.7		51.8
1893	57.8	51.7	63.3		55.7
1894	59.4	55.2	63.3		63.2
1895	64.5	59.3	70.4	65.8	69.8
1896	68.7	69.0	72.9		78.9
1897	75.1	71.6	77.8		84.8
1898	82.3	77.4	85.5		86.5
1899	91.4	89.7	95.4		94.8
1900	100.0	100.0	100.0	100.0	100.0
1901	100.1	100.0	103.2		104.1
1902	100.9	99.7	108.7		107.5
1903	104.5	103.9	105.7		110.0
1904	109.7	112.0	109.2		114.1
1905	101.5	108.3	97.2	101.9	104.9
1906	109.9	113.7	109.6		111.1
1907	116.1	123.8	114.9		122.2
1908	119.7	124.5	117.6		123.3
1909	122.3	128.6	121.2		129.5
1910	137.4	133.4	137.0	131.6	132.5
1911	146.2	148.7	144.4		140.8
1912	152.6	161.8	149.8		154.6
1913	163.8	177.1	158.5	168.4	169.2

Source: Suhara (2013, p. 535)

Statistical Table 2.1 Long-term Industrial Production Indices for the RSFSR (official statistics and our estimates)

	Index for 1913 = 100			Index for 1928 = 100		
	1	2	3	4	5	6
	Official	Our estimates		Official	Our estimates	
	Total industry	Civilian industry		Total industry	Civilian industry	
1913	100	100	100	74	84	84
1917	70			52		
1928	135	119	119	100	100	100
1929	162			120		
1930	198			146		
1931	233			173		
1932	271	203	203	201	170	170
1933						
1934						
1935						
1936						
1937	597	471	419	442	396	352
1938	669			495		
1939	782			579		
1940	867	529	409	642	444	343
1941						
1942						
1943						
1944						
1945	919	439	218			
1946	720					
1947	858					
1948	1,066					
1949	1,266					
1950	1,517	709	661			
1951	1,751	789	699			
1952	1,942	878	737			
1953	2,159	939	802			
1954	2,436	1,019	883			
1955	2,722	1,100	969			
1956	2,982	1,194	1,066			
1957	3,251	1,297	1,176			
1958	3,546	1,356	1,228			
1959	3,936	1,432	1,300			
1960	4,283	1,500	1,360			
1961	4,630	1,574	1,431			
1962	5,047	1,661	1,506			
1963	5,450	1,748	1,579			
1964	5,777	1,832	1,645			
1965	6,199	1,919	1,715			
1966	6,720	2,021	1,807			
1967	7,385	2,058	1,906			
1968	7,983	2,224	1,987			
1969	8,534	2,303	2,045			
1970	9,217	2,409	2,143			
1971	9,917	2,521	2,267			
1972	10,552	2,646	2,384			
1973	11,322	2,766	2,502			
1974	12,205	2,906	2,645			
1975	13,096	3,019	2,762			
1976	13,712	3,083	2,828			
1977	14,439	3,405	3,131			
1978	15,103	3,469	3,198			
1979	15,541	3,448	3,173			
1980	16,038	3,230	2,975			
1981	16,519	3,225	2,966			
1982	16,965	3,241	2,981			
1983	17,610	3,306	3,041			
1984	18,279	3,365	3,098			
1985	18,901	3,415	3,128			
1986	19,751	3,523	3,217			
1987	20,443	3,575	3,223			
1988	21,219	3,527	3,176			
1989	21,516	3,440	3,101			
1990	21,495	3,342	3,043			

Note: "Official" indexes are calculated using proportionate calculation, based on published data. As for the calculation method Source: *RSFSR Statistical Yearbook*, various issues.

Statistical Table 2.2 Long-term Production Indices for the RSFSR Industry by Industrial Branch (official statistics and our estimates, index for 1940=100)

	1		2		3		4		5		6		7		8		9		10	
	Electricity		Fuels		Ferrous metals		Nonferrous metals		Chemicals											
	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates
1913		4		9		20		13		3										
1928		10		20		21		18		6										
1929																				
1930																				
1931																				
1932		30		47		29		30		24										
1933				50		36														
1934				42		53														
1935				43		69														
1936				48		90														
1937		76		76		98		77		93										
1938				78		97														
1939				89		95														
1940	100	100	100	100	100	100	100	100	100	100										
1941																				
1942																				
1943																				
1944																				
1945		111		98	124	161	122		76	107	52									
1946		120		118																
1947		136		153																
1948		154		184																
1949		179		221																
1950	200	206	186	200	245	203		134		210	216									
1951		233		205	217	281	226		153	252	210									
1952		267		221	229	309	244		169	288	222									
1953		301		240	243	341	265		174	330	240									
1954		338		266	267	368	284		180	378	281									
1955		382		307	301	409	306		186	452	315									
1956		419		345	335	439	330			506	361									
1957		456		384	373	469	340			567	385									
1958		513		419	407	512	355			636	423									
1959		580		458	436	563	380			704	448									
1960	690	639	499	458	627	414				762	485									
1961	771	715	528	473	679	448				854	520									
1962	869	805	563	496	737	484				973	551									
1963	973	893	609	542	801	511				1,123	588									
1964	1,079	988	658	579	865	542				1,281	639									
1965	1,183	1,079	700	609	924	579				1,431	698									
1966	1,284	1,157	747	647	999	607				1,607	742									
1967	1,377	1,232	798	680	1,076	643				1,801	798									
1968	1,519	1,336	832	699	1,150	673				2,010	852									
1969	1,648	1,430	873	722	1,201	702				2,211	876									
1970	1,762	1,525	932	759	1,260	749				2,454	940									
1971	1,901	1,632	988	792	1,336	788				2,692	1,001									
1972	2,036	1,742	1,044	826	1,411	820				2,929	1,080									
1973	2,158	1,841	1,109	861	1,499	859				3,225	1,153									
1974	2,297	1,965	1,184	912	1,575	890				3,554	1,239									
1975	2,420	2,076	1,268	980	1,651	936				3,930	1,351									
1976	2,620	2,225	1,333	1,041	1,751	970				4,210	1,383									
1977	2,710	2,297	1,398	1,120	1,789	984				4,490	1,444									
1978	2,860	2,417	1,463	1,192	1,865	1,028				4,730	1,483									
1979	2,960	2,484	1,482	1,254	1,865	1,011				4,840	1,411									
1980	3,120	2,611	1,519	1,299	1,890	1,022				5,110	1,492									
1981	3,230	2,713	1,547	1,340	1,915	992				5,350	1,475									
1982	3,340	2,799	1,575	1,385	1,940	990				5,500	1,479									
1983	3,440	2,914	1,603	1,427	2,029	1,043				5,810	1,612									
1984	3,650	3,049	1,603	1,462	2,092	1,074				6,140	1,677									
1985	3,744	3,120	1,603	1,481		1,074				6,458	1,645									
1986	3,868	3,249	1,668	1,541		1,106				6,825	1,714									
1987	4,087	3,397	1,699	1,573		1,132				7,029	1,730									
1988	4,124	3,456	1,731	1,585		1,147				7,351	1,761									
1989	4,199	3,492	1,715	1,550		1,142				7,416	1,772									
1990	4,274	3,510	1,651	1,469		1,103				7,222	1,702									
1940-90	7.8	7.4	5.8	5.5	6.8	5.3				8.9	5.8									

Note: Figures in the lowest row show average annual growth rates (%) in 1940-90.
Source: RSFSR Statistical Yearbook, various issues.

or 1940 = 100)

12		13		14		15		16		17		18		19		20		21	
Machinery		Wood, pulp, and paper				Construction materials				Light industry				Processed food					
Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates	Official	Our estimates		
	2		27		44		59		67										
	2		33		48		55		55										
	17		73		73		62		62										
	80		98		125		94		95										
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
149	174	58	52	44	36	66	37		42										
91			65				48												
			75				64												
			94				79												
			109				94												
221	122	130	120	201	157	112	112		104										
259	132		139		183	132	131		118										
299	162	157	144		208	142	134		128										
345	173		148		236	158	144		139										
398	183		163		270	178	158		150										
472	197	195	171	473	307	192	167		158										
536	213		178		327	205	179		176										
604	237		189		373	213	189		184										
683	232		204		434	228	200		189										
783	233		219		493	246	209		212										
889	245	278	217	1,080	540	262	214		213										
1,012	262	288	213	1,192	567	270	215		222										
1,158	276	304	218	1,283	586	276	221		243										
1,300	287	322	228	1,365	590	280	224		260										
1,409	295	341	238	1,473	617	286	231		266										
1,527	306	354	241	1,570	645	285	230		293										
1,701	326	365	242	1,711	690	309	243		298										
1,910	304	391	254	1,862	728	338	254		323										
2,130	357	409	256	1,990	745	366	262		339										
2,380	373	424	259	2,094	764	387	270		344										
2,640	384	454	272	2,270	814	410	276		360										
2,930	406	477	277	2,476	851	432	277		372										
3,260	440	498	280	2,670	885	440	270		380										
3,640	463	523	287	2,850	922	456	277		393										
4,060	491	545	288	3,030	951	469	281		425										
4,500	504	573	296	3,210	992	489	280		431										
4,920	512	583	294	3,320	1,001	507	286		416										
5,340	519	598	289	3,420	3,240	520	287		438										
5,780	524	603	283	3,520	3,231	535	286		443										
6,210	521	587	270	3,460	3,110	542	285		442										
6,590	522	599	271	3,500	978	552	284		430										
6,950	518	613	273	3,560	985	559	278		424										
7,290	518	631	270	3,630	976	555	273		437										
7,710	514	651	275	3,800	1,006	554	270		460										
8,210	517	670	281	3,910	1,017	559	274		469										
8,791	529	693	283	4,024	1,025	563	280		474										
9,372	544	729	296	4,274	1,069	571	286		479										
9,900	544	759	301	4,414	1,100	577	292		495										
10,430	510	773	306	4,614	1,136	600	297		515										
10,607	478	801	299	4,735	1,138	611	300		533										
10,695	465	773	280	4,695	1,121	611	295		524										
9.8	3.1	4.2	2.1	8.0	5.0	3.7	2.2		3.4										

Statistical Table 2.3 Percentage Share of Industrial Branches in Total Industrial Fixed Capital Stock (at year-end)

	1	2	3	4	5	6	7	8	9	10	11	12
	Industry	Electricity	Fuels	Ferrous and nonferrous metals	Ferrous metals	Nonferrous metals	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food
1940	100	8.4	7.1	10.1			8.1	32.7	7.5	3.5	8.0	10.2
1950	100	9.0	11.6	12.9			5.9	33.0	8.1	3.6	4.8	7.9
1956	100	13.2	15.2	12.5			5.6	26.4	8.3	5.1	4.3	6.9
1957	100	13.3	15.4	12.5			5.5	25.7	7.9	5.7	4.1	7.5
[share based on 1960 comparable prices]												
1960	100	13.4	13.8		8.1		5.5	22.8	8.3	6.4	4.9	9.0
1961	100	13.8	13.3		7.8		5.6	22.6	8.4	6.3	4.7	9.4
1962	100	13.8	13.0		8.3		7.1	22.7	7.7	6.4	4.6	8.6
1965	100	15.0	11.4		8.3		9.0	22.0	7.4	6.5	4.3	8.4
1966	100	15.2	11.5		8.3		9.2	22.0	7.2	6.3	4.2	8.3
1967	100	15.3	11.5		8.3		9.5	21.9	7.1	6.1	4.2	8.3
1968	100	15.7	12.0		8.0		8.8	22.6	6.8	6.0	4.1	8.1
1969	100	15.5	12.0		8.2		8.9	22.7	6.7	6.1	4.1	7.9
1970	100	15.4	11.7		8.1		9.0	23.2	6.7	6.0	4.1	7.7
1971	100	15.5	11.7		7.9		8.9	23.7	6.5	6.0	4.1	7.5
1972	100	15.4	11.6		7.9		9.0	24.0	6.5	6.0	4.1	7.4
1973	100	15.1	11.4		8.0		9.0	24.2	6.5	6.0	4.0	7.4
1974	100	15.1	11.5		7.9		9.1	24.5	6.4	5.9	3.9	7.3
[share based on 1973 comparable prices]												
1965	100	15.9	11.9		8.2		7.9	22.7	7.3	6.0	4.4	8.0
1970	100	16.5	11.5		8.2		8.7	23.2	6.9	5.7	4.1	7.3
1975	100	15.8	11.3		7.9		8.8	24.6	6.4	5.9	3.8	7.1
1985	100	14.2	14.6	12.2	7.2	5.0	8.8	26.9	5.6	5.3	3.2	6.0
1989	100	13.6	17.4	11.6			8.3	27.3	5.2	4.9	3.1	6.0
1990	100	13.6	17.5	11.7	6.9	4.9	8.3	27.0	5.1	4.6	3.2	6.0
1991	100	13.3	18.2	11.8	6.7	5.1	8.5	26.3	5.1	4.6	3.2	6.2
1992	100	13.7	19.1	11.7	6.2	5.5	9.7	24.8	4.6	4.7	2.4	6.9

Source: RSFSR Statistical Yearbook, various issues.

Statistical Table 2.4 Indexes of Fixed Capital Stock Values of Industrial Branches (at year-end)

	1	2	3	5	7	8	9	10	11	12
	Industry	Electricity	Fuels	Ferrous metals	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food
[index based on 1960 comparable prices]										
1960	100	100	100	100	100	100	100	100	100	100
1961	111	114	108	108	114	111	111	115	106	113
1962	123	128	109	120	152	123	119	130	116	121
1963	137	146	116	137	195	136	128	143	125	131
1964	151	164	125	152	230	151	139	155	134	141
1965	165	181	134	166	268	165	147	166	142	154
1966	180	201	145	182	300	180	158	175	153	166
1967	194	219	157	196	331	194	168	183	164	178
1968	210	242	169	210	370	210	179	196	176	190
1969	231	266	185	236	407	231	194	216	189	202
1970	254	291	200	257	456	261	213	237	206	219
1971	277	317	217	274	496	290	229	257	224	233
1972	304	344	235	299	544	322	251	284	246	249
1973	332	371	255	332	600	355	273	309	263	268
1974	361	405	279	360	662	393	295	334	283	288
[index based on 1973 comparable prices]										
1965	100	100	100	100	100	100	100	100	100	100
1970	150	158	148	153	168	157	142	147	143	142
1971	162	170	159	162	181	173	151	160	154	151
1972	175	182	171	174	198	189	165	176	167	162
1973	189	193	184	192	218	207	177	193	178	174
1974	205	208	200	207	238	229	190	210	189	186
1975	226	222	219	225	258	253	203	228	200	199
1976	244	237	240	242	282	279	217	245	210	210
1977	262	248	258	258	300	306	230	266	222	220
1978	281	262	283	276	322	334	245	285	238	231
1979	302	279	307	288	357	359	258	301	249	246
1980	327	297	339	311	386	391	278	318	263	260
1981	350	314	370	327	414	419	294	336	278	273
1982	376	332	410	349	444	450	309	352	292	287
1983	403	349	455	374	476	480	330	372	306	301
1984	429	367	499	392	508	516	345	392	322	318
1985	456	392	552	533	550	550	359	409	337	334
1986	483	408	607	559	582	582	377	429	351	347
1987	511	431	679	575	615	615	388	441	368	367
1988	538	451	751	596	648	648	402	454	385	384
1989	565	466	817	612	687	687	417	474	405	410
1990	593	486	878	628	714	714	428	478	429	427
1991	625	502	966	644	736	736	453	499	456	467

Note: Compiled by the integration of many official indexes using proportionate calculation.

Source: *RSFSR Statistical Yearbook*, various issues.

Statistical Table 2.5 Average Annual Numbers of Industrial Production Personnel in the USSR and the RSFSR (thousand persons) and Percentage Share of Female Workers in All Industrial Production Personnel

	Average annual numbers of industrial production personnel (thousand persons)						Percentage share of female workers	
	1		3		5		7	
	USSR	Blue-collar workers in broad terms	White-collar workers in broad terms	RSFSR	Blue-collar workers in broad terms	White-collar workers in broad terms	USSR	RSFSR
1913	4,130	3,900	230					
1922	1,900			1,448				
1928	4,339	3,930	409	3,126				30.3
1932	9,374	8,063	1,311					
1937	11,641	10,064	1,577					
1940	13,079	11,113	1,965	9,025	7,682	1,343	37.7	40.0
1945	10,665	9,164	1,501	8,076	6,966	1,110		
1950	15,317	13,246	2,071	10,827	9,354	1,473	46	48.5
1951	16,241							
1952	16,889						46	
1953	17,641							
1954	18,535							
1955	18,984	16,502	2,482	13,199	11,454	1,745	45	
1956	19,641						45	
1957	20,312						45	
1958	20,988						45	
1959	21,670							
1960	22,620	19,701	2,919	15,335	13,335	2,000	45	47.4
1961	23,820			16,008	13,894	2,114	45	
1962	24,677			16,539	14,305	2,234	46	
1963	25,442			16,990	14,638	2,352	45	
1964	26,313			17,467	14,991	2,476	46	
1965	27,447	23,495	3,952	18,082	15,452	2,630	45.7	47.2
1966	28,514	23,781	4,733	18,628	15,830	2,798	47	
1967	29,448	24,492	4,956	19,132	16,169	2,963	47	
1968	30,428	25,176	5,252	19,645	16,517	3,128	47	
1969	31,159	25,651	5,508	20,028	16,757	3,271	48	49
1970	31,593	26,631	4,962	20,206	16,979	3,227	48.0	49
1971	32,030	27,073	4,957	20,403	17,192	3,211	48	49
1972	32,461	27,389	5,072	20,630	17,351	3,279	49	49
1973	32,875	27,662	5,213	20,830	17,473	3,357	49	49
1974	33,433	28,062	5,371	21,117	17,672	3,445	49	49
1975	34,054	28,486	5,568	21,433	17,873	3,560	48.9	49
1976	34,815	29,055	5,760	21,840	18,159	3,681		
1977	35,417	29,515	5,902	22,122	18,359	3,763		
1978	36,014	29,928	6,086	22,416	18,545	3,871		
1979	36,496	30,226	6,270	22,604	18,629	3,975		
1980	36,891	30,479	6,412	22,745	18,694	4,051		48.8
1981	37,236	30,692	6,544	22,874	18,747	4,127		
1982	37,610	30,950	6,660	23,008	18,825	4,183		
1983	37,830	31,110	6,720	23,054	18,845	4,209		
1984	37,957	31,189	6,768					
1985	38,103	32,302	6,801	23,095	18,856	4,239		48.1
1986	38,223	31,390	6,833	23,108	18,861	4,247		
1987	38,139	31,261	6,878	22,967	18,705	4,262		
1988	37,376	30,632	6,744	22,387	18,224	4,163		
1989	36,414	29,742	6,672	21,731	17,620	4,111		47.3
1990	35,286	28,805	6,481	20,998	17,007	3,991		47.7

Source: *Soviet Statistical Yearbook*, various issues; *Labor in the Soviet Union, 1988 edition*, p.47; Weitzman (1970, p. 687); *RSFSR Statistical Yearbook*, various issues; *Labor in the RSFSR, 1975 edition* pp. 16-17; *Labor in the RSFSR, 1985 edition*, pp. 29-30, 36, 139.

Statistical Table 2.6 Average Annual Numbers of Industrial Production Personnel by Industrial Branch in the USSR and the RSFSR (thousand persons)

	1	2	3	4	5	6	7	8	9	10	11
	Industry	Electricity	Fuels	Ferrous metals	Nonferrous metals	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food
USSR											
1940	13,079	164	808	526	149	414	3,519	1,990		2,853	
1950	15,317	184	1,243	743	521	469	4,307	2,201	699	2,653	1,534
1960	22,620	397	1,568	1,047	526	792	7,206	2,684	1,582	3,860	2,027
1965	27,447	540	1,579	1,236		1,251	9,905	2,819	1,716	4,308	2,592
1970	31,593	633	1,542	1,359	667	1,568	12,017	2,848	2,003	5,019	2,759
1971	32,030	645	1,513	1,352		1,598	12,369	2,829	2,039	5,036	
1972	32,461	655	1,479	1,354		1,626	12,718	2,821	2,070	5,034	
1973	32,875	659	1,447	1,356		1,667	13,049	2,807	2,093	5,045	
1974	33,433	671	1,425	1,366		1,706	13,424	2,799	2,115	5,074	
1975	34,054	686	1,434	1,369	682	1,753	13,816	2,795	2,160	5,109	2,875
1980	36,891	770	1,648	1,451	732	1,924	15,612	2,737	2,243	5,218	2,978
1985	38,103	858	1,771	1,488	752	1,983	16,380	2,724	2,289	5,109	3,038
1986	38,223	870	1,778	1,485	756	1,984	16,496	2,726	2,310	5,075	3,013
1987	38,139	873	1,743	1,456	751	1,972	16,457	2,704	2,315	5,052	3,010
1988	37,376						16,167			4,838	2,993
1989	36,414						15,685			4,771	2,965
1990	35,286						15,090			4,660	2,961
RSFSR											
1960	15,335	253	785	602		586	5,325	2,120	939	2,545	1,273
1965	18,082	333	786	702		902	6,994	2,176	1,000	2,704	1,484
1970	20,206	362	782	758		1,062	8,277	2,180	1,111	2,942	1,619
1971	20,403	374	769	755		1,072	8,475	2,157	1,133	2,926	1,609
1972	20,630	382	756	761		1,087	8,685	2,145	1,153	2,893	1,606
1973	20,830	392	742	765		1,105	8,871	2,128	1,165	2,878	1,610
1974	21,117	402	728	772		1,128	9,093	2,118	1,171	2,874	1,635
1975	21,433	413	723	775		1,152	9,321	2,115	1,200	2,873	1,643
1980	22,745	467	809	824	517	1,234	10,287	2,039		2,820	1,598
1981	22,874	477	824	836		1,235	10,379	2,031	1,254	2,789	
1982	23,008	492	838	845		1,243	10,463	2,034	1,261	2,761	
1983	23,054	502	846	854		1,243	10,482	2,028	1,265	2,716	
1985	23,095	522	861	854	527	1,249	10,617	2,003		2,624	1,602
1986	23,108						10,671			2,583	1,650
1987	22,967						10,618			2,541	1,641
1988	22,387						10,364			2,407	1,630
1989	21,731						10,028			2,356	1,618
1990	20,998	545	801	785	487	1,791	9,652	1,130	1,792	2,288	1,545
RSFSR / USSR (%)											
1960	67.8	63.6	50.1	57.5		74.0	73.9	79.0	59.4	65.9	62.8
1965	65.9	61.7	49.8	56.8		72.1	70.6	77.2	58.3	62.8	57.3
1970	64.0	57.2	50.7	55.8		67.7	68.9	76.5	55.5	58.6	58.7
1971	63.7	58.0	50.8	55.8		67.1	68.5	76.2	55.6	58.1	
1972	63.6	58.3	51.1	56.2		66.9	68.3	76.0	55.7	57.5	
1973	63.4	59.5	51.3	56.4		66.3	68.0	75.8	55.7	57.0	
1974	63.2	59.9	51.1	56.5		66.1	67.7	75.7	55.4	56.6	
1975	62.9	60.1	50.4	56.6		65.7	67.5	75.7	55.6	56.2	57.2
1980	61.7	60.6	49.1	56.8	70.6	64.1	65.9	74.5		54.0	53.7
1985	60.6	60.8	48.6	57.4	70.1	63.0	64.8	73.5		51.4	52.7
1986	60.5						64.7			50.9	54.8
1987	60.2						64.5			50.3	54.5
1988	59.9						64.1			49.8	54.5
1989	59.7						63.9			49.4	54.6
1990	59.5						64.0			49.1	52.2

Source: Soviet Statistical Yearbook, various issues; Labor in the Soviet Union 1988 edition, pp. 49-50; RSFSR Statistical Yearbook, various issues; Labor in the RSFSR 1985 edition, pp. 141-144.

Statistical Table 2.7 Average Monthly Wages in the USSR and the RSFSR (rubles)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	USSR							RSFSR						
	Total economy	PPP	Blue-collar workers in broad terms		White-collar workers in broad terms			Total economy	PPP	Blue-collar workers in broad terms		White-collar workers in broad terms		
			Blue-collar workers in narrow terms			Engineering-technical personnel	White-collar workers in narrow terms				Blue-collar workers in narrow terms		Engineering-technical personnel	White-collar workers in narrow terms
1940	33.1	34.1	30.7	32.4	53.5	69.6	36.0	33.9	34.5		32.8		70.6	36.2
1945	43.9	47.8	41.3		81.8			44.9	48.2					
1946	48.1													
1950	64.2	70.8	66.1	69.0	100.4	122.9	64.3	65.7	71.1		69.0		123.2	64.8
1955	71.8	78.5	74.1		108.1			73.9	79.3		76.8		129.9	69.8
1960	80.6	91.6	87.9	89.9	116.6	135.7	73.8	83.1	91.7	87.9	89.9	117.1	135.3	75.2
1961	83.9							86.4						
1962	86.7							89.2						
1963	88.2							90.9						
1964	90.8							93.6						
1965	96.5	104.2	99.6	101.7	131.3	148.4	85.8	99.0	105.1		102.5		149.8	87.6
1966	100.2	107.8		104.9				102.8	109.1		106.0			
1967	104.7	113.4		109.7				107.7	115.1		111.2			
1968	112.7	121.9		118.6				116.3	124.2		120.7			
1969	116.9	127.7		124.7		172.0	106.9	120.9	130.3		126.6			
1970	122.0	133.3	128.2	130.6	160.9	178.0	111.6	126.1	136.0	130.5	133.0	164.7	181.5	114.0
1971	125.9	137.9		135.4		181.6	114.4	130.4	140.8		138.2		185.1	117.0
1972	130.2	142.1		140.1		182.5	115.7	135.2	145.4		143.2		186.4	118.6
1973	134.9	147.2		145.6		184.9	118.5	140.5	151.3		149.5		190.1	122.7
1974	141.1	155.5		153.9		193.4	126.2	147.7	161.0		159.1		200.7	132.1
1975	145.8	162.2	158.0	160.9	183.6	199.2	131.3	153.2	167.9		166.1		207.0	137.7
1976	151.4	169.5		168.2		205.8	139.2	158.4	174.3		172.7		211.5	144.1
1977	155.2	172.9		171.8		207.3	141.5	162.9	177.7		176.4		212.9	146.2
1978	159.9	176.8		176.1		208.4	142.7	168.2	181.9		180.9		214.7	147.8
1979	163.3	180.4		180.3		208.9	142.9	172.1	185.7		185.3		215.1	148.2
1980	168.9	185.4	182.5	185.5	199.2	212.5	145.8	177.7	191.3	188.0	191.0	206.7	219.7	151.8
1981	172.5	189.6		190.2		214.4	148.2	181.8	195.9		196.2		221.5	154.5
1982	177.3	196.1		196.8		220.2	152.2	187.3	202.4		202.9		227.3	158.6
1983	180.5	199.4		200.8		220.8	152.3	190.8	205.9		207.0		227.9	158.8
1984	184.8	204.6		205.5		228.1	159.0	195.5	211.2		211.9		235.3	165.6
1985	190.1	210.6	208.5	211.7	220.6	233.2	164.6	201.4	217.9	215.5	218.9	228.7	240.9	171.6
1986	195.6	215.7	213.3	216.4	226.8	239.0	172.2	207.8	223.5	220.8	224.1	235.6	247.3	180.2
1987	202.9	221.9	219.2		234.0			216.1	230.3	227.3		243.8		
1988	219.8	240.8	235.0		267.3			235.2	250.3	243.8		277.7		
1989	240.4	263.7	255.4		301.0			258.6	275.2	266.2		313.4		
1990	274.6	296.2	285.6		343.5			296.8	310.9	299.5		359.4		

Source: Soviet Statistical Yearbook, various issues; Labor in the Soviet Union 1988 edition, pp. 143, 148-149, 154-155, 158-159, 189, 223; RSFSR Statistical Yearbook, various issues; Labor in the RSFSR 1985 edition, pp. 18

Statistical Table 2.8 Average Monthly Wages by Industrial Branch in the USSR and the RSFSR (rubles)

	1	2	3	4	5	6	7	8	9	10	11
Industry	Electricity	Fuels	Ferrous metals	Nonferrous metals	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food	
											USSR
1950	70.8	77.7	104.3	97.7	96.7	76.5	77.1			51.4	53.3
1960	91.6	89.1	151.8	116.8	145.2	96.3	92.8	85.8	85.9	65.6	73.3
1965	104.2										
1970	133.3	138.2	201.0	153.4	196.8	136.9	134.4	135.3	138.2	103.3	119.0
1975	162.2	167.3	245.0	188.0	235.7	165.2	164.1	169.3	165.3	124.6	146.5
1980	185.4	190.2	271.7	214.1	264.6	183.2	187.5	191.6	180.2	149.9	167.2
1981	189.6										
1982	196.1										
1983	199.4										
1985	210.6	210.0	313.0	236.7	299.2	204.0	214.4	218.0	204.5	167.5	188.4
1986	215.7	216.6	317.8	242.8	307.2	209.5	219.0	226.2	210.6	170.4	194.0
1987	221.9	226.0	329.2	248.2	315.5	215.1	224.0	230.8	219.2	174.4	206.3
1988	240.8	251.0	352.4	273.7	341.7	236.2	241.3	248.3	238.2	194.8	219.0
1989	263.7	283.4	382.2	304.4	373.8	259.1	264.3	268.5	261.4	212.5	239.6
1990	296.2	341.1	424.1	338.3	405.9	286.0	296.6	293.9	298.6	237.3	276.2
RSFSR											
1960	91.7	92.8	149.7	117.6		97.3	93.8	89.0	88.7	66.5	78.1
1965	105.1	113.2	167.0	128.3		108.7	105.1	103.6	104.4	79.2	95.8
1970	136.0	145.9	194.1	156.5		139.0	136.4	140.6	142.0	104.2	125.2
1975	167.9	177.4	240.2	194.4		169.8	167.9	178.5	169.9	127.8	160.5
1980	191.3	201.5	269.2	220.2	282.6	186.4	191.7	199.8	184.6	153.9	181.4
1981	195.9	206.2	276.3	223.9		190.2	196.4	205.2	189.1	157.1	185.0
1982	202.4	212.4	292.9	228.1		194.2	203.2	210.6	194.5	161.0	191.5
1983	205.9	212.5	293.5	232.8		196.8	206.6	214.8	199.8	162.7	196.4
1985	217.9	222.6	317.2	244.5	322.4	207.2	219.3	227.1	209.7	171.7	205.6
1986	223.5	227.8	322.2			212.8	224.0	236.3	215.7	175.0	211.4
1987	230.3	238.0	339.3			218.1	229.4	241.0	224.8	179.5	227.3
1988	250.3	264.7	372.3			239.0	247.3	259.2	246.8	200.6	240.1
1989	275.2	300.4	401.0			263.2	271.3	281.8	274.3	220.5	265.0
1990	310.9	366.4	447.2	353.1	440.3	292.5	305.3	307.7	316.1	248.6	312.9

Source: Soviet Statistical Yearbook, various issues; Labor in the Soviet Union 1988 edition, pp. 189-195; RSFSR Statistical Yearbook, various issues; Labor in the RSFSR 1985 edition, pp. 276-281.

Statistical Table 3.1 Industrial Production Indices for the Russian Federation (based on the old industrial classification)

	1	2	3	4	5	6	7	8	9	10	11
Industry		Electricity	Fuels	Ferrous metals	Nonferrous metals	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food
		1991	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992	82.0	95.0	93.0	84.0	75.0	78.0	85.0	85.0	80.0	70.0	84.0
1993	70.5	90.3	81.8	69.7	64.5	61.6	71.4	68.9	67.2	53.9	76.4
1994	55.7	82.1	73.7	57.9	58.7	46.8	49.3	48.2	49.1	29.1	63.4
1995	53.9	79.5	73.1	63.4	60.3	50.4	44.8	47.9	45.1	20.3	58.2
1996	51.4	77.4	70.8	60.4	58.2	46.8	42.7	37.0	33.6	14.6	52.8
1997	52.5	76.0	70.5	60.9	61.7	48.5	44.3	36.9	32.2	14.0	51.3
1998	49.7	74.2	68.7	56.3	59.0	45.8	40.5	37.0	30.2	12.6	51.8
1999	55.2	73.3	70.4	65.7	65.0	56.5	47.5	43.6	33.3	14.1	53.6
2000	61.8	75.0	73.9	76.1	74.8	65.0	56.9	49.5	37.7	17.1	61.3
2001	64.8	76.2	78.4	75.9	78.5	68.1	61.0	50.8	39.7	17.9	66.5
2002	67.2	75.7	83.8	78.2	83.2	68.6	62.1	52.0	40.9	17.3	70.8
2003	71.9	76.4	91.6	85.2	88.4	71.8	67.9	52.8	43.5	16.9	74.4
2004	76.3	76.7	98.1	89.4	91.6	76.0	74.8	54.3	45.8	15.6	77.4

Source: *Russian Statistical Yearbook*, various issues.

Statistical Table 5.2 Industrial Production Indices for the Russian Federation (based on the new industrial classification)

Year	Industry																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Mining and quarrying	Energy-producing minerals	Minerals except of energy-producing minerals	Manufacturing	Food products, including beverages and tobacco	Textiles and textile products	Leather, leather products, and footwear	Wood and wood products	Pulp, paper, and paper products; publishing and printing	Coke and refined petroleum products	Chemical products	Rubber and plastics products	Other non-metallic mineral products	Basic metals and fabricated metal products	Machinery and equipment	Electrical, electronic, and optical equipment	Transportation equipment	Other manufacturing	Electricity, gas, and water supply	
1991	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1992	84.0	88.2	94.7	71.0	81.8	80.0	71.9	78.0	78.7	88.0	82.8	79.0	79.5	80.9	82.3	84.4	79.8	85.3	91.2	95.3
1993	72.5	79.0	86.4	59.5	69.2	70.8	56.7	60.8	65.8	73.0	71.6	63.8	63.7	69.0	68.1	69.7	70.0	75.4	83.7	90.8
1994	56.8	72.7	80.3	52.5	50.4	56.7	31.2	30.6	44.1	57.7	62.0	50.6	40.6	50.5	56.4	43.6	42.1	50.3	60.3	82.8
1995	54.2	70.7	77.8	52.1	47.5	50.2	22.0	20.8	40.7	62.7	62.3	54.7	38.5	46.9	37.6	38.1	37.3	45.0	60.6	80.2
1996	50.1	68.6	76.4	47.8	42.6	46.7	17.3	15.2	32.6	54.2	61.4	49.0	34.6	36.1	34.4	30.8	34.3	42.8	50.9	78.0
1997	50.6	68.8	76.7	47.5	43.4	46.4	17.6	13.4	30.8	54.7	60.8	50.6	35.7	34.4	36.7	30.9	34.2	47.7	53.7	76.6
1998	48.2	67.2	75.9	44.0	40.7	46.1	16.3	10.6	29.5	57.6	55.9	47.4	34.1	32.1	33.4	27.0	34.3	42.2	47.6	74.8
1999	52.5	69.9	77.0	50.8	45.9	51.9	18.8	14.2	32.8	68.8	58.8	46.5	41.6	36.4	37.9	30.6	36.2	48.0	54.1	73.9
2000	57.0	74.3	80.7	60.1	50.9	54.6	23.4	15.3	37.4	81.1	60.2	69.7	52.5	40.3	66.8	32.3	45.2	53.1	66.3	76.9
2001	58.7	78.8	85.6	57.8	52.0	59.0	25.3	17.4	36.5	88.9	61.9	69.9	53.4	41.8	69.8	34.4	49.0	39.1	65.4	78.0
2002	60.5	84.2	91.9	57.3	52.5	63.2	24.6	19.4	38.0	92.6	64.8	70.0	53.5	42.3	73.4	31.3	45.3	38.7	68.0	81.7
2003	65.9	91.5	101.4	58.7	58.0	67.6	24.9	21.6	41.7	99.8	66.2	73.8	56.4	45.4	78.7	37.3	64.8	44.1	75.3	84.4
2004	71.1	97.7	109.2	63.7	64.0	70.6	23.9	21.5	45.3	104.9	67.8	78.6	64.0	49.2	81.7	45.1	87.2	49.2	83.0	85.4
2005	74.8	99.1	111.4	62.2	68.9	75.2	24.8	21.5	48.5	108.7	70.8	81.9	74.5	51.7	87.5	44.9	116.1	52.7	90.2	86.1
2006	79.5	101.8	114.4	64.8	74.7	80.7	27.7	26.2	50.3	116.0	75.4	85.7	80.2	59.0	96.0	50.2	135.5	55.1	99.1	89.0
2007	84.9	105.2	117.4	67.4	82.5	86.6	27.6	26.9	54.3	128.6	77.5	91.4	113.2	63.9	100.3	63.6	148.1	59.4	103.6	88.5
2008	83.4	105.6	117.6	68.2	82.9	88.3	26.1	26.8	54.2	126.0	79.7	87.2	139.0	62.0	98.1	63.3	137.1	59.7	101.9	89.0
2009	76.3	102.7	116.3	57.2	70.3	88.5	21.9	26.4	41.7	105.9	79.2	82.5	121.0	41.4	87.0	42.3	93.8	49.9	83.1	86.6
2010	81.8	106.6	120.5	60.0	77.8	91.4	23.8	31.6	47.3	109.2	84.0	91.2	130.6	47.5	92.2	48.7	111.5	52.0	100.2	88.5
2011	85.9	108.5	121.9	64.0	84.0	94.9	24.0	33.4	52.1	116.3	87.2	99.9	167.7	51.0	98.6	54.1	124.8	61.0	105.5	88.7
2012	88.8	109.6	122.8	66.1	88.3	98.8	24.2	32.8	50.1	121.1	89.9	104.0	189.2	56.4	103.3	55.5	122.8	67.2	108.3	89.9
2013	89.2	110.8	123.9	67.6	88.7	99.4	25.2	31.3	54.1	116.7	92.0	109.6	200.4	55.3	103.3	53.7	131.4	68.7	103.3	87.6

Source: http://www.gks.ru/wps/wcm/connect/rosstat_min/rosstat/ru/statistic/enterprise/industrial/

Statistical Table 3.3 Fixed Capital Stock by Industrial Branch (based on the old industrial classification, at year-end, at nominal value, billion rubles, million rubles from 1998 onward)

	1	2	3	4	5	6	7	8	9	10	11
Industry	Industry	Electricity	Fuels	Ferrous metals	Nonferrous metal	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food
		1990	604	82	106	42	29	50	164	31	28
1991	642	85	117	43	33	55	169	33	30	20	40
1992	16,808	2,300	3,206	1,039	920	1,636	4,170	772	787	408	1,166
1993	21,610	2,697	4,993	1,250	1,155	1,915	4,714	940	976	512	1,858
1994	495,640	68,218	107,506	31,957	26,201	46,464	115,499	21,414	22,356	12,221	31,048
1995	1,875,029	267,777	434,930	123,264	113,950	169,239	438,295	85,486	64,889	43,680	88,801
1996	4,482,066	730,521	923,310	305,954	289,334	378,199	1,071,062	207,958	148,243	110,710	208,062
1997	4,095,715	748,097	870,420	254,385	263,318	330,877	950,363	171,535	130,174	93,655	183,409
1998	3,979,576	818,935	861,295	237,621	242,866	328,364	881,426	147,506	117,013	80,913	168,390
1999	3,877,482	853,855	830,133	222,105	259,754	294,746	822,309	129,345	110,334	69,392	174,434
2000	3,869,326	914,031	727,245	229,946	284,133	281,337	838,521	123,390	107,631	63,992	201,176
2001	4,313,972	1,057,164	856,138	262,196	339,740	284,308	863,613	130,657	105,824	58,583	246,570
2002	6,307,183	2,226,178	1,487,095	285,337	373,550	303,387	923,799	141,676	106,516	53,341	291,400
2003	6,581,731	2,233,397	1,654,968	301,980	408,887	308,449	916,118	148,103	105,281	48,768	330,372
2004	7,153,075	2,353,550	1,897,005	341,363	453,127	324,633	935,544	161,716	111,384	48,388	385,069
2005	7,634,670	2,398,814	2,091,087	385,100	499,045	347,637	963,341	187,302	121,593	48,934	435,380

Source Russian Industry 1996 edition, p. 63; ditto 1998 edition; ditto 2000 edition, p.88; ditto 2002 edition, p. 102; ditto 2005 edition, p.119.

Statistical Table 3.4 Fixed Capital Stock by Industrial Branch (based on the old industrial classification, at year-end, at nominal value, million rubles)

Year	Industry																			
	Mining and quarrying	Energy-producing minerals	Minerals except of energy-producing minerals	Manufacturing	Food products, including beverages and tobacco	Textiles and textile products	Leather, leather products, and footwear	Wood and wood products	Poly, paper, and paper products; publishing and printing	Coke and refined petroleum products	Chemical products	Rubber and plastics products	Other non-metallic mineral products	Basic metals and fabricated metal products	Machinery and equipment	Electrical, electronic, and optical equipment	Transportation equipment	Other manufacturing	Electricity, gas, and water supply	
2003	7,948,025	1,867,570	1,682,212	215,358	2,341,442	407,188	44,897	6,429	33,951	111,440	171,444	28,938	45,940	126,852	530,150	162,159	138,690	449,650	24,140	2,739,013
2004	8,266,691	2,157,280	1,930,483	226,797	3,162,858	466,430	41,214	6,701	47,172	125,666	252,120	266,360	53,227	147,170	614,055	162,168	169,179	468,757	28,656	3,056,553
2005	8,489,407	2,548,765	2,266,246	274,479	3,483,236	520,623	39,893	6,870	60,182	141,607	279,094	313,044	38,902	171,499	602,090	178,993	186,271	362,308	30,719	3,348,556
2006	9,894,486	3,147,505	2,827,979	319,526	3,839,002	601,221	39,775	7,127	80,297	162,612	319,242	362,365	72,057	212,960	812,441	187,279	187,301	526,136	37,000	2,907,979
2007	11,734,025	3,862,130	3,484,247	377,883	4,475,261	698,556	41,038	6,526	103,004	185,312	375,085	427,059	102,690	269,016	952,619	219,412	212,601	587,063	40,626	3,396,634
2008	13,795,099	4,820,272	4,344,115	476,157	5,198,992	827,207	46,219	8,001	123,534	215,863	402,436	495,162	124,177	366,206	1,120,345	239,685	246,158	681,011	48,824	3,775,835
2009	16,760,667	6,366,784	5,825,166	541,618	5,934,567	919,112	46,613	11,431	148,169	237,368	495,971	573,357	134,038	428,649	1,285,025	279,038	265,331	765,335	55,492	4,459,316
2010	19,451,990.0	7,388,649.0	6,785,319.0	603,330.0	6,743,635.0	1,056,875.0	50,113.0	10,443.0	155,901.0	268,270.0	621,412.0	630,441.0	155,266.0	491,714.0	1,426,123.0	313,516.0	28,7570.0	887,002.0	65,537.0	23,197,060.0

Source: Russian Industry 2008 edition, p. 106, data 2012 edition, pp. 114-115.

Statistical Table 3.5 Average Annual Numbers of Industrial Production Personnel by Industrial Branch (based on the old industrial classification, thousand persons)

	1	2	3	4	5	6	7	8	9	10	11
	Industry										
		Electricity	Fuels	Ferrous metals	Nonferrous metal	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food
1985	23,095	522	861	854	527	1,249	10,617	2,003	1,269	2,624	1,602
1990	20,998	545	801	785	487	1,130	9,652	1,792	1,097	2,288	1,545
1991	20,117	563	815	772	502	1,115	9,093	1,725	1,067	2,145	1,533
1992	20,020	626	870	795	532	1,143	8,767	1,813	1,136	1,845	1,554
1993	18,864	666	886	788	542	1,109	7,933	1,641	1,095	1,699	1,556
1994	17,440	710	860	738	517	1,011	7,029	1,535	1,040	1,600	1,554
1995	16,006	750	846	727	549	968	6,190	1,383	973	1,331	1,506
1996	14,934	790	856	727	537	923	5,628	1,261	868	1,133	1,487
1997	14,009	810	821	683	508	891	5,262	1,138	783	1,006	1,454
1998	13,173	842	794	673	480	858	4,856	1,034	713	888	1,396
1999	13,077	880	738	676	503	839	4,715	1,057	718	863	1,439
2000	13,294	913	730	711	560	877	4,745	1,102	684	849	1,484
2001	13,282	942	806	727	582	877	4,685	1,054	677	814	1,492
2002	12,886	928	774	695	570	866	4,510	1,010	667	765	1,495
2003	12,384	893	740	664	553	829	4,317	968	642	694	1,488
2004	11,977	868	699	666	525	811	4,262	939	624	596	1,415

Source: *Russian Industry 1996 edition*, pp. 78-79; *ditto 2000 edition*, pp. 100-103; *ditto 2005 edition*, pp. 133-136.

Statistical Table 3.6 Average Annual Numbers of Industrial Employees by Industrial Branch (based on the new industrial classification, thousand persons)

Year	Industry																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Mining and quarrying	Energy-producing minerals	Minerals except of energy-producing minerals	Manufacturing	Food products, including beverages and tobacco	Textiles and textile products	Leather, leather products, and footwear	Wood and wood products	Pulp, paper, and paper products; publishing and printing	Coke and refined petroleum products	Chemical products	Rubber and plastics products	Other non-metallic mineral products	Basic metals and fabricated metal products	Machinery and equipment	Electrical, electronic, and optical equipment	Transportation equipment	Other manufacturing	Electricity, gas, and water supply	
2000	14,227.8	1,081.6	703.1	378.6	11,272.3	1,040.7	748.6	117.6	390.4	415.0	216.2	707.3	207.3	786.6	1,238.5	2,081.4	1,034.5	1,407.9	201.2	1,873.9
2001	14,067.4	1,178.6	792.9	385.7	10,987.0	1,623.0	716.8	107.4	406.1	346.1	217.6	681.2	230.8	767.0	1,301.4	2,004.8	1,001.5	1,306.0	278.2	1,901.8
2002	13,794.5	1,124.4	753.2	372.2	10,788.9	1,604.9	696.4	105.5	408.9	380.3	201.6	640.5	236.5	753.6	1,266.9	1,901.9	952.8	1,271.3	277.0	1,830.2
2003	13,223.7	1,064.7	713.5	351.2	10,302.9	1,587.8	611.0	93.9	390.2	376.1	303.1	623.9	229.1	708.6	1,240.1	1,802.9	930.9	1,237.7	268.8	1,836.1
2004	12,810.6	1,031.8	681.8	350.0	9,919.8	1,541.6	556.4	81.0	381.5	370.1	137.9	580.3	239.4	675.3	1,208.4	1,587.4	905.3	1,207.0	272.9	1,829.0
2005	12,388.3	985.6	628.1	337.5	9,511.6	1,447.0	495.4	64.5	357.6	393.1	136.1	563.0	238.8	646.1	1,218.6	1,285.0	887.0	1,201.8	297.9	1,801.1
2006	12,085.4	975.7	619.8	356.0	9,240.5	1,435.9	462.5	67.3	355.8	400.5	134.1	550.4	270.5	643.5	1,171.7	1,152.6	868.8	1,144.4	297.0	1,809.2
2007	12,078.7	974.5	619.4	355.1	9,258.9	1,456.5	430.8	79.1	340.5	398.9	134.2	511.9	285.2	675.0	1,153.7	1,108.6	905.7	1,147.9	319.2	1,845.3
2008	11,920.4	975.8	621.4	354.0	9,126.2	1,410.9	392.0	72.9	326.9	399.7	123.5	488.2	294.8	697.8	1,130.0	1,088.8	912.1	1,156.3	311.3	1,834.4
2009	10,869.5	914.7	590.5	324.3	8,118.3	1,343.5	336.5	57.8	276.3	361.8	111.6	441.2	299.4	596.0	997.7	901.2	824.2	1,041.7	286.5	1,836.5
2010	10,546.6	897.9	579.2	318.7	7,810.1	1,317.4	333.0	57.3	263.8	364.3	108.9	431.4	245.2	561.0	969.9	839.1	759.6	996.7	292.2	1,838.6

Source: Russian Industry 2008 edition, p. 124; Imito 2012 edition, p. 139.

Statistical Table 3.7 Average Monthly Wages by Industrial Branch (based on the old industrial classification, rubles)

	1	2	3	4	5	6	7	8	9	10	11
Industry											
	Electricity	Fuels	Ferrous metals	Nonferrous metal	Chemicals	Machinery	Wood, pulp, and Paper	Construction materials	Light industry	Processed food	
1985	218	223	317	245	322	207	219	227	210	172	206
1990	311	366	447	353	440	293	305	308	316	249	313
1991	606	917	1,001	696	967	590	529	587	649	575	653
1992	7,064	13,248	17,368	10,200	14,991	7,678	5,227	6,590	6,927	5,109	7,620
1993	63,447	122,899	149,477	83,948	126,949	59,383	48,440	52,585	67,669	41,413	76,445
1994	228,528	450,973	521,246	266,600	433,974	207,111	175,902	183,638	250,337	118,037	268,836
1995	528,829	985,846	1,210,351	643,333	1,060,131	508,294	403,244	450,586	522,933	265,583	556,709
1996	868,823	1,610,938	1,913,229	1,153,419	1,635,143	836,296	652,121	684,318	816,888	392,297	921,434
1997	1,056,847	1,879,172	2,319,952	1,326,036	1,916,799	1,035,959	808,853	804,053	970,460	483,231	1,088,999
1998	1,208	2,135	2,496	1,432	2,307	1,217	935	880	1,060	541	1,215
1999	1,836	2,962	4,120	2,239	3,948	1,853	1,394	1,396	1,451	823	1,810
2000	2,736	4,014	6,625	3,521	6,181	2,626	2,105	2,005	2,108	1,209	2,393
2001	4,016	5,600	10,442	4,828	8,091	3,703	3,153	2,743	3,094	1,757	3,385
2002	5,129	7,354	12,578	6,055	9,527	4,572	4,241	3,493	4,179	2,280	4,280
2003	6,439	9,090	15,505	7,902	11,578	5,792	5,368	4,322	5,246	2,782	5,254
2004	7,865	10,742	19,118	9,489	13,516	7,103	6,661	5,140	6,437	3,443	6,398

Source: *Russian Industry 1996 edition*, pp.87-88; *ditto 1998 edition*, pp. 86-87; *ditto 2000 edition*, p. 111; *ditto 2005 edition*, pp. 142-145.

Statistical Table 3.8 Average Monthly Wages by Industrial Branch (based on the new industrial classification, rubles)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	Mining and quarrying	Energy-producing minerals	Minerals except of energy-producing minerals	Manufacturing	Food products, including beverages and tobacco	Textiles and textile products	Leather, leather products, and footwear	Wood and wood products	Pulp, paper, and paper products; publishing and printing	Coke and refined petroleum products	Chemical products	Rubber and plastics products	Other non-metallic mineral products	Basic metals and fabricated metal products	Machinery and equipment	Electrical, electronic, and optical equipment	Transportation equipment	Other manufacturing	Electricity, gas, and water supply
2000	5340	6985	4000	2365	2183	1215	1348	1739	2737	4916	2755	2140	3182	3855	1975	2004	2454	2053	3157
2001	9099	10905	5387	3447	3127	1765	1586	2310	4309	7012	3902	3032	3220	5242	3074	2999	3665	2738	4435
2002	11681	13080	7035	4439	4095	2242	2621	2980	5480	9625	4900	3957	4134	6285	4067	3816	5100	3279	5809
2003	13012	16136	9396	5603	5027	2803	3220	3755	6848	11879	6155	4951	5208	7731	5170	5109	6385	4045	7235
2004	16342	19303	10877	6849	6066	3357	3775	4615	7802	13729	7683	5957	6422	9197	6514	6432	7828	5182	8642
2005	19727	23456	13176	8421	7304	3986	4695	5895	9419	19397	9928	6879	7922	10261	8380	8219	9377	6387	10637
2006	23145	27615	15364	10199	8807	4964	5649	6950	10524	22320	11599	8768	9584	12062	10418	10280	11431	8278	12828
2007	28108	33276	19093	12879	11069	6590	7537	8816	13792	28565	14616	11083	13193	14991	13480	13114	14034	10114	15587
2008	33206	39051	22937	16050	13930	8454	9522	11301	17632	34913	18220	13464	16372	18171	16940	16609	17331	12593	19087
2009	35363	41568	24064	16583	15653	9021	10073	10947	17707	37964	19429	13851	16054	17946	17010	17360	17368	12543	21554
2010	39495	46271	29206	19078	17317	10402	11346	12720	20104	41561	23229	15766	18118	21182	20101	20178	20766	13674	24156

Source: Russian Industry 2008 edition, pp. 125-126; data 2012 edition, pp. 140-141.