

**A CRITIQUE OF RUSSIAN STATISTICS**



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OF  
RUSSIAN STATISTICS

BY  
COLIN CLARK

"I think it is a disaster for the idea of Planning that Russia should have been the country where it has first been tried out."—ANON.

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# I

## INTRODUCTION

THE general purpose of this investigation is to collate and test Russian statistics, by tests of internal consistency and by comparison with statistics of the external world. The investigation is cast in the general form of an analysis of changes during the last thirty years in what is generally described as real income per head in that country. In the course of this investigation statistics dealing with almost every aspect of Russian economic life are considered, and it is found that, in spite of difficulties, consistent results can be obtained. Each conclusion generally has to be checked from two or three different sources before it can be accepted.

The basic method employed is to determine the actual quantities of goods and services produced in Russia at certain recent dates, expressed at the market values of these goods and services prevailing in Great Britain during a base year (1934). This procedure is necessary because prices in Russia do not necessarily bear any determinate relation either to the cost of production of goods, or to the consumers' demand for them, being fixed by the planning authorities in accordance with their own decisions.

Detailed analysis is made of the figures for three years. The first is 1913, the starting-point for all Russian statistics. Next the year 1927-8, the last

year before the commencement of the First Five-Year Plan. Finally the year 1934, the last year for which it was possible to make full calculations. By this date Russia was half-way through the Second Five-Year Plan, and the collectivisation of agriculture had been completed. Some provisional figures have been calculated for the years subsequent to 1934.

I am much indebted to Mr. M. Zvegintzov and Mr. E. C. R. Kahn of London, Prof. Polanyi of Manchester, Mr. W. B. Reddaway of Cambridge and Mr. John Dyason of Melbourne for valuable information and suggestions.

## II

### CONCEPT OF NATIONAL INCOME AND METHOD OF VALUATION

For the Soviet Union, as in the case of any other country, the only valid and complete measure of economic progress is the figure of National Income — by definition the value of goods and services produced during the year, available for consumption or investment. Tons of steel, kilowatt-hours of electricity, can give some sort of an indication, even when expressed in the more ambiguous form of percentage increases over a base-year. But it is clear that in this form of presentation, without any figures being untrue, a wrong impression can easily be given by selection. Only in a figure of national income are all forms of economic activity included, and each with its proper weight.

In a planned economy like the Soviet Union, the phrase National Income does not necessarily mean the same thing as it does elsewhere. In the Soviet



Union certain goods and services are supplied at arbitrarily low prices, others at arbitrarily high prices, and to add together the values of outputs of all goods and services at these arbitrarily determined prices would not give us anything like a measurement of national income.

In the world in which Professor Marshall wrote, when he explained the use of National Income figures as a measure of economic progress, the price of every commodity (or so he thought at any rate) was adjusted to its cost of production. And though in capitalist countries the growth of monopolies has made it increasingly necessary to qualify this statement, it still gives some approximation to the truth, and on this basis we can make some use of national income figures for measuring a country's economic progress. In Russia consumption goods are sold at prices far above the cost of production, being subject to a very high turnover tax, the proceeds of which are used to finance State investment. A satisfactory measurement of the Russian national income therefore necessitates reckoning the quantities of goods and services produced, either at the prices which prevailed before the planning régime started, or at the prices prevailing in some other country.

A provisional investigation on the latter lines, relating to the year 1934, has recently been ably undertaken by Professor Polanyi,<sup>1</sup> of Manchester University, but his results require to be collated with other data before they can be finally accepted.

The former method — re-expressing income at values of an earlier year — has been adopted by the Soviet authorities themselves. For some time they published data of national income, expressed at 1913

prices, and since the beginning of the First Five-Year Plan they have published data expressed at 1926-7 prices. The year 1926-7 was one of the last years before the execution of the economic plan began to be put into effect, and the relative prices then prevailing were presumed to have been not very greatly out of adjustment with those ruling in the outer world. This point requires qualification.

### III

#### NATIONAL INCOME IN 1913

Available information about Russian national income up to the year 1931 was summarised, from Soviet sources, in a bulletin <sup>2</sup> prepared by Professor Prokopovitch and other non-resident Russians, a bulletin of admirable objectivity. Professor Prokopovitch was responsible for preparing the only valid estimate of Russian national income for 1913, which has been used by the Soviet authorities, and was himself resident in Russia for a number of years after the Revolution. In this bulletin he gives a figure of 13,896 million roubles <sup>3</sup> for the 1913 national income of the present U.S.S.R. territory. In the same bulletin <sup>4</sup> he quotes a slightly higher estimate — 14,026 million roubles — made by the Gosplan (no doubt using Professor Prokopovitch's figures) for 1913.

Professor Prokopovitch suggests a number of small deductions, which in his opinion should be made from the above figure — the necessity of which is on the whole a matter of opinion. But there is one fairly large deduction, namely an allowance for depreciation of buildings, and similar fixed assets, which for 1913

he suggests at 839 million roubles. In view of the fact, however, that no credit has been taken for income produced by rents of dwellings, we need make no deduction. The low rents charged for dwellings since 1917 appear to have been just about sufficient to cover the cost of depreciation and maintenance of buildings.

Averaging the two figures, the national income in 1913 of what is now the Soviet Union territory may be put at 14 milliard roubles net. To make our figures agree with the definition of national income now generally used, we must make an addition for the services performed by the State and not already covered, amounting to 1.5 milliard roubles,<sup>5</sup> giving us a total of 15.5 milliard roubles net, excluding rents and services. The word "milliard", meaning a thousand millions, is preferable to the ambiguous "billion": and one or other of these words will be very necessary in describing the post-war situation.

Both Professor Prokopovitch and the Soviet authorities have adopted a somewhat limited and materialistic definition of national income. They include the services of transport, wholesale and retail distribution and postal services, but exclude the rents of dwellings (mentioned above), services performed by public authorities (which we have now included, in line with the definition of national income now used in other countries) and also other personal services, for which some allowance must be made, such as professional and medical services, domestic service, catering, barbering, cab-driving, etc. The value of such services can only be estimated from the proportion which they are found to bear to national income in other countries of similar economic development. The

figure may be put at 5 per cent, bringing our total up to 16.3 milliard roubles (excluding rents). Prokopovitch points out<sup>6</sup> that at the present time such services (outside the work of public servants) are on a very small scale ; but they must have been appreciable in 1913.

With regard to rents, it is estimated below<sup>7</sup> that in 1934 the sterling value of all urban dwellings was £147 millions, and of rural dwellings approximately £50 millions. We are going to use sterling of 1934 purchasing power as our unit for re-valuation for the remainder of this investigation and need not therefore revalue these figures for price changes. The amount of available dwelling space in Russian cities as a whole was 20 per cent less in 1924 than in 1915,<sup>8</sup> while there was an increase of 21 per cent in the amount of floor space of dwellings between 1928 and 1934.<sup>9</sup> If we assume about a 4 per cent increase between 1924 and 1928, this will give about the same quantity of dwelling space in 1934 as in 1913, which is assumed to be the case, and 1913 rents are valued at £197 millions sterling (at post-war prices).

National income per head of population in Russia in 1913 — and this figure includes the value of the crops produced by peasants for their own subsistence — amounted to £12.5 per head at the 1913 rate of exchange. In England it was £52. These two figures cannot be directly compared. We have no right to assume, even in the far-off days of economic tranquillity of 1913, that a pound sterling in England, and the corresponding number of grams of gold in Russia, had the same purchasing power. Prices may have been expected to have been lower in Russia in so far as a large part of the food production in Russia was con-

sumed on the farm, and therefore had no distributive charges to bear.

When we are making comparisons between national incomes in different countries, and at different times, it is necessary to use price-index numbers to correct for the differences in prices. If there are substantial indirect taxes — as there are now in Russia — the price at which goods and services are sold will be very different from the incomes of their producers. We can hardly adopt the clumsy expedient of constructing price-index numbers in which all goods are reckoned at their untaxed prices. We must therefore construct our price-index numbers, reckoning goods at their taxed prices, and must correspondingly *add* to the national income the proceeds of all indirect taxation (customs, turnover tax, etc.). These amounted in 1913 to 2 milliard roubles,<sup>10</sup> giving a total of 18·3 milliard roubles (plus rents) as outlay on goods and services at taxed prices.

In the calculations which follow, this procedure is adopted for 1913 and 1928. It is not necessary for the comparisons referring to 1934, as in that year comparison is made directly between *quantities of goods*, and not incomes. In expressing this 1913 income at its sterling equivalent, we will revalue separately food consumed, and other goods and services.

We can express, in terms of sterling value, the value of a rouble's worth of food without great difficulty, because food production can be expressed in terms of a comparatively limited number of physical units. To determine the purchasing power of the rouble over other goods and services is a far harder problem.

A number of comparisons between retail prices in different countries were made by the British Board of

Trade between 1905 and 1912, but unfortunately these did not cover Russia. In post-war years certain new sources of information became available.

(i) Between 1924 and 1930 the International Labour Office, for the purpose of making international comparisons of real wages, collected data on the retail prices of food, and of fuel and soap, in a large number of countries.<sup>11</sup>

(ii) In 1931 the Ford Motor Company set on foot an investigation into comparative costs of living in a number of cities throughout the world, from which can be obtained a number of comparisons, not elsewhere available, of the prices of miscellaneous goods and services.<sup>12</sup>

These data enable us to make a post-war comparison of purchasing power of sterling on the one hand, with that of the currencies of three of the Russian Succession States on the other hand — Poland, Finland, Estonia. We can obtain comparisons of food and fuel costs (1930), and of clothing prices (1931), from the respective sources. By applying price-index numbers to the data for each country, we can calculate back to 1913, and compare purchasing power at that date. As these States at that time were within the Russian Customs boundary, and subject to the same taxes, the level of prices prevailing in them in 1913 should give us some guide to the price level prevailing in Russia.

These data, while by no means fully consistent, go to indicate that the internal purchasing power of the rouble was high in the case of food, particularly when we remember that these areas were "deficiency areas" where food prices were comparatively high. But in other fields, particularly clothing, its purchas-

ing power appears to have been low. We may take the average purchasing power of the rouble in 1913, over goods and services other than food and rent, at 60 per cent of the purchasing power of a similar

(British Post-war Prices = 100)

	Britain	Estonia	Poland	Finland
Food sold in towns, 1931 .	100	66	65	76
"    "    1913 .	73	69	59	65
Fuel prices, 1930 . . . .	100	81	103	77
"    1913 . . . . .	58	84	94	42
Clothing prices, 1931 . . .	100	..	113	130
"    "    1913 . . . .	49	..	103	102

amount of gold in Great Britain at that time. The pre-war rate of exchange was 9.45 roubles = £1, so 15.75 roubles may be said to have had the same purchasing power as £1 (over goods at retail other than food) at that date.

We may first revalue Russian food consumption in 1913 and then, by use of the above factor, revalue the remainder.

#### IV

#### DIRECT COMPARISON OF RUSSIAN AND BRITISH FOOD CONSUMPTION

It is not difficult to re-express, in terms of present-day Western European retail prices, the value of that important — in fact predominant — part of the Russian national income which consists of food consumption. Data about food consumption per head in Russia for 1913 and 1928 are given by Czechowitz,<sup>19</sup> and can be brought up to date from officially published figures. The quantities are expressed in ounces per head per week, for convenience of comparison with

those calculated for Great Britain for 1934, by Sir John Orr<sup>14</sup> and his fellow-workers, and the Russian consumption is re-expressed at English 1934 retail prices. The same procedure will be adopted with the post-war figures. We will then have a (fairly) satisfactory basis of comparison between English and Russian figures.

(35.2 ounces = 1 Kilo ; 240 pence = £1)

	Consumption in Ounces* per Head per Week				Value in Pence at British 1934 Retail Prices			
	Russia, 1913	Russia, 1927-8	Russia, 1934	Britain, 1934	Russia, 1913	Russia, 1927-8	Russia, 1934	Britain, 1934
Wheat and Rye (expressed as bread)	152.5	144.0	150.0	61.0	19.0	17.9	18.7	7.6
Sugar . . .	9.0	8.3	8.0	17.8	1.4	1.2	1.2	2.7
Potatoes . . .	80.0	80.0	80.0	64.0	3.7	3.7	3.7	3.0
Linseed and sunflower oil	2.7	2.7	2.7	..	0.2	0.2	0.2	..
Meat and fat . .	16.8	18.6	6.9	44.3	11.0	12.2	4.5	29.1
Milk and milk products (expressed as milk)	112.5	128.0	76.0	254.0	7.7	8.8	5.2	17.4
Eggs (number) .	0.9	1.1	0.5	2.9	1.3	1.6	0.7	4.3
					44.3	45.6	34.2	64.1

\* Recent figures supplied by the Soviet Government to the International Institute of Agriculture (published in the Institute's Year Book) show :

	1934	1935
Milk production (million quintals) . . .	201.5	213.3
Do., less milk equivalent of butter exports . . .	188.9	203.6
Ounces per head per week . . .	76	80
Meat production (million quintals) . . .	17.14	19.95
Ounces per head per week . . .	6.9	7.8

The foods specified in the above table only represent 60 per cent of the food consumption of Great Britain, as shown by Sir John Orr's table. But there is evidence to show that they cover nearly the whole of Russian food consumption. The monthly food budgets<sup>15</sup> of a representative number of families in Russia are available for the years 1925 to 1927. These show that the only important foodstuffs (from the



value point of view) which have been omitted above are vegetables, fish and tea, and the tables give quantitative data from which their importance can be estimated. It appears that an addition of 12 per cent only is necessary to cover these excluded items.

Leaving the 1928 and 1934 diets for further consideration we may estimate that the population of Russia in 1913 enjoyed, on the average, a diet which would cost, in present-day England, about 49·6 pence per head per week. In Sir John Orr's calculations the poorest 10 per cent of the British population live on such a diet, and it is deficient in nearly every nutritive element except carbo-hydrates (starch).

Professor Polanyi attempts to calculate the amounts of foodstuffs consumed per head in Russia in 1934, but there are several mistakes in his table. In the case of grain and potatoes he has given estimates which are far too high, by simply taking the crop figures and dividing by the population, and reaches the conclusion that the Russian population devours 29½ lb. per head per week of starchy foods! A large part of these grains and potatoes are clearly fed to livestock, even so leaving enough for the human population to eat all they can. But a glut of starchy foods is no compensation for the lack of meat and milk.

## V

### VALUATION OF PORTION OF RUSSIAN NATIONAL INCOME SPENT ON GOODS AND SERVICES OTHER THAN FOOD IN 1913

Reverting to the 1913 national income figures, we find that 7·5 milliard roubles<sup>16</sup> out of the total of

18.3 milliard roubles represents the net output of agriculture and fishery. Exports<sup>17</sup> of agricultural produce were 1.02 milliard roubles. Deducting the cost of transport and merchanting included in agricultural exports we obtain a figure of about 0.9 milliard roubles. Deducting this from agricultural net output, we obtain 6.6 milliard roubles as the value on the farm of foodstuffs for internal consumption. The transport and merchanting of food for the town population (say 30 per cent of the value of a quarter of the produce) may be put at another 0.5 milliard. Thus the disposal of the national income<sup>18</sup> in 1913 can be put as 7.1 milliards spent on food and 11.2 milliards on other goods and services, including 0.6 milliard of imports obtained in return for exported goods.

## VI

### FINAL COMPARISON FOR 1913

Taking Prokopovitch's estimate<sup>19</sup> of 137.8 millions for the 1913 population, we can revalue the aggregate income at sterling values of 1934 purchasing power. In goods other than food we have shown that 15.75 roubles in 1913 had the same purchasing power as £1 at that date. The items other than food in the British retail price-index number<sup>20</sup> rose 70 per cent between 1914 and 1934, so we can say that 9.27 roubles in 1913 purchased the same as £1 in 1934.

REVALUATION OF RUSSIAN NATIONAL INCOME  
FOR 1913

	Milliard Roubles	Equivalent in Sterling £m.
Food . . . . .	7.1	1480
Rent . . . . .	..	197
All other goods and services .	11.2	1209
		2886

giving an average income per head at 1934 prices of £21. In Great Britain in the same year, national income per head calculated by the same method and using the same units,<sup>21</sup> was £88.5 per head, or 4.2 times as much.

## VII

### THE RATE OF GROWTH OF REAL INCOME BEFORE 1913

Very erroneous conclusions can be reached by study of a static figure only without taking account of the rate of direction of its movement. No data showing the rate of economic progress in post-revolutionary Russia can be judged justly except against a background showing the rate of economic progress in the year before 1913.

Prokopovitch quotes<sup>22</sup> an estimate which he had prepared for the fifty provinces of European Russia, covering the greater part of the present population of the U.S.S.R. At 1913 prices their aggregate income rose from 8.19 milliards in 1900 to 11.34 milliards in 1913, or a 38.5 per cent increase. The population of the present U.S.S.R. territory in Europe was 87.5 millions in 1897 and 112.3 millions in 1910,<sup>23</sup> an increase of 28.3 per cent in thirteen years. About

the same rate of increase may be presumed to have prevailed between 1900 and 1913, giving a growth of real income per head of 8 per cent in thirteen years. The "fifty provinces" include certain territory now included in the Succession States. It is not known whether the rate of progress here was greater or less than in Russia proper, but it is not likely that the above result would be strongly affected.

For the earlier years information is exceedingly fragmentary. Some idea of the extent of agricultural progress since 1870 can be obtained from a comparison of grain output and the numbers of livestock between 1870 and 1913. The 1870 figures are from a Census taken at that date.<sup>24</sup> The 1913 figures<sup>25</sup> refer to present U.S.S.R. territory, while the 1870 figures refer to all European Russia of that date. This discrepancy is corrected as far as possible by calculating the production per head of population.<sup>26</sup>

	Popula- tion (millions)	Grain Harvest (million tons)	Horses (millions)	Cattle (millions)	Sheep (millions)	Pigs (millions)
1870 (Euro- pean Russia)	71.9	40.5	20	23.5	64.5	11.0
1913 (present U.S.S.R. territory)	137.8	80.1	35.8	60.6	113	20.9
% difference	+92	+98	+79	+113	+75	+90

The order of magnitude of the increase in food production seems to have been 100 per cent, as opposed to a 92 per cent increase in population. Industrial and craftsmen's production was recorded<sup>27</sup> at 950 million roubles in 1870 (gross value). At that date net output did not probably differ from gross by as large a proportion as it does now. Net in-

dustrial production in 1913 in present U.S.S.R. territory was 3135 million roubles. It is probable that real industrial production per head had increased three- or fourfold : but even by 1913 it only constituted 22 per cent of the national income.<sup>28</sup>

There are in fact indications that the whole increase in real income per head in Russia between 1870 and 1913 was of the order of magnitude of only 20 per cent.

An isolated estimate of Russian national income in 1860 was made by Professor Leone Levi.<sup>29</sup> Unfortunately the details of his working and his sources are not given, but from the quality of the rest of Levi's work it must be presumed to have some validity. He gives Russia a population of 60 millions and a national income of £400 millions, or approximately 40 roubles per head at that date, as against Prokopovitch's figure of 77 roubles per head in 1900. Grain prices (the only data available)<sup>30</sup> in 1860 appear to have been about 20 per cent below the 1900 level. On this basis there was a considerable increase in real income per head between 1860 and 1900.

It must be adjudged remarkable that there should have been any increase at all in the standard of living in Russia, during this period of very rapidly increasing population, in a country whose economic resources were almost entirely agricultural. The population data<sup>31</sup> are as follows :

	% Rate of Increase per Decade
1836-67 . . . . .	15
1870-80 . . . . .	25
1880-97 . . . . .	8
1897-1910 . . . . .	21.5
1922-32 . . . . .	25

Economic progress, such as it was, was irregular. The great slowing-down of population growth between

1880 and 1897, due to famine and emigration, is an indication of this.

During the last decade Russian population has been growing more rapidly than at any previous period.

## VIII

### CHANGES IN REAL INCOME FROM 1913 TO 1930

Another work<sup>32</sup> by Prokopovitch gives some approximate figures for the ghastly period 1916-22. Measured at 1913 prices, national income per head had fallen from 101 roubles in 1913 to 39 roubles in 1921. Agricultural production per head had fallen by 37 per cent — a decline sufficient to press many regions of Russia across the border-line from malnutrition to hunger, others from hunger to famine. There had been, however, a far greater decline in the real production of industry — 70 per cent, and a decline of 90 per cent in the income produced by transport, trade, etc.

Professor Prokopovitch's more recent bulletin shows a rapid recovery in national income, measured at 1913 prices, from 1922 to 1930 :

#### MILLIARD ROUBLES AT 1913 PRICES

	Income produced by Agriculture	Total National Income	National Income per Head, Roubles at 1913 Prices
1913	7.29	13.90	101
1922-3	5.37	8.06	60
1924-5	5.67	10.76	76
1925-6	7.15	13.16	91
1926-7	7.31	14.09	95
1927-8	7.24	15.14	100
1928-9	7.34	16.65	108
1929-30	7.52	19.77	125

By 1927-8,<sup>32</sup> according to his reckoning, the pre-war level of real income per head had been restored. Agricultural output was at about pre-war level, in other words had failed to keep up with the rise in population, but a reduction in the quantity of food exports left about the same amount of food available for consumption per head as in 1913, and of course it was more equally shared.

## IX

### VALUATION OF NATIONAL INCOME FOR 1928

We have some other data to check these figures relating to 1927-8 — a year which can conveniently be taken as our second starting-point — the last year of “semi-socialism”, before the real “planned economy” began to function. Recorded national income at current prices (as given in the Bulletin) was 23.76 milliard roubles. Non-agricultural incomes were 13.56 milliards, to which must be added, if we want a complete record of national income, the value of the services performed by the State outside the ordinary economic sphere (defence, education, etc.). These services in 1927-8 were valued at 2.2 milliards,<sup>34</sup> giving a total of 15.76 milliards. Finally must be added 6 milliards<sup>35</sup> of indirect taxation, giving a total of 21.8 milliards for non-agricultural incomes, or 32 milliards in all. Of this total 6.7 milliard roubles<sup>36</sup> represented the incomes of urban wage-earners, or 7 milliards inclusive of the social insurance benefits which they received in cash.<sup>37</sup> Gross investment amounted to 7.3 milliards.<sup>38</sup>

We now require to express these quantities in

terms of sterling values. For reasons given later, the 7.3 milliards of gross investment should be valued at the equivalent of £305 millions.

We will have to make allowance, however, for depreciation of fixed capital. Prokopovitch<sup>39</sup> suggests a figure of 3 milliards for 1929-30. At 1933 prices, the value of fixed capital used in 1928 was 49.4 milliards.<sup>40</sup> Applying a factor of 6 per cent to this,<sup>41</sup> we obtain again a figure of 3 milliards at 1933 prices or, say, 2 milliards at 1928 prices.

In the case of goods other than food and rent, we can relate our data to those of 1913 by the retail price-index number<sup>42</sup> for industrial goods, which shows a rise in 1927-8 of 100 per cent above 1913 level. The net output<sup>43</sup> of agriculture was 10.2 milliards, or 9.9 milliards excluding exports.<sup>44</sup>

We know that 45 per cent of the income<sup>45</sup> of town wage-earners was spent on food, or 3.2 milliards.

Retail sales<sup>46</sup> were 15.2 milliards, or 12 milliards excluding food. We will include with these the 2.2 milliards of public services to be priced on the same basis, giving 14.2 milliards. This is equivalent to 7.1 milliards of 1913 roubles, or £768 millions in sterling at 1934 purchasing power. The sterling equivalent of 1928 food consumption is given above as 45.6 pence per head per week, or £1680 millions in all.

Rents, for a floor-space smaller than in 1913 or 1934, may be revalued at £170 millions. City families spent 7.7 per cent of their incomes<sup>47</sup> on rent, or 0.5 milliard, which should be added to the foregoing figure of 32 milliard roubles to give 32.5 milliards, spent as follows :



	Milliard Roubles	Sterling Equivalent £m.
Food . . . . .	10.5	1680
Rent . . . . .	0.5	170
Gross investment . . . . .	7.3	305
Other goods and services . . . . .	14.2	768
	32.5	2923

This gives us an average real income per head definitely below that of 1913. Per head of the population—which had considerably increased—we obtain a figure of £19.4, or 7½ per cent below that of 1913.

Prokopovitch estimates that real income per head in 1927-8 was only 0.7 per cent below that of 1913. He estimates an increase in industrial wholesale prices of only 63 per cent between 1913 and 1928, and his price factor for all incomes other than agricultural is only a 71 per cent increase.

Both the 1913 and 1928 figures are before allowing for depreciation, which for 1928 was estimated at 2 milliard roubles, or £83 millions. For 1913 it may be put at about 1 milliard at prices of that year, or in sterling units again £83 millions.

The different purchasing powers of the rouble, even at this date, are very marked. In the case of food, 6.5 roubles purchased the equivalent of £1 of 1934 purchasing power; in the case of other goods and services for consumption, 18.5 roubles was the equivalent of £1; in the case of investment goods, the figure rose to 24 roubles. These figures reflect partly the high costs of production in newly established industrial plants; partly the deliberate policy of the Soviet Government of causing the "internal terms of

trade " to move steadily in favour of the industrialist and against the agriculturist.

Regarding the purchasing power of the rouble over food at retail, further supporting evidence can be assembled. In April 1928 (the sole occasion) the International Labour Office made a comparison between the real value of wages in Moscow and in London,<sup>48</sup> taking into account the retail prices of food and fuel in the two cities. (They did not find themselves able to obtain a comparison of the prices of other commodities.) Their result was that the real value of the Moscow wage was exactly 50 per cent of the English. The average wage of all workers in Russia in 1928 was 704 roubles per annum.<sup>49</sup> The average for Britain was £115·3 per year.<sup>50</sup> It thus follows that, so far as prices of food and fuel in the cities were concerned, 12·2 roubles in 1928 had the same purchasing power as £1. The bulk of the food produced, however, was consumed by the peasants themselves, and included in the national income statistics on the basis of its wholesale prices, which were fixed at a low level.

Retail food prices<sup>51</sup> in Russia in 1928 were 90 per cent above 1913 level, in Britain 55 per cent above. In 1913 the average wage of all industrial workers in Russia was 303 roubles,<sup>52</sup> and in Great Britain (assuming the figure of £115·3 for 1928) in 1913 was £61·2.<sup>53</sup> The rise in real wages, on a basis of changes in food prices only, was therefore 21 per cent in Britain and 22½ per cent in Russia : and if the I.L.O. comparison is correct, the purchasing power (over food only) of the average Russian industrial wage must have been 49 per cent of the average British wage at that date. By direct comparison of the 1913

figures, assuming retail food prices in Russia to have been 12 per cent below British, we obtain a ratio of 59 per cent.

These are much higher than would be expected from the ratio of real incomes per head, which was over 4·1; it appears that the standard of living of the industrial worker in Russia, whether in 1913 or 1928, was far above that of the rural population.

Figures of real wages are of course available on a more comprehensive basis, taking into account prices of goods other than food.

The real wages of urban workers were estimated by the Moscow Institute of Conjuncture<sup>54</sup> to be 17 per cent higher in 1926-7 than they had been in 1913, in addition to which there had been a reduction of working hours. In the bulletin published by the Birmingham Bureau<sup>55</sup> a careful estimate of real wages is made, taking into account both social-service benefits and deductions. They found that real wages, thus defined, had risen above the 1913 level by 26 per cent by 1926-7, and 28 per cent by 1927-8.

It is interesting to notice that they found the increase in real wages between 1900 and 1913 to have been only 6 per cent, as compared with the estimate given above of 8 per cent for the improvement in average real income per head for the whole community during that period.

Between 1913 and 1928, while real wages of urban workers were rising, the economic position of the rural population had gravely deteriorated. Average income per head of the rural population was estimated<sup>56</sup> at only 35 per cent of that of the industrial population in 1913: by 1927-8 the proportion had fallen to 24·5 per cent. In addition the retail price of industrial

goods, which are the countryman's only purchases, had risen by 100 per cent, while retail food prices had only risen 90 per cent.

## X

### ALTERNATE DATA ON FOOD PRODUCTION

We may now proceed to the year 1934, taking into account, first of all, the output of foodstuffs. As shown in a previous table, the value of food consumption per head of the population was 18 per cent lower in 1934 than it had been six years earlier. These data can be checked from an independent source. The League of Nations in their annual *World Production and Prices* publish an index number of world production of agricultural and other primary produce, the original basic data for which<sup>57</sup> were reckoned by pricing all output in American dollars of 1930 purchasing power, specifying the different countries and items of produce. In succeeding years the index number is published separately for each continent, but Europe is shown inclusive and exclusive of U.S.S.R., and hence it is easy to calculate back from this index number to the original data. Agricultural output is higher than production of foodstuffs, by reason of the inclusion of data for cotton, tobacco, linseed, etc.

#### RUSSIAN AGRICULTURAL OUTPUT, \$M.

	Foodstuffs	All Agricultural Output
1927	3814	4220
1928	3850	4298
1932	3515	3993
1933	4064	4633
1934	4245	4811

The foodstuff figures will be too high to the extent of cereal output used for fodder: too low because they do not include fruit and vegetables.

We must next take into account exports of foodstuffs, which presumably were sold at world prices, and the recorded rouble value can therefore be converted into dollars at current rate of exchange.

	Surplus of Foodstuff Exports over Imports			U.S.S.R. Home Consumption of Foodstuffs	
	Million Roubles	Do. \$m.	Do. at 1930 Prices	\$m. at 1930 Prices	\$ per Head per Year
1927	295	152.0	138.0	3676	25.0
1928	102	52.5	44.5	3806	25.32
1932	72	37.0	72.0	3443	21.05
1933	84	60.5	109.0	3953	23.85
1934	50	43.5	61.0	4184	24.9

These figures show a severe drop between 1928 and 1932 — the years of the “Collectivisation Crisis” — but show also a substantial measure of recovery by 1934. The most substantial increases in output between 1928 and 1934 were, however, in cereals and potatoes, the most substantial decreases in milk and meat. The former include output used for fodder, and therefore probably the recovery has been overstated.

To convert these values into 1934 English retail prices, for comparison with the previous table we can assume that wholesale food prices in Britain and America were in equilibrium in 1930 (which is certainly fairly close to the truth). Food sales at retail (omitting customs duties) in Britain in 1930 were £1350 millions, the wholesale value of the basic foodstuffs being £820 millions.<sup>58</sup> Thus \$25 at wholesale prices represents

£8.46 per year at British retail prices of 1930, or £7.24 at 1934 retail prices.

This additional evidence leaves us with a figure of somewhere between £7 and £10 per head per annum as the retail value of food consumption; neither the upper nor the lower figure can claim any great degree of precision. We may now examine the official figures, giving the net output of agriculture in roubles of 1926-7 purchasing power : <sup>58</sup>

	Net Output (million roubles) after deducting Seed, Fodder, etc.	Home Consumption of Foodstuffs, deducting Exports <sup>59</sup> and Industrial Crops <sup>60</sup>	Per Head of Population (roubles per annum)
1913	9.13	7.2 approx.	52.1
1927 (1926-7)	9.16	7.96	54.0
1928 (1927-8)	9.06	8.02	53.0
1932	8.4	7.25	44.2
1933	9.2	7.85	47.4
1934	9.8	8.5	50.5

The official data may thus be excused of any charge of attempting to minimise the decline in agricultural production which took place between 1928 and 1932.

The index figures of wholesale prices <sup>61</sup> in the U.S.S.R., which were calculated up to 1930, show that agricultural produce in 1926-7 was 57 per cent higher in price than in 1913. On the other hand the official calculations of national income, accepted by Professor Prokopovitch, use a factor of price increase for agriculture of 25 per cent only. Probably the higher figure is inclusive of tax, and for purposes of comparison we may assume that the 1926-7 prices are 25 per cent above those of 1913.

In this case a consumption figure of 50.5 roubles at 1926-7 prices represents 40.4 roubles, or £4.85 at 1913 prices — if we use our figure of the 1913 pur-

chasing power of the rouble in terms of food. Converting this figure first into 1930 wholesale prices, then into 1934 retail prices, we obtain a figure of £8.7. The three methods therefore have given us the following results :

**FOOD CONSUMPTION IN RUSSIA PER HEAD OF POPULATION REVALUED AT BRITISH RETAIL PRICES OF THE YEAR 1934**

£ per annum

	1913	1927-8	1934
Direct evaluation of quantities consumed per head of principal foodstuffs	10.9	11.3	8.4
League of Nations data calculated at 1930 American prices (deductions for seed and fodder assumed to balance fish, fruit and other omissions)	7.24	7.3	7.2
Official net output figures (on basis of ratio between British and Russian retail prices in 1913)	9.0	9.2	8.7

The directions of movement are the same in each case though the absolute levels differ. The calculations which have been made hitherto have been based on the first method, which is believed to have the greatest validity, for two reasons : (i) the data of food consumption are based on original records ; (ii) conversions of price indexes from one year to another, involving non-Russian weightings, are not involved, as they are in the other two methods. Nevertheless it is possible that food consumption may be some 25 per cent lower than the figures which have been actually used, though hardly likely. The second and third methods both show food consumption per head in 1934 to have been about at 1913

level, and the figure calculated by the first method, showing a 15 per cent fall between 1913 and 1934, probably represents the lower limit of estimation for the 1934 consumption.

## XI

### VALUATION OF WHOLE NATIONAL INCOME IN 1934—PROFESSOR POLANYI'S METHOD

We may now turn to Professor Polanyi's <sup>63</sup> methods of revaluing the 1934 national income. He estimates that agricultural output was about at 1913 level (the official estimate shows an increase of 7 per cent only), which he values — at wholesale prices, not retail — at £1200 millions. He then makes a revaluation in terms of English prices of the income of wage-earners and other non-agriculturists, and of the production of investment goods. The average of all wages and salaries paid in 1933 was 130 roubles per month. The 1934 figures were not available at the time Professor Polanyi wrote, but give an average of 149·3 roubles per month.<sup>64</sup> He makes an analysis of the income and expenditure of a factory worker earning 142 roubles per month, taking into account the fact that bread rations and factory meals are provided below market prices. He assumes that there was one dependant per worker, which was about the average.

Contributions to State Loan will be included in the calculations at a later stage, when the output of investment goods is valued.

Mr. W. B. Reddaway <sup>65</sup> disagrees with Professor Polanyi's figure for the size of the bread ration, which in his opinion averaged less than 45 kilos per worker



per month, and also its average price, which he puts at 0.65 rouble per kilo for that year.

This is probably the case. Czechowitz's data show 190 kilos of grain per head per year as the consumption of the urban population in 1913 and 1925, and 179 in 1928. For 1934 per urban *worker*,<sup>68</sup> the figure

REVALUATION AT ENGLISH PRICES OF PURCHASING  
POWER OF RUSSIAN WORKER'S WAGE, 1934

	Roubles per Month	Equivalent	
		s.	d.
Contribution to State Loan . . . . .	7		
Rent for 10 sq. metres of dwelling space	5	12	0
Tram fares . . . . .	9	3	0
Factory meals . . . . .	18	12	6
Bread ration (45 kilos) . . . . .	45	11	0
Fuel and light . . . . .	8	4	0
Food other than bread } . . . . .	50	10	0
Manufactured goods }			
	142	52	6

will be about 400 kilos, or 33 kilos per month. A kilo of grain makes about a kilo of bread.

Alternative figures of "closed" retail prices of flour in 1934 supplied by Mr. M. Zvegintzov<sup>69</sup> put rye flour at 0.66 rouble per kilo, wheat flour at 0.72 rouble. Allowing for baking costs and the increased weight of the bread compared with flour, this gives us a bread price of about 0.60.

On this basis the rouble value of expenditure on bread was  $33 \times 0.56$ , or 21.5 roubles per month, leaving an additional 23.5 roubles to be spent on other goods.

The revaluation for rent and fuel are based on the ratio of floor space occupied per head in Britain





and Russia (12 and 5 sq. metres respectively), and seem to be justified. But the other figures seem to be low. In the case of tram fares he has reckoned 90 journeys at 10 kopeks each: in England no tram journey costs less than a penny, and the corresponding average (for a worker living in a city) should be about 10s. He has valued the factory meals at the equivalent of 6d. each, which figure seems reasonable. In the case of bread, Professor Polanyi has reckoned the English value at 3d. per kilo, or 5·45d. per quartern loaf. The current price of white bread in England was 8d. per quartern loaf. If an Englishman wants rye bread or brown bread he has to pay more for it than for white. As the flavour of rye or brown bread is preferred by many, and as the nutritive values are the same, it appears that they ought to be priced, for purposes of comparison, on the same level as white bread.

Fifty roubles, by Professor Polanyi's reckoning, or 73·5 roubles by our reckoning, was (at that date) spent in the "open market" on foods other than bread, and on manufactured goods. Open-market prices were high in 1934, and Professor Polanyi gives the rouble a purchasing power of 2·4 pence only, or 100 to the £ sterling. This figure may be re-examined.

## XII

### REVISED VALUATION OF NATIONAL INCOME IN 1934—CONSUMPTION GOODS

In the calculations which follow, Russian food prices in 1934, or early 1935, are taken from Knickerbocker's *Rote Wirtschaft und Weisser Wohlstand*.<sup>98</sup>

REVISED VALUATION OF NATIONAL INCOME IN 1934 29

Retail prices of manufactured goods in Russia and in Britain are from a paper (unpublished) prepared by Mr. E. C. R. Kahn, of the Department of Overseas Trade, London. Prices and quantities of foods consumed in England are from Sir John Orr's *Food, Health and Income*: Russian quantities from the family budget studies previously referred to:

COMPARISONS OF FOOD COSTS IN BRITAIN  
AND RUSSIA, 1934

(35.2 Ounces = 1 Kilo)

	Quantities per Month consumed in Russia per Adult (kilos)	Cost in Roubles	Cost in Pence	Quantities consumed per Head in England ( <i>oa.</i> per week)	Cost in Pence	Cost in Roubles
Pork . . .	1.6	20.8	68.0	5.8	6.6	2.15
Bacon . . .	0.6	18.0	16.6	7.0	5.5	5.98
Mutton . . .	1.6	19.2	40.9	8.4	6.1	2.86
Beef . . .	3.2	38.4	70.8	17.0	10.7	5.80
Butter . . .	0.8	24.0	19.5	7.8	5.4	6.64
Eggs (number)	7.0	4.9	10.4	2.9	4.3	2.03
Sugar . . .	1.7	10.2	9.1	17.8	2.7	3.04
Potatoes . .	12.3	12.3	24.6	64.0	3.6	1.82
Tea . . .	0.03	2.1	1.4	2.8	2.8	5.58
Cheese . . .	0.8	12.8	20.3	3.2	2.3	1.45
Milk (litres) .	6.8	13.6	37.0	1.6	8.7	3.20
TOTAL . . .	..	176.3	318.6	..	59.7	40.55

In the case of food purchases it appears therefore that, revaluing a Russian budget at English prices, one rouble was the equivalent of 1.81 pence, while revaluing an English budget at Russian prices, one rouble was the equivalent of 1.47 pence. Taking the geometric mean of these two results (Fisher formula) we obtain the open-market purchasing power of the rouble at 1.63 pence only.

The number of wage- and salary-earners, other than agricultural, and including craftsmen, was 20·5 millions, with an average of 1·20 dependants per earner.<sup>69</sup> Consumption of food other than bread was put at 18·8 pence per week, at sterling values.<sup>70</sup> Bearing in mind the previous data about higher food consumption in the towns, we can put this at 24 pence per head per week for the industrial population. This becomes 19s. 1d. per worker per month; of this

	Price in Roubles	English Price	
		s.	d.
Man's suit . . . . .	87	50	0
Boots . . . . .	100	15	0
Peaked cap . . . . .	23	10	0
Boy's overcoat . . . . .	75	20	0
Goloshes . . . . .	15	2	6
Cardigan . . . . .	68	4	0
Underclothes . . . . .	8	4	0
Bathing-dress . . . . .	1·60	2	0
Tie . . . . .	2·50	2	6
Mattress . . . . .	47	10	0
Kerosene (litre) . . . . .	0·47	0	2½
Electric iron . . . . .	30	7	0
Electric bulb . . . . .	1·28	1	0
Dozen pencils . . . . .	2·28	1	0
Small slide rule . . . . .	13·10	7	6
Saucepan . . . . .	10	1	0
Suitcase . . . . .	87	7	0
Camera . . . . .	193	15	0
Toy car . . . . .	78	25	0
Toy gun . . . . .	3·40	3	0
Portable gramophone . . . . .	177	25	0
Balalaika . . . . .	20·30	30	0
Postcard . . . . .	0·30	0	1
Cake of soap . . . . .	5	0	6
Toothbrush . . . . .	1·50	0	9
Lipstick . . . . .	2·50	0	6
2 dozen safety-pins . . . . .	to 9	to 1	6
Scent . . . . .	0·36	0	2
	6·23	0	6

12s. 6d. is estimated to be consumed in the form of factory meals, leaving a balance of 6s. 7d., to obtain which amount of food in the open market 48.5 roubles must be spent.

The comparison of prices of industrial goods is given on p. 30. Prices were collected by Mr. Kahn in both open shops and co-operatives in cities and villages in 1934.

The price structure of the Soviet Union seems to be completely different from that of England. The rouble equivalent varies from 17.8 pence in the case of a balalaika, and 15 pence in the case of a cotton bathing-suit, to 1 penny for scent, 0.9 penny for a camera, and 0.7 penny for a cardigan. (Can any trace be detected of a policy of official encouragement for desirable forms of amusement, such as swimming and balalaika-playing? Hardly, I fear.) Taking a geometric average of the wide range of rouble equivalents thus obtained, we get a figure of 1 rouble = 3.48 pence, or 69 roubles corresponding in purchasing power to the £ sterling.

Considerable investigations were also made by Sir Walter Citrine<sup>71</sup> in 1935. He quotes the figures given on p. 32, and says:

"I have attached alongside these prices the approximate relevant prices in England as well as I could judge them from the price-lists of such stores as the London Co-operative Society, Barkers, Pontings, Selfridges, as well as such provincial stores as Lewis, Ltd. of Manchester, Birmingham and Liverpool. My wife and I carefully checked those rouble prices, and they may be taken as absolutely correct.

"There was then furniture. A sideboard which would cost in England £4 : 10s. or thereabouts, there

Article	Price in Roubles	Approximate English Price			Rouble Equivalent in Pence
		£	s.	d.	
Men's caps . . . . .	17.45	0	3	6	2.4
Felt hats (poor quality) .	35.50	0	5	0	1.7
Men's ties . . . . .	5.50 { to 11.50 }	0	1	0	1.4
Men's brown shoes . . . . .	72	0	10	6	2.1
		to	0	15	
Men's canvas shoes . . . . .	50	0	5	0	1.5
		to	0	7	
Men's winter coats (cloth)	350	2	10	0	1.7
Men's waterproofs . . . . .	125	1	0	0	1.9
Ladies' umbrellas with Fox frame	80	0	12	6	1.9
Ladies' waterproof coats (rather poor quality)	125	0	10	0	1.2
		to	0	15	
Ladies' waterproofs (silk finish)	178	1	10	0	2.0
Ladies' coats . . . . .	550	3	10	0	1.5
	252	2	10	0	2.4

was priced at 430 roubles. A bookcase, which I should think would cost £3 in England, was marked at 270 roubles. Plain deal wardrobes with painted fronts, 200 roubles. Couches with no backs, 150 roubles. Another with a back, 350 roubles. These were all poor stuff. Single iron bedsteads, with a few central rails of stainless steel, cost from 265 to 375 roubles."

From a Mostorg store he also quotes the following data on p. 33.

The geometric mean of all the prices in these tables gives the rouble an equivalent of only 1.62 pence in 1935. Even allowing for a considerable increase in rouble prices between 1934 and 1935, this represents a much lower purchasing power for the rouble than the previous figures.

Allowance must be made for the fact that in 1934



REVISED VALUATION OF NATIONAL INCOME IN 1934 33

	Price in Roubles	Estimated Price in England	Rouble Equivalent in Pence
Men's braces .	3.25 to 7.45	9d. to 1s.	1.9
Playing cards .	2.5 to 10	9d. to 2s.	3.0
Clothes brushes .	6.35	6d.	0.9
Safety razor in case	6.25	1s.	1.9
Men's ties . . .	6.25 to 4.20	6d.	1.1
Hairbrush . . .	7	6d.	0.9
Hand mirror . . .	21.10	1s.	0.6
Combs . . . . .	1.90 to 2.80	3d.	1.3
Ladies' handbags .	43.60	2s. 6d. to 5s.	1.0
Fibre suitcase . .	28.80	5s.	2.1
Pocket combs . . .	1.24	3d.	2.9

there was still a considerable amount of trade done through co-operatives, namely 41 per cent of the whole.<sup>72</sup> Mr Reddaway has written :

“ On the whole the rate of 3½d. for a rouble spent on industrial goods may be about right. In the co-operatives it would be perhaps 4d. to 5d. and lower in the open market. (I would guarantee to have made a fortune by selling a complete line of English goods at open-shop prices if I got 3½d. for a rouble.) ”

If we construct a weighted average between Sir Walter Citrine's 2d. (allowing for the further depreciation between 1934 and 1935) for the purchasing power of the rouble in the open market, and Mr. Reddaway's 4½d. for the co-operatives, we obtain a general average of 3.04 pence per rouble. The average of 3.48 pence previously obtained may be taken as a fairly good approximation.

We may now return to Professor Polanyi's revaluation. To the average wage of 149.3 roubles per month should be added the social service payments received by the worker in cash — about 3.5 milliards, or 12.5 roubles per head per month on the average<sup>73</sup> — and deduct the contributions to the State Loan of 7 roubles.

This gives us an average spent per worker of 155 roubles a month, and its English equivalent is as follows (assuming that of the unspecified balance, half is spent on food and half on industrial goods) :

	Roubles	Equivalent in Shillings
Rent . . . . .	5·0	12 0
Tram fares . . . . .	9·0	10 0
Factory meals . . . . .	18·0	12 6
Bread . . . . .	21·5	12 2
Fuel . . . . .	8·0	4 0
Food other than bread	48·5	6 7 (revalued at 1 rouble = 1·63 pence)
Industrial goods . . . . .	45·0	13 1 (revalued at 1 rouble = 3·48 pence)
	155·0	70 4

This result seems inherently more probable than Professor Polanyi's result of 52s. 6d. As he points out, the pre-war factory wage of 25·4 roubles can be revalued at 53s. 6d. (he gives a slightly lower figure) on the assumption that the internal and external purchasing power of the rouble were in equilibrium in 1913.<sup>74</sup> His result (Russian wages in 1934 equivalent to 52s. 6d. per month at English 1934 prices) shows, he says, that real wages in Russia were about the same in 1934 as in 1913 : quite forgetting, however, that English retail prices had risen between those two years by between 30 and 50 per cent (according to how the index number is weighted). If his results are true, Russian town wages were 30 per cent lower in 1934 than in 1913, which can hardly be considered probable.

The number of wage- and salary-earners in 1934 was 23,226,000.<sup>75</sup> Deducting agricultural workers — 4½ millions — and adding 1½ millions of independent

#### REVISED VALUATION OF NATIONAL INCOME IN 1934 35

craftsmen,<sup>76</sup> members of artels, whose conditions may be assumed to be similar to those of wage-earners, we have 20.47 million wage-earners whose consumption may be put at 1860 roubles, or £42.2 per head for the year 1934. The aggregate figures are 38.1 milliard roubles, or £865 millions at current English prices.

Rentals of dwellings in the aggregate, for the industrial population, are £147 millions, or £7.2 per worker. The homes of the rural workers are of very poor quality and may be valued at £2 per family, giving a total of about £50 millions.

The food consumption of the whole country, at English retail prices, was calculated above at £8.4 per head, or £1495 millions. Reckoning as before, about £385 millions of the consumption of the town population consisted of food, leaving £1110 millions as the food consumption of the rural population. The aggregate rouble value of town food consumption calculated from above table was 21.6 milliards, but there is no reason to suppose that the peasants received more than a fraction of the price paid for food by the townspeople, owing to the high turnover taxes and strict control of marketing. The cash income received by the peasants can be judged from the amount of recorded retail sales in rural areas, which were 14.1 milliards in 1933.<sup>77</sup>

In 1934 retail sales had risen to 54.2 milliard roubles,<sup>78</sup> in addition to which there were about 1.5 milliard roubles<sup>79</sup> contribution out of wages to State Loans, and about 2 milliards of outlay on rent, travel services, etc., making 57.7 milliards. Wages in the aggregate were 41.6<sup>80</sup> milliards, or 37.4 milliards excluding agricultural workers; <sup>81</sup> including incomes

of independent craftsmen, we obtain approximately 39.6 milliards (including 1.5 milliard contributions to loans) as the total outlay of the town population, compared with the figure of 38.1 milliards computed above.

The retail purchases of the rural population, including rural wage-workers, were therefore 56.2-38.1, or 18.1 milliards. It appears that some of these purchases were made in the towns, retail sales in rural areas being computed at 15.6 milliards for 1934.<sup>82</sup>

Valuing these purchases on the basis of 1 rouble = 3.48 pence, we obtain a value of £263 millions.

Some confirmatory data on the question of rural incomes are given by Mr. Zvegintzov,<sup>83</sup> who gives the following comparison of producers' prices and retail prices in 1934 :

	Producers' Price	Retail Price	
		"Closed"	"Open"
Butter . . . . .	2.50	8.00	26.00
Rye flour . . . . .	0.064	0.66	..
Wheat flour . . . . .	0.101	0.72	..

indicating that the producer may receive only 10-20 per cent of the retail price.

### XIII

#### REVALUATION OF OUTPUT OF INVESTMENT GOODS

The next step is the evaluation of the 26.4 milliards of investment<sup>84</sup> carried out by the Government in 1934. Professor Polanyi estimates this as being the equivalent of £700 millions. He obtains this result by evaluating in sterling the net output of all the

#### REVALUATION OF OUTPUT OF INVESTMENT GOODS 37

products of heavy industry for which quantitative data of output are available: coal, oil, iron and steel, electricity, copper, zinc, tractors, motor cars and trucks. According to the Russian data, the net output of the above goods, expressed in rouble values, amounted to 36 per cent of the output of heavy industry as a whole.<sup>65</sup> Their sterling value was £253 millions, and hence he estimates the sterling value of investment as a whole at £700 millions.

A more detailed calculation gives a very similar result. Some part of the output of the articles specified above is for consumption or export, and there is much overlapping. The calculation can be repeated along the following lines. We have for the U.S.S.R. quantitative<sup>66</sup> data of the output (from which we must exclude exports and add imports) of the following commodities, which are exclusively used for investment or construction, namely:

Cement	Motor trucks
Sawn timber	Locomotives
Copper	Railway wagons
Steel	Electrical transformers
Tractors	

In the U.S.A. in 1929 gross investment<sup>67</sup> amounted to \$22.75 milliards. Internal consumption of the above nine commodities amounted to \$5.35 milliards, or 23.5 per cent of gross investment. In view of their wide representativeness, it is perhaps permissible to assume that in Russia also the consumption of these six commodities will correspond to 23.5 per cent of the whole value of investment. The calculations for 1934 and 1927-8 are given on p. 38:

	U.S.A., <sup>88</sup> 1929		U.S.S.R., 1934		U.S.S.R., 1927-8
	Quantity	\$m.	Quantity	\$m. at U.S.A. Prices of 1929	\$m. at U.S.A. Prices of 1929
Cement (million tons)	28.95	271	3.56	33	18
Timber (million cb.m.)	75.1	1007	18.9	253	137
Copper (000 tons)	1460	584	64.8	26	26
Steel (million tons)	57.34	2290	9.56	382	170
Locomotives <sup>89</sup> (nos.)					
Railway wagons <sup>89</sup> (nos.)	..	332	1,345 32,400	43 48	15 16
Tractors (000's)	575	262	94.4	69	3
Motor trucks (000's)	..	..	72.5	80	1
Electrical transformers (000 kwh.)	76	600	2,874	5	1
		534.6	..	939	387

On this basis, the value of investment in Russia in 1924 can be put at 4 milliard dollars, or £820 millions. We must allow for the fact that certain types of investment goods, such as tractors, are dearer in England than in the U.S.A., buildings cheaper, and for the fall in prices between 1929 and 1934. A reduction of 10 per cent, to £738 millions, seems indicated. The figure for 1927-8 becomes £305 millions ( $738 \times \frac{387}{939}$ ).

The purchasing power of the rouble in the case of investment goods thus seems to be 35.7 to the £, as compared with 69 roubles to the £ in the case of

industrial goods sold at retail, and 147 to the £ in the case of food sold at retail in the open market.

These discrepancies are of course the result of deliberate policy, and the principal instrument by which they are created is the turnover tax. In the 1934 budget, revenue from turnover tax and profits of State enterprises amounted to the enormous total of 43 milliards.<sup>90</sup> Turnover tax and levies on profits fell comparatively lightly (again a matter of policy) on the heavy industries, and for that reason we can regard their ratio of purchasing power parity (29 roubles to £1) as fairly indicative of true costs of production in Russia.

Social services in 1934, central and local (excluding estimated cash benefits of  $3\frac{1}{2}$  milliards already reckoned), cost 7.6 milliards, armaments 5 milliards, general administration 2 milliards, or 14.6 milliards in all.<sup>90</sup> Some of this, such as industrial produce used for armaments, will duplicate with the output of the heavy industries already included, but at most this will be 2 milliards. We can therefore take the value of the public services at 13 milliards, and converting at the rate of 25 roubles to the £, express their value at £520 millions. The reason for the choice for this factor of 25 is given below.

Deduction must be made, however, for depreciation, obsolescence and repairs. The value of all capital in existence in 1934 was 112 milliards at 1933 prices.<sup>91</sup> Capital invested in electrification, transport, building and agriculture has a depreciation rate of perhaps below 5 per cent, but the average rate of depreciation on modern industrial machinery is in the neighbourhood of 10 per cent. Altogether, it is difficult to see how depreciation can be reckoned at

less than 8 per cent of the replacement value of the capital, or 8·8 milliards a year — just one-third of the gross investment. This is roughly confirmed by the official figures, showing (averaged over the two years 1933 and 1934) a rate of gross investment of 23 milliards per annum, while the net increase in capital (at 1933 prices) was 13·4 milliards.

## XIV

## REVALUATION OF WHOLE NATIONAL INCOME

We can now recapitulate the total national income in 1934 expressed at current English prices :

	Milliard Roubles	£ millions
Consumption of agricultural population :		
Food . . . . .	..	1110
Other . . . . .	18·1	263
Assumed rental of rural homes . . . . .	..	50
Consumption of town population :		
Food . . . . .	21·6	385
Other . . . . .	16·5	480
Gross investment . . . . .	26·4	738
Public services . . . . .	13·0	520
<b>TOTAL, 1934 . . . . .</b>	..	<b>3546</b>
<b>TOTAL at 1934 prices, 1927-28 . . . . .</b>	..	<b>2923</b>
"    "    1913 . . . . .	..	2886

## REAL INCOME PER HEAD OF POPULATION

## AT 1934 STERLING PRICES

1913 . . . . .	£21·0
1927-8 . . . . .	19·4
1934 . . . . .	21·1

Depreciation has been neglected in all the above figures. In 1934 it was estimated at 8·8 milliards, or



£247 millions; in 1913 and 1928 at £83 millions. Deducting for depreciation, we obtain the results :

	Aggregate Income, £m.	Per Head, £
1913	2803	20.1
1928	2840	18.8
1934	3299	19.6

Thus the net return after the tremendous effort of the First Five-Year Plan seems therefore to have been an increase of 4 per cent in net income per head, which is now  $2\frac{1}{2}$  per cent lower than it was in 1913. As will be shown below, there was a serious decline in agricultural productivity which offset the industrial gains.

The output of goods and services for consumption, excluding food and rent and including public services, rose from £768 millions in 1928 to £1116 millions in 1934, a rise of 45 per cent. This figure can be approximately confirmed from quantitative data of the output of principal consumption goods.

## XV

### CONFIRMATORY DATA ON OUTPUT OF CONSUMPTION GOODS

Quantitative returns<sup>22</sup> are available for the nine commodities and services tabulated on p. 42. They are weighted in accordance with their approximate sterling value.<sup>23</sup>

This check is quite satisfactory considering the wide range of movements. We have here a sample representing 37 per cent of the sterling value of consumption of non-food goods in 1928. The movements

	• Output, 1927-8	Approximate Value in Ster- ling (£m.)	Percentage Change in Output, 1927-8 to 1934
Soap, thousand tons .	196	7.5	+120
Cotton goods, million metres	2798.0	62.2	- 3
Woollen goods, million metres	98.0	37.2	- 25
Postal packets, mil- lions	2017.0	12.6	+223
Linen, million sq. metres	174.0	8.8	- 10
Matches, million cases	5.8	16.6	+57
Shoes, million pairs .	24.37	12.2	+185
Goloshes, million pairs	37.46	3.7	+74
Newspapers, daily cir- culation, millions	8.8	11.5	+315
		172.3	+56 (weighted average)

in the output of different commodities follow very different courses. Textiles, which probably represent the principal purchases of the rural population, were in considerably reduced supply, attributed to Russia's inability (or unwillingness) to import raw materials. Production of certain other articles, such as shoes, soap and newspapers, which were in very short supply in 1928, has been expanded rapidly.

## XVI

### EFFECT OF TAXATION ON PURCHASING POWER OF THE ROUBLE

We have already calculated the purchasing power of the rouble in 1928 and in 1934, over different classes of goods, as compared with sterling. Expressed in roubles to the £1, we found

	1928	1934
Food (sold in open market) <sup>94</sup> . . . . .	10.7	147.0
Manufactured consumption goods at retail	18.5	69.0
Investment goods . . . . .	24.0	35.7

Between 1928 and 1934 average money wages per year in Russia rose from 704 roubles to 1790 roubles.<sup>95</sup> On grounds of changes in money costs of production per unit output (neglecting for the moment changes in the physical quantity of goods produced per worker), we should thus expect to find, in the absence of special taxation, a depreciation of 60 per cent in the purchasing power of the rouble in terms of sterling of fixed purchasing power. The fact that its purchasing power over investment goods has fallen by less than 20 per cent (in terms of sterling) indicates that the productivity of labour in these industries in Russia must have risen by about 60 per cent during these years.

On the other hand, the excessive depreciation of the rouble in the other fields is indicative not necessarily of a decline in labour productivity, but of a great increase in indirect taxation, particularly the turnover tax. In 1928 the whole total of indirect taxation <sup>96</sup> was 3.25 milliards. It is not possible to allocate this among different fields, but in view of the fact that retail sales of food were only 3.2 milliards,<sup>97</sup> and that wholesale prices <sup>98</sup> of agricultural produce obtained by the peasants had risen by 25 per cent above 1913, while retail prices of <sup>99</sup> food had risen by 90 per cent, we can deduce that the entire amount of indirect taxation falling on retail food sales was about 0.8 milliard. The remaining 2.45 milliards presumably mainly fell upon other goods and services for consumption.

In 1934 the revenue from turnover tax and net profits of State trading had risen to 43 milliards. Of this, an analysis can be made of the sources of the turnover tax proper.<sup>100</sup>

	Milliard Roubles
Foodstuffs . . . . .	18.1
Heavy industry and timber . . . . .	4.5
Light industry . . . . .	3.9
Trade . . . . .	8.4
	34.9

The remaining 8 milliards cannot be allocated. Including a share of the turnover tax on trading institutions, it appears that indirect taxes falling on food consumption make up nearly the whole of the 21.6 milliards estimated to have been paid by the town population for foodstuffs in 1934. Retail sales other than food amounted to 32.6 milliards. Assuming that a large part of the unallocated indirect taxes fall on these goods, we find that something in the neighbourhood of 16 milliards, or about half of the gross turnover, represents turnover tax or State levies on the profits of the industries concerned.

In the case of heavy industries about 6 milliards will be involved.

The following calculation, regarding the purchasing power of the rouble after elimination of the effects of taxation, is only intended to give the roughest orders of magnitude. The figures in this table cover all goods sold, while the previous table refers to certain open markets only.

The number of roubles equivalent of £1 continues to fall in the case of foodstuffs; i.e. the rouble income obtained by the peasants in return for a given quantity of food has fallen. It must be remembered that a

OFFICIAL RUSSIAN FIGURES OF NATIONAL INCOME 45

	1928			1934		
	Food Sales at Retail	Consumption Goods	Investment Goods	Food Sales at Retail	Consumption Goods	Investment Goods
Sales as recorded (million roubles)	3.2	12.0	7.3	22	33	26.4
Do., excluding tax	2.4	10.5 <sup>101</sup>	6.3	3	17	20.4
Value of Sales (£m.)	285 <sup>102</sup>	649 <sup>103</sup>	305	450	666 <sup>104</sup>	738
Equivalent roubles to £	8.4	16.2	20.6	6.7	25.5	27.6

considerable proportion of their output was and is taken from the peasants in the form of levies in kind, or at low prices. There appear to have been considerable reductions in the real labour cost of production in the consumption goods industries, though not so marked as in the heavy industries. The figure of 25 roubles = £1 is adopted as the basis for valuing the output of public services, as this is the equivalent of the cost of producing (without taxes) consumption goods in general, and was indeed the rate of exchange adopted when the rouble was put on a new gold basis in 1935.

XVII

OFFICIAL RUSSIAN FIGURES OF NATIONAL INCOME

For 1927-8 and 1934 we have the following :<sup>105</sup>

	Income produced (milliards of roubles) at 1926-7 Prices	
	1927-8	1934
Industry . . . . .	6.9	26.6
Building . . . . .	0.7	6.5
Transport . . . . .	1.6	3.0
All other non-agricultural income . . . . .	4.6	9.7

For industry, an increase in the real value of output of 285 per cent is claimed, for industry, building and transport taken together, of 292 per cent. It is impossible to substantiate these figures. Production of investment goods, the most rapidly increasing section of the national income, showed a rise of 132 per cent only, of consumption goods a considerably smaller rise.

It is not permissible to accuse the Russian statisticians of deliberate distortion of the figures in order to overstate the productive achievements of their country. If this had been their aim, they would have distorted or suppressed the figures showing the decline in agricultural production between 1929 and 1932, which, as we have seen, they made no attempt to do. But we must conclude that in Russian circumstances the use of index numbers based on the prices prevailing eleven years ago is quite inappropriate for the measurement of changes in industrial output, adequate though it be for the measurement of agricultural output.

### XVIII

#### POPULATION AND ECONOMIC RESOURCES

This survey may be concluded with a note on the city and rural population of Russia. Agricultural production, including production for export, and all other production can be given as follows, on the scale of values hitherto used :

	Em. per Annum (at 1934 Purchasing Power)	
	Agricultural Incomes	Other Income
1913	1750	1053
1927-8	1730 <sup>106</sup>	1110
1934	1495	1604

The Russian statistics of employment and population are difficult to handle. There has been no full census since 1926, and in the only more recent available statistics covering the occupational distribution of the population, peasants are not distinguished from craftsmen, workers from dependants. The figures quoted below were first published by Marcus in the *International Labour Review*.<sup>107</sup> These data refer to workers and dependants taken together.

	1918	1928	1934
Industrial wage- and salary-earners	17,300	24,124	41,751
Rural wage- and salary-earners	6,000	2,219	5,367
Peasants and craftsmen :			
Members of collectives and artels	..	4,406	77,037
Independent peasants and craftsmen	90,700	111,131	37,902
Kulaks	17,100	5,618	149
Other bourgeois	5,000	1,183	25
Soldiers, students, pensioners	3,200	3,671	5,769
	139,300	152,352	168,000

The 1926 Census showed that 57·4 per cent of the population were occupied, 85 per cent of the occupied population being engaged in agriculture.<sup>108</sup> Applying these proportions to the 1928 population, we get 87·5 million occupied workers, of whom 74·4 millions were engaged in agriculture. Of the remaining 13·1 million workers, official statistics show that wage- and salary-earners numbered 9·6 millions,<sup>109</sup> the Army and Navy 0·6 million, and thus independent craftsmen and traders must have numbered 2·9 millions. Figures are quoted by Dr. Polanyi showing that the number of independent craftsmen, members of artels — in-

dependent trading is now forbidden — had fallen to 1.6 millions by 1934.

Including their dependants, craftsmen and traders in 1928 must have numbered 5 millions. Collective farming was then in its infancy, and the bulk of the population in "Members of collectives and artels" probably then consisted of craftsmen and their families. Four millions under this head, and 1 million under the heading "bourgeois" would make up the 5 millions we have to account for.

In 1913 the "bourgeois" alone amounted to 5 millions, and we can estimate that the number of craftsmen, traders and independent employers was clearly greater than, perhaps double, the numbers in those categories in 1928. We can estimate their numbers in 1913 at 5 millions, or  $8\frac{1}{2}$  millions including dependants. On this basis we can construct a table showing the distribution of the occupied population — approximate for 1913, but fairly accurate for other years.

	Millions		
	1913	1928	1934
<i>Non-Agricultural :</i>			
Wage- and salary-earners . . . . .	8.25 <sup>108</sup>	9.6	19.0
Craftsmen, traders, etc. . . . .	5.0	2.9	1.5
Army and Navy . . . . .	0.6	0.6	0.6
	13.85	13.1	21.1
<i>Agricultural :</i>			
Wage workers <sup>108</sup> . . . . .	3.0	2.0	4.25
Peasants and working <sup>108</sup> members of peasant families	64.2	72.4	69.1
	67.2	74.4	73.35



The proportion of dependants to workers appears to be much higher in the towns than on the land. However, of the 71,735,000 persons recorded as occupied in agriculture in the 1926 Census, no less than 35,565,000 were female.<sup>100</sup> It appears that Soviet Russia had adopted the convention of recording all adult female members of peasant households as engaged in agriculture (also adopted in the German and French Censuses, and those of a number of other European countries, but not in U.S.A., Canada or Britain). Though undoubtedly women members of peasant households engage in field work at certain seasons, they are certainly not fully occupied, and for purposes of international comparison, or of comparison between productivity per head in agriculture and industry, they should be excluded. They appear to amount to exactly half of the last line in the above table. We have, therefore, the following figures of the sterling value of product per head :

	1913	1928	1934
<i>Agriculture :</i>			
Numbers engaged (millions) .	34.1	38.2	39.8
Production per head (£) .	51.5	45.3	37.5
<i>Non-Agricultural :</i>			
Numbers engaged (millions) .	13.85	13.1	21.1
Production per head (£) .	76.1	84.8	85.5
<i>Combined :</i>			
Numbers engaged (millions) .	47.95	51.3	60.9
Production per head (£) .	58.5	55.5	51.0

Between 1928 and 1934 production per head in agriculture has declined, and in industry has remained virtually stationary. Income produced per occupied

person showed a fall of 8 per cent as against the figure of 4 per cent increase in real income per head of the population. The ratio of occupied persons to total population has considerably increased.

The slow rate of progress in industry between 1928 and 1934 may indeed be attributed to the uneconomically rapid (from the purely industrial point of view) inflow of new labour.

Home-produced income in Great Britain <sup>110</sup> in 1934, inclusive of indirect taxation, exclusive of depreciation, was £4033 millions, produced as follows :

	Nos. Occupied (millions)	Net Income produced (£m.)	Production per Head (£)
Agriculture . . . . .	0.96	130	135
All other production . . . . .	18.10	3903	216
	19.06	4033	211

Real home-produced income per person in work in 1934 was 15 per cent higher than it had been in 1924, and has shown another rise of 9 per cent between 1934 and 1937.

In examining the Russian figures allowance must be made for the reduction in working hours during this period, though this was partially offset by a reduction in the number of holidays. Average number of working days <sup>111</sup> per year rose from 257.4 in 1913 to 260.0 in 1936, while the average hours per day fell from 9.92 to 7.03. The computed average number of hours per year worked by the industrial population was 2554 in 1913, 1941 in 1928 and 1893 in 1934. On the basis of 1934 working hours, average value of production per head of the non-agricultural population becomes :

	£ per Annum
1913 . . . . .	56.5
1928 . . . . .	82.8
1934 . . . . .	85.5

According to this calculation, the rate of industrial progress was slower between 1928 and 1934 than it had been between 1913 and 1928. Though not impossible, this throws some doubt on the figures of average hours worked.

The decline in agricultural real income per head since 1928 can be largely accounted for by the tremendous slaughter of livestock which took place between 1930 and 1933. But we must notice that this figure also showed a downward trend between 1913 and 1928: the aggregate real value of output remained constant while the working population rose.

This looks suspiciously like the Malthusian Devil, the pressure of a rapidly increasing population on strictly limited means of subsistence; and indeed that is what it is. The unprecedentedly rapid increase of Russian population — 25 per cent in a decade — has, although few realised it, been the central issue of all Russia's economic troubles. "Banished", as Professor Fay once said about the ghost of Malthus, "from Western European countries, he still points an accusing finger at the plundered farm-lands of North America and the premature marriage-beds of the East." He certainly should have included Russia, with its comparatively large stretches of infertile soil and its still fertile marriage-beds, as one of the countries where the Devil still holds sway, unexorcised by Marxist dialectic.

In other words, the Russian countryside is clearly overpopulated. In support of this proposition direct

evidence is available. An examination has been made of the 1928 output of Russian agriculture,<sup>112</sup> and an estimate made of the amount of labour which would be required to produce this output if the labour were fully employed. The author reached the astounding conclusion that the work could be done by 40 to 50 million workers, as against the 74 millions of occupied population (including women members of peasant households) at that date. The surplus he puts at somewhere between 24 and 32 million workers. Counting workers and dependants together, the surplus population of the Russian countryside could be put at 40 to 50 millions. An independent estimate<sup>113</sup> for the year 1913 puts the surplus rural population at 30 millions, or, say, 18 million occupied persons. Between 1913 and 1928 the numbers (again including women) occupied in agriculture, as shown in the previous table, increased by 7.2 millions, with only a fractional increase in output. The two estimates are therefore consistent.

“Disguised unemployment” the economists would now call it — this disguised unemployment on a gigantic scale is the feature which overshadows the whole economic life of Soviet Russia, and should make the critic reflect more tolerantly on the Soviet Government’s failures. The number of industrial unemployed throughout the world, in the worst period of the last slump, was estimated at 26 millions, less than the figure quoted above for the equivalent unemployment in rural Russia. Under these circumstances, where each addition to the rural population makes virtually no net addition to output, the most rapid possible transfer of population from agriculture to industry is clearly desirable, even though the productivity of

peasants recently transferred to industrial employment may be very low. This has been the Soviet Government's policy. Russia's industrial population<sup>114</sup> had been raised by 1934 to 42 millions, as high as that of Great Britain. Ten years earlier its industrial population was only half that size. But this pace of industrialisation, fantastic and uneconomic as it appears from many points of view, has not been able to do more than skim off the annual increases of population produced by the teeming fecundity of agricultural Russia, and has not been able to make even a beginning of the colossal task of curing the huge mass of rural poverty and unemployment.

Although in fields other than the narrowly economic the wise use of a very limited quantity of resources has produced a vast improvement in the literacy, and the health, of the rural population. The number of doctors<sup>115</sup> available increased from 20,000 in 1914 to 87,000 in 1937, and the number of school pupils was given as follows :

	1914 (000's)	1928-9 (000's)	1936-7 (000's)
Elementary . . . . .	7030	8887	10,970
Secondary . . . . .	916	3511	17,093
Technical . . . . .	79	206	769
Adult . . . . .	..	2226	8,942
Higher education . . . . .	112	178	551

The concentration of the Government's economic resources on to education and health is clearly indicated by these figures. In the difficult economic situation in which they find themselves there is little doubt of the wisdom of this policy.

It is an irony almost cosmic in its grandeur, on so vast a scale that many have not yet become aware

of it — Soviet Russia struggling with huge and uncontrollable increases of population at a time when the economic and political structure of the West is beginning to tremble before the approaching blast of depopulation. Prior to 1913 emigration abroad relieved some of the intolerable pressure of population in Eastern Europe, in the Russian Empire and the Balkan countries. American and British statesmen who celebrated their victory in the war by complacently blocking up these channels of migration, little knew what their countries would later have to answer for.

## XIX

### DEVELOPMENT SINCE 1934

After 1934 the principal series of data in the reference books at present available come to an end, and reliance has to be placed on periodicals.<sup>116</sup>

The development of what would be called outside Russia the gross money national income can be obtained from the rouble figures of retail sales,<sup>117</sup> consumption outlay other than retail sales (rents, railway journeys, etc.), gross investment, and services supplied by public authorities, including general administration and defence, but excluding social insurance benefits paid to the workers in cash. To the above total we must add a figure representing the self-supply of foodstuffs by peasant households and collective farms which we can, for the moment, value at any figure we please.

This total ought to check up with gross income as determined from the other angle, namely the aggre-

gate of wages and salaries, cash incomes of the peasants from sales, incomes of independent craftsmen, and the proceeds of indirect taxation and State levies on industrial profits, to which again must be added an arbitrary figure for the self-supply of peasants. The most important change in the economic structure since 1934 has been the abolition of rationing and "closed" shops (with a few exceptions) by stages during the year 1935. On and after 1st October 1935 prices of foodstuffs were fixed somewhere between the old "closed" and "open" prices.

Turnover tax, however, still represents the main part of the retail selling price. At the end of 1935 about 75 per cent of the retail prices of all foodstuffs was represented by turnover tax, and a further 7 to 10 per cent by distributive costs,<sup>118</sup> suggesting that the cash income of the peasants amounted to 15 to 18 per cent of retail sales of foodstuffs.

It appears that both in 1934 and 1935 the peasants must have derived a large part of their income from sales of industrial crops, social insurance and other sources. Retail sales in rural areas can be calculated approximately, from an index number<sup>119</sup> showing changes since 1933 as 15.6 milliards in 1934 and 21.9 milliards in 1935: and allowing for purchases in the towns, these figures become 18.1 milliards (as calculated above) for 1934 and 25.4 milliards (raising by a similar proportion) for 1935.

We can therefore compute the gross money national income in 1935. Indirect taxation is interpreted as being the whole public revenue<sup>120</sup> other than loans and direct taxes. No figure is included for self-supply by the peasants.

	Milliard Roubles		
	1935	1936	1937
Retail sales <sup>121</sup>	73.8	83.7	105.5
Rents and other services . . .	2.5	(3)	(3)
Gross investment by Govern- ment <sup>122</sup>	35.2	32.4	39.0
Gross investment from retained <sup>123</sup> industrial profits . . . . .	5.9	8.1	(9)
Public services : <sup>124</sup>			
Defence . . . . .	8.2	14.8	20.1
Other (excluding cash benefits from social insurance) . . . . .	14.9	16.0	21.0
	140.5	158.0	198.0
Wages and salaries <sup>125</sup>	56.2	71.4	78.3
Indirect taxation . . . . .	56.9	71.7	90.0
Cash income of peasants . . . . .	25.4	..	..
Incomes of craftsmen <sup>126</sup> . . . . .	3.4	4.1	4.5
	141.9		
Average money wage (roubles per annum) . . . . .	2290	2677	2980

The agreement for 1935 is close and provides a useful check on the validity of the individual figures, and on the reliability of this method for investigating the situation in 1936 and 1937.\*

The only large unknown item is "Cash income of peasants", data for which are not available after 1935. If we calculate them by difference, our result is subject to the accumulated errors from other parts of the table: the results appear to be 11 milliards in 1936 and 25 milliards in 1937. We shall probably

\* Anglo-Russian Press Bureau, 7th Nov. 1933, gives figures for 1937, showing 27 md. rbs. defence expenditure and 4.73 md. rbs. for gross State investment. The proceeds of the turnover tax were 97.3 md. rbs.



be correct in saying that the cash income of the peasants in 1936 and 1937 remained at or below the 1935 level.

The enumeration of money national income is easy compared with the task of expressing this income in real terms.

In the first place may be enumerated the output of agricultural and livestock products. Figures of grain harvest per head of population, which are often quoted, mean very little, because a considerable proportion of grain is fed to livestock. Human consumption of grain per head of population was computed by Czechowitz<sup>127</sup> as follows :

	Kiloes per Annum		
	1913	1928	1938 (Plan)
Rural population . . . . .	234	221	234
Urban population . . . . .	190	179	179
TOTAL . . . . .	226	213	223

There is, of course, a tendency for this figure to increase in places (e.g. the Russian countryside) or times (e.g. 1933) when other food is scarce: but a consumption of 234 kiloes per head per year is higher than recorded anywhere else in the world except possibly Mexico.<sup>128</sup> If we assume a consumption of 225 kiloes per year per head of population, we can allocate the grain<sup>129</sup> harvest in the manner shown on p. 58.

It appears that from the worst period of scarcity, namely 1932, there has been a marked improvement in the quantity of grain available for livestock feeding, though the 1933-4 figure per head of the human population only represents the same quantities as in 1913. (Incidentally, it is rather remarkable that the

	Million Metric Tons		
	Grain Harvest	Exports	Available for Stock
1913 (present territory of U.S.S.R.)	72	9	32
1928	66.7	..	33
1929	65.0	0.2	30
1930	76.6	4.8	36
1931	63.9	5.1	23
1932	62.0	1.7	23
1933	79.9	1.6	41
1934	80.1	0.6	41
1935	88.0	1.5	48
1937	115	..	70-75

Russian official statistics of grain output are no longer expressed in metric tons but in the archaic Russian unit of the "pood".)

The availability of surplus grain is, however, the basic fact making possible an increase in the output of livestock products.

Exact statistics of the numbers of livestock are not available after 1935. The following figures are quoted<sup>120</sup>

	1934	1935	1936 (Plan)*	Rate of Increase in Year 1935
Cattle . . .	39	46	54.0	6.9
Sheep . . .	41	51	62.0	8.9
Pigs . . .	17	22	31.5	8.6

\* Like many other plans, these figures were not in fact realised in 1936, or later. The Anglo-Russian Parliamentary Committee (7th May 1938) have published livestock figures for 1937 and 1938. Figures for 1929 (from *League of Nations Statistical Year Book*), not quoted by them, are added to the table.

	Nos. in millions				
	1929	Spring 1933	July 1934	1st Jan. 1937	1st Jan. 1938
Horses . . .	84.6	16.6	15.7	15.9	16.2
Cattle . . .	87.2	38.4	42.4	47.5	50.9
Including cows . . .	30.4	19.7	19.6	20.9	22.7
Sheep and goats . . .	132.8	50.2	51.9	63.8	66.6
Pigs . . .	20.5	12.1	17.5	20.0	25.7

showing the actual numbers for 1934 and 1935, and the planned numbers for 1936; and the estimated rate of increase<sup>131</sup> during the year 1935.

The "planned" increase of 9½ million pigs in one year certainly failed to materialise. But the increase of 5·7 millions claimed for 1937 is by no means out of accord with the natural fecundity of this animal, as is illustrated by the English statistics.<sup>132</sup> In England during the year June 1935 to June 1936 there was virtually no net change in the pig population, which stood at 3·8 millions, 13 per cent of whom were breeding sows; and 5·39 million pigs were slaughtered during that year. On this scale, provided there was grain enough to feed them, Russia's 20 million pigs of 1936 could provide for a 5·7 million net increase of pig population and still provide 22 million carcasses of meat output, or 6·2 ounces of pork per week per head of the entire population. If and when the planned increase to 40 millions is obtained, and no further net increase in the pig population is aimed at, and sufficient grain is available, the number of carcasses available will be 57 millions a year, and pork consumption 16 ounces per head per week. To produce a pig carcass of 160 lb. (the average dead weight at slaughter) in England<sup>133</sup> requires 8 cwt., or 0·41 metric ton, of grain. For the production of 57 million carcasses therefore only 23 million tons of grain would have to be used as fodder out of the estimated surplus of 70 to 75 million tons in 1937. A much more generous diet for the Russian population, at any rate so far as pork is concerned, will therefore soon become possible.

In the case of cattle the number of cows had fallen to 21 millions in 1932 and showed a further fall to

19.6 millions in 1933 and 1934.<sup>134</sup> The English figures show :<sup>135</sup>

Average Number of Breeding Cows during Year (000's)		Calves Slaughtered during Year (000's)	Net Increase or Decrease in Calf Population during Year (000's)	Net Output of Calves per Cow
1931-2	2830	787	+ 9%	0.31
1932-3	2912	823	+ 6	0.28
1933-4	2975	927	- 57	0.29
1934-5	3022	1059	- 8	0.32
1936-6	3063	1020	+ 49	0.35

Allowing for losses of various kinds, the proportion of which would probably be heavier in Russia, it appears that a net addition to the cattle population of 0.3 per cow per annum is the greatest that can be hoped for if the slaughtering of young cattle entirely ceased. On this basis an increase in the numbers of cattle by 7 millions a year, as shown in the "Plan", is just (on paper) conceivable. Between 1933 and 1934 the number of young cattle increased by 4 millions, the number of cows remaining constant at 19.6 millions, implying a slaughter of between 1 and 2 millions annually. Assuming that no young heifers were slaughtered or lost, the breeding stock would have begun to show a net increase in numbers by 1936. It is possible that, at a maximum, the milk yield is now 20 per cent higher than in 1934. This again is dependent on the availability of grain or other feeding stuffs.

With regard to sheep and goats, whose numbers were 54 millions at the beginning of 1937, a net increase of 13 millions in one year would probably still leave 8 millions for slaughter in 1937. This figure, however, would represent a contribution to the average diet of only 0.65 ounce of meat per head per week.

The object of these investigations into the livestock situation is to check the official estimate<sup>136</sup> of output of livestock products, expressed at fixed (1926-7) prices.

	1913	1934	1935	1937
Estimates made above of aggregate consumption of livestock products at British 1934 retail prices (£m.)	606	500	..	..
Official estimate of output of livestock products at 1926-7 prices (milliard roubles)	4.6	..	3.9	6.4

The official estimate thus admits an aggregate consumption for 1935 of 15 per cent less than that of 1913. The calculation made above puts 1934 consumption at 17½ per cent below 1913, and the two figures seem to be consistent. Nevertheless it seems that a 64 per cent increase between 1935 and 1937 cannot be substantiated.

An official sample investigation<sup>137</sup> into the food consumption of 10,000 industrial workers' families showed the following percentage rates of increase :

	Between 1934 and 1935	Between 1935 and 1936
Meat . . .	+10	+43
Milk . . .	+21	+23
Butter . . .	+21	Not given
Eggs . . .	+58	Not given

Only the more striking increases have, it appears, been selected for publication. It is possible also that consumption by the urban population has shown a further relative increase compared with that of the rural population.

Consumption of grain and potatoes per head can

be assumed to have remained stationary. The output<sup>138</sup> of sugar beet was as follows :

	Beet (million tons)	Sugar (000 tons)	Sugar Exports (000 tons)
1913 (U.S.S.R. territory)	10.9	1190	115
1933	9.0	1084	35
1934	11.4	1350	33
1935	14.0	..	33
1936	16.8	1998	33
1937 (provisional)	22.0	2660	33

Sugar consumption per head of the population, on the basis of the above figures, may have risen by 85 per cent.

The sterling value of food consumption per head may therefore be recalculated as follows, bearing in mind the fact that there was a 4½ per cent increase in population between 1934 and 1937 :

	Food Consumption per Head at Standard Sterling Values pence per Head per Week	
	1934	1937
Bread . . . . .	18.7	18.7
Sugar . . . . .	1.2	2.2
Potatoes . . . . .	3.7	3.7
Vegetable oils . . . . .	0.2	0.3
Meat and fat . . . . .	4.5	5.7
Milk and products . . . . .	5.2	6.0
	33.5	36.6

If we assume that consumption per head of eggs, fish, fruit and vegetables and other unrecorded food-stuffs (not making up a very large proportion of the whole) rose in the same proportion, we reach the conclusion that food consumption per head at sterling

values rose by 9 per cent between 1934 and 1937, and that food consumption in the aggregate rose by 14 per cent. The League of Nations in *World Production and Prices, 1937-38*, estimate that Russian agricultural and livestock production in 1937 was 1 per cent below the 1925-9 level. Between 1928 and 1937 there was a 17 per cent increase of population, indicating a  $15\frac{1}{2}$  per cent fall in consumption per head. The figure of 36.6 pence computed in the above table for 1937 consumption per head, with an addition of 1.0 pence for eggs, is  $17\frac{1}{2}$  per cent below the 1928 figure of 45.6 pence. The confirmation is fairly good, bearing in mind the fact that during this period the proportion of agricultural production which is not food (cotton, etc.) has probably increased. Excluding bread, we may put the rise between 1934 and 1937 in urban food consumption at 35 per cent in the aggregate, or 20 per cent per worker. Factory meals (which represented two-thirds of urban food consumption other than bread in 1934) are estimated below to have risen in the same proportion as other food purchases per head.

An estimate must be made of the aggregate paid, in roubles, for this supply. At the time of the abolition of rationing it was stated<sup>139</sup> that the new prices were to be 30 to 35 per cent below open-market prices prevailing at that time, which is borne out, for goods other than bread, by the calculation below. The price of bread of course rose, and it is assumed that no change was made in the price of factory catering, the turnover of which approximately doubled between 1934 and 1937.<sup>140</sup> The change in price of other foodstuffs was computed from a weighted<sup>141</sup> average of the principal foodstuffs, comparing prices<sup>142</sup> in 1935 before

and after the abolition of rationing. It is assumed that food prices have not risen since 1935.

	Outlay per Worker per Month, 1934 (roubles)	Do., Same Quantities, at October 1935 Prices	Do., 1937 Quantities
Bread . . . . .	21.5	53.3 <sup>a</sup>	53.3
Factory meals . . . . .	18.0	18.0	29.6
Other food purchases . . . . .	48.5	29.9	38.0
Incl. meat . . . . .	29.9	18.9	23.9
„ butter . . . . .	7.4	4.1	4.7
„ sugar . . . . .	3.2	2.4	4.4
„ potatoes . . . . .	3.8	1.1	1.1
„ milk . . . . .	4.2	3.4	3.9

giving a total per worker of 120.9 roubles per month spent on food in 1937.

For rents, going on Dr. Polanyi's figure of 10 sq. metres of dwelling space per urban worker for 1934, we find the total urban dwelling space in that year to have been 205 million sq. metres. Additions to housing space<sup>143</sup> were 4.7 million sq. metres in 1935 and 10 millions in 1936. Making a small allowance for demolitions, this gives us about a 12 per cent increase in three years. Rural housing is assumed to have shown no net improvement.

For industrial output, of light and heavy industries, the following data are taken from *Statistical Year Book of the League of Nations, 1937-38*. To weight the various products, they are re-expressed at their 1934 values in terms of gold francs, as quoted by the *Year Book*. For cement, steel, motor vehicles and textiles estimates are made of the approximate gold franc value per unit.

The total for 1937 is estimated from the series available in the light of the relative trends of the



available and non-available series. (It will be seen that the data available for 1937 are from series which had shown a more rapid rise than the average during

## RUSSIAN OUTPUT VALUED IN MILLION GOLD FRANCS

	1934	1935	1936	1937
Coal . . . . .	1151	1335	1515	1502
Steel . . . . .	1455	1890	2435	2675
Petroleum . . . . .	515	535	581	590
Cotton goods (estimated from raw cotton) . . . . .	700	1125	1500	1580
Woolen goods (estimated from raw wool) . . . . .	450	558	710	910
Motor lorries . . . . .	275	390	665	910
Motor cars . . . . .	51	57	12	54
Aluminium . . . . .	20	34	53	63
Copper . . . . .	22	31	41	45
Cotton seed . . . . .	68	100	148	155
Lead . . . . .	4	6	8	9
Rayon . . . . .	28	31	32	36
Woodpulp: chemical . . . . .	626	666	728	..
mechanical . . . . .	169	172	186	..
Cement . . . . .	106	134	175	..
Tractors . . . . .	174	211	215	..
Superphosphate . . . . .	22	31	33	..
Total . . . . .	5836	7319	9004	9705

1934-6.) The volume of industrial production in 1937 was about 67 per cent above that of 1934.

Statistics of ton-mileage carried by the railways are available for 1935 and 1936, showing increases over 1934 of 26 per cent and 58 per cent respectively, as compared with increases of 25 per cent and 55 per cent shown by the above table. It may be remarked incidentally that the railway transport problem is probably for the present limiting the whole pace of industrial expansion. A 16 per cent increase was planned <sup>144</sup> for 1937 as compared with 1936, but it is

very doubtful if this can be obtained in view of the increasing density and congestion.<sup>145</sup>

	1913	1934	1935	1936
Length of line (000 km.)	58.2	83.2	84.0	85.1
Goods traffic (000 million ton kms.)	65.7	205.6	257.6	323.5
Density in million ton kms. per km. per annum	1.13	2.47	3.06	3.80

The current figures<sup>146</sup> for other industrial countries are :

	Million Ton Kms. per Km. of Line (1934 or 1935)		Million Ton Kms. per Km. of Line (1934 or 1935)
U.S.A.	1.08	Belgium	0.98
Britain	0.83	Sweden	0.21
Germany	1.17	Canada	0.50
France	0.81	Australia	0.13

The results are quite remarkable. Already densely loaded in 1913, the Russian railways are now trying to cope with a density  $3\frac{1}{2}$  times as great. One need not hypothecate conspirators and wreckers to account for the frequency of railway accidents.

The pressure has been somewhat mitigated by the development of inland water transport, which carried<sup>147</sup> 81.6 million tons in 1934, as against 316 million tons carried on the railways last year. The problem has on the other hand been made more difficult by the location of new industrial plants (for strategic and other reasons) in the Urals and Siberia, which has increased the average length of haul.

	Average Length of Haul (Km.)
1913	495
1934	650
1936	670

In calculating depreciation for Russian capital as a whole, we may use the figure<sup>148</sup> showing for 1937 the planned total of capital at 1933 prices, namely 195 milliards as against 112 milliards in 1934, and assume that depreciation has increased proportionately.

We have assumed in our calculations of meat consumption that the numbers of livestock increased up to 1937, but that the increase ceased in that year, and therefore no valuation need be made for capital accumulation in this form. There is one other form of capital accumulation which requires to be valued separately, namely the accumulation of gold and foreign assets. Between June and December 1936 these increased by 382 million gold roubles of 0.1776 gr. gold.<sup>149</sup> But probably also the Soviet Government is accumulating considerable hidden reserves. In 1937 there will have been an export surplus of approximately 140 million gold roubles,<sup>150</sup> and gold output was probably near 1000 million roubles,<sup>151</sup> while the balance of invisible items was also probably in Russia's favour to the extent of 250 million roubles.<sup>152</sup> It is assumed that this total of 1390 million roubles will have been included in some form or other in the investment total of the Government: this must be valued at its external value of £55 millions.

We are now in a position to make a complete revaluation of the money national income of 1937. The 1937 combined sterling value of the three items, "Other Goods sold at Retail", "Public Services and Defence", and "Gross Internal Investment" is deduced from the increase in industrial production between 1934 and 1937.

The proportion of the population of working age, i.e. 16 to 59 inclusive, was 53.7 per cent in 1926<sup>154</sup>.

and 55.3 per cent in 1933 ;<sup>155</sup> and in the three years 1934 to 1937 may be expected to have shown a

	Milliard Roubles, 1934	£m., 1934	Milliard Roubles, 1937	£m., 1937, at 1934 Prices
Food consumption :				
Rural . . . . .	..	1110	..	1705
Urban <sup>158</sup> . . . . .	21.6	385	34.9	
Rents . . . . .	1.5	197	2.5	215
Other goods sold at retail . . . . .	33.1	596	70.6	3092
Public services and defence . . . . .	13.0	520	41.1	
Gross investment :				
Internal . . . . .	26.4	738	47.0	55
External . . . . .	..	..	1.0	
TOTAL . . . . .	95.6	3546	198.0	5067
Deduction for deprecia- tion . . . . .	8.8	247	..	430
Net income . . . . .		3299		4637

further advance from 55.5 to 56.2 per cent. Occupied population was put at 60.9 millions in 1934 and may be put at 64.1 millions in 1937, of whom 24.0 were urban. We have therefore the following figures :

	1937			1934
	Numbers (millions)	Income pro- duced (£m.) at 1934 Prices	Income per Head (£)	Income per Head
Agricultural . . . . .	40.1	1705	42.5	37.5
Non-agriculture . . . . .	24.0	2932	122.2	85.5
TOTAL . . . . .	64.1	4637	72.3	51.0

Average income per head of the working popula-  
tion taken as a whole has risen by as much as 42 per

cent between 1934 and 1937. The rate of labour inflow into industry has, apparently, been adjusted so that there shall not be any net increase in the number of rural workers : under these circumstances there has been a distinct rise in agricultural output per head ; while there is a more marked rise in industrial output per head. The Malthusian Devil is being cornered.

Net capital accumulation has risen to the high figure of £600 millions. But Russia will absorb this, and indeed greatly increased amounts of savings, for many years to come, if she desires her standard of living to approach that of the Western countries, and if she refuses the use of external capital.



## NOTES

1. Articles in *The Manchester School*, vol. 6, reprinted as a pamphlet entitled *U.S.S.R. Economics* (Manchester University Press, 1936).
2. Memorandum No. 3 (November 1931) of the Birmingham Bureau of Research on Russian Economic Conditions, Dept. of Russian, University of Birmingham. This bureau published a series of eleven bulletins from May 1931 to December 1935. Bulletins in this series referred to henceforward as *Bureau No. 3*, etc.
3. *Bureau No. 3*, p. 13.
4. *Bureau No. 3*, p. 1.
5. Budget expenditure other than National Debt interest and expenses of trading undertakings. From Dr. Margaret Miller's *Economic Condition of Russia*, 1905-14.
6. *Bureau No. 3*, p. 1.
7. Section XI.
8. Méquet, *International Labour Review*, vol. 25, p. 621. For Moscow he puts the decrease at 28 per cent.
9. *U.S.S.R. Handbook* (Gollancz, London, 1936), p. 152. Henceforward referred to as *Handbook*.
10. Miller, *loc. cit.* chap. vii.
11. Published semi-annually in *International Labour Review*. Extended revised data were published in the October 1929 issue. Figures in this form now discontinued, but original data still collected.
12. Full data published in *International Labour Review*, 1932, and *American Statistical Journal*, 1933.
13. *Weltwirtschaftliches Archiv*, April 1932, p. 510.
14. *Food, Health and Income* (London, 1936).
15. *International Labour Review*, 1929, p. 568.
16. Prokopovitch, *loc. cit.* p. 13.
17. *Weltwirtschaftliches Archiv*, March 1936, p. 428. *Bureau No. 2*, p. 11, gives 1.12 milliard roubles.
18. Excluding rents.
19. *Loc. cit.* Certain other estimates sometimes quoted show a

- variation of about one million, due to uncertainty as to the population of the Bokhara and Khiva areas.
20. 80th Statistical Abstract, p. 137. Food has a weight of 60 per cent.
  21. *National Income and Outlay*, by the present author, Tables I, 103, 104 and 89 taken in conjunction.
  22. *Loc. cit.* p. 12.
  23. *Statistisches Jahrbuch für das Deutsche Reich*, 1936 (henceforward referred to as *Jahrbuch*), Internationaler Teil, p. 17. Refer to European territory only.
  24. Quoted by Michell, *Journal of the Royal Statistical Society*, 1872, p. 362.
  25. From *Handbook*.
  26. Figures for 1870 also from *Jahrbuch*.
  27. See note 24.
  28. *Bureau* No. 3, p. 13.
  29. *Journal of the Royal Statistical Society*, 1860, p. 40.
  30. Tables of prices in *Memoranda on British and Foreign Trade and Industry* ("Fiscal Blue Book"), Board of Trade, 1904.
  31. For 1836, Slowaczynski, *Journal of the Royal Statistical Society*, 1842, p. 300. For 1867 see note 24; 1870 to 1910, *Jahrbuch* (note 23). From 1922, estimates in *Handbook*.
  32. *The Economic Condition of Soviet Russia*, 1924.
  33. Year commencing 1st October 1927.
  34. *Handbook*, p. 313. Including Social and Cultural, Defence and Administration, Local Budgets.
  35. Whole Government income (*Statistisches Handbuch*) was 7 milliards of which approximately 1 milliard was direct taxation.
  36. *Statistisches Handbuch der Weltwirtschaft* (henceforward referred to as *St. Handbuch*). Agricultural workers excluded.
  37. *Handbook*, p. 404.
  38. *St. Handbuch*.
  39. *Bureau* No. 3, p. 8.
  40. *Handbook*, p. 146.
  41. See Section XIII.
  42. Reports by Moscow Institute of Conjuncture published by London and Cambridge Economic Service (*Bureau* No. 6, p. 21), quote several figures ranging from 100 to 117.
  43. *Bureau* No. 3, p. 13.
  44. See note 17.
  45. See note 15.
  46. *St. Handbuch*.
  47. See note 15.
  48. *Bureau* Memorandum No. 6.



49. *St. Handbuch*.
50. *National Income and Outlay*, p. 72.
51. See note 42.
52. *Bureau Memorandum No. 6*.
53. Professor Bowley's index published periodically shows that the average wage was about 1 per cent higher in 1924 than in 1928, and his Special Memorandum (London and Cambridge Economic Service, January 1929) shows the average wages in 1924 to have been 90 per cent higher than 1914.
54. London and Cambridge Economic Service, Special Memorandum No. 25, p. 21.
55. No. 6.
56. *Bureau No. 6*.
57. The full values in American dollars were only given in the first year of publication.
58. *National Income and Outlay*, chap. vii.
59. To 1927-8 from *Bureau No. 3*: later years from *Handbook*.
60. *Bureau No. 2*.
61. League of Nations.
62. Moscow Institute of Conjuncture, *loc. cit.*
63. See note 1.
64. *St. Handbuch*.
65. Private communication.
66. Using the ratio between numbers of workers and total population calculated below.
67. Private communication.
68. Rowohlt, Berlin, 1936.
69. See Section XVIII.
70. See Section IV.
71. Published in his book *I Search for Truth in Soviet Russia* (London, 1936).
72. *St. Handbuch*.
73. *Handbook*.
74. Sterling value computed on p. 20.
75. *St. Handbuch*.
76. Number quoted by Dr. Polanyi.
77. *Handbook*, section "Internal Trade". No figures are quoted for any year after 1933.
78. *St. Handbuch*. Separate figures for town and country not given.
79. Dr. Polanyi's figure.
80. *St. Handbuch*.
81. Assuming 1000 roubles per annum as average agricultural wage.

82. See note 119 below.
83. Private communication.
84. *St. Handbuch* gives 21.5 milliards for Government investment, to which must be added 4.9 milliards for investments made by industries from their own undistributed profits (see note 123).
85. Quoted by Dr. Polanyi.
86. *Handbook*, pp. 146 *et seq.*
87. *Gross Capital Formation*, Memorandum by Dr. Simon Kuznetz, published by National Bureau of Economic Research (New York, 1934).
88. Data from *Survey of Current Business* and memoranda by National Bureau of Economic Research.
89. Prices in Great Britain, as given in 1930 Census of Production, converted into dollars.
90. Analysis of official records kindly communicated by Mr. M. Zvegintzov.
91. *Handbook*, p. 146 *seq.*
92. *Handbook*, p. 146 *seq.*
93. Census of Production average values.
94. 1928 figure calculated from 1913 statistics of retail prices applying factors of price change in Russia and Britain. The 1934 figure refers to open-market sales only. In the next table closed-market sales are also included.
95. *St. Handbuch*.
96. See note 35 above.
97. See note 46 above.
98. Factor used by Prokopovitch, *loc. cit.*
99. Moscow Institute of Conjuncture, *loc. cit.*
100. See note 90.
101. Total of retail sales as given in *St. Handbuch*, less food sales.
102. Taking 11.2 roubles to £1 (the mean of the two determinations above) as the equivalent before allowing for taxation.
103. Calculated from 1913 data allowing for 100 per cent increase of prices.
104. Consumption other than food and rent. The fact that this has risen very little since 1928 is taken to indicate that a larger proportion of the available output of goods is now supplied in the form of public services, not here included.
105. 1927-8 figures, *Bureau Memorandum No. 3* recalculated to 1926-7 base; 1934, *Handbook*.
106. Sterling value of food consumption, plus exports valued at external price level, approximately £50 millions.
107. Vol. 33, p. 356. Also given in *Handbook*.

108. *St. Handbuch*.  
 109. *Statistisches Jahrbuch für das Deutsche Reich*, 1936, p. 36, for 1926 figure.  
 110. *National Income and Outlay*, pp. 94, 238, 208.  
 111. *International Labour Review*, 1936, vol. 34, p. 7.  
 112. *Ibid.* vol. 27, p. 349. Author anonymous.  
 113. See note 107.  
 114. *Handbook*.  
 115. *Soviet Progress, 1917-1937* (Anglo-Russian Parliamentary Committee, 6-7 Buckingham Street, London, W.C.2).  
 116. The two mainly used are *Anglo-Russian Parliamentary Committee News Bulletin*, published by the above Committee at irregular intervals (henceforward referred to as *A.R.*), and *U.S.S.R. Chamber of Commerce Economic Survey*, Moscow (henceforward referred to as *Chamber of Commerce*).  
 117. Throughout this period retail sales statistics have included the provision of factory meals (*St. Handbuch*).  
 118. Memorandum by Mr. Zvegintzov.  
 119. Quoted by *Chamber of Commerce*.  
 120. 1935 Budget figures from *Handbook*. Profits from revaluation of stocks of goods omitted. 1936 figures from Mr. Zvegintzov and 1937 figures from *A.R.* 1st February 1937.  
 121. *Chamber of Commerce*.  
 122. *Handbook* for 1935, *A.R.* for 1936 and 1937.  
 123. *Chamber of Commerce*. The table shows :

	Millard Roubles		
	1934	1935	1936
Profits of State enterprises . . .	6.4	7.8	11.3
Of which retained by industry.	4.9	5.9	8.1

124. *Chamber of Commerce*.  
 125. *A.R.*, 1st February 1937 and 30th October 1937.  
 126. Assumed to be 1½ millions in number and to earn the same income as the average wage-earner.  
 127. *Loc. cit.* (see note 13).  
 128. *International Labour Office Year-Book, 1935-6*, Food consumption, Table XVIII.  
 129. Wheat, rye, maize, oats and barley together. From *St. Handbuch* to 1934; thenceforward from *A.R.*, 15th October 1937. Exports from *Chamber of Commerce*.  
 130. Zvegintzov, *loc. cit.*  
 131. *Chamber of Commerce*.

132. *Agricultural Statistics*, 1936, Part I, pp. 48 and 72. Drescher (*Welt. Archiv*, March 1935, p. 277) has examined the English statistics showing the ratio between the number of pigs and the number of carcasses produced per annum, back to 1850, and finds that the ratio has risen only from 1·16 to 1·21.
133. *An Economic Study of Pig Production* (Cambridge University Dept. of Agriculture, 1937), pp. 4 and 32.
134. *St. Handbuch*.
135. *Agricultural Statistics*, 1936, Part I, pp. 48 and 72.
136. *Soviet Progress* (A.R. Press Bureau, 1937).
137. *A.R.*, 30th October 1937.
138. *St. Handbuch* and *Soviet Progress*.
139. *A.R.*, 6th December 1934.
140. *Chamber of Commerce*.
141. Weights derived from 1927 family budget enquiry. See Note 15.
142. Data from Zvegintzov, *loc. cit.*
143. Zvegintzov, *loc. cit.*
144. *Soviet Progress*, p. 8.
145. Data from *Handbook* and *A.R.*, 1st February 1937.
146. *Statistisches Jahrbuch für das Deutsche Reich*, 1936, p. 105.
147. *Handbook*.
148. *Ibid.* p. 146.
149. *League of Nations Monthly Bulletin of Statistics*. No later figures published. Based on figures for eight months.
150. *Ibid.*
151. *League of Nations Statistical Year-Book*. Estimate for 1935.
152. *Chamber of Commerce*, July 1936, gives invisible items for 1935. Since that date external interest obligation is assumed to have disappeared.
153. Recorded number of wage-earners in 1937 was 26·3 millions : less rural workers, plus craftsmen, approximately 24 millions. Average cash value of food consumption per worker per month calculated above.
154. *League of Nations Statistical Year-Book*.
155. *Handbook* : Rural and Urban Averages.

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