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Организация государственной статистики в СССР

CONTENTS

INTRODUCTION

In socialist society, based on public ownership of the means of production and subject to the law of planned and proportional development, statistics is an important instrument of government and planned economic management.

Planned management of social production, state planning and plan control, and the study of the country's requirements and resources — all this depends upon authentic statistical data about the population, the utilization of labour resources, the output and consumption of the social product and national income. Soviet statistical agencies collect and interpret this data in strict accordance with statistical science.

Centralized supervision, an essential condition of accurate, scientific statistics, is the purpose of the Central Statistical Board and its far-flung network of local agencies. But before turning to an account of Soviet statistics, acquaintance should be made of a brief outline of statistics in pre-revolutionary Russia.

In tsarist Russia statistics was in the hands of a central statistical committee of the Ministry of the Interior and the statistical divisions of the Department of Agriculture, the Ministry of Trade and Industry, the Finance Ministry and the Ministry of Communications.

There was also the statistics of local self-government agencies, known as *Zemstvo* statistics, and of the statistical bureaus of major industrial and commercial associations, such as the Council of Industrial and Commercial Congresses, the South-Russian Council of Mining Congresses, and the Society of Baku Oil Industrialists.

The first attempt to organize standing governmental statistical institutions in tsarist Russia dates back to a circular issued by the Ministry of the Interior early in the 19th century. The circular directed Governors to forward data relating to various branches of statistics. The Ministry formed a 10-man group of noblemen to regulate information coming in from the various gubernias and pave the way to "founding general Russian statistics." In 1811 the Ministry of Police instituted a statistical division. In 1852 it was renamed the Statistical Committee, and in 1857 the Central Statistical Committee, of the Ministry of the Interior. In 1863 the Ministry of the Interior also established a Statistical Council which included representatives of the statistical divisions of other departments. The council was intended to work out the programmes of, organize and plan, all statistical projects. It was to be an inter-department statistical centre, but, in effect, turned out a still-born undertaking, and failed to co-ordinate departmental statistics.

The Central Statistical Committee was locally represented by gubernia statistical committees, whose personnel was limited to a single full-time secretary. Other members serving on the local bodies were representatives of sundry gubernia institutions who did not really participate in the work. The gubernia committees collected data for the annual reports of Governors, carried out assignments of the Central Statistical Committee (chiefly involving harvest data), and probed matters of "local import." But their interest in local affairs was, in effect, negligible. Some committees published their own "Handbooks," but these were of little value.

Despite the extensive plans of its organizers, the Central Statistical Committee limited its activities to observations of movements of the population, harvest statistics and statistics on cultivated areas and livestock, and the publication of year-books. The harvest and sowing records, land registration and the military-horse inventories were among its more ambitious projects. Data on peasant households were collected through the police machine and through volost offices and village elders. The statistical forms were usually filled by volost clerks. The military-horse inventories, jointly sponsored by the Central Statistical

Committee, the Veterinary Office and the War Department were more thoroughgoing, supervised as they were by military experts, and officers of the Veterinary Office.

The Economics and Statistics Division of the Department of Agriculture conducted running harvest observations, using data forwarded by so-called "volunteer correspondents." Besides landowners and prosperous peasants this force of about 7,000 correspondents included clergymen and village teachers, etc. But all in all the department's harvest statistics was inadequate. Its volunteers were unskilled and much too irregularly distributed.

The resettlement agencies of the Department of Agriculture conducted fairly extensive observations of peasant migration.

As for general census projects, tsarist Russia lagged far behind the other capitalist countries. The only general census was taken in 1897. Registration of births, deaths and marriages was in the hands of the Church. The records were mainly of the attendant rites, and not of the facts themselves. Such registration among the Orthodox population was more or less satisfactory, but inadequate among the other religious communities. The compilation of statistics in that field was also in a deplorable state. The primary surveys presented by the clergy were mostly inaccurate.

The industrial censuses (more precisely, the factory questionnaires) of 1900, 1908 and 1912, and the agricultural census of 1916 figure prominently among the projects of pre-revolutionary statistics.

In tsarist Russia statistics was bureaucratic, and, as V. I. Lenin put it, superlatively irregular, slovenly and primitive.

The Zemstvo statistics was in a somewhat better state. It took shape in the late sixties to facilitate the apportionment of local taxes, the main source of Zemstvo revenue, the chief objects of taxation being land and immovable property. Land assessment, therefore, was always the prime aim. Assessment projects were supplemented by detailed economic investigations of agriculture to determine general farming conditions. Attention was chiefly focussed on peasant households, observations taking the shape of household investigations ("household censuses"). Most of the Zem-

stvo statisticians were Narodniks. Some of them made use of their position and the wealth of statistical data at their disposal in their fight against Marxism. They resorted to falsified statistical data and even utilized industrial statistics all to their own ends. Narodnik views and claims were criticized by Lenin in his well-known *Development of Capitalism in Russia*, and in certain other works.

Furthermore, each Zemstvo had its own statistical programmes, dates and methods, and, for all practical purposes, the resultant data were incomparable.

As regards methodology, Zemstvo statistics contributed substantially to the development of statistical science with its budget investigations, dynamic observations and its system of day-to-day agricultural observations.

The bourgeois-democratic Revolution of February 1917 failed to change the pattern of Russian statistics. Note should only be made of the Russian agricultural and land census of 1917, which was ostensibly aimed at collecting land data, in whose absence, it was alleged, "agrarian reform was impossible." In reality it served as a pretext to avoid the transfer of landlords' estates to the peasantry.

I

STATISTICAL AGENCIES IN THE U.S.S.R.

1. EARLY STRUCTURE

The first step towards a single Soviet statistical centre was made with the incorporation of industrial and agricultural statistics under the Census Bureau of the Supreme National Economic Council.

In June 1918 a Congress of Statisticians drafted Provisions on state statistics, which it submitted for approval to the Council of People's Commissars. At Lenin's suggestion a special commission was appointed to work out the final draft of the Provisions. On July 25, 1918, Lenin signed the "Provisions on State Statistics," which inaugurated a unified state agency—the Central Statistical Board (CSB).

The CSB was to work for the general development of statistics and the advancement of statistical knowledge; it was to endorse the plans and programmes of all statistical investigations and censuses contemplated by the various departments, to compile statistics in the various branches of the national economy, take the general census, and the industrial, agricultural and other censuses, and process the data obtained, etc.

In the R.S.F.S.R. statistics was placed in the charge of:

a) the CSB and its affiliated agencies;

b) the statistical divisions of various departments;

c) gubernia and municipal statistical agencies;

d) gubernia, regional, uyezd, volost and village administrations and economic agencies.

The inner structure of the CSB and its relations to other state agencies were subject to pertinent regulations relating to People's Commissariats. The Council of People's Commissars appointed the head of the CSB, who had a deliberative vote in the Soviet Government. A Council for Statistical Affairs was created within the framework of the CSB.

Closer co-ordination between the various statistical institutions was achieved at CSB conferences, held at least once a year, of representatives of statistical agencies, public institutions and research statisticians. The conferences framed programmes, discussed organizational problems and elected representatives to the various bureaus of the CSB. Periodical nation-wide congresses of statisticians prepared the organizational plans and programmes of general censuses and other statistical projects.

The CSB informed the executive committee of the statistical matters it wanted discussed at congresses or endorsed by the executive body itself if a congress was impracticable.

In 1918 the leading statistical agencies in the country were: the Central Statistical Board, endowed with the powers of a People's Commissariat; the Council for Statistical Affairs, a representative body of statistical agencies, state and public institutions, and statistical congresses; and conferences and national congresses of statisticians with a standing executive committee.

Under the Provisions of local statistical agencies, made public on September 3, 1918, all gubernias and the major cities instituted statistical bureaus, which, in their turn, set up their agencies in uyezds and towns. Statistical data were also compiled by gubernia, district, uyezd, volost and village administrations and economic agencies. The statistical divisions of commissariats and other administrations merged with, and became sections of, gubernia statistical bureaus, such as food, land and demographical sections, etc.

The Provisions provided for gubernia councils of statistical affairs, which included the head of the gubernia statistical bureau and its section chiefs, heads of municipal statistical bureaus, uyezd statisticians, representa-

tives of all the administrations, the gubernia Soviet of Deputies, local scientific societies, co-operative societies, trade unions, higher and secondary educational institutions that had statistics in their curriculum, and elected representatives of the gubernia statisticians' conference.

On September 26, 1918, the CSB issued Provisions for its Council of Statistical Affairs, composed of representatives of Government agencies, People's Commissariats and departments, 12 representatives of the statistical congress, the chairman and three members of its executive committee, 10 representatives of the statistical conference, 10 statistical research workers elected by the congress of teachers of statistics, and representatives of central scientific and agricultural societies.

2. EARLY PERIOD

The Central Statistical Board launched an extensive programme. Its major early projects included the 1918 general industrial census; the 1920 census of population, industry and agriculture; the 1923 commercial census; the 1919 10% stratified agricultural census; annual (since 1919) grain and fodder registers; investigations of rural and urban nutrition, and day-to-day agricultural and industrial statistics. Furthermore, the CSB processed pre-revolutionary statistical data and the 1917 census.

In its agricultural statistics the CSB at first used the methods of the pre-revolutionary Ministry of Agriculture and the Zemstvo statisticians, basing its work on volunteer reports. In day-to-day industrial statistics, however, it was obliged to tread new ground. The tsarist government did not, and could not, compile day-to-day industrial statistics owing to prevailing concepts of "trade secrecy."

In its decisions of July 1 and October 25, 1921, the Central Executive Committee pointed to the need in timely and accurate industrial reports, and on December 14, 1921, the Council of People's Commissars ruled that heads of establishments who failed to produce such reports on time would be punished.

The early period of Soviet statistics is closely associated with Lenin, who showed unremitting concern for its organization, development and improvement. He was greatly interested in its observations and censuses, promoted them, and studied their results. Even when desperately ill in 1923, he followed the progress of the municipal censuses then under way.

Lenin directed local authorities to assist the statistical agencies, and hastened the rehabilitation of a paper-mill to furnish census-takers with paper. In spite of the acute food shortage, mill-hands were given extra rations, and the mill was supplied fuel, bricks and cloth for its machines. At Lenin's suggestion teachers helped in the censuses.

On May 21, 1920, Lenin signed a decree to register trained statisticians and individuals with a working knowledge of statistics eligible for employment as census-takers. He attached great importance to accounting at all enterprises, institutions and organizations, and signed a number of pertinent decrees.

Lenin repeatedly called attention to shortcomings in CSB activities and suggested ways and means of eliminating them, laying particular stress on analyses of statistical data as an aid to economic development.

Statisticians, Lenin stated, must be *practical helpers* of the government.

8. INDUSTRIAL STATISTICS IN THE TWENTIES

Industrial censuses. In pre-revolutionary Russia industrial enterprises had no idea of co-ordinated primary records and accounts. Censuses, therefore, were the only possible method of statistical observation. In its early period the CSB also made extensive use of censuses. It organized its census-taking machinery into primary local agencies, while its census materials served enterprises as the groundwork of a co-ordinated system of records and accounting. The censuses were a source of all-important statistical data about the principal branches of the national economy. At the same time they facilitated the solution of certain major

problems in the sphere of statistical practice and methodology.

The CSB broke up into two departments—of basic and day-to-day industrial statistics. The former supervised industrial censuses and the latter organized regular day-to-day industrial observations.

The nation-wide industrial and occupational census of August 31, 1918, was the first major project of the CSB and its Department of Basic Industrial Statistics. All the preliminary research, such as the selection of statistical material, the listing of factories and works in gubernias, from various sources and the framing of the census programme, was begun by the National Economic Council's Census Bureau later incorporated in the CSB.

The aims of the census were defined as follows: "1) to summarize the current economic and technical state of industry in relation to industry's predominant part in the new economic structure, 2) to investigate the movement of industry in the last five years (1913 to June 1918 inclusively) in order to determine the changes that took place in it owing to the war and other reasons, 3) to identify the nature of industry during the peaceful, pre-war period."

The census was confined to enterprises of the process and extractive industries, barring agriculture, forestry and fishery. An industrial enterprise—factory, works, or mine, etc.—was taken as a unit, provided it employed not less than 16 workers and had a motor, or not less than 30 workers and had no motor. The census also embraced:

all industrial enterprises supervised by the *Excise Board* or *Mining Inspection*, irrespective of the number of workers; *soap factories* with more than ten workers, irrespective of whether or not they had a motor; *tanneries* equipped with more than ten tan vats or three tan drums, irrespective of the number of workers and presence of a motor; *roller mills and brickyards* with continuous kilns (Hoffman type, and others), *glass-works* with generator furnaces, irrespective of the number of workers and presence of a motor; *printing-houses* with more than 15 workers, irrespective of the presence of a motor.

The required particulars were set down in 14 census papers. The first eight dealt with general production and economic matters, regardless of the technical features of the given industry, and the rest with particulars about the technical state of the given industry. The questions in each form treated a given, more or less homogeneous aspect of plant operation. For example, Form *B* dealt with structure and management; Form *Z*—fuel and lubricants consumption; Form *K* with the processing and sales of products made of available or purchased raw materials; and the reverse side of Form *L* with the processing of finished and semi-finished products from raw materials supplied by customers, etc.

The programme conformed to the requirements of the National Economic Council and gave a fairly comprehensive idea of industrial enterprises in pre-revolutionary Russia.

The gubernia statistical bureaus compiled "lists of factories and works" containing the most important industrial and economic particulars about each enterprise. There were data on power and industrial equipment, and on all the main mechanisms, and detailed technical specifications.

The 1918 occupational census went hand in hand with the industrial census. It concerned only enterprises employing workers and employees at the time of census. A "personal card" with 37 questions about living conditions was drawn up for each worker and employee. It was filled by the method of individual questioning, and the collected facts were classified both territorially and by occupations.

The 1918 census, an exhaustive study of Russian pre-revolutionary industry, illuminated many aspects of the life and environment of workers and employees, their literacy by sex and age groups; their native tongue, marital status and the size of their families; their land holdings and connections with the countryside, their part in sowing their own, or other people's land; their annual vacations; housing conditions (whether or not they owned the houses they lived in); their part in the management of their enterprise and in public life (trade unions, consumer co-operatives, sick banks, etc.); their diets; their

wages in kind; and food distribution by enterprises; the forms of wages received by sex, and their length of service by sex.

The second industrial census of 1920 embraced enterprises of the process and extractive industries, including industrial fishery. Its principal aim was to determine the number of industrial establishments, the total number of persons employed in them, the number of enterprises equipped with motors, and motor capacity. An enterprise (mill, tar distillery, stone quarry, weaving mill, iron mine, gold-mine, sugar-refinery, fishery, etc.) was taken as a unit. This implied establishments that had their own premises, possessed a motor and employed wage labour. Enterprises with just one of the three characteristics were censused, involving large-scale, medium, and minor industries, domestic economies supplying factories, works and distribution offices, and workshops disposing of their output directly in the open market or through consumer co-operatives and other societies. The census spread to establishments in operation at the time of the census, as well as inoperative establishments, save those razed to the ground or totally stripped of equipment.

Each establishment filled in an "industrial card." The card, which contained 12 questions, summarized the scale and state of industrial enterprises in 1920. The particulars included the name and location of the enterprise, the name of its owner, its principal production in 1920, and other data. Particulars on labour power were required in detail, members of the owner's family, and artel members being specially classified. The gainfully employed were registered in age groups of under 16, 16 to 18, and over 18.

The final item in the "industrial card" concerned machinery. Steam turbines, steam-engines, locomobiles, internal-combustion engines, electric motors and other motors were classified by capacity in horsepowers.

The 1920 census went hand in hand with an occupational census in urban areas, and an agricultural census in the countryside. In the towns and cities census-takers simultaneously registered the population and the industrial enterprises, and in the rural areas they filled "industrial cards" and agricultural census papers.

The third industrial census of March 15, 1923, embraced only urban enterprises. It covered gubernia, region, uyezd and other urban centres, and, in the western gubernias and the Ukraine, settlements with a population of not less than 500 by the 1920 census; factory and works settlements; settlements adjoining railway stations and river wharves; summer resorts and spas with a population of not less than 500 by the 1920 census; and localities with predominantly trading and industrial populations, provided the latter were not less than 2,000 by the 1920 census.

The criteria of the 1923 census were the same as those of the 1920 census, i. e., the census involved the same industrial enterprises and also registered establishments if these possessed at least one of the criteria, regardless of the number of persons employed and including establishments operated single-handedly.

The aims and subjects of the 1923 industrial census were the same as in 1920. Only it collected data pertaining to December 1922.

The census paper contained 26 questions aimed, among other things, at ascertaining the dynamic processes stimulated in industry by the New Economic Policy, by comparing the 1923 and 1920 censuses, and the scale of industrial enterprises by the total number of wage earners. The census also classified industry by forms of ownership.

Union-wide 1925 investigation of small-scale industry and handicrafts. The 1920 and 1923 industrial censuses ignored small-scale custom enterprises and enterprises producing for the open market or for middlemen. A special CSB investigation in 1925 took stock of all these establishments. The aim was to probe the part played by small-scale industry in the country's over-all industrial turnover.

The 1925 investigation took in, on the one hand, all enterprises with up to 15 workers and a motor and with up to 29 workers without a motor; and, on the other, all custom workers, and handicraftsmen producing for the open market, regardless of whether they used their own raw materials or those of their customers.

It took in organized small-scale industrial enterprises, distinguished from the large only by their scale, ma-

chinery and production techniques, and artisans, including those working by hand, whether they sold their produce in the market or filled orders, and irrespective of their annual total of working days.

Rural industries had a census paper of their own (Form No. 1). It was filled up by the village Soviets under supervision of the volost statistician. The paper dealt with data about households possessing industrial establishments or engaged in domestic or migration industry. No distinction was made between the two last-named varieties of handicrafts.

On the strength of the general investigation sample data were collected from 3 to 5% of the establishments or handicraftsmen, which provided a fairly comprehensive picture of their techniques and output. The questionnaire was filled and forwarded by the volost statistician, or officers specially delegated by gubernia statistical bureaus. The latter also drew up "volost" questionnaires concerning the sale of products, purchase of raw materials, prices of raw materials used by handicraftsmen and artisans, and average prices of artisan and handicraft products.

The study of urban small-scale industry was made with the aid of information obtained from fiscal agencies. The questionnaire did not go beyond the particulars turned in to fiscal agencies by manufacturers when taking out their licenses.

The nation-wide investigation for the first time determined the number of people engaged in small-scale industry, the latter's volume as a whole, and separately by branches. It also yielded figures on its fixed capital in gold rubles.

Union-wide 1929 small-scale industry census. The small-scale industry census, taken by decision of the Council of People's Commissars of August 29, 1928, was set to begin in the European part of the R.S.F.S.R., the Ukraine and Byelorussia on December 15, 1929, and in the Asiatic part of the Soviet Union on January 1, 1930. It was to probe the productive and socio-economic structure of small-scale industry, and particularly the share in it of private capital; its output in kind and cash; consumption of raw and auxiliary materials, and fuel; the wage

scale and the incomes in small-scale industry; geographic distribution; fixed assets; manpower; and the ties of small-scale industry and agriculture.

The census covered enterprises of the process and extractive industries not classified as major industrial establishments (16 workers and a motor, or 30 workers and no motor) in both urban and rural areas. It concerned all such enterprises that operated between October 1, 1928, and October 1, 1929 uninterruptedly for at least *one week*, or intermittently for a total of *two*. In the brick-making industry idle enterprises with intact equipment were registered along with the operating brickyards by way of an exception.

The census embraced producers not employing hired labour or employing 1-2 labourers, who produced for customers or the market, or repaired and mended second-hand articles; not employing hired labour, or employing 1-2 labourers, who depended on private capitalists and utilized their own, or purchased, raw materials; not employing hired labour, or employing 1-2 labourers, who produced for state-operated enterprises or co-operative societies. It also embraced homeworkers receiving raw materials from state enterprises, co-operative societies, or private industrialists, and employing no hired labour or 1-2 labourers; and entrepreneurs employing 1-2 wage labourers.

The census also registered small-scale capitalist enterprises employing 3 or more wage labourers or homeworkers; artel (co-operative) workshops; enterprises operated by co-operatives or public organizations; and small-scale state-operated industrial enterprises.

Each industrial unit was registered in a separate census paper. For this reason, if one and the same member of a peasant household produced for two different industries at different seasons, each industry was registered in a separate questionnaire. The census papers were drawn up under a curtailed programme, and, additionally, in complete form for sample enterprises.

Day-to-day industrial statistics was organized under the "Statutes of Day-to-Day Industrial Statistics" (January 1919). It was to supply basic statistical information to central and local administrative agencies, and summa-

rize the contemporary state and dynamics of industry. The data were forwarded by all enterprises of the process and extractive industries in monthly reports—(forms *A* and *B*) to gubernia statistical bureaus.

Form A contained the following particulars: monthly flux of labour power by age and sex; total wage outlay; movement and stock of fuel and lubricants; and monthly alterations in power equipment.

Form B provided particulars on the movement of raw materials, semi-finished products and auxiliary materials; output, consignment and stock of produce; operation of the principal machines, implements and devices; and the monthly changes in equipment.

The CSB also co-ordinated the data-collection programmes of National Economic Council agencies and the head offices of industrial enterprises. The decision of the U.S.S.R. Labour and Defence Council of March 7, 1922, "Reports to State Agencies by State, Co-operative and Private Enterprises, Owned, Rented or Operated under Concessions," greatly contributed to the proper conduct of day-to-day statistics. When industry was being reorganized along cost-accounting principles the Department of Day-to-Day Industrial Statistics required special reports from the leading enterprises of the principal industrial branches. Since 1923 the National Economic Council was compiling materials gleaned from these urgent reports, from the monthly reports of trusts, and from sales reports. The Department of Day-to-Day Industrial Statistics, meanwhile, proceeded with its observations of all registered industry (state-owned, co-operative and private) through the monthly Form *A*.

In October 1926 standard urgent information cards approved by the CSB, to be submitted by enterprises not later than the fifth day of each month, supplanted the monthly Form *A* reports and the urgent report card.

In 1926 the CSB was reorganized. Its two industrial departments were replaced by a Sector of Industrial Statistics, which comprised three divisions: the conjunctural division, the division of dynamics and the balance-computation division. The conjunctural division handled "urgent information." The dynamics division processed the

so-called statistical "Form *B*," submitted annually by all industrial enterprises. The form was first introduced in the fiscal year 1925/26 (October 1, 1925 to October 30, 1926). Enterprises were required to submit it to gubernia statistical bureaus not later than December 15.

Form *B* contained the following particulars: list of workers, employees, and junior personnel for the last day of the month; working hours and wages, and working time in shifts; motors and horsepower-hours in operation, electric generators and motors; production equipment; electric-power balance; output, consignment and stock of produce and semi-finished products; consumption of raw materials, procured semi-finished products and auxiliary materials, consumption and stock of fuel; value of fixed assets; principal outlays.

Form *B*, submitted successively for the 1926/27, 1927/28 and 1928/29 fiscal years, was processed under an extensive programme. For the first time in Soviet industrial statistics power facilities were comprehensively studied.

In 1930 annual reports were presented in the form of a single document for the first time in industry, and were gradually standardized after one pattern.

4. AGRICULTURAL STATISTICS BEFORE COLLECTIVIZATION

During the first years after the Great October Socialist Revolution agricultural statistics was still under the influence of pre-revolutionary Zemstvo statistics. Up to 1930 it was in the main adapted to individual peasant economies, although major state-owned agricultural enterprises (state farms), and agricultural artels and communes, were springing up throughout the country since 1917. The statistics of socialized or co-operative agriculture was organized in 1928 and became predominant in 1931-1932.

The main agricultural investigations, such as the spring census of peasant households, etc., were conducted under a CSB programme by volost statisticians, who were assisted by some 58,660 volunteer correspondents. The most active section of the latter (about 21,000 correspondents) comprised the network of correspondents on harvest statistics.

As the demands (accuracy and timeliness) in agricultural statistics grew, this network of correspondents became ever less dependable. Kulak correspondents, whose specific weight in the network was quite substantial, sought to minimize the agricultural output, soil productivity and the productivity of animal husbandry. But the attempt to replace correspondents by special statistical officers within the framework of village Soviets—authorized by the latter, as it were, to collect the desired statistical data—was, on the whole, unsuccessful.

The role of volunteer correspondents diminished gradually with the growth of the planned national economy. They were increasingly superseded by volost statisticians, and eventually by district inspectors.

In 1926 special expert commissions, consisting of representatives of land, food, procurement and statistical agencies, were set up to eliminate the deficiencies in sowing area, harvest, livestock, and plant and animal husbandry output data submitted by local statistical agencies. The district expert commissions were in themselves a source of information about the state of agriculture, though, of course, of a purely expert (estimated) nature.

The gubernia, territorial and republican expert commissions handled harvest data submitted by volunteer correspondents, volost (district) statisticians and district expert commissions. They also handled the results of various tests undertaken to ascertain the standard minimizing error in data concerning the principal elements of agricultural production.

Soviet statistics, which had by then accumulated a wealth of material, next tackled national-economic balances, particularly, agricultural balances. In this it made use of:

household tax registers of the People's Commissariat of Finance;

10% spring censuses of the uyezd statistical agencies and authorized officers which summarized data concerning land areas under various crops; livestock by breeds, sex and age; and facts on population and agricultural production at the close of the spring sowing for all households;

autumn census, embracing 3-5% of the peasant households, which determined grain yields and harvests of other field

crops, hay and vegetables; ascertained sowing density, the area of winter sowing, livestock in pen maintenance, etc.;

volunteer correspondents' harvest estimates, and reports on actual yields, seed-sowing norms, prices of agricultural products, wages of labourers, etc.;

various tests determining standard minimizing errors in data on cultivated areas, livestock, productivity, etc., such as control surveys of land under crop, air surveys, control visits to farmsteads, etc.;

semi-annual investigations of family diets in rural and urban areas to determine consumption of agricultural products;

quarterly investigations of the so-called visible stocks of agricultural produce (in elevators, warehouses, and barns);

brief peasant household budget accounts (so-called consumer budgets) yielding the turnover of agricultural produce in the households and the market.

On the strength of these materials the CSB and gubernia statistical bureaus compiled balance accounts such as the grain and forage, the fodder, and agricultural raw materials balance accounts. These were submitted to expert commission sittings, which used them to draw up "village balances" and "district balances." The "village balances" determined the magnitude of stocks intended for urban and industrial consumption, and as reserves, while the magnitude of shipments to and from regions, or the country, were, as a whole, qualified by the magnitude of the "district balance." The "village balance" represented the difference between produce available and its local consumption (seeds, fodder, foods) and accounted for changes in the peasant stocks towards the close of the year as compared with the beginning of the year.

The "district balance" was the difference between the "village balance" and the total products consumed by the urban population, industry, and the armed forces of a given district, or the entire country. The balance also accounted for changes in commodity reserves and the reserves of the urban population, the yields harvested from urban land holdings and land belonging to industrial and transport enterprises.

These balance projects were of immense importance at the time. They helped to determine the commodity output of peasant households and the bulk of farm products used by the countryside. Wide use was also made of so-called peasant-household "consumer budgets," of which about ten thousand were collected annually. They were individual agricultural balance accounts of receipts and outlays of all principal agricultural products in a simple peasant household.

The tests of that time corrected minimizing errors in the general statistical returns (spring and autumn censuses and tax registers) concerning the principal elements of agricultural production. They enabled statisticians to correct the receipt and outlay items in the gubernia and nation-wide agricultural balances.

In that day socio-economic statistics was called upon to study the class structure in the countryside. The true volume of agricultural production and of its commodity portion had a bearing on rural class relations. Two types of statistical explorations were instituted to register rural social processes: exhaustive studies of peasant-household budgets (production budgets), and annual selective stratified censuses known as dynamic censuses.

Unlike the consumer budgets, the exhaustive production budgets made an all-round study of agricultural production and the relations of production within the framework of a single household. They revealed the constituents of peasant incomes and the agricultural yields (for consumption, accumulation and investment).

CSB agencies drew up production budgets for 1,422 households in 1918/19, 395 households in 1920/21, 427 households in 1921/22, 4,000 households in 1922/23, 3,150 households in 1924/25, 3,080 households in 1926/27 and 7,500 households in 1928/29.

The stratified dynamic censuses, which were meant to shed light on rural socio-economic processes, were conducted as follows: territorial sets of peasant households embracing one or several villages were selected in various districts. All households in these sets were annually investigated for the following particulars: a) economic relations with other households (letting and renting land,

hiring and selling labour power, letting and hiring agricultural machinery, credit relations, etc.); b) changes (division or incorporation of households, migration, etc.).

Under the New Economic Policy the problem of rural class differentiation acquired particular urgency. The methods of classifying households by their area, applied in the dynamic censuses, obscured rather than revealed the class differentiation processes. This became manifestly clear at the close of 1925, when some made use of a faultily computed grain and forage balance to claim that "the 14% of kulaks held 61% of all the marketable bread-stuffs." The Central Control Commission of the Workers and Peasants Inspection investigated the balance and discovered grave methodological errors in its structure, and particularly in the grouping methods.

CSB statisticians had chosen the formal method of classifying households by the magnitude of their crops. They neglected to define scientifically and accurately the economic characteristics of the several rural social groups under Soviet conditions and failed to attune their grouping criteria to the nature of economic types under investigation. That is why many middle peasants were classified in the prosperous group, while truly capitalist economies were relegated to the category of middle or prosperous peasant economies.

After these errors came to light the CSB worked out a new grouping pattern, specifying such socio-economic types as proletarian households, semi-proletarian households, ordinary producers, and small-scale capitalist economies. Criteria were worked out for each. Thus, agricultural producers without means of production, who did not employ labour power, were classed as semi-proletarian, while producers with means of production but not employing labour power were classed as ordinary producers. Households, not employing labour power, but letting out means of production, whose means of production were worth more than 1,600 rubles, were classed as small-scale capitalist economies, etc.

The *harvest statistics* of that period was still based on volunteer reports. But distinction was made between the

ordinary correspondents, who submitted data to uyezd and okrug (later regional) statistical agencies, and the so-called "qualified" correspondents, who forwarded information directly to the CSB. In 1929 there was a total of 31,000 harvest correspondents, of whom about 14,000 were "qualified." Out of the 14,000, however, only about 10,000 were active. After volosts were supplanted by districts, the volost statisticians referred to earlier were replaced by district statisticians. The latter, though somewhat better paid, were in most cases only part-timers.

There were district, okrug, regional and republican expert commissions to verify harvest data, and a Council of Grain and Forage Output Assessors was created by a decision of the U.S.S.R. Labour and Defence Council of May 26, 1926.

In that day harvest prospects were submitted by correspondents twice monthly (on the 1st and 15th of each month); they were classed in five categories, or marks (5—good, 4—better than average, 3—average, 2—below average, and 1—bad, including partial destruction of crops). The average mark was converted into poods by the so-called "mark's scale" which gave the decennial mean for 1905-1914, and the prospects were calculated in per cent to that mean. (Application of a pre-war mean was alone enough to distort the results of harvest estimates.) The second last estimate was made both in marks and in poods.

The actual harvest figures were based on various materials, among them the results of the autumn census of territorial yields. Markedly minimized, however, the latter were, until 1928, ignored when country-wide harvest figures were being computed. The reports of "qualified" correspondents and the materials of peasant-household investigations served as source material. In the budget investigations peasant households were thoroughly and comprehensively studied, yielding fairly accurate facts about areas under crop, and harvests. But the number of households investigated was insufficient (7,000 to 10,000).

Areas under crop were determined in the spring census. Its figures were corrected by comparing them with data ob-

tained in budget investigations, selective instrumental surveys of arable land (first made in 1925) and air surveys (1926-27-28).

Data on areas under crop submitted at the time were largely inaccurate, because a great many of the volunteer correspondents were kulaks (the system of volunteer correspondents was abandoned in autumn 1929). All kinds of "corrections" were introduced. The Institute of Statistical Methodology, which operated within the CSB framework, worked out a system of harvest corrections. Half a mark (eventually it was 0.4-0.6 of a mark, depending on the district) was added to correspondents' harvest estimates, which were usually minimized.

A "coefficient of accuracy" was computed by comparing past harvest prospects with the actual harvests. A percentage of error was obtained and a standard mean error for a number of years was taken into account in the estimate for the current year.

In 1923-1927 the final harvest figures for the country were based on budgets.

In 1928 the final harvest was determined on the basis of harvest dynamics obtained from autumn census figures for a number of preceding years, and from the budget investigations. The extent to which the harvest was minimized in autumn censuses is shown in the following table:

HARVEST FIGURES IN BUDGET ACCOUNTS AND AUTUMN CENSUSES OF COMPARABLE REGIONS
(In centners per hectare)

Year	RYE			OATS			GRAIN CROPS		
	Budget figure	Autumn figure	Budget figure in % to autumn figure	Budget figure	Autumn figure	Budget figure in % to autumn figure	Budget figure	Autumn figure	Budget figure in % to autumn figure
1925	8.06	6.21	129.8	9.18	7.34	125.1	8.51	6.71	128.8
1926	8.48	6.52	130.1	9.87	7.61	129.7	8.26	6.29	131.3

In 1925 the deficiency corrections for sown area figures, evolved through comparison with control measurements and air surveys, were:

AREA	CORRECTION (In %)
Central Agricultural	23.0
Middle Volga	33.6
Northern Caucasus and Daghestan .	33.7
Siberia	32.9
Ukraine	14.2

The mean corrections to make up for deficiency errors approved for the U.S.S.R. by the council of experts, were:

1925—23%
1926—20.5%
1927—19.4%

The council of experts also introduced corrections based on balance calculations (comparisons of grain output and consumption figures). The actual harvest was thus computed several times: the first time in autumn from the reports of qualified correspondents, and again in a *year or eighteen months*, when it was compared with the budget materials and balance calculations.

Several grave errors were revealed in the 1934 livestock inventory. Its figures were markedly minimized owing to inadequate supervision of village Soviets and collective farms by both the People's Land Commissariat and the inspectorate of the Central Accounting Bureau. The control livestock checks were too few to yield sufficiently accurate data. In view of their scantiness they were applicable only on a regional (territorial) scale, while districts, in the absence of corrections, had to rest content with minimized figures.

Steps were taken to improve livestock statistics (the control sampling percentage was raised to 10-15%, the personnel of district inspectorates was reviewed and strengthened, and a network of district inspectors was appointed, etc.).

5. TRADE STATISTICS IN THE TWENTIES

In pre-revolutionary Russia there was no domestic trade statistics. In the U.S.S.R. trade statistics took shape during the transition to the New Economic Policy. The point of departure was the *trade census of March 15, 1923*, the first of its kind in Russia. It embraced only urban trade.

The census particulars determined the number of trade enterprises in operation on March 15, 1923, the turnover in the final quarter of 1922, the number of people employed in trade, and the number of market vendors.

The results were classified by economic sectors— state-operated, co-operative, and private. Each of these was, in its turn, grouped by branches of trade, such as bread, grocery, clothing, etc. Total retail, wholesale and market turnovers were computed for each branch. The processing was territorial, by republics, regions and cities, the latter being grouped by populations.

The first trade census summarized the structure and distribution of trade establishments, and their turnover in the early years of Soviet rule.

In 1923-1929 private capital had a share in the turnover, along with the state-operated and co-operative trading establishments. The system of consumer co-operatives alone had more or less efficient statistical accounting. State-operated trading establishments were scattered throughout the country, and their composite statistics left much to be desired. As for private trade, there was no question of day-to-day statistical accounting in that sphere. Under the circumstances only general investigations could yield comprehensive domestic trade data.

These were based on the turnover declarations and registration materials submitted by trading establishments to state fiscal agencies when taking out annual licenses. The documents contained such particulars as the name of the owner, the address, the date of establishment, the turnover, branch of trade, and the number of employees, etc. Local agencies of the CSB made use of these items to draw up individual cards for each establishment and market vendor, giving the following particulars: address, name of owner, economic sector (state-operated, co-operative,

or private), type of trade (wholesale, or retail), type of establishment (shop, or stall, etc.), branch of trade, overall turnover, number of persons employed, specifying the owner, his family members, workers, employees and apprentices.

Altogether there were six such general investigations, compiled in much the same way as the 1923 trade census. Since the 1923 census embraced only urban trade, while the general investigations summarized trade throughout the Soviet Union, the materials of the latter were additionally classified as urban or rural.

The general investigations provided exhaustive material for a study of domestic trade. But planning required greater all-round information on the state of commerce. That is why three annual *detailed investigations of trade*—state-operated and private—were made in 1927-1929. There was no special investigation of co-operative trade, since co-operative societies (consumer, production, agricultural, and invalid) drew up their own annual composite reports.

Detailed investigations of state-operated trade were made by the field method. The annual reports of state-operated trade establishments (chain-stores, joint-stock companies, syndicates, etc.) were collected and compiled, supplying the following principal particulars: a) number of establishments and personnel by types (warehouses, shops, stalls, etc.); b) sources of commodity supply and distribution of sales by consumer groups; c) composition of property by types; d) movement of commodities by commodity groups; e) balance account by items; f) fixed assets; g) circulation expenses; h) profits and losses.

Detailed investigations of private trade were made by the selective method. They probed the following questions: a) sources of commodity supply in private trade; b) sales, and itemized stocks of commodities; c) structure of private capital; d) overhead expenses; e) profits and losses.

Besides the isochronous annual investigations in 1927-1931 there were monthly selective *surveys of trading conditions*, embracing all major state-operated establishments, nation-wide co-operative chains, 25% of the urban and workers' co-operatives, 10% of the rural co-operatives, and 25% of the larger, and 5% of the medium-sized pri-

vate trading establishments. Petty trade was ignored. The surveys dealt with the two principal trade indices—the turnover, and stocks of merchandise — and summarized trading conditions (supply and demand, assortment and quality of goods).

In view of the steep decline of private trade and better organization of trade accounting, over-all monthly reports on the progress of turnover plans and trade development were introduced late in 1930 for all trading establishments.

Price statistics was of the utmost importance in the early years of Soviet rule. The systematic registration of retail prices in state-operated and co-operative trade, and, separately, in private trade, of market prices, and procurement prices, dates back to 1918-1919. The prices of 250 commodity items were registered weekly by special correspondents in 20-50 urban localities. The procedure was eventually extended to include wholesale prices and prices in rural areas for a considerably expanded list of merchandise, etc. Statisticians used the collected data to calculate price indices—budget indices at first, and later indices of retail and wholesale prices.

6. CHANGES IN THE STRUCTURE OF SOVIET STATISTICS IN 1926-1948

The development of socialist elements in the national economy and the attendant rise of planned management created the need in reorganizing state statistics.

The Central Statistical Board was reorganized in 1926. It was endowed with the powers of a People's Commissariat, and its head had the right of vote in the Council of People's Commissars. Its collegium was approved by the Council of People's Commissars. A special commission, the Statplan (Statistical Planning), was to superintend the statistical work of all agencies and administrations. The members of this commission, which functioned within the CSB framework, were approved by the Labour and Defence Council.

The CSB carried out a number of new major projects. In December 1926, for example, there was the all-Russian general census. A dynamic investigation of peasant house-

holds was made in 1927 under a new extended programme, and new classification principles. A census of state and collective farms took place in 1928, and in 1929 a census of small-scale industries. Day-to-day agricultural statistics made great progress. The same was true of trade and price statistics, and cultural, demographic and public-health statistics. A detailed and exhaustive survey of the 1926-1927 industrial observations was made public.

The CSB revised its methods and approach. The total volume of its work increased substantially. Yet there were failings along with the accomplishments.

The late publication of industrial surveys was a major shortcoming. The results of the 1926/27 industrial observations were published as late as 1930, and those of 1928/29 in 1931. This deprived them of all practical value.

The increasing importance of accounting and statistics for nation-wide economic planning demanded closer contact between the CSB and the State Planning Commission. On January 23, 1930, the CSB was converted into the Division of Economic Records of the State Planning Commission.

The merger of statistics and state planning yielded certain positive results. The State Planning Commission co-ordinated plan indices with statistical indices, whereas in the past the two often differed. Statisticians took a hand in controlling the national-economic plan. But as a result attention shifted away from the basic statistical projects and these were violations of day-to-day statistical methodology because the statistical system became decentralized. Meanwhile further radical changes in the Soviet economy created a growing demand for all-embracing socialist statistics. Since the socialist reconstruction of agriculture socialist economic forms became dominant in all branches of the national economy. These forms had to be reflected in the statistics and accounting. This applied particularly to self-sufficient operation, which implied the planned management of socialist enterprises without financial assistance from the state budget.

The relationship of accounting and statistics changed. The study of individual peasant households involved special statistical observations, for example, while the collective-farm system made it largely possible to utilize

statements of accounts and the data of day-to-day accounting. The triumph of socialism in the U.S.S.R. set the stage for a co-ordinated system of socialist national-economic accounting.

In May 1931 the Council of People's Commissars adopted a decision "On the Organization of Accounting and Statistics." It proceeded from the proposition that "the greater role of planning in the present stage of socialist construction adds to the need of consolidating the system of socialist accounting." The decision pointed to the need of tightening centralized supervision of the methodology and organization of accounting and statistics throughout the country, and the accounting and statistics at government departments and enterprises. Such centralized supervision was entrusted to the State Planning Commission's Division of Economic Records. On December 17, 1931, the division was renamed the Central Bureau of Economic Accounting (CBEA) of the State Planning Commission. A network of district and municipal economic-accounting inspectorates was established in 1932, and in the autumn of 1934 district economic-accounting inspectors were appointed to improve the work of primary statistical agencies.

The CBEA did much to overhaul the country's system of accounting. By decision of the Council of People's Commissars of May 9, 1931, all programmes and forms of accounting were submitted to it for approval. A subsequent Government decision of April 27, 1934, required the final approval by the Council of People's Commissars of forms of accounts and records submitted by People's Commissariats and the CBEA.

The CBEA has a great many important statistical surveys to its credit, including: the 1939 general census; the 1934 inventory of industrial equipment; the livestock censuses of February 1932, January 1934, January 1935, and January 1936; special investigations to verify livestock censuses and the livestock inventory of the People's Commissariat of Finance; and a trade census. The CBEA compiled and surveyed the yearly reports of socialist enterprises in industry, agriculture and public utilities, and organized a ramified system of current statistics, price investigations and records of Soviet trade turnovers. It

instituted labour, population, culture and public-health statistics, and workers' and collective farmers' budget accounts. In 1941 the CBEA was renamed. It became the Central Statistical Board of the State Planning Commission.

In 1948 the Central Statistical Board was detached from the State Planning Commission and turned into an agency of the U.S.S.R. Council of Ministers. The move was necessitated by the mounting requirements of government and planned economic management.

7. PRESENT-DAY STATISTICAL AGENCIES IN THE U.S.S.R.

Today the CSB exercises centralized control of socialist accounting through its ramified network of local agencies, such as statistical bureaus of union republics, autonomous republics, territories, regions, okrugs, Moscow, Leningrad and the capital cities of union republics; and CSB district and municipal inspectorates headed by district or town inspectors respectively.

The district and municipal inspectorates are under the direct supervision of statistical bureaus of union republics with no regional division, or of statistical bureaus of regions and autonomous republics. The statistical bureaus of regions, territories and autonomous republics are under the union republican bureaus, and the latter are under the Central Statistical Board.

The district and municipal CSB inspectors are appointed by the heads of union republican statistical bureaus. The heads of the statistical bureaus of union and autonomous republics, territories and regions, and of Moscow and Leningrad, are appointed by the head of the Central Statistical Board.

The Central Statistical Board of the U.S.S.R. Council of Ministers. The Central Statistical Board of the U.S.S.R. Council of Ministers compiles and analyzes, and furnishes the Government with *authentic and timely* statistical data summarizing the progress of state plans, the correlation of the various economic branches, the growth of the so-

cialist national economy and culture, the mounting standard of living, and the magnitude, distribution and utilization of material and labour resources. It also suggests ways and means for a fuller utilization of reserves to overfulfil plans.

The statutes of the CSB and its local agencies, approved by the Council of Ministers, empower it:

to consolidate and perfect accounting and statistics as an all-important instrument of government and planned management of the U.S.S.R. economy;

to elaborate and perfect accounting and statistical methodology;

to record the progress of state plans in all branches of the national economy and culture, the development of engineering, the reserves of material resources, and the consumption of fuel, electric power, raw materials and capital goods in industry and construction;

to organize and conduct observations of the fulfilment of state-procurement plans and agricultural contracts, and harvest statistics;

to draw up a national-economic balance account and material balance account, to compute the national income, and the receipts and expenditures of the population;

to take censuses of population and material resources, and to conduct periodic investigations;

to provide the State Planning Commission, the State Economic Commission and the State Committees for Labour and Wages of the Council of Ministers, the Committee of Engineering Developments, and the State Building Commission with regular and timely data of day-to-day statistics, censuses, periodic investigations, national-economic reports, reports on separate branches of the national economy, and also systematic facts about the U.S.S.R., the People's Democracies, and the capitalist states, and with other statistics required in the preparation and control of the national-economic plan;

to audit the accounts and records of ministries, departments, institutions, enterprises and construction projects, and of state and collective farms;

to simplify and rationalize methods of accounting and statistics, to prevent illegal statistics, and to control ra-

tionalization and improvement of primary accounting by ministries and departments;

to supervise mechanization of accounting: control fulfilment of Government plans and decisions concerning the mechanization of accounting and computation, draw up in collaboration with ministries and departments plans to mechanize accounting and computing jobs, take part in elaborating matters related to the production of calculating machines (volume of production, type of machines and output dates).

to disseminate statistical information by publishing daata showing the progress of state economic development plans, statistical bulletins, summaries, the *Vestnik Statistiki* (*Journal of Statistics*), the works of the CSB, and scientific and popular statistical literature;

to record developments in the sphere of engineering, mechanization, automation, specialization and co-operation, and other aspects of technical progress;

to train accounting and statistical personnel;

to convene nation-wide statistical congresses and conferences of accountants, statisticians and scientists to deliberate problems of statistical theory and practice, and conferences of workers of statistical agencies to discuss improvements in statistical and economic work and the best utilization of accumulated experience;

to establish contacts with foreign statistical agencies and represent the Soviet Union in internatonal organizations and at congresses.

The head of the Central Statistical Board is appointed by the Council of Ministers. He issues instructions and orders within the bounds of his authority on the strength of existing legislation and Government decisions.

The head of the CSB, his deputies and leading CSB executives form a collegium, whose members are approved by the Government. The collegium deals with the major problems of practical management, the methodology of collecting and compiling statistical materials, the results of the principal statistical projects, matters of control, and the selection of personnel, and deliberates the reports of CSB department heads and executives of local statistical

agencies. The decisions of the collegium are implemented by order of the head of the CSB.

The offices and departments comprising the Central Statistical Board at present include:

the Office of Industrial Statistics and its departments: economic, heavy industry, machine-building, light, food and local industries, natural resources, and labour and cost prices;

the Office of Agricultural Statistics and its departments: economic, cultivation and harvests, animal husbandry, state farms, and procurement;

the Office of Urgent Statistics, which handles such branches of statistics as the economy of union republics and the distribution of productive forces; new developments in engineering, mechanization, automation, specialization and co-operation; capital construction; transportation and communications; trade; culture; population and public health, etc.

Apart from offices handling statistics of separate national-economic branches there are offices handling problems of the national economy as a whole, or separate questions concerning the entire national economy. Such offices include the departments of General Statistics and Statistical Methodology, Information, the National-Economic Balance-Sheet, Labour Statistics, Price and Cost-Price Statistics, Financial Statistics, etc.

There are also three self-supporting divisions in the CSB framework: the Publishing House of Statistical Literature (Gosstatizdat), the Office of Mechanized Accounting (Soyuzmashuchot), and the Office of Personnel Training.

The CSB has a Methodological Council, whose members include representatives of the U.S.S.R. Academy of Sciences, a number of professors, representatives of colleges and scientific institutions, associates of the State Planning Commission, the State Economic Commission and certain committees of the Council of Ministers, and executives of the CSB.

The Methodological Council elaborates and discusses questions of statistical methodology, and programmes and instructions of the principal statistical projects. Members of the Council and representatives of departments and in-

stitutions concerned, as well as state statistical agencies, serve on commissions, headed by a Council member, appointed to deliberate provisional reports of CSB offices and divisions. The council submits recommendations to the head of the Central Statistical Board. The recommendations are studied by the head or the CSB collegium, amended by it if necessary, and then handed down to the various CSB offices and divisions.

Republican and local statistical agencies. The statistical agencies of union and autonomous republics, territories and regions handle the records of the republics, territories and regions concerned. They carry out statistical projects listed in Government decisions and centralized plans, and separate CSB assignments; keep systematic records of the progress of state plans; compile and analyze data relating to the development of the socialist economy and culture in the republic, territory or region concerned; audit the accounts and records of ministries, departments, institutions, organizations, enterprises, construction projects, and state and collective farms; rationalize accounting, and prevent illegal accounting practices; analyze collected data and submit to the Councils of Ministers of the Republics, or to local administrations matters related to the development of the economy and culture of the republics, territories and regions concerned.

The statistics and records in districts and urban areas are entrusted to CSB district and municipal inspectorates. The latter execute the statistical projects listed in Government decisions, centralized plans, and special CSB assignments, and assignments of republican or regional statistical agencies. District and municipal inspectors submit their materials to statistical agencies and local administrations, and approach local administrations with matters related to the development of the economy and culture in the districts and towns concerned.

District and municipal inspectors audit the accounts and statistics of departments of district and urban administrations, district, rural, and urban organizations, village Soviets, collective farms, machine and tractor stations, state farms, enterprises, construction projects and other institutions. They enforce timely and authentic ac-

counting at all these agencies, and expose and eliminate all illegal accounting practices.

Local statistical agencies at present generally comprise:

In the case of union republican (regional, territorial and autonomous republican) statistical bureaus — departments and divisions of summary statistics, industrial statistics, material supply, transportation and communications, agriculture, procurement, capital construction and public utilities, trade, labour, population, public health and culture, and collective farmers', workers', and employees' budgets.

The maintenance of the CSB and its local agencies is provided for in the U.S.S.R. state budget.

The principal responsibility of CSB agencies is to provide authentic statistical material, and to fulfil the plans of statistical projects on a basis of co-ordinated principles and a single statistical methodology. Local bodies are obliged to assist CSB agencies in the collection of authentic statistical data.

8. STATE AND DEPARTMENTAL STATISTICS

In the U.S.S.R. hundreds of thousands of men and women are engaged in accounting and statistics at enterprises, collective farms, institutions, organizations of all kinds, and at the various ministries.

There are statistical divisions, sectors, or groups, at all enterprises, institutions, organizations and ministries. As a rule, they are part of the planning departments of the establishments concerned. This provides for the closest possible contact between the plan-makers and the statisticians who record the fulfilment of the plan.

The statistical agencies at enterprises, institutions and ministries collect and compile statistics only within the framework of their own establishments, and are known for this reason as departmental statistical agencies. The various ministries and departments bear the responsibility for their work, and receive all the necessary information from them. The enterprises submit statistical information to their respective ministerial departments or trusts. The trusts pass it on to the departments at the minis-

tries. The materials collected by the various ministerial departments are summarized by ministries. In some cases the enterprises submit their statistical reports directly to the ministries. Statistical information is also submitted by the departments and their primary agencies to the CSB and its local bodies. The *administrative* side of all departmental statistics is under the full control of the various departments, and the *methodological* side is supervised by the Central Statistical Board. The CSB hands down instructions concerning accounting and statistics to the department heads, who pass them on to their statistical divisions or groups, and supervise execution. Local CSB agencies receive copies of the instructions and can thus assist departmental statistics.

Local CSB agencies check proper conduct of accounts, observance of instructions at enterprises, etc., and help the heads of organizations concerned to eliminate deficiencies in their accounting; they keep the CSB informed of developments through their senior statistical agencies. In its turn, the Central Statistical Board also works for the elimination of violations through ministries or departments.

When working on complicated statistical projects, such as inventories of equipment, livestock, etc., local state statistics agencies keep departmental statisticians informed of the programme, the specific instructions and the desired form. In the process of work the agencies see to it that these are not violated. The CSB also often discusses with departmental statisticians important aspects of statistical methodology, the blue prints of new forms and instructions, and alterations in the plan of statistical projects, etc.

The leading executives of the various ministries make personal quarterly reports to the Central Statistical Board on the progress of their respective production plans. This raises the responsibility of ministries for the authenticity of their records and their timely delivery to the CSB, and gives CSB statisticians an idea of the state of production at the various enterprises. The CSB studies the reports in the presence of a representative of the ministry concerned, who provides all the desired explanations concerning the ministry's activities.

9. CENTRAL STATISTICAL BOARD AND THE STATE COMMITTEES

The CSB submits statistical materials required in the preparation and control of national-economic plans, and the various balance-sheets to the State Committees of the U.S.S.R. Council of Ministers in keeping with their respective spheres of activity. It deliberates the drafts of national-economic plans and submits its opinion.

The CSB co-ordinates its annual plan of statistical projects with the State Planning Commission and the State Economic Commission. The plan specifies the principal forms of statistical records, instructions and methodological provisions, and the programmes of the main censuses and investigations. The State Planning Commission and the State Economic Commission also co-ordinate with the CSB all methodological instructions they make to ministries in relation to the drafting of national-economic plans. This makes for a unified methodology of planning and statistics; the resultant state planning and statistical indices are, therefore, easily comparable.

The CSB and the state committees of the Council of Ministers jointly discuss problems concerning planning and statistics.

Statistics and accounting. Accounting serves the same purpose as day-to-day technical and statistical observations. Like statistics, it is an aid to national-economic management and planning, and is therefore closely bound up with it in a *single system of national-economic recording.* Statistics plays the leading part. It alone can exhaustively survey the state of the national economy and culture, effect nation-wide control of the progress of the state plan, and provide planning agencies with data required for new plans. Accounting serves the needs of *day-to-day* management at enterprises, institutions and organizations, and keeps records which statistics uses to compile its general, nation-wide summaries. In other words, accounting, among other things, supplies statistics with necessary data and must therefore be *statistically* organized.

The U.S.S.R. Ministry of Finance exercises methodological supervision of accounting in co-operation with the

CSB. It co-ordinates with the CSB its type forms of invoices, accounts and reports, and the pertinent instructions, while the patterns of *annual reports* of enterprises and institutions, which contain both accounting and statistical indices, are jointly approved by the CSB and the Finance Ministry.

Primary accounting (primary entries) is built upon primary documents. By order of the Government the CSB and the Ministry of Finance drew up and co-ordinated with the State Planning Commission and the U.S.S.R. State Bank type-forms of primary documents. In keeping with these type-documents the various ministers approve type-forms adapted to the specific needs of their respective branches of the national economy. Statistical instructions which are in one way or another associated with accounting, are drawn up in a similar manner. The main regulations in the sphere of planning, record-keeping and the calculation of the cost of industrial production and construction, for example, were drawn up in just that way.

10. PERSONNEL TRAINING

In tsarist Russia government statisticians were few in number. Apart from the two-year central statistical courses organized in 1904 by the Central Statistical Committee of the Ministry of the Interior there were no educational institutions providing statistical training. The number of students at the courses was very small. The statistical departments in most of the tsarist institutions of higher learning dragged out a miserable existence. Zemstvo statistical personnel consisted chiefly of people without special statistical training. Zemstvo statisticians propounded the view that statistics could only be mastered in practice, and that specialized statistical studies were superfluous and pointless. Such a state of affairs is of course intolerable in socialist economy.

The 1918 Congress of Statisticians approached the Council of People's Commissars with the suggestion of organizing a statistical institute. Prompt realization of the plan was obstructed by the Civil War. It was only in 1921 that the first statistical department was organized at the

faculty of social sciences of the First Moscow University. In 1925 a statistical department was founded at the economic faculty of the Moscow Plekhanov Institute, and subsequently a statistical faculty was established in Kharkov. In 1932 two institutes and 11 technical schools of national-economic records were founded, and statistical faculties were instituted at a number of socio-economic colleges. Furthermore, a network of short-term courses was organized.

In the U.S.S.R. today a special college—the Economic and Statistical Institute—trains expert statisticians and mechanized-accounting engineers. The institute promotes post-graduate studies and trains scientists in the field of statistics. There is also an Economic and Statistical Institute for correspondence students, and a U.S.S.R. Economic Institute for the spare-time training of individuals employed in state statistics. The institutes are associated with the Ministry of Higher Education. The CSB controls 15 statistical schools training rank-and-file statisticians and a correspondence school which provides spare-time training to employees of local statistical agencies.

It also has a Personnel Training Office, which trains accountants for industry and collective farms in its ramified network of educational institutions. The term of instruction at its schools extends from 5 months to 2 years. Short-term courses of 6 weeks to 4 months function continuously for employees of local statistical agencies.

Statistics is included in the curriculum of a great many economic colleges and economic departments of industrial colleges.

II

PRINCIPAL STATISTICAL INDICES

The data recorded in the censuses and investigations are compiled and summarized in a *system of indices* consisting of several main groups: population; labour resources (their distribution and utilization); national wealth; production of the social product and the national income; distribution of the social product and the national in-

come and their utilization; circulation of the social product; standard of living; culture; public health; and statistical indices of Government agencies and public organizations.

Population and labour indices summarize the population and changes in its composition caused by the development of the socialist economy and by mounting living and cultural standards. The indices reflect the magnitude and composition of the able-bodied population and its utilization in the national economy, the training of skilled labour, the distribution of workers and employees by economic branches, and the utilization of working time.

National wealth indices account for the material assets in the possession of society. That includes industrial buildings and installations, machines and equipment, livestock, reserves of raw materials, fuel, commodities, dwelling-houses, schools, hospitals, etc. The indices also account for arable land, forests, the country's mineral wealth and other resources.

Production indices indicate how much and what was produced in a specified period by the national economy as a whole, and by its various branches; they also show the relation of production of means of production to production of consumer goods, the technical level and labour productivity, and the cost of manufacture, etc.

The indices summarizing the *distribution of the social product and the national income* establish what part of the social product goes to compensate material production outlays, what part of it the state earmarks to extend social production, and what part is consumed by the working people.

Circulation indices summarize the supply of enterprises with means of production, the turnover of consumer goods, and the procurement of agricultural products.

Living standard indices show the extent to which requirements in food, clothing, housing, etc., are being satisfied. They embrace data about food consumption, the sales of consumer goods, public-utility services, and housing.

Culture indices give an idea about the number of educational institutions and their student bodies, the number of libraries and books, clubs, theatres and picture houses, and their attendance, etc.

Public-health data concern the number of public-health institutions and their activities (hospitals, dispensaries, sanatoria, holiday homes), the medical personnel, etc.

The data on *Government agencies and public organizations* account for the number and composition of personnel employed at economic, Party, trade union, youth and other organizations, and embrace election statistics, changes in the country's territorial division, and court statistics, etc.

The listed data are closely connected and form a *single* system of indices. To obtain a proper idea of developments in socialist *production*, for instance, one would have to know the *able-bodied population*, the number of *workers and employees engaged* in the national economy as a whole and in the immediate sphere of material production, i. e., in factories, works, collective farms, machine and tractor stations and state farms. To assess, and properly plan, the development of *trade* one must be informed about the *growth of commodity production*, its reserves for further expansion, and the cash incomes of the population. The state of *school education* is judged by the number of children of *school age*, the number of schools, school children, and teachers, and the progress of *new school construction*.

1. POPULATION FIGURES

Full employment, continuously rising living standards, a mounting cultural level, low mortality rates and rapid population increases are typical of population in socialist society.

Population. Soviet statistics distinguishes between *current* and *permanent* population. Current population embraces persons residing in a given locality, irrespective of whether they reside there permanently or temporarily. Permanent population embraces persons resident in a given locality, including those temporarily absent.

The 1939 general census took stock of the current population. Persons temporarily absent from a given locality were also registered, provided their absence did not exceed six months. Persons who were at work outside a

given locality at the time of census and those who departed for localities where they could not be censused, were not regarded as absent. Permanent and temporary residence figures enabled statisticians to single out temporary residents from the current population. The permanent population was obtained by subtracting the total of temporary residents from the current population and adding temporarily absent residents.

In studying housing matters, for instance, or planning the network of schools, etc., it is better to utilize permanent population figures, while current population figures are preferable in planning the network of trade agencies and public transportation facilities.

The census is set for a specific date (day, or day and hour). But certain indices are based on mean population figures for a given period, usually a year. This applies to the birth and mortality figures required in calculating per-capita production and consumption. The mean annual population involved in the calculation is an arithmetic mean of population figures for two or more days of the year concerned.

Class composition. In studying class composition Soviet statistics proceeds from Lenin's definition of class: "Classes are large groups of people which differ from each other by the place they occupy in a historically determined system of social production, by their relation (in most cases fixed and formulated in law) to the means of production, by their role in the social organization of labour, and, consequently, by the dimensions and mode of acquiring the share of social wealth of which they dispose" (*Works*, Vol. 29, p. 388).

To obtain data on the class composition of the population of the U.S.S.R. the paper of the 1939 general census contained the question: "To what social group do you belong?" Census data concerning occupation, place of work and the social group helped statisticians to classify the population as workers, employees, collective farmers, handicraftsmen working in producer co-operatives and individual peasants. All these groups form two friendly classes—the class of workers and the peasant class—and a social stratum—the intelligentsia.

National composition. The grouping of population by nationalities in a multinational state such as the Soviet Union sheds light on the class composition, literacy, etc., of each nation.

Soviet census papers contain two independent items: *nationality* and *native tongue.* The classification of population by nationality and native tongue is a great practical aid, particularly in planning the development of culture.

Distribution of population by national-economic branches. The distribution of the employed population by national-economic branches (branches of labour) and specific occupations is of immense value in an economic survey of the country or its regions. All persons employed at an enterprise are classed in the industrial branch of that enterprise. Thus, workers and employees of collieries—cutters, ironsmiths, carpenters, engineers, book-keepers, etc.—are grouped as population employed in the coal industry, while bricklayers, plasterers, painters, watchmen, etc., engaged in building, are referred to the building industry.

Employment data, which summarize the extent of employment, is invaluable in planning the training and distribution of manpower.

Data relating to the distribution of the employed population by national-economic branches help to determine the agricultural and non-agricultural populations.

In Soviet statistics the concept of agricultural and non-agricultural populations differs from the concept of urban and rural populations. Agricultural and non-agricultural population figures (including dependents) are computed on the strength of occupational data. The urban and rural populations, meanwhile, are grouped according to residence, irrespective of occupation.

Sex and age data. Classification by sex and age is highly prominent in Soviet demographic statistics.

Apart from general age groups — of one-, five- and ten-year-olds—statisticians often have to do with the following for practical purposes:

a) children up to two years (inclusively), who are under the systematic observation of children's medical institutions and are serviced by a network of crèches;

b) children below school age (3 to 6 years), who attend kindergartens;

c) children of school age: 7-13 years, 14-15 and 16-17 years;

d) population of working age (males from 16 to 59 and females from 16 to 54 inclusively). It does not wholly coincide with the able-bodied population, which is less by the number of war and labour invalids of the I and II categories;

e) population of 18 and over, which, under the Constitution of the U.S.S.R., has the right to vote.

The "age" concept implies the number of full years. Persons of, say, 29 years and 11 months at the time of census are, therefore, placed in the group of 29-year-olds.

Population is also classified by literacy, education and marital status, etc.

Movement of population. The statistics of births, deaths and marriages (and divorces) is listed under the general heading of movement of population.

The index of *net increase*, or the natural growth of population, viewed as the difference between the number of births and deaths, is of great moment. The birth-rate is calculated as the ratio of births registered in a given period to the mean population of that period. Also known as the birth coefficient, it equals the number of living infants born during *the year* per 1,000 population. There is also the *special* coefficient, which is the number of births per 100 women of 15 to 50. The birth and mortality rates are usually annual, regardless of the period for which they are determined.

Under mortality rate statisticians imply the ratio of deaths occurring during the year to the mean population of that year. Also known as the mortality coefficient, it equals the annual number of deaths per 1,000 population. The mortality coefficient computed for the total population is known as the general mortality coefficient. The net increase coefficient is the difference between total deaths and births divided by the mean population, or the net increase per 1,000 mean population.

Statistics uses marital registration records to compute the number of marriages, age groups entering into matrimony,

the number of times persons enter into matrimony, etc. The marital coefficient is the annual total of marriages per 1,000 population. Divorce totals by age groups, and by the length of marriages, etc., are also calculated. Birth and mortality rates, and marital statistics yield figures on separate sex and age groups, and, in the case of the death-rate, the various causes of death.

Child mortality, which implies mortality among infants under one year of age, is studied separately. The coefficient of child mortality, unlike other indices, is the ratio of the number of deaths among infants less than a year old to the number of births, and not to the total number of infants of that age group. This coefficient is a thousand times the sum of two ratios: total deaths among that year's births (M_0') to that year's total births (N_0) and total deaths among births of the preceding year (M_0'') to the preceding year's total births (N_1).

$$\left(\frac{M_0'}{N_0}+\frac{M_0''}{N_1}\right)\times 1000$$

Mortality rates for the various age groups are also computed by dividing the total deaths in each age group by the population (mean) of that group.

In the U.S.S.R. deaths are registered on the strength of medical autopsy certificates, which the Registry Office forwards with copies of death certificates to statistical agencies. They are processed for mortality rate data by causes. That is the procedure in urban areas, and in rural areas with at least two resident doctors, i. e., areas where authentic medical autopsy certificates are available. The method of presentation is co-ordinated by the public-health services and statistical agencies. Figures on disease incidence and attendant mortality have a great bearing on disease prevention and treatment.

Migration. Migration implies change of residence from one locality to another, whether permanent or temporary. Migration data are collected from registers of arrivals and departures, which are kept in all passport localities. Migration figures reflect the number, directions, and reasons of changes of residence. Furthermore, they yield population figures for republics, territories, regions and districts.

Other sources of demographic data. General censuses are the most reliable and exhaustive sources of information about the magnitude, distribution and make-up of populations. In the periods between censuses the population is computed by special calculations.

In the U.S.S.R. the make-up of the rural population is annually summarized from household records and village Soviet registers. The adult population by sex and age groups is computed from the lists of electors to the Supreme Soviets and to local Soviets of Working People's Deputies. As for the urban population, the efficient system of house registers in towns and cities is a reliable source of facts and figures.

Residential forms filled up by arrivals and departures serve as a primary source of migration data in towns, urban-type settlements and health resorts. A detachable portion of the forms is forwarded after registration by the passport bureau to statistical agencies for processing.

The frequency distribution of samples depends on the annual migration figure.

Number of arrivals (departures), yearly	Percentage of selection	Frequency distribution
50,000 and over	20	every 5th form
40,000-50,000	25	every 4th form
30,000-40,000	33	every 3rd form
20,000-30,000	50	every 2nd form

2. LABOUR, WAGES AND INCOMES

In the U.S.S.R. labour statistics covers the following range of data:

a) distribution of manpower and its utilization in the national economy: numerical strength and composition of manpower; labour resources; listed composition of manpower; categories of personnel; make-up of manpower by sex, age, occupation and skill; working time and its utilization, movement of manpower;

b) labour productivity: productivity indices; task fulfilment;

c) nominal and real wages; real incomes; systems of wage payment; absolute funds and average wages; composition of the wage fund.

Numerical strength and composition of personnel at state enterprises and institutions. Enterprises, institutions and organizations keep lists of personnel, which include: a) all persons employed not less than five days in permanent, temporary and seasonal capacities; and b) persons employed less than five and more than one day in temporary jobs related to the basic purposes of the establishment.

Not listed are persons hired to perform miscellaneous jobs (unrelated to the basic purposes of the establishment) of less than five days, and students of colleges and technical schools, occupational, trade, and other schools, undergoing practical training.

The total number of listed workers and employees is known as the *listed total.* This includes listed workers and employees, regardless of whether they worked that day or were on the sick list, on vacation, or on a business trip, etc. The daily listed total equals the sum of persons at work and the absentees.

The listed totals of workers and employees at all enterprises and institutions add up to the total number of working people in the country.

Determining the mean listed total. Daily records of workers and employees reporting for work, and of absentees, are kept at all enterprises and institutions. In the case of absentees reasons are given for their absence (vacation, sickness, absence by leave, absence without leave, holiday or day off).

The mean monthly listed total equals the sum of listed totals for each day of the month, including holidays and days off, divided by the number of days in the given month. The listed total on a holiday or day off is taken to equal the listed total of the preceding working day. Should the enterprise have operated less than a month (a new enterprise put into operation in the middle of the month, for instance, or an enterprise of a seasonal nature), the mean listed total is computed as follows: the listed totals of the period of operation, including holidays and days off,

are divided by the total number of days in the month under survey, and not by the number of days the enterprise has operated.

The mean quarterly listed total is the arithmetic mean of the monthly listed totals in that quarter, and the mean annual listed total is the arithmetic mean of that year's monthly or quarterly listed totals.

Records of fluctuations in manpower. Records of fluctuations in manpower enable statisticians to study their causes. The records provide the following (quarterly) particulars:

Hired

By organized recruitment:
Graduates of trade schools:
Transferred from other enterprises:
Hired by the enterprise:
Total hired:

Departures

Transfer to other enterprises:
Expiry of contract or job:
Retirement on pension, departure for study, to armed forces and for other reasons provided by law:
Dismissal for breaches of labour discipline:
At own request:
Total departures:
Listed total at close of quarter.

Categories of personnel. Workers and employees engaged in basic operation are sorted out in the records to summarize the labour resources at the disposal of enterprises, branches of the national economy, and the national economy as a whole. Industrial labour statistics, for instance, singles out so-called industrial productive personnel, which comprises persons participating or assisting in, and supervising, production processes. Workers and employees engaged in non-industrial auxiliary shops of an enterprise and personnel in charge of its socio-cultural work and housing, are also singled out. In the building industry workers engaged in construction are distinguished from personnel engaged in various auxiliary capacities.

State-farm records divide personnel into groups of basic personnel employed in agriculture, and personnel em-

ployed in the housing, cultural, welfare, and educational divisions of state farms. Machine and tractor station records distinguish personnel employed in servicing collective farms (agronomists, zootechnicians, engineers, and mechanics), permanently-employed operators, seasonal workers and repairers, employees, and junior staff. Personnel employed in auxiliary MTS divisions (housing and welfare, cultural, children's institutions and farming) are listed separately.

Personnel is also divided into groups or categories by skills. Current and annual records classify personnel in industry, building, state farms, machine and tractor stations and transportation into the following main categories: a) workers; b) apprentices; c) engineers and technicians; d) employees; e) junior staff; and f) watchmen and professional firemen.

Personnel by sex, age, length of service and occupation. The composition of workers and employees is studied in special statistical census-type investigations. Sex and age particulars indicate the extent to which males and females participate in social production, and summarize their age groups. Records usually single out young, middle-aged and old people (under 16, 16, 17, 18, 19, 20-25, 26-35, 36-49, 50-54, 55-59, 60 and over) among males and females separately.

In the latest CSB investigation workers and employees were classified in groups by continuous years of service: under one year, 1 to 2 years, up to 3 years, up to 4 years, up to 5 years, up to 10 years, up to 15 years, up to 25 years, 25 years and over.

The 1954 registration of industrial occupations embraced 450 trades.

Records of technical college graduates are annually classified into professional, sex, age, Party-membership, nationality and territorial groups to yield facts and figures on the numerical strength and composition of personnel engaged in management.

Accounting based on primary records is the basic source of labour data. State and co-operative establishments make monthly and quarterly labour reports. Personnel figures are also contained in annual reports.

The numerical strength and composition of personnel in various national-economic branches is also determined in special investigations and in the general census.

Utilization of working time. The principal indices summarizing the utilization of working time by workers of state enterprises are: man-days utilized; idle days; absences for various reasons (vacation, sickness, absence without leave, etc.) in man-days; number of man-hours utilized, including overtime; and current idle time in man-hours.

A utilized man-day is a worker's presence at his place of work, irrespective of the hours he worked that day. His working day may have been shorter than the required number of hours, due to a break-down, for instance, or conversely, it may have been longer due to overtime work. In both cases, it is recorded as a utilized man-day.

Similarly, man-days are recorded in the case of workers or employees sent by the enterprise on business. Man-day figures ignore working-time losses. Man-hours give a better idea of utilized working time, inasmuch as they exclude hours of idle time and include overtime.

Absence records register only full day absences. The sum of presences and absences, including holidays and days off, comprises total working time. If we divide the sum of utilized man-days, idle days, and absences by the mean listed total of workers, we get the mean utilization of working time in days per worker.

Labour productivity. Rising labour productivity is the principal source of greater production. It also contributes to lower cost and sales prices and higher wages. Labour productivity represents the output in a unit of working time, or labour time required per unit of output.

Labour productivity indices are essential in the study of all branches of material production. But absolute labour productivity figures in different branches are not directly comparable; what can be compared is only the dynamics of labour productivity in the various branches.

The output may be designated in kind or in its cash value. Accordingly, there are two methods of calculating labour productivity indices: 1) in kind, when the mean

output of a commodity is taken as the number of items produced in a unit of time by one worker; 2) in cash value, when the mean output per worker is calculated per unit of time in its cash value.

The former method is applied only for a specific type of production. Thus, at Soviet industrial enterprises it is used to determine the mean output per worker of: pig-iron, steel, rolled stock, coal, textiles, foot-wear, sugar, soap, etc.

Labour productivity indices in cash value are computed in all branches of material production. The value method is all-embracing and widely applied in state economic planning.

Expended labour time may be determined by the number of utilized man-days and the mean monthly, quarterly or yearly listed total of workers. Accordingly, there are indices of hourly, daily and monthly labour productivity.

Daily labour productivity is the mean output in one actually utilized man-day, irrespective of current idle time, overtime, etc. The monthly figure is the mean output per listed worker, irrespective of the actual number of days utilized during the month by separate workers (some of whom may have been on vacation, the sick list, etc.). It is obtained by dividing the volume of production by the mean listed total of workers.

The index of mean monthly output per listed worker is regarded as the principal labour productivity index in Soviet statistics and labour productivity planning.

Workers' and employees' wage-funds. The workers' and employees' wage statistics studies the volume and composition of the wage fund, the wage payment system, and the level and dynamics of wages. The statistics of collective farmers' incomes covers payments received in cash and kind per work-day unit, and incomes derived by collective farmers from their personal plots and other sources.

In the U.S.S.R. special records are kept to summarize the composition of the wage fund by the following wage types: piece-work payments under the basic wage list; progressive piece-work payments under the basic wage list; additional progressive payments to piece-workers; time payments; bonuses to piece-workers; bonuses to time-

workers; additional payments to piece-workers for abnormal labour conditions; overtime payments; other additional payments in the wage fund for man-days; cost of free facilities and issues in kind; other additional payments in the wage fund.

Social insurance benefits, travelling expenses and per diem payments, the cost of issued working clothes, socialist-emulation bonuses, and bonuses for inventions, technical innovations, and improvements, etc., are not part of the wage fund. They are recorded separately.

There are three types of wage funds: *monthly*, *daily*, and *hourly*. The monthly fund embraces all sums paid out for a given month in wages, vacation grants, discharge pay, long-service grants, payments for idle days, etc. The daily wage fund is the part of the monthly fund paid out for man-days only. It includes the cost of idle time during working hours—the hours of current idle time, intervals allowed to feeding mothers, etc. In computing the daily wage fund statisticians subtract the vacation grants, long-service grants, discharge pay and idle working days, etc., from the total monthly wage fund. The hourly wage fund is obtained by subtracting overtime pay, additional payments over and above the basic wage, and the cost of current idle time, and intervals allowed to feeding mothers, etc., from the daily fund, thus representing the part of the daily fund paid out for man-hours actually put in.

The specific weight of the various types of wages is determined by registering workers (twice in five years) by the types of wages they receive.

The mean monthly wage is the general wage fund for the given month divided by the mean listed personnel, separate figures being given for workers and employees. The mean daily workers' wage is the wage fund for the given day divided by the number of man-days, and the mean hourly workers' wage is the wage fund for the given hour divided by the number of man-hours.

The dynamics of mean monthly, daily and hourly wages, much like the dynamics of mean monthly, daily and hourly labour productivity, do not always coincide.

Real wages. Supposing the mean monthly worker's wage was 800 rubles during the basic period, and 880 rubles during

the period under survey. The mean wage index during the period under survey, as compared with the basic period, equals (880 : 800) 1.10, or 10%. That would be the mean *cash* wage index. It shows the wage change in terms of cash regardless of changes in the purchasing power of the ruble.

The purchasing power of the ruble depends on changes in retail commodity prices, the rent and other public-utility charges. Should the prices fall in the period under survey as compared with the basic period, this would indicate a rise in purchasing power. A recalculation of the cash wage in accordance with the rise in purchasing power would then yield the *real* wage figure.

Supposing commodity prices and utility charges drop 14% during the period under survey and the price index equals 0.86, the purchasing power of the ruble would show an increase of 16.3% (100 : 0.86=1.163 or 116.3%). To obtain the real wage index we should now multiply the mean wage of our example by the new index of the purchasing power of the ruble, i. e., by 1.163. That will be $880 \times 1.163 = 1023$ rubles, yielding (1023 : 800) 1.28, or 28%.

The above index may also be calculated in another way:

$$\frac{\text{Mean wage index}}{\text{Price index}} = \frac{1.10}{0.86} = 1.28$$

Incomes. The incomes of workers and employees are not confined to wages alone. The latter do not, therefore, give a comprehensive idea of living and cultural standards. For this reason, Soviet statistics computes *all incomes* of workers and employees, including social insurance benefits, pensions, and expenditures incurred by the state to promote education and public health, etc. Incomes derived by workers and employees, as well as collective farmers, from by-farming are also accounted for.

Collective farmers' incomes. The collective-farm economy is the principal source of the collective farmers' income. As collective farms expand their social wealth increases, attended by rising payments for work-day units in cash and kind. Collective farmers have an income also from their personal plots of land, and benefit from free medical assistance (at state expense), grants to mothers of large

families, and single mothers, etc., free schooling for their children at schools, technical schools and colleges, and free training courses. Members of their family may be employed at state or co-operative enterprises as workers or employees and receive wages and other payments like all workers and employees.

Soviet statistics collects data about the total income of collective farmers and its make-up by sources. Facts on the distribution of collective-farm products by work-day units are obtained from the following graphs of annual collective-farm reports: "Distribution of Incomes in Kind Derived from Field, Vegetable and Meadow Crops"; "Distribution of Incomes in Kind Derived from Gardening and Vine-Growing"; "Distribution of Incomes in Kind Derived from Animal Husbandry." A separate graph indicates the number of head of young cattle earmarked for distribution by work-day units among the collective farmers, and another graph indicates sums of money set apart for the same purpose.

Receipts in cash and kind are not the only items of a collective farmer's income from his collective farm; if incapacitated he receives products and money from the collective-farm security funds; receives free or cut-rate use of transportation to move firewood, grain, vegetables and fodder for his privately-owned livestock; he makes free use of meadows for his cattle. Furthermore, he uses cultural and utility services at the expense of collective farms. It is all these incomes and benefits that make up the *total income of collective farmers from the collective farms.*

The arable land and livestock in the personal use of collective farmers, and the incomes derived from them, are registered. The incomes are determined by the gross receipts. Statisticians compute the gross by-farming output (derived from vegetable plot, garden, vineyard, livestock, poultry, and apiculture, etc.) and subtract material expenses from its value to obtain the gross income received by the collective farmer for his produce.

Budget statistics, land registers, harvest data and reports on the cost of socio-cultural facilities are other important sources of facts and figures concerning the incomes of collective farmers.

Final incomes of workers and peasants. Workers' wages and the incomes of collective farmers (in cash and kind) are not final incomes, i.e., they do not equal the part of the national income channeled into the hands of workers and peasants. Final incomes are computed by the following chart:

Incomes of Workers and Employees

A. Incomes derived from state and co-operative organizations:

wages;
other wage-type receipts (per diem allowances, bonuses, etc.);
pensions, benefits, stipends;
receipts from fiscal agencies (state loan winnings, savings-bank interest, etc.).

B. Incomes from by-farming (net produce of all kinds):
Total individual income:

1. Incomes of Peasants

A. Incomes derived from collective farms:
in kind;
in cash.

B. Incomes derived from by-farming (net produce of all kinds):

C. Incomes derived from state and co-operative organizations:

wages;
other wage-type receipts;
pensions, benefits, stipends;
receipts from fiscal agencies;
Total individual income:
The following items in each group are subtracted:
service charges;
taxes, dues and payments;
membership dues paid to public organizations;
accumulations in the form of state bonds, savings deposits and cash.

Current material expenditures of both paid and free cultural and utility services are added to the incomes of workers, employees and collective farmers in proportion to the use each of these population groups makes of them.

After the above corrections their incomes are comparable to the national income, representing that part of it disposed of by the given section of the population for consumption and accumulation of personal property.

Calculation in comparable prices. To compute the incomes of workers, employees and peasants in prices comparable to those of the preceding year, the total income is broken up into cash incomes and incomes in kind. The income received by the collective farmer in the form of products is not to be classed entirely as income in kind because he sells part of it in the collective-farm market.

Incomes derived by workers and employees from by-farming and the collective farmers' incomes from the social and personal economies are classified into cash and kind incomes in the following manner:

The total receipts derived from the collective farms and personal plots are determined from the data of budget statistics, and annual collective-farm reports.

The receipts derived from the sale of by-farming products and products received in kind from the collective farms are obtained from the balance accounts of agricultural, forestry, fishery and hunting products, with collective-farm cash work-day payments added to their total. Total receipts in kind are computed by subtracting total cash receipts from total gross receipts derived from the collective farms, auxiliary farms and personal plots.

The sum of material expenditures incurred in by-farming is broken up into two parts: outlays for means of production and outlay of by-farming products and products received in kind from collective farms.

The cash income is obtained by subtracting the outlay for means of production from the total cash receipts derived from by-farming and the collective farms. The incomes in kind are obtained by subtracting outlays in kind from total receipts in kind.

Cash incomes derived from collective farms and by-farming are added to cash incomes derived from the state. Service charges, taxes and savings are excluded from the total sum, the result being the net cash income.

Some net incomes—individual cash and kind incomes, and material consumption at cultural and utility services—are

separately recalculated in the prices of the preceding year.

Separate price indices are computed for each of the incomes. The price index for cash incomes is built upon the following sub-indices:

a) prices in state-operated and co-operative trade;
b) prices at non-rural collective-farm markets;
c) prices at local rural markets;
d) rents and public-utility charges (power, water and gas);
e) prices for handicrafts and artisan work.

The specific weight of the listed sub-indices in the outlays is calculated.

The index of incomes in kind for each population group is based on data about the consumption and household stock of by-farming products, and products received from collective farms and personal plots in current prices and prices of the preceding year. The price index for material consumption at cultural and utility services is computed independently.

The ratio of total net incomes recalculated in prices of the preceding year to incomes of the preceding year yields the growth index of total incomes in comparable prices.

Calculations per employed person. Apart from indices showing the growth of total workers', employees' and collective farmers' incomes there are indices showing the growth of incomes per employed person. These involve data about increases in the number of workers and employees, and the number of farmers engaged in collective farming. The indices are obtained by dividing the index showing the growth of total incomes in comparable prices by the index showing increase in the number of employed persons.

III

FIXED ASSETS AND MATERIAL SUPPLIES

1. VOLUME AND COMPOSITION OF FIXED ASSETS

The fixed assets of the Soviet national economy are listed in book value and in natural form. Statistics studies them by their types.

Fixed assets in industry are sorted by the following types:
buildings (production buildings, warehouses, etc.);
structures (mines, oil wells, bridges, dams, etc.);
power equipment (motors, gas generators, boilers, etc.);
industrial equipment (machine tools, blast furnaces, agricultural machines, etc.);
transmission devices (belts, electric wiring, pipelines, etc.);
means of transportation;
instruments, tools and other basic industrial implements.

In its study of fixed assets Soviet statistics devotes special attention to implements of production, i.e., the fixed assets that play the principal part in the production process. Statistical data about motors and industrial equipment summarize technical progress.

Fixed assets have the following values: 1) original value, 2) original value minus depreciation, 3) rehabilitation value, and 4) rehabilitation value minus depreciation.

The original value implies the full cost of building and purchasing the fixed assets. It includes transportation costs to the place of use, and the cost of installation. The original values of separate items go to make up the total value of fixed assets in prices of different years, which may vary substantially.

Original value minus depreciation (which corresponds to the degree of wear and tear at the given time) is otherwise known as the remaining value of fixed assets in their original assessment.

The rehabilitation value of fixed assets is the sum-total of outlays required under current conditions to purchase and put into operation similar fixed assets. The rehabilitation value minus depreciation (remaining value at rehabilitation prices) is rehabilitation value minus that part of it which corresponds to the degree of wear and tear at the given time.

The rehabilitation value of fixed assets (grouped according to branches of the national economy, or other criteria) gives a better idea of the composition of fixed assets than their original value, since the latter renders identical items in different values, depending on the time they were built or purchased. But assessment of fixed assets in rehabilitation prices is extremely difficult.

Every enterprise annually takes inventory of all its fixed assets. An inventory, in which wear and tear is determined and the value of fixed assets is reassessed in current prices, is known as a general inventory.

At state enterprises there is an account of fixed assets in purchasing value (or prices adopted in the given reassessment), and an account of depreciation. The difference between the full value and total depreciation represents the real, or actual, value of fixed assets. The sum of annual depreciation is usually determined on the strength of annual amortization.

2. UTILIZATION OF PRINCIPAL FIXED ASSETS

In certain branches and enterprises special indices are computed to probe the utilization of some types of fixed assets. Of these the particulars about the utilization of implements of production and means of transportation are particularly important.

Statistics classifies equipment into the following groups:

Equipment on hand, being equipment installed and uninstalled, listed in the inventory.

Installed equipment, being, firstly, all stationary equipment in operation, or ready for operation (regardless of whether it is undergoing repairs, or being removed) and, secondly, all movable equipment in operation (regardless of whether it is actually operating or in repair).

Actually operating equipment, being equipment in operation for a specified number of days during the period under survey.

Uninstalled equipment, being idle equipment which is not made stationary (not mounted on a foundation). Nonstandard (movable) equipment is listed as uninstalled if it is not assembled and ready for operation.

Soviet statistics makes use of all types of inventories (of power, lifting, and pumping equipment, for instance, etc.). They contribute greatly to the study of utilization of equipment.

The inventories are intended to compile facts about the general total of equipment of various types, and such particulars as:

a) equipment installed and uninstalled;

b) installed equipment not in operation (as distinct from idle equipment awaiting repairs);

c) uninstalled equipment divided into groups as: to be installed, reserve, surplus for given enterprise;

d) condition of equipment to be installed;

e) condition of surplus equipment.

The progress of installation projects and overhauls is controlled by means of movement accounts kept by enterprises for the most important types of their uninstalled equipment. The same accounts also help to control: the execution of Government instructions regarding transfer by enterprises of their surplus equipment to other enterprises; the observance of repair dates for uninstalled equipment (requiring overhauls); and available uninstalled equipment (to be installed or surplus).

3. MATERIAL AND TECHNICAL SUPPLY

The process of supplying all branches of the national economy with the required means of production, i.e., equipment, raw materials, supplies, fuel and power, is known as material and technical supply.

In a planned economy means of production are not subject to open sale and purchase. They are distributed by the state according to plan. Supply plans consisting of balance accounts and distribution schedules for the main types of means of production are approved by the U.S.S.R. Council of Ministers. The balance accounts specify the resources (output, remnants and other stock) for each type of means of production and group them according to types of consumption (in industry, building, open market, export, accumulation of reserves and stocks). The distribution plans specify the volume of equipment, raw materials, fuel and power earmarked for each ministry or department.

Consignment of products to consumers is another important particular in the statistics of material and technical supply. Consignment implies the actual consignment and shipment of products to the consumer. It does not include shipment to sales organizations, nor stocks of finished products. The mean consignment figure for

any period is obtained from the mean daily consignment data computed by dividing the absolute volume of consignments for that period by the number of days.

Mean daily consignment figures are computed wherever large daily consignments are made to consumers, such, for instance, as consignments of coal, power, etc.

In analyzing the progress of consignment plans attention is paid to uniform delivery and the supply of the national economy with the required assortment of means of production. The simplest way of probing uniformity of deliveries is by grouping data about the progress of deliveries to separate consignees by dates of delivery. This is done, say, for every ten days. The specific weight of the ten-day consignments in the total monthly consignments is then computed.

The receipt of means of production implies the actual arrival of means of production at the warehouses of consumer enterprises. There is receipt statistics, which specifies the time, desired quantity and assortment.

The supply of means of production required by an enterprise for continuous operation is called the *norm*. Accumulation of material values at enterprises in excess of the norm should be avoided. The data about stocks, receipts and consumption of materials are studied both for the entire economic branch, and for its separate enterprises.

The planning and organization of material and technical supply presupposes a detailed knowledge of requirements and registration of the actual utilization of raw materials, fuel and power. Utilization is recorded according to its purposes, and above all distinguishes between production outlays, and outlays made in capital construction. Materials, fuel and electric power are also utilized in the repair of equipment, buildings and structures, and in cultural and public-utility services, etc. These utilization figures are also recorded and reflected in statistical surveys.

Specific consumption figures are of prime importance in the statistics of raw materials, fuel and electric-power utilization. They represent the mean consumption of a given raw material, fuel or power per unit of production. Specific consumption figures are compared with es-

tablished consumption norms and the specific consumption of past periods.

There are two varieties of stocks—stocks of finished products intended for realization, and stocks of production supplies. The former, known as supplier stocks, are ready products available at producer enterprises and the warehouses of sales agencies. Stocks of production supplies, known as consumer stocks, consist of raw materials, fuel and equipment available at producer enterprises and the warehouses of supply agencies.

Statistics is called upon to keep accurate records of all stocks of raw materials, supplies, fuel and equipment, determine whether the requirements of producer enterprises and construction projects are satisfied, and reveal excess and surplus material values in stock at separate enterprises.

Statisticians obtain their data from itemized accounts kept at enterprises and construction projects of their means of production. Furthermore, inventories are taken of remnants of the principal materials. The inventories of material and fuel available at enterprises, construction projects, and the warehouses of ministries and departments facilitate the preparation of supply plans. Moreover, they reveal excess stocks usable as supplementary resources of material and technical supply.

Data about the availability of means of production at enterprises and construction projects play an important part in stock analyses. Such data are computed in days by dividing productive stocks by the mean daily requirements in the given materials. The norms of productive materials are also set in days.

Material balance accounts are drawn up for various types of metals, fuel, lumber and building materials, equipment, and chemicals, etc. They give an idea of resources during the period under survey, and show how these were utilized in the national economy and how the planned balance accounts for various types of production are being fulfilled. Material balance accounts reveal inter-branch and inter-district connections in the period under survey, and show the extent to which local resources are being utilized, and overlapping and unnecessarily long shipments are being reduced.

Material balance accounts are usually presented as tables consisting of two columns—resources, and distribution of resources. The first column indicates the source of supply (industry, import, stocks, etc.) and the second shows the actual utilization of resources according to types of consumption (industry, construction, export, etc.).

Material balance accounts of certain metals, fuel, lumber and building materials are drawn up for both the entire national economy and territorially. Territorial material balance accounts have appendices indicating the districts supplying the given type of material or fuel, and the districts to which it is shipped. Balance account data are compared to the planned tasks.

IV

OUTPUT FIGURES

1. CLASSIFICATION OF THE NATIONAL ECONOMY AND LABOUR

In the Soviet Union the total social product is computed as the total annual output in all branches of material production. But in computing output we must first of all classify the branches of the national economy and labour, so as to single out the particular branches of material production, in which the social product is being produced. The branches are classified according to the part they play in the production of the social product.

The main thing is to draw a line between the sphere of material production and the non-productive sphere; to classify branches within the sphere of material production; and to sort these branches into two groups—production of means of production, and the production of consumer goods. Soviet statistics classes all types of labour materialized in production as belonging to the sphere of material production. Labour expended in the service sphere (education, science, art, public health, etc.), and in the sphere of government and defence is classed in the non-productive sphere.

Soviet statistics distinguishes the following branches of material production:

Industry,
Building,
Agriculture,
Forestry,
Transportation (of freights),
Communications (serving production needs),
Material and Technical Supply,
Agricultural Procurement,
Trade and Public Catering,
Other Branches of Material Production.

Industry, building, agriculture, forestry and the other branches of material production are directly involved in the process of creating use-values. In transportation, communications, material and technical supply, trade, and procurement the bulk of use-values does not increase, because no additional material wealth is produced in them. But they are involved in the consummation of production—the transportation of products from production sites to the consumer, storage, sorting, packing and other operations bound up with delivery and sales of products to consumers. The social labour expended in them makes consumption possible.

Socialist industry is the major and leading branch of the Soviet national economy. Industry embraces: a) extraction of mineral raw materials, lumber production, fishing, etc.; b) processing of industrial and agricultural raw materials; c) equipment repairs and various jobs identified as production services.

Industry is classified as *extractive or manufacturing*.

Extractive industry embraces the extraction of mineral products (coal, petroleum, shale, natural gas, ores of ferrous and non-ferrous metals, chemical mineral raw materials, etc.) and the procurement of natural plant or animal products (fisheries, timer felling, etc.). The manufacturing industry has to do with preliminarily processed objects of labour, i.e., with such objects of labour (raw materials) as have already been subject to the action of labour.

The manufacturing industry processes both industrial and agricultural raw materials, and repairs industrial prod-

ucts (equipment, consumer metalware, etc.). It has such branches as the machine-building, metal-working, coke, oil-refining and chemical industries, ferrous and non-ferrous metallurgy, and the light and food industries, etc.

In view of the great variety of industrial production enterprises are classified according to industrial branches, which are sorted out within the framework of an industry as branches of material production. The basic criterion in this is the *similitude of purposes of the products.* But in a number of cases that criterion is insufficient. The other criteria are *similitude of raw materials used* and the *nature of the technological process.* The list of industries and industrial branches, the latter being identified according to industries, is known as the classification of branches of industry.

The *building* industry embraces the erection of buildings and structures (bridges, dams, roads, etc.): installation of equipment; preparatory work connected with building, such as prospecting, blasting, drafting, drainage and land reclamation, etc.; repair work.

Agriculture implies the growing of plants, breeding of animals and the production of animal and poultry products (milk, wool, eggs, etc.) not involving the slaughter of cattle and poultry. Agriculture breaks up into two major branches—*plant-growing* and *animal husbandry.* Plant-growing yields various farming products, such as cereals, industrial and forage crops, vegetables, and potatoes; it embraces fruit-growing and viticulture, etc. Animal husbandry embraces cattle-breeding, reindeer-breeding, rabbit-breeding, animal-breeding, dog-breeding, poultry farming and fishery, apiculture and silkworm-breeding.

Unlike the manufacturing industry, agriculture yields primary products, while the former processes agricultural products and products of the extractive industry. These distinctive features facilitate the computation of industrial and agricultural outputs, and their correlation, which is one of the basic indices of industrialization.

Forestry is an independent branch of the national economy, engaged in timber-growing and forest maintenance.

Transportation is sub-divided into *freight* and *passenger* transportation. Soviet statistics regards only freight

transportation as a branch of material production. It refers passenger transportation to the service sphere.

Not all freight shipments, however, may be referred to freight transportation as an independent branch of the national economy. This applies to shipments of freight with transportation facilities maintained by enterprises, which are auxiliary to the latter, and whose cost is included in the gross output of these branches. As an independent branch freight transportation embraces shipments of freight from producer enterprises to consumer enterprises by independent transportation agencies.

That part of *communications* which serves branches of material production, is a productive branch. Communications serving the general public and institutions of the non-productive sphere (education, public health, etc.) has nothing to do with material production. Communications as an independent branch of production, like freight transportation, embraces only the operations of independent communications agencies.

Material and technical supply embraces the activities of independent sales agencies—the main sales offices of ministries and local sales offices, and their warehouses—which handle implements and objects of labour, and supply agencies—the main supply offices of ministries and local supply offices, and their warehouses—which handle industrial supplies for enterprises and construction projects.

Trade. The principal function of Soviet trade is to sell consumer goods produced by industry and agriculture. Commodities are also purchased and sold by foreign trade, or import-export, agencies. The greater part of trading is devoted to functions of a productive nature, such as storage, weighing and packing, etc. The labour expended in these processes adds to the value of the commodities, and thereby makes up for the expenditures incurred. There are also overhead expenses related to commodity production, such as sales and accounting services, etc., which do not create new values.

Soviet trade also embraces public-catering establishments which process raw materials (prepare meals) and sell their products to consumers.

Procurement of agricultural products denotes the purchase by state and co-operative agencies of agricultural

products from their producers — the state farms, collective farms, individual collective farmers, and workers, employees and collective farmers who engage in by-farming. The procurement agencies procure, store and sort farming produce, performing a number of functions of a productive nature. Thereby they add to the value of the produce, and qualify as belonging to the sphere of material production.

The *other branches of material production* include motion-picture studios, publishing houses, hunting, and the salvaging of waste and junk, etc.

The *non-productive sphere* embraces education, public health, finance and credit agencies, scientific institutions, government and defence, cultural services, and certain public utilities. No new material wealth is created in this sphere of social activities. Yet the labour expended in them is socially-useful labour.

The Soviet state attaches great importance to setting a proper proportion between labour expended in the sphere of material production and the non-productive sphere. A methodical increase of the share of labour expended in the former sphere by reducing the share of labour expended in the latter, and the reduction in size and cost of the administrative machinery, are of immense benefit to the country.

2. BASIC CLASSIFICATION OF THE SOCIAL PRODUCT AND BRANCHES OF MATERIAL PRODUCTION

The crucial problem in the classification of the national economy is the classification of social production, and, accordingly, of the social product, into two major sub-divisions:

Means of Production (sub-division I),
Consumer goods (sub-division II).

Means of production are material wealth serving productive consumption: machines and equipment, raw materials, fuel and other objects of labour. Consumer goods are material wealth that goes to satisfy public requirements,

such as food-stuffs, clothing, foot-wear, domestic articles, etc.

A portion of the social product is consumed by the non-productive sphere (heating and lighting of non-productive premises, office appliances and stationery, etc.). This portion of the social product belongs to sub-division II—the sub-division of consumer goods.

In planning and statistics the branches of industry producing means of production are designated as group "A," and branches producing consumer goods, as group "B."

Industrial enterprises are accordingly placed in either group "A" or "B." An enterprise producing a variety of products belonging to both branches is usually classified in the group for which it produces the major part of its output. The gross industrial output is, as a rule, classified into groups "A" or "B" in accordance with the actual utilization of its various constituent products. All products earmarked for productive consumption are referred to group "A," including products of the light and food industries that undergo further industrial processing. That part of finished textiles, for instance, which is channeled into the garment-making industry, is classed in group "A" instead of "B." All industrial production directly consigned for general consumption, or consumption by establishments of the non-productive sphere, is classed in group "B."

Socialist reproduction on an expanded scale sets a definite proportion between groups "A" and "B," requiring a more rapid rate of increase for group "A," and above all for heavy industry. It is only on the basis of an all-round development of heavy industry that rapid advancement can be achieved in all branches of the national economy.

In the other branches of the national economy the social product is also broken up into the two sub-divisions. In agriculture all types of agricultural raw materials earmarked for industrial processing (technical crops, cereals, etc.), and that part of the agricultural output that is employed for the productive needs of agriculture itself (seeds, fodder, etc.) are classed as means of production. All other agricultural products, destined for general consumption, are classed in the consumer goods group.

In building all industrial construction—the building

and repairs of industrial buildings and structures—is classed as means of production. Building of a non-productive nature, such as the building of dwellings, schools, hospitals, etc., belongs to the other group.

The value of freight transportation production equals the freightage receipts. The charges collected for freights classed as means of production (equipment, raw materials, supplies, etc.) are regarded as belonging to sub-division I, while charges collected for commodity freights (food-stuffs, clothing, etc.) are classed in sub-division II.

The value of the production of material and technical supply is equal to the total expenditures of supply and sales agencies (minus freightage paid to transportation agencies, which is accounted for in the value of freight transportation) plus their normal profit (the portion of the net profit of state enterprises expended in extending production). The entire output of material and technical supply belongs to sub-division I.

The value of trade production is determined by the value of the so-called realized trade imposition, i. e., the difference between the sales and purchasing prices of commodities. Trade belongs to sub-division II.

3. RECORDS OF THE SOCIAL PRODUCT

In the U.S.S.R. the output of all branches of material production is planned and recorded in money and in natural form.

Output in natural form is recorded in physical units (tons, metres, etc.). The statistics of production in natural form not only conveys the quantity, but also the composition of the output of the various branches and sheds light on the mutual connections and proportions between the output and consumption of various types of production. Output data in natural form are also used in determining the productivity of labour, and per-capita output and consumption of the principal products, etc.

But statistics in natural form fails to summarize the general output, to record and compare the work of enterprises and industries, and to compute the social product for the various branches of industry, and for the national economy as a whole. This requires statistics in money form. The

output of the various branches of material production must be assessed.

Industrial production is assessed in *wholesale prices of the enterprise*, which cover planned expenditures and provide for a net profit, and *wholesale prices of the industry*, which exceed the former by the amount of the turnover tax.* Planning and plan fulfilment control are carried out by enterprises and ministries in wholesale prices of the enterprise. The correlation of industrial branches, the classification of industry in groups "A" and "B," and the specific weight of the two groups in the total industrial output—all involve wholesale prices of the enterprise.

But in computing the total social product the output of the various national-economic branches is assessed in supply prices prevailing in the branch concerned. In industry they are the wholesale prices of the industry. In construction carried out by building contractors they are the *contracted prices*, and in the case of agricultural commodities they are the *procurement and purchasing prices*, and prices current in the collective-farm markets. The non-commodity part of the agricultural output is assessed by state farms at its cost price, and by collective farms and individual by-farmers in average sales prices.

To show the change of output over certain periods, it is assessed in prices prevailing at some one period, taken as the base, i. e., in comparable prices. This yields an index of the physical volume of production.

In determining output indices Soviet statistics proceeds from the different roles played by the constituents of the social product. The principal indices are: gross output, commodity output, and net output. The *gross output* is the total output of the various enterprises and national-economic branches over a specified period. The *commodity output* is output earmarked for disposal, or sale, outside the bounds of a given enterprise. The *net output* is the part of the output created by socialist producers which remains after the means of production expended in the given period are replaced. The net output is computed by subtracting material expenditures from the gross output.

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* Deduction from the incomes of enterprises that goes to the state.

4. INDUSTRIAL OUTPUT

Industrial output is the total production of the various industrial enterprises. It breaks up into finished, semi-finished, and unfinished production.

Production in stock for realization, whose processing at the given enterprise has been completed, is classed as *finished* production. *Semi-finished* products are products processed at one of the principal shops of the enterprise and turned over for further processing, or assembly, to another shop of the same enterprise. Sometimes semi-finished products are sold on the side; a spinning and weaving mill, for instance, may produce yarn not only for its own looms, but for sale to other enterprises. *Unfinished production* is production in the processing stage within the bounds of a single shop, such as separate units of unassembled machines.

Industrial statistics records the quantity of the *principal* finished and semi-finished products in physical form, and the output in value. The selection of products recorded in physical form depends on the practical needs of planning and management.

There is a nomenclature of products recorded in physical form in which they are grouped according to their purpose, mode of production, raw materials, and dimensions. Thus, steel is classified as open hearth, Bessemer, basic and electric steel. Presses used in the building-materials industry are classed according to their purposes as brick-making, tile-making and slag-block presses. Classification by raw materials gives an idea of the quality and purpose of products. Thus, textiles are classed as woollen, cotton, silk, and jute textiles, while lumber is classed as coniferous and greenwood lumber. This kind of grouping is extremely helpful in summarizing the introduction and advancement of new types of industrial raw materials. We may cite the grouping of machines by their capacities, and piping by its diameters, as examples of how products are classified by their dimensions.

Classification of products in their physical form summarizes the composition of production.

Industrial enterprises specify their output of products listed in the approved nomenclature, however small the

quantity may be, in their accounting, thereby facilitating the collection of data on a nation-wide scale.

The nomenclature specifies the units in which output is to be recorded. Use is made of specific units. Under the specific-unit method different types of the same class of product are brought down to a single denominator. Various kinds of fuel with differing heat values, for instance, are calculated in terms of 7,000-calorie fuel, the output of tractors in terms of 15-h. p. machines, and freight cars in terms of biaxial cars. This makes the different types of a product commensurable.

Output in physical form specifies the total quantity of a product, including the part consumed by the producer enterprise.

Data on production in physical form are widely applied in industrial statistics to study production levels for groups of years and changes in the structure of production, to draw up material balance accounts, and to determine labour productivity in various branches of industry. Grouped under the territorial principle, statistics summarizes the distribution of the principal types of production, the industrial development of the various economic areas, and the utilization of local raw materials.

Gross and commodity output figures define industrial production in money form.

The gross output of an industrial enterprise is the fruit of its operation over a specified period. Gross output figures primarily designate the value of all finished and semi-finished products, and the products of auxiliary and supplementary shops, manufactured by the enterprise for realization. They also reveal the fluctuations in the value of its stock of semi-finished products and products of auxiliary and supplementary shops, the value of added stocks of unfinished products, and the value of industrial custom work.

The value of an enterprise's production consumed intramurally for productive purposes is known as intramural turnover. Included in the value of finished products, it should not be separately included a second time in the gross output. The value of rolled stock at an iron and steel works producing pig-iron, steel and rolled stock, for instance, includes the value of steel, just as the latter includes the value of pig-iron consumed in its manufacture. In computing

the output of the works, the value of pig-iron and steel consumed in the production of rolled stock, i. e., the intramural turnover, must therefore be ignored.

The value of added (or depleted) stocks of unfinished products is included in the gross output only of such enterprises in which accretion is substantial owing to a long production cycle. This applies to machine-building enterprises, repair works and structural steel works. At certain enterprises of the food and light industries, meanwhile, the gross output does not even include the value of the accretion in the stock of semi-finished products, because at such enterprises it is negligible and has no perceptible bearing on the gross output.

At certain other industrial enterprises the gross output is made to include the value of intramural turnover as well as that of the finished production. This is true for the sugar-refining industry, for instance, where the gross output includes the value of refined sugar consumed at the same enterprise in the production of lump sugar.

Industrial custom work may imply overhauls and repairs performed for other enterprises and organizations, such as repairs of equipment belonging to other enterprises, repairs of foot-wear and clothing. Custom work also includes certain operations in the processing of materials and parts, or finishing jobs. An enterprise producing metal spoons, for instance, may send its production to some other enterprise to be nickel-plated. The finished product is then returned, to be realized.

Industrial custom work is included in the gross output at *cost price*, i.e., the cost of repairs, for instance, excluding the value of the object repaired.

In a general overhaul of its equipment the enterprise restores the use-value of its fixed assets. The cost of repairs, therefore, is covered by the sinking fund, and has no bearing on the cost of production. For this reason the cost of overhauling its own equipment is included by an enterprise in its gross output figure.

The output of non-productive shops and the receipts of non-productive organizations functioning within the framework of an enterprise are not the fruits of its *industrial* operation. For this reason the value of buildings erected, the produce of auxiliary farms, the incomes of housing and

utility services, and holiday homes, etc., are not part of the gross industrial output.

Industrial enterprises sometimes produce things for their non-productive services and organizations. A tractor works, for instance, may equip its farm with a tractor of its own production, or a cotton textiles mill may furnish its kindergarten with its cotton materials. The cost of these articles is just as much part of the gross output as the value of products sold in the market.

The gross output of an industrial enterprise therefore incorporates: a) the value of finished products manufactured by the enterprise during a given period; b) the value of industrial custom work; c) the value of semi-finished products and the products of auxiliary and supplementary shops sold in the market or given to the non-productive divisions of the enterprise; d) the value of the accretions or depletions in the stock of semi-finished products and products manufactured by auxiliary and supplementary shops (tools, stamps, devices, containers, etc.).

In the case of machine-building works, repair plants and structural steel works the gross output also encompasses the value of unfinished product stock increases or decreases.

The *commodity output* of an industrial enterprise differs from the gross output in that it does not include the value of products intended for intramural productive use. It does not cover the value of semi-finished product stock increases and the value of unfinished product stock increases. As for articles produced from a customer's raw materials, the commodity output only accounts for the operating costs involved in the manufacture of the articles, while the cost of raw materials is not included. The difference between the gross output and the commodity output figures is most pronounced in the case of machine-building enterprises with a long cycle of production.

As a rule, industrial enterprises realize their production at wholesale prices of the enterprise (without the turnover tax). The gross and commodity outputs of the various enterprises are therefore assessed in the same prices.

The gross industrial output plan is drawn up and statistically controlled in comparable prices. Up to and including

1950 statisticians applied prices prevalent in 1926/27. From 1951 to 1955 the output was assessed in wholesale prices of the enterprise of January 1, 1952, and prices of July 1, 1955 are being used during the five years of 1956-1960. Comparable prices facilitate comparisons of data for any one of the five years with the corresponding data of the five-year plan. They also facilitate the study of the dynamics of the physical volume of production and the computation of labour productivity indices. The gross output of factories is also annually computed in wholesale prices current during the given year.

The gross output figure in wholesale prices of the enterprise does not cover the turnover tax and consequently yields an incomplete figure of industrial production. The total gross industrial output is therefore also computed in wholesale prices of the industry, i.e., prices including the turnover tax. These data are used in determining the total social product and the national income.

Industrial commodity production is planned in wholesale prices of the enterprise current at the time of planning. In the accounts the commodity output is recorded in both the planned wholesale prices of enterprises, and in current prices. The current prices facilitate comparisons between the commodity output and the cost price of products on the one hand, and the sales figures and other financial indices on the other.

5. BUILDING OUTPUT

In addition to building and installing, the building output, as said before, includes the prospecting, drilling, designing and surveying involved in new construction and the extension of operating buildings and structures, and building repairs. The building output includes not only the jobs specified by the state investment plan, but also all building investments of collective farms and the construction jobs performed with volunteer labour, etc.

In view of the relatively protracted building cycle statistics keeps current record of the progress of building and installing work. This facilitates control. In addition, statistics also registers enterprises, constructions and dwelling houses, etc., put into operation.

The building output is recorded both in physical form and in value. The data in physical form are broken up into groups of completed building production and completed building jobs. *Completed building production* is construction projects put into operation. The statistical unit may differ, depending on the properties of operation. Thus, it is cubic metres of efficient space for blast furnaces, square metres of bottom for open-hearth furnaces, kilowatt capacity for electric stations, square metres of floor space for dwellings, and length in kilometres for railways.

Data about completed building jobs are classified according to the various elements of building, such as foundations, walls, roofing, etc., and according to combined jobs. The latter (excavation work, plastering, painting, etc.) comprise a set of simple jobs or operations. Thus, excavation work involves digging and removal of soil, setting up props, etc. The units in which the various jobs are recorded may differ. Excavation and stonework, for instance, is recorded in cubic metres, and the flooring and roofing in square metres. The records of completed constructive elements and completed combined jobs are used in assessing the value of completed building jobs.

Besides showing the progress of building and installation jobs, records in money form also embrace the value of construction projects put into operation. Completed building and installation jobs are assessed in both estimated and current prices. The plan cites estimated prices, and data are therefore first given in them.

From 1950 to 1956 building estimates were made in prices introduced on July 1, 1950. Before then estimates were made in the prices of other years; up to 1946 in the prices of 1936, from 1946 to 1948 in 1945 prices, and from 1949 to July 1, 1950, in 1949 prices. For the sake of comparison over a period of years the building production estimated in 1936, 1945 and 1949 prices was reassessed in the prices of July 1, 1950. From 1956 to 1960 planning and investment accounts, as well as building estimates, will be based on prices current on July 1, 1955.

Completed building and installation jobs are also assessed in real value, i.e., in figures representing the sum of expenditures actually incurred.

Distinction is made between completed and uncompleted investments, and uncompleted building jobs. *Completed investments* are projects put into operation, such as buildings and structures. *Uncompleted investments* are projects in which certain jobs and parts of the constructive elements are completed and accepted by the client. *Uncompleted building jobs* are uncompleted constructive elements or jobs.

The value of completed building and installation jobs does not include the value of jobs completed for uncompleted constructive elements (or of combined types of jobs), which represent uncompleted jobs. Thus, if only digging has been completed in an excavation job, while the earth still has to be removed and other jobs have been done only in part, the completed portion of the excavation work is recorded as an uncompleted job.

The value of building production is defined as the sum of the value of completed building and installation jobs, prospecting and drilling, designing, general repairs, and the accretion in the value of uncompleted building jobs.

For the sake of comparison building production for a number of years is assessed in estimated prices of some one year.

6. AGRICULTURAL OUTPUT

The agricultural output consists of the output of crop-raising and the output of animal husbandry, and is recorded both in its physical form and in its value.

The *cropraising output* is determined by CSB agencies with the help of data about the actual harvest. Periodical harvest forecasts are made by the chief agronomists of machine and tractor stations and state farms. Two or three successive forecasts for various crops are forwarded by the agronomists to various agricultural agencies at intervals which vary for the various zones of the country.

The actual harvest is determined by CSB agencies on two occasions, yielding first provisional and then final figures. The provisional figure is built upon the special reports sent in by collective and state farms, and reports sent in by machine and tractor stations about the collective farms of their area. The data in the reports, which are

made towards the close of harvesting, are grouped by crops or classes of crops. The final harvest figure is obtained from the annual reports of collective and state farms, and farms maintained by ministries and departments. The harvest gathered by collective farmers, workers and employees from their personal plots is computed in a selective investigation of collective farmers' budget accounts, etc.

The annual reports sent in by collective and state farms facilitate the calculation of the actual harvest per hectare harvested, and per hectare sowed of spring sowing, i. e., ignoring crops which perished during the summer, or remained unharvested for other reasons. The area under crop towards the close of the spring sowing is known as the *sporing productive area.* It is annually recorded. Collective farms, state farms, and farms belonging to enterprises and establishments forward a final report on the sowing to district CSB inspectors. At the same time the state and collective farms send in a report on the kinds of crops sown.

The sowing on the personal plots of collective farmers, workers, and employees, and at individual peasant farms is recorded by census and registration.

The areas of gardens and orchards are recorded in periodical censuses in all farming categories, and annually on the strength of the annual reports of state and collective farms. The gross fruit harvest is computed per area of fruit-bearing plants.

The output of animal husbandry is the offspring and accretion of young cattle, poultry and other animals in the course of the year; the weight accretion of livestock and poultry as a result of fattening; and milk, wool, eggs and other animal and poultry produce. The productivity of animal husbandry is based on the mean milk yield per cow, the mean yield of wool per sheep, the mean yield of eggs per hen, the mean yield of honey per apiary, the mean living weight of cattle or the carcass weight of beef turned in to the state, and the mean fertility of cattle (offspring per 100 mother animals).

Livestock and poultry figures are used chiefly to determine the output of animal husbandry. The number of head of cattle is determined in annual livestock censuses in all farming categories. In the case of collective and state farms

use is also made of annual, quarterly and monthly reports, which specify the quantity and turnover (offspring, slaughter for beef, sales and purchase, plague, etc.) of livestock and poultry, and their productivity.

The weight of accretion of young cattle is computed by subtracting its original weight from the living weight at the end of the year, i. e., it is the weight gained by young cattle during the year. The weight gains of fattening cattle is calculated as the gain in living weight during the fattening period. The pertinent data are obtained from reports of fattening and procurement agencies.

The output of animal husbandry (milk, wool, eggs, etc.), is computed from reports sent in by state and collective farms and auxiliary farms of enterprises and institutions. But there are no direct records of the output of livestock and poultry in the private possession of collective farmers, workers and employees, and of individual peasant farms. Their output is therefore computed. In their case use is made of livestock figures yielded by census, and of cattle and poultry productivity figures obtained in selective investigations of budget accounts of collective farmers, workers and peasants.

The beef and fowl (and leather, etc.) output is estimated for planning purposes and for the purpose of registering annual meat, leather and other food and raw material resources of the country (district).

The beef and animal fat output is obtained in mean carcass weight by multiplying the number of head of cattle and poultry slaughtered. The number of head of cattle slaughtered at state farms is equal to the number of head turned over to the state, and for farms belonging to enterprises and other state-owned economies it is equal to the cattle turned over to the state, slaughtered at the farms, or turned over to workers' supply divisions of enterprises. The cattle to be slaughtered by collective farms, the personal farms of collective farmers and by other privately-owned economies, is computed from the head of cattle turned over or sold to the state, consumed personally, and sold at collective-farm markets. This excludes livestock sold for fattening and breeding purposes.

The mean weight per head of cattle turned in to procurement agencies is computed from invoices of procurement

agencies, butcheries and abattoirs. In the case of farms it is computed from the annual reports of collective and state farms, and a selective investigation of collective farmers' budget accounts.

Cattle are mostly slaughtered at butcheries and abattoirs. For that reason the output (meat, fat, leather, etc.) and processing of raw materials derived from animal husbandry (milk and wool) is classed as industrial and not agricultural output.

The gross agricultural output is determined by the value of all crop-raising and animal products obtained during the year. The value of the gross output for the various crops is assessed in terms of value, to which the value of the annual accretion of unfinished production is added (the diminution of unfinished production is subtracted). The value of unfinished agricultural production is the outlay incurred in preparing the soil for, and sowing, winter crops and preparing the soil for sowing spring crops the following year. The value of the crop-raising output also includes the value of perennial plants—the expenditures incurred in planting and tending young perennial fruit, industrial and forage plants during the given year.

The *animal husbandry output* is assessed in terms of money.

The gross agricultural output includes both the value of produce sold outside and the value of products consumed intramurally. Thus, the value of forage produced by a collective farm and consumed therein is included in its gross output. The gross agricultural output, therefore, represents the gross turnover. It is computed for the various farming categories—state farms and other state enterprises, collective farms, personal plots of collective farmers, workers and employees, and the farms of individual peasants.

Statistics also studies the *agricultural commodity output*, i.e., the output disposed of on the side by agricultural enterprises and by farmers. The commodity output includes state procurements and purchases of agricultural produce; the purchases of consumer co-operatives and other agencies; and the sales of produce to the general public and agencies of collective-farm trade. The agricultural commodity in-

dex is calculated as the ratio of commodity output to the gross output (in per cent).

The agricultural output is assessed both at current annual prices and at comparable prices.

In evaluating the output in current prices the commodity part is assessed at sales prices—products turned over to the state under the procurement plan at state-procurement prices, and products sold to the state at state-purchasing prices; products purchased by consumer co-operatives and other agencies at prevailing purchasing prices and those sold at the collective-farm markets at prices prevailing in the markets. The value of the non-commodity part of the output, i. e., the part consumed in farming, is determined: for state farms at the cost price of the output; and for collective farms and privately-operated economies by assessment at average commodity prices of that year.

Breeding products are assessed in the following manner: the living offspring at prices of that year; the gains of young cattle bred in previous years by the increase in its value at the end of the year (allowances being made for strain and for productive qualities) as compared with the early part of the year.

Suppose the collective farm has 150 calves born in 1954 and the offspring of 1955 total 200 head. Suppose a calf under a year is priced at 100 rubles, and a calf between 1 and 2 years at 300 rubles. The offspring of 1955 will then be worth (100 × 200) 20,000 rubles. The increase in the value of calves born in 1954 will be 200 rubles (300 — 100) per head and (200 × 150) 30,000 rubles for the lot of 150 head. Hence, the total value of offspring and enhancement of year-old calves will in 1955 amount to (20,000 + 30,000) 50,000 rubles. The value of the offspring and the gains of young cattle are, therefore, made up of the price of offspring that year and the increased value of the young cattle bred the previous years.

The value of the annual gross agricultural output is assessed in current prices to determine the value of the agricultural part of the social product. It is assessed in comparable prices, i. e., the mean prices of some one year, in order to give a better idea of the dynamics of agricultural production and the dynamics of labour productivity in agriculture over a number of years.

7. TRANSPORTATION AND COMMUNICATIONS

By delivering material wealth to the consumer *transportation* does not augment its quantity. But the value of the transported products increases owing to the supplementary production process of the transportation industry. Transportation, therefore, participates in creating value. Passenger transportation, however, has nothing to do with material production; it belongs to the sphere of services, and is not regarded as part of the social product.

Transportation statistics summarizes the quantity of freight shipped; it specifies the distances over which it is shipped, and computes the total freight turnover (the product of weight by distance in ton-kilometres). The various important freights, and their turnover, are graphed separately. The quantity of freights shipped, and the total turnover, are classified according to the means of transportation (railway, sea, river, etc.).

The gross transportation production represents the value of shipments made by independent transportation agencies, and is identified with the diverse means of transportation: railway, water, automobile, air, and horse-drawn. The transportation output is determined by the total receipts. Furthermore, the gross output also includes receipts for services rendered on the side by various factory-owned transportation facilities and the transportation facilities of construction projects and collective farms.

Communications render a variety of services to industrial enterprises (postal, telegraphic and telephone services, etc.). The gross communications output equals the total receipts of independent communications agencies for services rendered by them to enterprises of the material production sphere.

8. OUTPUT OF TRADE AND MATERIAL AND TECHNICAL SUPPLY

The gross trade output is represented by the magnitude of trade impositions, i. e., by the difference between purchasing and sales prices. The sum of wholesale and retail impositions represents the money form of the gross trade output, statistically determined by comparing purchasing and sales

prices, which include both the sum paid for commodities to industrial or agricultural enterprises, and the transportation costs. The magnitude of the impositions is obtained from the account books. In computing the gross trade output the outlays for hired transportation services are excluded, inasmuch as they figure as a constituent of the gross transportation output.

The gross output of material and technical supply, which is a part of the social product, is computed from the reports of supply and sales agencies. Its value equals the outlays of supply and sales agencies, plus their profits. Transportation charges are deducted for reasons already explained above.

V

TRADE INDICES

1. THE PRINCIPAL INDICES

Commodities produced by industry reach the consumer through trade. The *turnover* is a multitude of sales and purchases. But not every sale is a turnover; that term applies only to the sale of *material wealth.* The sale of services (theatre, laundry, barber-shop and bath-house receipts, etc.) is not part of the turnover. There are several categories of turnover, of which the principal ones are wholesale and retail turnovers.

Wholesale turnover implies the sale of commodities by enterprises and trade agencies to other trade agencies for subsequent re-sale, and to industrial enterprises for the manufacture of other commodities.

Retail turnover implies the sale of commodities to the general public, and organizations, establishments and enterprises for consumption by their clientele, or functional use. Goods sold to the latter for productive use do not enter the retail turnover.

The *gross turnover* comprises the sum of wholesale and retail turnovers. If the duplicating item, i.e., the wholesale turnover, is excluded from the gross turnover, we get the *net turnover*, which, taken for the entire national economy, equals the retail turnover.

The correlation of the gross and net turnovers reflects the mediate nature of commodity circulation. The magnitude of the gross turnover depends on the number of intermediate trade links which the commodities must pass before reaching the consumer. By dividing the gross by the net turnover we get the average mediate *coefficient*, computed by the following formula:

$$C_{in} = \frac{\text{Gross turnover}}{\text{Net turnover}}$$

The more intermediate links there are, the slower the circulation of commodities, the greater the overhead expenses and the lower the earning capacity of Soviet trade. The task is to organize a rational circulation of commodities and reduce to a minimum the number of turnover links. That is why statistics makes a study of intermediacy in trade.

2. WHOLESALE TURNOVER

The wholesale turnover of the principal commodities is summarized in the following indices: utilization of commodity production, consignment of market-fund commodities and their delivery or realization. The indices are computed separately for each type of commodity (at present for about fifty items), in physical form for food-stuffs, and by their value for the other items.

The wholesale turnover is broken up into two consumer funds to show its utilization. One of them—*the market fund*—embraces the wholesale disposal of goods to trade agencies for re-sale through the retail network; and the other, known as the *non-market fund*, embraces the sale of goods to industrial enterprises for use as raw materials or auxiliary materials, of industrial goods to public and cultural services (children's, medical and educational institutions), and export sales, etc. Statistics registers the progress of planned sales separately for both the market and non-market funds, and calculates the share of the market fund in the over-all sales of each commodity.

As a rule, non-market funds are consigned directly from factory warehouses or distribution agencies to the consumer.

The market fund, meanwhile, usually involves two links: factory warehouses or distribution agencies, from which the commodities are forwarded to intermediate regional distribution agencies, which, in their turn, deliver them to the trading agencies. Some deliveries, known as transit deliveries, are made from factory warehouses and distribution agencies directly to the trading agencies.

There are two kinds of accounts for each commodity, depending on the method of circulation. *Consignment* accounts summarize market-fund *shipments* to republics, territories and regions; and *delivery* accounts show the *magnitude* of market-fund shipments to republican, territorial and regional trading agencies. In both cases the data are presented relatively to the plan.

In the retail turnover planned deliveries of funded commodities are the principal constituents of supply. A comparison of actual deliveries with the planned figures shows to what extent wholesale agencies are fulfilling their plan of supplying retail sales agencies. Absolute figures showing to what extent they are short of the plan for the principal consumer goods are obtained by subtracting actual deliveries from the planned figure.

Soviet statistics computes the index of the physical volume of market funds by the following formula:

$$\text{I ph. vol.} = \frac{\Sigma q_1 P_0}{\Sigma q_0 P_0},$$

in which q_0 is the quantity of goods delivered in the basic period; q_1 the quantity of goods delivered in the period under survey; and P_0 the prices in the basic period.

The denominator is the volume of commodity deliveries in the basic period. The numerator is the value of deliveries in the period under review assessed in prices of the basic period. In the case of food-stuffs such a reassessment is made directly by multiplying the quantity of goods delivered by the average prices prevailing in the basic period. As for deliveries of other commodities, which are recorded in value, their turnover in the period under review is reassessed in prices of the basic period by the index method, i. e., by dividing the turnover by the price index.

8. RETAIL TURNOVER OF STATE-OPERATED AND CO-OPERATIVE TRADE

Retail turnover statistics summarizes the living standards of the population, and at the same time records the progress of the State Bank's cash plan and money circulation in general.

Retail turnover includes the following types of sales to the general public: 1) commodity sales in the retail network (shops, stalls, etc.) and by public caterers; 2) sales of foot-wear, clothing, linen and headgear made from non-custom materials at custom establishments; 3) sales of services at custom tailors, shoemakers, etc., and at shoe, clothing, sports, and radio repair shops; 4) sales to the general public by state farms of agricultural products and by industrial enterprises of fuel, houses and summer cottages; 5) sales of uniforms and working clothes, etc. Retail turnover also embraces sales of food-stuffs to educational and medical institutions, sanatoria and holiday homes, crèches, kindergartens and other institutions, as well as sales to these institutions of non-food-stuffs for general use. Furthermore, retail turnover also covers sales to collective farms of industrial and technical goods.

State-operated retail trade is in the hands of the U.S.S.R. Ministry of Trade, the workers' supply divisions of the various ministries and the specialized sales divisions of industrial ministries, etc. Co-operative retail trade is in the hands of Tsentrosoyuz (consumer co-operative) and Tsentropromsovet (production co-operative).

Retail turnover is summarized in the following indices: 1) general volume; 2) itemized list of commodities; 3) commodity reserves and supply of commodities; and 4) commodity-balance accounts. The principal index of retail turnover is the value of total commodity sales, which consists of cash receipts, and non-cash operations through the State Bank for goods sold to organizations, institutions and enterprises. Retail turnover is calculated separately for the various trade organizations and for republics, territories and regions.

Annual calculations are made of urban and rural retail trade, showing their correlation, and the rate of growth of their respective commodity supplies.

Furthermore, the turnover of each trading agency is annually compared with the turnover figure stipulated for it in the plan to determine whether it has fallen short of the goal. The data are then classified at grouping intervals for establishments that fulfilled up to 80%, from 80 to 90%, etc., of the plan.

In investigating the commodity structure of the retail turnover, statistics sorts its constituents into commodity groups. Foods are classified by types, and so are non-food manufactured goods such as textiles, clothing, foot-wear, etc. The list of commodity groups at present contains about 70 items. The increase of the specific weight of consumer goods in the general turnover, the mounting sales of high-priced quality goods, and the extended assortment of wares—all these indices reflect changes in the public's demand.

Retail trade agencies do not classify their sales by commodity groups because of the inconvenience of making out sales slips for each retail transaction. For this reason the sales of various commodities are calculated by the balance-account method.

To operate without interruptions sales agencies must have *commodity stocks*. Available stocks are recorded for a given period according to the following scheme:

$$\text{Balance of stock on hand} + \text{Stock receipts} - \text{Sales} - \text{Sundry stock expenditures} = \text{Balance of stock carried forward}$$

The data are put down in monthly reports and shed light on the rate of commodity turnover.

The rate of commodity turnover may be represented either by the number of turnovers in a given period, or the duration of a turnover. It is based on a comparison of turnover data with data on commodity stocks. The rate of turnover for a given stock increases proportionately to the volume of turnover, and, conversely, any drop in its volume indicates a drop in its rate.

The rate of turnover, reckoned by the number of turnovers, is computed thus:

$$\text{Number of turnovers} = \frac{\text{Turnover}}{\text{Mean commodity stock}},$$

in which the mean stock is calculated by the following formula:

$$\bar{x} = \frac{\frac{1}{2}x_1 + x_2 + x_3 + \ldots + \frac{1}{2}x_n}{n-1}$$

in which x is the stock and n the number of dates.

The commodity turnover rate is given in nation-wide figures, for individual trade agencies, republics, territories and regions, and for the various commodity groups. Every trade agency has a certain planned duration of turnover in days. Multiplying the average daily turnover by the given turnover norm (in days), we get the commodity stock quota. Quotas apply only to normal stocks, as distinct from seasonal stocks. Stocks on hand (excluding seasonal stocks) are compared with the quota to determine excess stocks.

The planning and accounting of retail trade makes extensive use of balance accounts, which give an idea of the sources of commodities and their utilization.

4. RETAIL PRICES OF STATE-OPERATED, CO-OPERATIVE AND COLLECTIVE-FARM TRADE

Price statistics is called upon to determine price levels, average prices and the dynamics of prices.

The price-lists for all the principal commodities of state-operated retail trade, which accounts for about 90% of the entire retail turnover, are approved directly by the U.S.S.R. Council of Ministers or, at its direction, by the U.S.S.R. Ministry of Trade. The prices of a relatively small part of the commodities, chiefly of local manufacture, are set by the Councils of Ministers of the various republics, the executive committees of regional or territorial Soviets of Working People's Deputies, or agencies of republican trade ministries. The prices of goods manufactured by production co-operatives and local district-controlled industries are set by the production co-operative societies and the executive committees of district Soviets of Working People's Deputies. The retail prices of agricultural products sold by consumer co-operatives are set by the co-operatives locally, but not in excess of state retail prices. Products taken on commission

by consumer co-operatives from collective farms are sold at prices agreed upon by the parties concerned. Under the circumstances, price registration amounts merely to recording the price-lists. In studying prices over a lengthy period, during which they may have fluctuated, there arises the need to compute average prices. Average prices are calculated by the harmonic weighted mean formula:

$$\bar{x}=\frac{\Sigma w}{\Sigma \frac{1}{x} w},$$

in which w is the turnover.

The harmonic weighted mean formula is also used in computing the price averages in state-operated and co-operative trade for republics, territories and regions. In the case of commodities subject to so-called belt prices (each belt covering several republics, territories and regions), average prices are calculated only for commodities of a strictly similar quality—medium-fattened beef, for instance, or high-grade butter. Sometimes it is necessary to compute average prices for a commodity group as a whole—meat, for instance, or leather shoes, regardless of quality. If the quantity of goods sold in each group and grade is known, statisticians apply the arithmetical weighted mean formula, and if they know the turnover for each group, grade, etc., they apply the harmonic weighted mean formula.

Unlike state-operated and co-operative trade, collective-farm market prices depend on supply and demand, although substantially moderated by state prices. This gives rise to continuous price fluctuations in the collective-farm markets and creates the need of systematic price registration.

Price registration in collective-farm trade is entrusted to CSB agencies in a sample set of major cities and towns (about 300). Prices are registered at one or several markets with the biggest turnovers. More than 70 commodities are registered on the 25th of every month in modal prices. Moreover, CSB district inspectors register monthly the prices of 17 products prevalent at district markets.

The average prices of collective-farm trade in towns, cities and regions are computed for a definite period—a quarter, year, etc.—on the basis of prices registered at

various dates. The average prices of certain commodities are calculated for each urban area separately. In towns and cities average prices are the simple arithmetical mean of prices registered on the 25th day of the previous and current months. Then, on the basis of these average prices for single towns and cities, statisticians compute mean prices for all urban areas taken as one, by the arithmetical weighted mean formula:

$$\bar{x}=\frac{\Sigma xM}{\Sigma M},$$

in which M is the quantity of goods sold.

Average prices for a longer period—a quarter or a year—are computed in just the same way. Average monthly prices calculated by the simple arithmetical mean formula are regarded as variants (x), and the mass of products sold during the several months is given in weights (M).

Since two prices—1) collective-farm prices and 2) prices set for their produce by collective farmers and individual peasants—are registered in the market, and separate records are kept of each of these two groups, average weighted prices must be computed for collective-farm sales, on the one hand, and the sales in the second group, on the other, before average over-all prices are calculated. The average weighted prices for the collective-farm market are computed by dividing the total value of commodities sold by the total quantity of sold commodities.

There are composite price indices to summarize the price changes for several varieties of merchandise. The following aggregate formula is applied to obtain such mean indices:

$$I_{prices}=\frac{\Sigma p_1 q_1}{\Sigma p_0 q_1}$$

The numerator represents the actual price of commodities sold at collective-farm markets during the period under survey, and the denominator is the value of the same commodities in prices of the basic period, or, in other words, in prices current before the price changes. The difference between the denominator and numerator represents the gain (economy) of the public from a cut in retail prices.

The aggregate price index formula is applicable only if the quantity of sold goods is known. In state-operated and co-operative trade such data are lacking, and the mean price index is here computed by the harmonic formula:

$$I_{prices} = \frac{\Sigma p_1 q_1}{\Sigma \frac{1}{k} p_1 q_1}.$$

The numerator represents the actual turnover during the period under survey, and the denominator is the same turnover divided by the price index, converting the turnover into prices of the basic period. The formula is separately applied to the various commodity groups.

VI

THE NATIONAL INCOME

In treating the value of the total social product Karl Marx drew a line between newly-created value and transferred value, i. e., the value of means of production consumed in the reproduction process. It is the former value—*newly-created during a given period (say, a year)—that represents the national income.*

The national income in natural form is material wealth comprising: a) means of production intended to extend production, and b) consumer goods intended to satisfy public requirements. Soviet statistics rejects the concept of national income as the sum of incomes of all social groups: workers, industrialists, peasants, landowners, officials, bankers, clergymen, etc. It proceeds from the Marxist-Leninist conception of national income as the fruit of social labour creating value and use-value, or, in other words, as the fruit of the labour of working people in the various branches of material production.

1. PRODUCTION OF THE NATIONAL INCOME

In the U.S.S.R. the national income is computed for the entire national economy, and grouped according to forms of ownership. The national income produced at social-

ist enterprises is, in its turn, classed as: a) produced by state enterprises, and b) produced by co-operatives or collective farms. The national income produced by collective farmers, workers and employees in their households, and by individual peasants is also computed.

The total national income constitutes the value of the net output of the various branches of the national economy.

The table below shows how the U.S.S.R. national income is classified according to the branches of the national economy.

National-Economic Branches	Gross output	Material outlays	Net output
A	1	2	3
Industry			
Building			
Agriculture			
Forestry.			
Transportation (of freights)			
Communications (servicing production)			
Material and Technical Supply			
Procurement of Agricultural Products			
Trade (wholesale and retail)			
Total			

The net output in each branch of the national economy obtains as the difference between the gross output and the material outlays in production. Column 1 presents the total social product, Column 2, the total material outlays, and Column 3—the national income.

The methods of computing production costs must conform to the methodology of calculating the gross output of the national-economic branch concerned. Thus, if the gross industrial output is computed by the intramural method, i.e., if the value of the semi-finished products of a given

enterprise, processed at the same enterprise, is deducted from it, its material outlays must not include this intramural turnover of semi-finished products.

In agriculture the gross output is computed by the method of gross turnover. For this reason, both purchased materials and products (say, fodder), produced by the farms concerned, are added to the material outlays in calculating the net agricultural output.

In the sphere of transportation only the value of shipments made by transportation agencies is identified as social product. Accordingly, the material outlays in carrying freight must be set apart when the net transportation output is being computed.

Material outlays include:

the value of means of production and materials expended in production and in current repairs of fixed production assets; the value of productive services (freight transportation and communications); and, the depreciation of fixed assets.

In computing the material outlays of the various branches of the national economy, statisticians make use of cost accounts, and direct and indirect cost accounts, etc. Industrial enterprises specify their material outlays in a special annual report, "Material Outlays, Excluding Intramural Turnover," which contains such sections as: raw and basic materials; auxiliary and sundry materials; fuel, obtained on the side; power of all kinds, obtained on the side; depreciation of fixed assets; depreciation of purchased low-value and quick-wearing tools, devices and other articles. Furthermore, some material outlays are recorded under "Sundry Cash Outlays" which combines elements of material outlays and the net output.

The material outlays recorded under "Combined Non-Productive Expenditures" must also be taken into account, because they form part of the cost price of industrial commodity output.

Agricultural material outlays include seeds and planting material, cattle fodder and poultry foods, fertilizer, fuel, electric power, insecticide, transportation of agricultural products, depreciation of fixed productive assets, and other sundry outlays, State and collective farms, and machine

and tractor stations make these data available in their annual reports.

Calculations of the net building output are based on material outlays recorded in the cost accounts of building and installation jobs. The accounts contain data on direct costs—materials, basic wages, outlays incurred in operating building machinery, transportation, other auxiliary services and services engaged from outside—and indirect costs such as overhead expenses and utility outlays, etc. Practically all cost columns are combined, including elements of both transferred value and net output.

In computing the net output of transportation use is made of operating expense accounts forwarded by transportation agencies. As a rule, the accounts contain figures on depreciation, fuel, electric power, materials, and the cost of overhauls and current repairs. Records are also provided of material outlays in the combined columns (maintenance of railway stations, etc.).

In the case of railways material outlays are divided between the freight and passenger divisions according to their respective volumes of operation. Freight operations are given in ton-kilometres and passenger operations in passenger-kilometres.

Communications material outlay figures are obtained from the expense accounts of communications agencies. Distinction is made between outlays incurred in servicing enterprises of the productive sphere, on the one hand, and non-productive institutions and the general public, on the other.

The material outlays of trade are computed from overhead expense accounts forwarded by trade agencies. The accounts specify the outlays for railway and water transportation, automobile haulage, wages, rents, sorting, packing, conditioning, etc. The material outlays of both the procurement and distribution fields are computed in an identical manner.

The national income is calculated in both current and comparable prices. Presented in current prices it constitutes the total value newly created as part of the total social product during a certain period. It obtains as the difference between the gross output assessed in current prices and ma-

terial outlays in similar prices. Wages, profits and taxes are compared with the national income in current prices.

The national income is computed in *comparable* prices to facilitate comparisons of its physical volume. The net output of a branch in comparable prices represents the difference between the gross output and material outlays in similar prices. Material outlay figures in the various commodity groups for a given period are divided by the respective price indices to give an idea of price changes during that period as compared with the basic period. This facilitates the reassessment of material outlays in comparable prices.

The total national income in comparable prices is obtained by calculating the part of the national income diverted for non-productive consumption and the part diverted for accumulation in the same prices.

2. DISTRIBUTION AND RE-DISTRIBUTION OF THE NATIONAL INCOME

In order that social production might continue uninterrupted, a portion of the social product should be diverted to compensate the means of production consumed in the production process. Moreover, provision must be made to expand production and augment the reserve or insurance funds. The remainder of the social product represents the non-productive consumption fund. Not all of the latter, however, is distributed individually among the participants of material production. A portion of the social product covers general administrative outlays that have nothing to do with production, another portion forms the fund of joint facilities (maintenance funds for schools, hospitals, etc.), and a portion forms the fund of the incapacitated. The remainder of the social product is individually distributed among the participants of material production.

Primary distribution of the national income. The nature of income distribution depends on the form of the property concerned. At state enterprises, which are social property, it is broken up into two principal parts. One is the product created by the producers for themselves, which assumes the shape of workers' and employees' wages, and the other—

the net profits of state production enterprises, or net state revenue. This embraces the profits of enterprises, the turnover tax, social insurance, etc. The turnover tax and a part of the profits go to the state budget to cover state requirements. They form a centralized net state revenue which also includes social insurance allocations and other revenue.

At collective farms, which are group property, the national income created by the farmers is also broken up into two parts—the product they created for themselves and the product for society. The product for themselves comprises the incomes in cash and kind distributed among the collective farmers for work-day units put in. The product for society is the net income of a collective farm. Part of the latter is utilized in developing collective farming—adding to its livestock, building, seed, forage and insurance funds, and providing for the general material and cultural needs of the collective farmers. Part of the net income of collective farms goes to the state in the shape of income taxes and other dues, and through the price mechanism, forming a constituent of the centralized net state revenues.

The distributed incomes also include the receipts of collective farmers, workers and employees for the produce of their personal plots, and the incomes of individual peasants and unaffiliated handicraftsmen.

The processes of national income *re-distribution* are essentially processes of forming funds to satisfy state needs (defence and government, socio-cultural facilities, capital investments, etc.). Also, re-distribution is effected through such non-productive channels as the public-utility services and the entertainment industry, a certain part of whose receipts reaches the treasury as profit deductions and taxes, thereby augmenting the general national income re-distribution fund. The immediate allotments made by productive enterprises for the maintenance of non-productive institutions (kindergartens, crèches, etc.) serve as another channel of re-distribution.

The *final incomes* of state enterprises are sums retained by the enterprises subsequent to distribution and re-distribution. They equal receipts by way of distribution, plus the balance of payments to and receipts from the treasury, and minus outlays for the purchase of non-productive

services. The final incomes of socialist productive enterprises are utilized to expand *fixed* and *circulating* assets.*

The scheme of national income distribution and redistribution for socialist productive enterprises is given below:

Indices	State enterprises	Co-operatives and collective farms	Total
I. Production of the National Income			
1. Gross output of socialist productive enterprises			
2. Material outlays			
3. National income			
II. Primary Distribution of the National Income			
1. Net incomes of state enterprises.			
2. Net incomes of co-operative and collective-farm enterprises			
3. Workers' and employees' wages at state enterprises . .			
4. Incomes derived by collective farmers from collective farms in work-day units			
III. Re-Distribution of Incomes of Enterprises			
1. Payments to the treasury including:			
a) income deductions (from profits)			
b) turnover tax			
c) income tax from collective farms and co-operative societies			
d) social insurance allocations			
e) other sundry payments to the treasury			

* The means of production of an enterprise constitute its fixed and circulating assets, distinguished by their nature of employment. Fixed assets comprise productive buildings, structures, machines, tools and inventory of permanent use. Circulating assets comprise raw materials, supplies, fuel, semi-finished products and other objects of labour.

Indices	State enterprises	Co-operatives and collective farms	Total
2. Immediate allotment of incomes to non-productive institutions			
3. Charges for centralized services			
4. Receipts from the treasury including:			
a) capital investments . . .			
b) allotments (accretions in circulating assets, operating expenses, etc.) . . .			
5. Balance of re-distribution . .			
IV. Final incomes of enterprises including:			
1. Accretions of fixed assets . .			
2. Accretions of circulating assets			

Non-productive institutions secure revenues by way of re-distribution.

NATIONAL INCOME RE-DISTRIBUTION SCHEME FOR NON-PRODUCTIVE INSTITUTIONS

	Receipts				Outlays			Final use of incomes	
	from the treasury	for services rendered	from productive enterprises (allotments for cultural and social needs, etc.)	Sundry receipts	to the treasury	wages to workers and employees	outlays for services	current material outlays	capital investments
Institutions of the non-productive sphere .									
Service agencies . .									
education									
public health . . .									
public utilities . .									
Government and defence									

Non-productive institutions receive their income in the form of receipts from the state, proceeds for services rendered, and direct allotments of productive enterprises (for cultural services and utilities). These receipts go to cover dues to the treasury, the wages of workers and employees, and charges for services rendered to them by other non-productive enterprises. The balance represents the final income, which is utilized for intramural material non-productive consumption and accumulation of fixed (non-productive) assets.

The incomes of the public are computed for social groups. They include:

wages of workers and employees;

incomes in cash and kind of collective farmers for work-day units and incomes of members of production co-operatives;

incomes derived by collective farmers, workers and employees from by-farming;

pensions, benefits, and stipends received from state funds and funds of public organizations;

incomes of individual peasants and unaffiliated handicraftsmen;

bonuses not included in the wage fund, Government bond prizes, savings-bank interest payments, etc.

Moreover, in the U.S.S.R. working people receive from the state a number of supplementary benefits, or incomes, in the shape of free or cut-rate cultural, utility and medical services. A distinction is made between incomes received by the general public by way of distribution and re-distribution.

Incomes received by way of distribution include: workers' and employees' wages in the sphere of material production, incomes of collective farmers from collective farms for work-day units, incomes of members of producer co-operatives, incomes of collective farmers, workers and employees from by-farming, and incomes of individual peasants and unaffiliated handicraftsmen.

Incomes received by way of re-distribution, include: wages of workers and employees engaged at enterprises and institutions of the non-productive sphere, pensions and benefits, savings-deposit interest and Government bond prizes, stipends, state insurance indemnities, etc.

The total income derived by the general public by way of distribution and re-distribution does not coincide with incomes earmarked for consumption and accumulation. Some of it goes to the treasury and some is paid out for services.

The final income represents the population's share in the national income. It equals the difference between the total income derived by way of distribution and re-distribution, on the one hand, and payments to the treasury and for services on the other. Final income figures represent incomes received by the various classes and social groups.

To determine how much of their incomes the public converted into material wealth over a given period, their final incomes are stripped of sums representing organized savings (savings deposits, Government bonds). The latter channeled into the centralized re-distribution fund, may, like all other constituents of that fund, be expended by the state to expand production or satisfy state needs.

In computing the real income, which is identified with the final income, the part of the social product expended by public institutions (nutrition at hospitals and children's institutions; consumption of fuel, electric power, repair materials, stationery, drugs and medicines at cultural and utility enterprises and medical institutions) should be added to the income figure. The sums from the national income utilized in expanding fixed non-productive assets, like the sums utilized in expanding the fixed and circulating assets of socialist productive enterprises, are part of the incomes derived by the state, the collective farms and co-operative and social organizations. The same applies also to the expenditures of Government agencies and scientific institutions.

3. ULTIMATE UTILIZATION OF TNE NATIONAL INCOME

The ultimate utilization of the national income represents the final stage of its movement. In the final analysis the national income breaks up into two major social funds—consumption and accumulation.

The consumption fund represents the part of the national income utilized by the socialist state to satisfy the mate-

rial and cultural needs of its population. This includes the current material outlays of Government and scientific institutions.

Accumulation is the source of economic expansion. The accumulation fund consists of a major portion devoted to the expansion of fixed and circulating production assets, of the social product used to extend fixed non-productive assets, commodity stocks at enterprises of the non-productive sphere, and stocks of consumer goods in trade and other channels of supply.

The social product channeled into the state reserve, though a constituent of the accumulation fund, cannot be identified with funds utilized to expand production, because it is temporarily withdrawn from both productive and non-productive consumption. The same is true of the social product utilized in augmenting fixed non-productive assets and commodity reserves of non-productive institutions.

Public consumption embraces: all consumption under individual budgets; material and food supplies at children's homes, crèches, and invalid homes; and food supplies at hospitals, sanatoria, etc.

The material structure of public consumption comprises the following groups:

food-stuffs; clothing and foot-wear; furniture and domestic utensils; cultural and sanitary goods; tobacco products and beverages; fuel, electric power, water and gas; and depreciation of dwellings. These groups, in their turn, are itemized by products and commodities.

Consumption is expressed in its cash value, assessed both in current and comparable prices.

Soviet statistics studies public consumption by social groups, making a distinction between workers, employees and peasants. It summarizes for each group the volume, material structure and dynamics of consumption, the share in total consumption, and consumption per capita.

Consumption is computed from the following principal sources: purchases of products at state and co-operative trading establishments (including public catering); distribution of products by collective farms for work-day units; purchases of products at collective-farm markets; by-farming yields of collective farmers, workers and employees,

and yields of individual peasants; material and food supplies at children's homes, kindergartens and crèches, and food supplies at hospitals and sanatoria, etc.; and the depreciation of housing facilities during the period concerned.

VII

FAMILY BUDGETS

Living standards are studied from the family budgets of workers, employees and collective farmers.

But observations of budgets are an involved undertaking. To be scientific, their aims must be set down clearly in a well-defined programme. Observation procedures must make for utmost accuracy, and sampling methods for utmost representativity.

1. PEASANT-HOUSEHOLD BUDGETS

Observations of peasant budgets reveal the sources and dimensions of peasant incomes, their utilization, consumption and accretion, the earning capacity of their diverse branches, labour expenditures in farming, agrotechnique, and other needs.

At different times the methods of observation varied; there were: a) the *field method*, by which the observation paper was filled in by the statistician himself, b) the *questionnaire method*, by which the population filled in and posted questionnaires, and c) the method of *current records* by the population of their incomes and expenses.

The field method was used in pre-revolutionary Russia and in the first few years after the October Revolution. Skilled statisticians of gubernia bureaus were sent into the field to make the observations, and canvassed peasants about their annual budget.

It was the only possible method at the time, the bulk of the peasantry being illiterate. But it had grave failings. Firstly, there was no telling whether the data collected were authentic. A peasant could hardly be expected to carry a year's incomes and expenses in his memory. For this reason, the data were essentially standard. Secondly, the ob-

servations were time-consuming, and their processing was completed too late to be of any use in current government.

It was best to combine the method of sample questioning with data gleaned from budget accounts kept by the peasants themselves. The peasants indicated in their accounts from whom they received money, for what they received it, and how much of it they received; what they sold, to whom, the quantity of products sold and at what price; and what products, consumer goods, livestock or poultry they had themselves bought, how much they bought, and what they had paid for them.

Experience showed that it was best to make quarterly, even monthly, observations. That expedited collection and utilization of budget data, provided for greater accuracy, and facilitated training of permanent personnel—the latter making for greater accuracy. The statistician was supposed to investigate the economy of the peasant: to have an idea about the nature of work performed by each member of the family so he could properly assess the family incomes; to personally inspect the livestock, field, orchard, vegetable garden, etc.—an aid in estimating the household output and verifying outlay data; and to know local market conditions and market prices, so as to check the purchase and sale data in the peasant's account.

The data in the various graphs of the budget paper, if authentic, would balance, providing a check. Suppose the farmstead had 400 kg. of wheat to start with, 1,600 kg. were harvested, 800 kg. sold, 600 kg. consumed, 100 kg. laid aside for sowing, and 500 kg. of wheat remained. All these facts would be recorded in the "Sowing and Harvest" graph, the "Sundry Market Transactions" graph, and the "Livestock Maintenance" graph, and would then be transferred to the "Material Balance" graph, as follows:

	Balance on hand	Gross harvest	Outlay			Cattle fodder	Total outlay	Balance carried forward
			For sowing	Sold	Personal consumption			
Wheat	400	1,600	100	800	600	—	1,500	500

The check 400+1,600=1,500+500 shows that the peasant's data were accurate.

After drawing up the budget the statistician checks its accuracy by technical and logical control methods. In the logical check he probes all attendant data. For example, the budget paper may indicate that the peasant has a horse and a cow; there should be data, therefore, about fodder consumption, dairy products, and pertinent labour expenditures. The harvest is checked by the cultivated area, fodder consumption by the number of head of cattle, and food consumption by the number of the peasant's dependents, etc.

In computing the peasant incomes, the gross output was sorted into branches—field crops, melons and muskmelons, meadows, vegetables, fruits and berries, viticulture, draught animals, livestock, poultry, forestry, hunting, fishery, and domestic handicrafts. Material outlays and the net output were also itemized by the same branches. The peasant's total income was obtained by adding to the net output wages received for sale of manpower, land rents received, and subtracting wages paid to labourers, land rents paid out, and interest paid on loans.

The total income of the peasant family was then broken up into the part consumed—in foods, clothing, and footwear, furniture, domestic utensils, heating, doctor's fees, tuition fees, etc., and the part devoted to accretion. Miscellaneous receipts, such as insurance indemnities and benefits, and miscellaneous outlays, such as death or sale of livestock, loss of products and implements, were also recorded.

In the U.S.S.R. observations of peasant budgets were begun in 1919. From 1923 to 1930 annual (spring or summer) observations were conducted by the *field* method throughout the Soviet Union. The number of peasant budgets investigated in 1922/23 was 2,864 and in 1929/30—about 8,000.

Since 1932 the CSB has been investigating collective farmers' budgets regularly from month to month the year round. The number of sampled budgets increased from 5,740 in 1932/33 to 9,700 in 1934/36, 17,000 in 1937/39 and 21,000 in 1940/41. During the Great Patriotic War work was stopped in the temporarily-occupied districts. The area under observation was decreased substantially, embracing only the eastern regions until 1951, inclusively.

The investigation programme covered incomes in cash and in kind by their diverse sources: collective farm, personal plot, wages received by collective farmer and members of his family at enterprises or institutions, and other incomes. The programme embraced all cash and kind outlays, classed by their purpose, personal consumption, place and quantity of purchases of consumer goods and agricultural produce, and labour outlays at the collective farm, the personal plot and on other jobs outside the collective farm.

Prior to solid collectivization the investigation paper (as in 1926, for instance) included the following graphs:

family, sources of income, hiring and letting livestock and implements; day and piece agricultural work, seasonal labour; agricultural services; land rents; membership in cooperative societies; land utilization; sowing and harvesting bread-stuffs and other plants; miscellaneous market transactions involving agricultural products and unprocessed timber; material balance-sheet; livestock; poultry farming and apiculture, turnover of manure and mineral fertilizer; wages to labourers for building and repairs of structures and implements; credit transactions; cash balance-sheet; milk yields of cows, sheep, goats and mares; cattle fodder; pasturage time; sheep-shearing, poultry products; handicrafts or trading, etc. All in all the investigation papers contained about 30,000 questions.

Sampling was based on the following principles:

1) Stratified systematic sampling, representing all or the principal types of economies (families) proportionately to their share in population. It was based on the data of mass statistics, which indicated variability and distribution of the designated types.

2) Sampling within the typical strata was strictly systematic. All possibility of forethought and individual bias in selection was ruled out.

3) After sampling and prior to canvassing the samples were carefully checked for representativity.

4) Sampled households were to be uniformly distributed in the district or region according to the various types of economy.

Suppose 240 households, located at eight points—one point per district—were to be selected for a budget in-

vestigation. A list of districts was drawn up, indicating the number of households per district:

No. of district	Number of households (in thous.)	Running total
1	10.1	10.1
2	12.3	22.4
3	6.5	28.9
4	18.7	47.6
5	14.5	62.1
6	20.0	82.1
7	12.4	94.5
8	14.3	108.8
9	24.2	133.0
10	26.2	159.2
11	19.2	178.4
12	7.6	186.0

Sampling was made in districts containing each 23rd thousand of the households (186 : 8≈23), i.e., in districts Nos. 3, 4, 6, 7, 9, 10, 11, and 12.

After a representativity check of the selected districts the households were systematically sampled. Then another representativity check was made in the mass statistics of the sampled households to probe the following items: members of the family; head of draught animals; head of cattle, number of cows, number of pigs of all ages; area under cultivation, specifying the area of principal crops; large agricultural implements, etc.

The check was made by comparing the sample mean with the true mean.

Assessing the value of produce was one of the more involved aspects of computing peasant incomes. The products were in part consumed by the household itself (production in kind) and partly sold (commodity output). The products consumed were either produced at the farm itself, or purchased. There was no difficulty in assessing the commodity output and consumption of purchased products, evaluated

at actual sales or purchasing prices. It was far more difficult to assess production and consumption in kind. Different approaches were used. In the budgets of individual peasants (before 1929) all production and consumption in kind was assessed at so-called "local prices." This implied the prices prevailing in the given village during the season of greatest sales, as distinct from prices of the nearest market.

By a Government decision of November 3, 1951, the CSB organized a new extensive network for the investigation of the budgets of workers, engineers and technicians, industrial employees, teachers, and medical personnel, and another network for the investigation of collective farmers' budgets.

At present statisticians process a set of 46,000 samples, of which 14,800 are budgets of workers' families, 2,600 of engineers' and technicians' families, 1,300 of industrial employees' families, 700 of teachers' families, 700 of families of medical personnel, and 26,000 of collective farmers' families. The observations are conducted the year round from month to month by special CSB budget statisticians.

The collective farmers' budgets are investigated in the country's agricultural regions of grain cultivation, animal husbandry, and industrial crops (cotton, sugar-beets, flax).

In the sampling all collective farms of a republic, territory and region are grouped by two particulars:

a) agricultural line and b) magnitude of work-day units. The sampling is systematic, at equal intervals.

In the selected collective farms all farmers are classified by the number of work-day units earned by them. Distinction is made between farmers who possess cattle and farmers who do not.

The groups are systematically sampled for some 18 to 23 families. Though included in the original grouping, families without at least one member below working age, or disabled, and families without at least one member working at the collective farm, are excluded from the sampling.

The CSB and its local agencies make quarterly studies of the following summarized data on collective farmers' budgets.

1) Family: total number of members, and members present; number of able-bodied men between 16 and 59; able-

bodied women between 16 and 54; aged and disabled; adolescents between 12 and 15; and children up to and including 11. Mean figures are given per 100 sampled families.

2) Labour expenditures for 3 months, 6 months, and a year in working days put in per adult able-bodied collective farmer (separately for men between 16 and 59 and women between 16 and 54). Mean figures are also given of the number of work-day units earned per household.

3) Area of personal plots per household, including mean area by crops. Livestock in the personal possession of collective farmers: cattle, including cows; sheep and goats; pigs. Yields of animal produce and poultry produce: milk, meat, lard, wool, eggs, etc.

4) Mean quarterly, semi-annual and annual turnover per household of principal agricultural products received from the collective farm and the personal plot; food balance in possession of collective farmers at the close of the respective periods in cereals, potatoes, vegetables, fruits and berries.

5) Cash income per household per 3 months, 6 months, and a year, including: income from the collective farm; wages for work in state or co-operative enterprises; proceeds from sale of livestock, poultry and agricultural produce; pensions, benefits and other receipts from the state; sundry receipts.

6) The quarterly, semi-annual and annual cash outlay per household, including: purchase of livestock, poultry, bees, agricultural produce, and manufactured goods; purchase of Government bonds; cultural and domestic needs; taxes and dues; sundry expenditures.

7) The structure of cash incomes and outlays (itemized in per cent of total).

8) Food consumption per present family member in kilogrammes per month for 3 months, 6 months, and a year: of flour, bread in terms of flour, cereals, macaroni, potatoes, vegetables, fruits and berries, milk (in litres), dairy products, lard, vegetable oil, meat, meat products, fish, fish products, eggs (in pieces), sugar and confectionery.

9) Purchase of manufactured goods per family and per family member for 3 months, 6 months, and a year:

textiles (in metres), shoes (in pairs), including leather shoes.

10) Place of purchase of manufactured goods: in state-operated and co-operative trade, and from individuals (in per cent of the total).

2. BUDGETS OF WORKERS' AND EMPLOYEES' FAMILIES

Workers' budgets were never investigated in tsarist Russia prior to the 1905 Revolution. Between 1905 and 1917 investigations were made only irregularly from time to time in Moscow, Petersburg and several other cities.

The questionnaire and field methods were applied. There were no actual records of incomes and outlays; statisticians depended on subjective approximations of incomes and outlays made over lengthy stretches of time. Furthermore, the sampling aggregate of investigated families was highly inadequate.

Soviet authorities from the first devoted considerable attention to workers' and employees' budgets. Between 1918 and 1922 fifteen investigations were made in various cities and districts. Despite certain failings in programme and analysis, and the absence of centralized supervision, they gave Government agencies and public organizations a fair idea of the workers' and employees' budgets in various cities and parts of the country.

Regular observations under supervision of the CSB, the All-Union Central Council of Trade Unions and the People's Commissariat of Labour were begun in 1922. Until 1928 they were conducted annually in the course of a month (November or, less frequently, December). Under supervision of special recorders the sample families kept detailed accounts of their incomes and expenditures.

Sampling in industrial areas and cities was proportional to the number of factory workers, and was based on their distribution by skills and wages.

The income observation programme contained the following particulars: wages, pensions, benefits, stipends, other receipts from the state, and sundry incomes. The outlay items included food-stuffs, meals at public-catering establish-

ments, clothing, underwear, textiles, foot-wear, haberdashery, knitted garments, tailoring, shoe repair and repair of garments, cultural goods, domestic utensils, sanitary goods, drugs, cigarettes, tobacco, fuel and lighting, building materials. Outlays for theatres and motion pictures; sanatoria, holiday home, pioneer camp, bath-house, laundry and barber's charges; transportation, postal and telegraphic charges, house rents, public-utility charges, membership and other dues, and taxes, etc., were also specified.

Manufactured goods and food-stuffs were recorded both in cash and natural form, grouped by their source: state-operated and co-operative trade, collective-farm market, and individuals. The foods column also recorded the yield of the personal plots and livestock owned by workers and employees, and the food balances available at the start and close of the period under investigation.

Since 1952 workers' and employees' budgets are observed round the year from month to month by special CSB budget statisticians.

The statisticians pay regular fortnightly visits to sample families and fill out budget papers with data obtained in talks with family members and from accounts kept by the families. Use is made of documents related to wages, bonuses, benefits, and pensions received by members of sample families at their place of work, and documents concerning house rents and public-utility charges, etc.

In the country's industrial districts the investigation is stratified by branches of industry. The workers of the following industrial branches have been selected for observation: iron and steel industry, non-ferrous metals industry, coal, oil, and iron-ore industries, electric-power stations, chemical, rubber and asbestos, machine-building, metal-working, building materials, glass and porcelain, wood-working, paper, textile, sewing, fur, and shoe industries.

The method of proportional stratification is applied, with systematic sampling inside the strata. Sampling is in two stages. First, industrial enterprises are picked out, and then workers and employees in the selected enterprises. Sampling criteria for strata are: for enterprises, the branch of industry and the mean wage of industrial workers engaged therein,

and, for workers, their skills and the magnitude of their wages.

The sampled workers are grouped as *skilled* and *unskilled* workers (under an eight-grade system fifth- to eighth-grade workers are regarded as skilled, and third- and fourth-grade workers as unskilled) and stratified according to the *magnitude of their wages*. From 15 to 20 workers are picked out in each selected enterprise. The representativity of the sampled aggregate is verified in each stage of sampling.

Soviet budget statistics is comprehensive and accurate. The sample families show an appreciation of its aims and co-operate readily with the budget statisticians. The latter are well briefed on the mechanics of budgets, and approved canvassing methods. The close and business-like relationship of statisticians, sample families and the enterprises and collective farms concerned, and the regular co-operation of statistical agencies and district inspectors contribute greatly to its efficiency.

The observations are voluntary and require the consent of all members of the sample family. For this reason the families must be well briefed about their aims in interviews with statisticians, inspectors, factory committee officials and collective-farm managers. Annual conferences of sample families are convened. The press offers every co-operation. Moreover, in its decision of November 3, 1951, the Council of Ministers charged all Government agencies, trade unions, enterprises and collective farms to render all possible help in the observations.

The checks of budget statistics by local statistical agencies and district inspectors, made at least twice every quarter, contribute greatly to the proper conduct of the investigations.

Local statistical agencies and the CSB draw up quarterly budget surveys containing the following items:

1. Families of workers (skilled and unskilled separately and together): mean number of members, including those present; working members, members receiving stipends or pensions, and dependents—per 100 sampled families.

2. Cash incomes of sample families (skilled and unskilled separately and together) per family over a specified period—

3 months, 6 months, or a year; the structure of cash incomes (in per cent): total cash income, including wages; pensions, social insurance benefits; stipends; rebates for accommodation at sanatoria, holiday homes, pioneer camps and maintenance at children's institutions; Government bond prizes; other receipts from the state; miscellaneous.

Mean monthly wages of sample workers, separately for skilled and unskilled workers, by regions, territories and autonomous republics.

3. Cash outlays (separately and together for skilled and unskilled workers) per family in 3 months, 6 months, and a year; cash outlays for food, meals at catering establishments, etc. (in per cent); accommodation at kindergartens, crèches, and milk kitchens; textiles, clothing, foot-wear and underwear; furniture and domestic utensils; cultural goods; theatres, motion pictures and other entertainment and educational facilities; house rents and public-utility charges; taxes; miscellaneous outlays.

4. Consumption of principal food products (separately and together for skilled and unskilled workers) per family member in kilogrammes per month in 3 months, 6 months, and a year: of flour, bread in terms of flour, cereals, macaroni, potatoes, vegetables, fruits and berries, milk (in litres), dairy products, lard, vegetable oil, eggs (in pieces), meat, meat products, fish, fish products, sugar and confectioneries.

5. Manufactured goods purchases per family and per family member in 3 months, 6 months, and a year: of textiles (in metres), including woollen and silk materials; foot-wear (in pairs), including leather shoes.

6. Sources of foods (together for families of skilled and unskilled workers): meat, milk, eggs, potatoes, vegetables (in per cent of consumption): purchased in state-operated trade agencies, in the collective-farm market, produced in own household.

7. Sources of consumer goods; cash outlay for manufactured goods purchased in state-operated and co-operative trade agencies and from individuals; in per cent to total cash outlay in this bracket.

VIII

CULTURE

In the Soviet Union cultural developments are summarized in many statistical surveys. Surveys give the number of pupils and students at schools, occupational schools, colleges and universities, the number of scientists in the country, circulation figures for newspapers, journals and books, the number of theatres and picture houses, their attendance, and the number of clubs, libraries, etc. Data about the activities of motion-picture studios and film factories, publishing houses, radio stations, television, etc., also summarize the cultural level of the population.

The satisfaction of cultural needs hangs upon the operation of a variety of institutions. Statistics must, therefore, summarize the work of the institutions. For example, school statistics is not confined to a mere enumeration of schools, pupils and the educational level of the population, etc. It also studies the distribution of schools, personnel replacements, and school finances, etc.

1. LITERACY AND EDUCATION

The most accurate data on literacy and education are provided by the general census. In the U.S.S.R. census a literate person is one who can read in any one language.

Village Soviets register the status of each inhabitant in literacy records. After 1945, when the school age was lowered to seven years, literacy records also covered children of eight years.

Soviet statistics attaches great importance to educational data. The 1939 general census paper contained the question: "Do you have secondary or higher education?" Moreover, pupils and students were to specify the class, year, and school or college they attended. This revealed the number of persons with a secondary-school education, and the number of college graduates.

General schooling statistics embraces general schools of all types: elementary, seven-year and secondary (ten-year) schools for children; schools for backward children; elemen-

tary, seven-year and secondary evening schools, auxiliary schools and sanatorium-type forest schools, schools for handicapped children, etc., and ten-year secondary music and art schools.

Statistics summarizes the number of pupils, schools, and other educational institutions of all kinds. The various nationalities inhabiting the U.S.S.R. receive schooling in their native tongue. This factor is summarized by grouping schools by languages, and school children by their native tongue.

Systematic records of school children (from 7 to 13 at seven-year schools and 7 to 16 at secondary schools) by classes yield data required in planning universal obligatory education and in controlling plan fulfilment. Records are kept of all children aged 7 to 15.

School reports are made before and after each school year. The earlier report specifies the number of pupils and their distribution in grouping intervals by classes: first to fourth classes, fifth to seventh classes, and eighth to tenth classes. The report also indicates the language of the school, the results of autumn examinations, the number of school graduates and passes from class to class, sex and age particulars, the number of non-passes, and the number of teachers, etc. The year-end reports contain enrollment figures and transfers in the course of the year, the results by classes, the causes of transfers, the results of school-leaving examinations, particulars about boarding schools, etc.

School attendance is summarized in the percentage of pupils among children of school age. The figure is computed by age groups, nationalities, and for urban and rural areas.

Enrollment lists composed at the beginning of the school year, between September 1 and 5, are used to ascertain whether the number of pupils is short of the planned goal. Furthermore, data are condensed to show truancy percentages. The teachers are studied as to sex, training and teaching experience.

2. EXTRA-SCHOOL AND PRE-SCHOOL EDUCATION

In the U.S.S.R. school children take part in a wide range of extra-school educational activities of a variety of special institutions, such as technical stations, stations of

young naturalists and agricultural experimenters, art education clubs, palaces and houses of pioneers, children's sports schools, parks and stadiums, summer recreation grounds, etc. Cultural statistics collects data about all these institutions.

Summer-time pioneer camps are run for pupils of the 1-7 classes by the trade-union committees at factories and offices, the management of establishments and the executive committees of local Soviets. The development of the pioneer-camp network is reflected in the total figure of camps and the number of children accommodated each summer. CSB agencies receive reports from all camps.

Mother and child care is effected, among other things, by an ever extending network of kindergartens and crèches. Heads of enterprises and institutions are charged with organizing such pre-school institutions for the children of workers and employees.

Kindergartens are for children of 3 to 6 inclusively. They are organized and maintained by agencies of the Ministry of Education and by nearly all ministries and departments. Enrollment and attendance figures are given in quarterly accounts; statistical surveys are drawn up by the various departments for October 1 (in view of regrouping of children at kindergartens) and January 1.

3. PROFESSIONAL AND SCIENTIFIC TRAINING

Statistics summarizes the progress of higher and secondary education, and the number of graduated specialists. In 1955 there were 5,500,000 specialists with college or secondary training, employed in the Soviet national economy. This was 2.2 times the pre-war figure. Extensive spare-time post-graduate training at courses and colleges supplements the vast training programme at higher and secondary professional training institutions. Higher and secondary professional training may be had at the numerous correspondence schools. Their graduates acquire the same qualifications and rights as students of regular-type educational institutions.

Statistics sums up particulars about students of higher and secondary professional institutions, their movement and progress, and their instructors. The students are

grouped by sex, age, nationality, and profession, and college instructors by their academic rank (professor, docent, assistant), degrees (doctors, candidates), and capacities.

The higher and secondary professional training institutions are identified with the various branches of the national economy and culture, such as industry and construction, transportation and communications, agriculture, economics, justice, public health, physical culture and sports, education, and art.

Young people get occupational training at technical schools, railway trade schools, agricultural mechanization schools, factory occupational schools and other institutions of the Central Administration of Labour Reserves. The schools are run in association with the respective enterprises.

Adult workers are trained at their places of work. They are instructed in new skills at individual or group training courses, attended either in spare time or during working hours. Agricultural personnel is trained at courses run by machine and tractor stations, agricultural schools, melioration schools, agrotechnical and zootechnical courses, etc. Improvement courses at enterprises are meant to extend the proficiency of workers and employees.

Statistics collects and processes data relating to the number of pupils at schools of the labour reserves system, their distribution by sex and age, the progress of enrollment and graduation, and the employment of graduates. Data concerning workers' courses are grouped by branches of the national economy and industry, and by occupations. Two groups—newly-trained personnel, and skilled personnel receiving supplementary training—are specified.

Scientific institutions and their personnel. The ramified network of scientific research institutions encompasses research institutes, central scientific laboratories, experimental stations, observatories, preserves, botanic gardens and zoos, museums, research libraries, etc. Statistics collects and processes data about them in over-all annual figures. No records are kept of scientific research conducted at enterprises, drafting and designing offices, etc.

One of the principal statistical tasks is to record the number of scientific personnel and group them by types of

institutions. In the Soviet Union current personnel records have been kept since 1948 of academicians and corresponding members of academies of sciences, doctors and candidates, professors, docents and assistants, senior and junior scientific personnel, and persons without academic rank or degree conducting research or lecturing, irrespective of the place and nature of their work.

The first survey of Soviet scientific personnel was made on October 1, 1947; it was based on personnel cards turned in by all scientific workers. The cards were processed and yielded a summary of the country's scientific personnel. Ministries and departments set up a centralized personnel file of all scientific workers employed at scientific institutions, institutions of higher learning, enterprises and other organizations.

Statistics surveys the graduate training of scientific personnel at research institutes and institutions of higher learning. Reports on graduate work contain data regarding the movement of graduate students during the year, their sex and nationality, and their distribution by branches of science, with specification of their field. Graduate students are broken up into a group pursuing studies while employed at some enterprise, and a group of full-time graduate students. The reports also contain the number of persons supervising graduate studies, and their academic rank. Surveys of graduate studies are made annually for each January 1.

4. CULTURAL INSTITUTIONS AND PRINTED MATTER

Statistics condenses data about such cultural institutions as clubs, palaces and houses of culture, village reading-rooms, and libraries.

The clubs are grouped by types, depending on whether they have libraries, projection installations, public-address facilities, by the number of circles run by them and the seating capacity of their auditoriums. Attendance of their various fixtures, such as lectures, dances, amateur nights and recitals, etc., is recorded. Clubs are supervised by the Ministry of Culture, trade unions, collective farms and other public

organizations, as well as government departments. The Ministry of Culture keeps annual records, as of January 1, of the entire network of district clubs and the number of cultural workers. Annual reports containing data related to club work are summarized by the various departments.

Statistics classifies libraries by their types as public libraries, scientific libraries, special libraries and school libraries. Libraries are also grouped by the number of books they contain. Data relating to book stocks—number of volumes and their specification, rate of completion, facts about readers and book issues—are of great importance. Public libraries are run by the same departments and organizations as the clubs, and are surveyed in a similar manner. Scientific, technical, school and research libraries are specially censused to determine their number, type, and book stocks.

Theatrical statistics studies the number of theatres, their seating capacities, attendance, number of performances and premières, and their repertoires. Repertoires are qualified by the titles and number of staged plays.

Amateur theatricals are recorded as a part of club activities. Theatrical statistics are quarterly, and are compiled by the Ministry of Culture.

Motion-picture facilities are summarized by the number of projection installations, shows, programmes and by attendance figures. Indices are computed to show population per one projection installation, or the number of projection installations per 10,000 or 100,000 population, seating capacities at picture houses and picture-house attendances per 100 population. Reports covering different periods are required from motion-picture installations charging admission fees. Installations are grouped as stationary (picture houses) and mobile, the latter catering to several localities (predominantly rural).

Printed matter. Statistics studies the number of published books, journals and newspapers. The unit in use is known as a printed unit, representing each independent book edition. The popularity of books and magazines is established by the number of copies printed, i. e., by the circulation; the volume of published books is totalled in signatures, and the newspapers are assessed by their circulation. Records of

printed matter are kept by the U.S.S.R. Book Chamber on the strength of specified copies of books, journals and newspapers sent in by printing plants.

Annual reports turned in by independent publishing houses reveal the cost of books by items.

IX

PUBLIC HEALTH

Soviet public health operates an extensive network of medical and sanitary facilities—hospitals, maternity homes, dispensaries and other free public-health institutions, sanatoria and holiday homes.

Medical centres, complete with hospitals and services, are available in the remotest corners of the Soviet Union. Factories, works and major institutions have their own medical and sanitary divisions. Particular stress is laid on preventive medicine.

Public-health statistics is called upon to study disease incidence, labour and home sanitation, the development of medical and prophylactic facilities, public physical development, the development and activities of medical institutions and services.

Medical institutions are officially grouped as:

a) medical and prophylactic institutions—hospitals with polyclinical divisions, dispensaries, rural out-patient clinics, health stations, mother and child institutions (maternity homes, crèches and consultation rooms), and sanatoria;

b) sanitary institutions—anti-epidemic agencies and institutions of sanitary enlightenment.

Statistics collects and compiles data relating to the number of polyclinics, specialized dispensaries and anti-epidemic institutions. Data relating to hospitals, their classification, number of beds, and patients accommodated during the period under survey, all are of great importance. Hospitals and hospital-type institutions are grouped by their number of beds.

Polyclinics are best studied in hospitalization figures for various diseases, medical examinations, etc. The classification of patients by hospitalization days, i. e., 1st, 2nd, 3rd,

etc., days after falling sick, give an idea of the promptness of hospitalization.

Hospitals are best described by data about a) the utilization of beds, and b) the lethality rate (at the hospital).

Bed utilization is given in annual patient-days per bed, obtained by dividing the total of bed-days by the mean annual number of beds. The bed turnover is computed by dividing the total of patients treated by the mean annual total of beds. The hospital lethality rate is the total of fatal cases during the period under survey divided by the number of out-going patients (dehospitalized and dead) for the same period.

Data summing up the efficiency of medical institutions include calculations of concurring and diverging clinical diagnoses and autopsies.

Mother and child care is summarized in data about beds available for confinement and total deliveries at medical institutions, totals of permanent and seasonal crèches and their capacities, child homes and their capacities, milk kitchens, and children's and women's consultation rooms, etc.

Sanatorium reports contain particulars about purposes, berth totals (year-round and seasonal), patients accommodated, treatment results, personnel, etc. Exhaustive information about health resorts and sanatoria is available in the annual CSB registers of sanatoria and holiday homes.

The stress on prophylactics in Soviet public health obtains in the wide application of the dispensary examination method. It is applied at general out-patient institutions and polyclinics, and particularly at specialized dispensaries—tubercular, oncological, etc. The registry and records of the latter are adapted to their various distinctive features.

The study of *disease incidence* is based on standard and accurate records kept by medical personnel. Complaints are registered in standard individual out-patient cards. In acute cases, such as influenza, for example, or angina, or in traumatic cases, each new complaint in the given year of one and the same patient is recorded as a newly-revealed disease. In chronic cases, however, the first complaint of the given ailment that year is merely registered as recurrent. Every complaint is recorded in special slips. Statistically proc-

essed, such slips yield information about disease incidence within the scope of a given medical institution.

The list of diseases provides for accurate registration and summarizes the results of observations. The existence of such a list enables statisticians to co-ordinate observations, processing and analyses of incidence materials. Introduced in 1952, the list contains 338 items grouped in 28 classes and 51 groups. Classification is based on the principle of etiology, i. e., the investigation of causes of a disease, and the localization principle identifying the diseased organs or systems of the human body. Under the prevailing pattern diseases are identified etiologically as infectious, traumatic, toxic, etc. A great many diseases are classified under the localization principle as, for instance, complaints of the nervous system, blood-circulation disturbances, ailments of the visual organs, etc.

Statistical records of *infectious* diseases are of prime importance in combating and preventing epidemics. Prompt registration of infectious cases and instant notice to epidemiological stations is a crucial factor in the fight against infectious diseases. Statistics handles data about registered infectious cases and the number of hospitalized patients.

Reports on the movement of infectious diseases and prophylactic measures contain facts about the number of registered cases, the number of hospitalized patients for each disease and totals of persons inoculated.

All urban and rural medical institutions keep a *special record of tuberculosis, venereal, trachoma, cancer and certain other cases.* Obligatory registration of such diseases as tuberculosis and trachoma, which were extremely widespread in the past, is required in the drive to stamp them out, for which the conditions prevailing in the country are favourable. Cases of tuberculosis, trachoma, cancer and certain other complaints are registered in the manner of highly-infectious diseases. The doctor promptly forwards standard forms for statistical processing to regional institutes or dispensaries specializing in the given disease.

The records of active tuberculosis, trachoma, venereal and cancer cases yield figures on newly-diagnosed patients who first applied for medical assistance during the given year. Patients are grouped by the types and stages of their

complaints and classed residentially as urban or rural residents.

Statistics collects and computes data on *temporary disablement due to sickness*, drawing information from doctors' certificates. Each case of medically certified temporary disablement is taken as a statistical unit.

Temporary disablement statistics is in the hands of trade unions. The monthly reports of trade-union bodies at factories, works and institutions list all cases of disablement classified under causes (sick leave, leave to tend a sick member of the family, leave to go to a sanatorium, confinement leave) and diseases. In analyzing disablement caused by sickness statisticians compute their mean total and days of disablement per 100 employed persons (by the average personnel list), and mean duration per case, the latter being obtained by dividing sick days by cases.

Public health is also reflected in physical development data. Physical development is studied from birth at periodical medical examinations conducted first at the maternity home, and then at children's consultation rooms, kindergartens, crèches, polyclinics and schools. Physical development examinations are also made of young people taking up sports and of men called up for military service.

Statistics collects and compiles data about the medical profession, listing doctors in total figures and by specialities, and about junior medical personnel, etc. A relative index is applied, giving the number of doctors per 10,000 population.

The total of hospital beds is similarly computed per 10,000 population, etc.

X

COLLECTION OF STATISTICAL DATA

1. REPORTS

In the Soviet Union reports forwarded by enterprises, institutions and organizations constitute the chief source of statistical data. These reports represent a specific system of facts and figures summarizing the work of establishments over the period under survey, and are drawn up according to approved standards, and forwarded to specified addresses

at dates approved by the Government. The reports are signed by individuals held responsible for the information (the heads, chief accountants, planning chiefs, etc.).

Socialist enterprises, institutions and organizations are obliged to forward all reports to their senior offices, and to CSB and other agencies in the manner specified by the Government or, by its direction, by the Central Statistical Board.

The statistical data desired are specified in the report forms. They include questions summarizing the progress of Government plans. Filled-in and signed forms of that kind are regarded as official documents.

The system of reports is so framed as to enable verification by comparison. For instance, there are forms summarizing progress of the production plan, and forms summarizing consignments and deliveries of finished products to other enterprises. An error in the output report may be easily spotted in the report on deliveries or the productivity of equipment or labour, etc. Accuracy is, therefore, achieved by means of a system of interrelated data.

Distinction is made between state and department reports. *State* reports are compulsory to enterprises and organizations of all ministries, and are forwarded in summary form to the Government either directly or via the Central Statistical Board. *Department* reports are forwarded to the ministries for day-to-day use, and are not forwarded to the Government.

Apart from these two varieties there are also inter-department reports, which are forwarded by enterprises to their senior offices and to agencies of other ministries and departments. Inter-department reports are required in special cases by direction of the Government.

The state reports may be standard or specialized. The *standard* forms contain the same sets of data for enterprises or institutions of a given national-economic branch or for the entire national economy. The *specialized* reports are altered to suit the distinctive features of given branches of the national economy. New standard forms are approved by the CSB at the permission of the Government. The existing forms are revised by the CSB without changing the number of items in them. The introduction of new forms, or re-

vision of existing forms of department reports is effected by the CSB at the request of ministries or departments. Application of unapproved report forms is ruled out.

Each report form covers the following obligatory data:

form heading, specifying content;

number, and date of approval of the form by the CSB;

the period or date covered by the report;

mailing date, date of actual mailing, and interim in days between period under survey and date of mailing;

list of addressees;

number or type (letter) of given form;

forwarding enterprise or institution;

ministry (department), chief administration, trust, of forwarding enterprise;

location (republic, territory, region) and address of forwarding enterprise or institution;

individuals responsible for the report.

A certain standard is maintained in both the structure and wording of all report forms. This facilitates comparisons and summaries.

There are telegraphic reports and mail reports. The former usually contain the most important data essential in day-to-day management and plan control. The mailing dates are obligatory for all enterprises and institutions.

The reports may cover a day, five days, ten days, fifteen days, a month, a quarter, 6 months, or a year. As a rule, report forms covering the shorter spans are simpler and contain less items. Daily reports, for instance, contain a limited number of the most important items while the monthly reports cover considerably broader ground. Reports forwarded in the course of the year provide only the crucial data essential in the day-to-day management of the enterprise concerned. The annual report, meanwhile, gives a comprehensive summary of the given enterprise, institution or organization.

The enterprises, institutions and organizations usually fill out more than just one type of report. The forms they fill in summarize all aspects of their work. To conduct their accounts and records properly the enterprises must know what records they must send and at what date and to whom they must be sent. They are kept briefed on require-

ments by a *list* (*table*) of forms containing the following information: title and number of report form and manner of forwarding (mail, telegraph), addresser (enterprise, trust, chief administration, etc.), addressee, period to be surveyed, and mailing date.

The annual plans of state statistical agencies are based on this list of reports. The plans stipulate final dates of the various projects for each level (district inspectorate, statistical agencies of regions, territories and autonomous republics, statistical agencies of union republics, and the CSB). In this way all statistical work in the Soviet Union proceeds, in effect, under a *single plan.*

The source of data for the reports are *primary accounts* of production and management, systematically and continuously kept by enterprises. The accuracy and promptness of reports depend above all on the efficiency of primary accounting. The data of the primary accounts, obtained through counting, measuring and weighing, are reflected in pertinent documents. The crucial link of primary accounting are *intramural reports* systematically made out by the shops, divisions and departments of an enterprise. Intramural reports are associated with the general, technical and statistical accounting of the factory or plant.

2. CENSUSES AND SURVEYS

Censuses are statistical projects based on a general statistical observation and taken at more or less lengthy intervals. They may utilize the records and reports of enterprises, institutions and organizations, or entail specially organized registration. In the U.S.S.R. censuses of actual material stocks—iron and steel, non-ferrous metals, building materials and timber, piping, metal articles and cable, etc.—belong to the first type, being based on data yielded by accounts and inventories.

The general censuses are different. The 1939 U.S.S.R. general census, for instance, could not be based on systematically kept records. It was built on data collected directly from the population as of midnight, January 16, 1939, embracing the entire population, including temporary residents. Special records were also made of those temporarily absent.

Censuses based on records and reports, as distinct from organized special registration, are sometimes known as *surveys*. If the census concerns the personal economies of the population, it is taken by special registration.

In the early years of Soviet statistics censuses were essentially based on specially organized registration, because accounting at the various enterprises was as yet in bad shape. But as socialist economic forms developed and accounting and statistics improved, censuses were based to an ever greater degree on the records and reports of socialist enterprises, institutions and organizations.

Soviet statistics periodically registers all petty auxiliary industry, takes inventory of materials, surveys cultivated land areas, takes livestock inventories, and inventories of tractors. Inventories of equipment, gardens and orchards, blood-stock, trading establishments, etc., are taken at greater intervals. All these censuses, surveys and inventories are country-wide, embracing an immense number of enterprises, institutions and organizations, and, if necessary, individual households; censuses are taken within brief terms, creating the requirement of efficient organization.

Census-taking involves a veritable host of counters, instructors, etc. Livestock inventories, for example, which are taken annually, involve thousands of workers, employees and collective farmers. The careful choice of census-takers, and their proper briefing, are therefore crucial factors in the success of census. It is also important to brief the general public on the aims of the census.

Detailed plans are drawn up to expedite census-taking. A general plan is supplemented with plans for each town and district. The plans contain particulars on census districts, census-takers, instructions and control, etc.

Census districts are territorial divisions of districts, urban-type settlements and towns into special census areas, into instructors' areas, and, finally, into counting sections. Not a single locality or remote building are left out. Lists are drawn up of all populated points. Settlements and villages are included. So are buildings standing apart, such as schools and hospitals. Railway cabins, foresters' huts and similar structures are regarded as populated points, though they may be a part of greater settlements. In towns and

urban-type settlements lists are drawn up of all houses by blocks, and wherever necessary the lists indicate the number of buildings in the block, the total of flats and population. Each census-taker and instructor is charged with a definite populated point, independent structure or block of houses. This makes for greater accuracy.

Urgent censuses. In the U.S.S.R. inventories of material stocks and equipment have their peculiar features. They are taken within an extremely brief period and are, therefore, called *urgent*. Their organization is centralized and the CSB and the ministries receive the returns without delay.

The ministries and departments draw up lists of enterprises, building projects and other observation units, which are approved by the CSB. The specific types of equipment and materials, lists of enterprises and other observation units are provided in advance. This enables statisticians to make accurate estimates of the time required for census and to supervise it from headquarters, to eliminate shortcomings and plan the work of summarizing the obtained data.

The ministries and departments send the census forms, instructions, etc., directly to all their enterprises, by-passing the trusts, chief administrations and other intermediate links. The enterprises forward summary results directly to the CSB and their respective ministries by telegram and simultaneously mail the filled-in census papers. Computing machines are used to process the returns. As a result, over-all census figures are available two or three weeks after census.

8. SELECTIVE OBSERVATIONS

Ever wider use is being made of *selective observations*. A selective observation is a method of partial (sampled) statistical observation applicable to population. Suppose we want to determine food and consumer goods consumption figures. This cannot be done on the strength of sales accounts, because the population also consume products from their personal plots, buy products at collective-farm markets, etc. Meanwhile, to investigate consumption in all families

is impracticable. It would entail tremendous expenses and effort. Instead, a relatively small number of family budgets is investigated. The resultant data give an idea of consumption in all workers', employees', and collective farmers' families. The families investigated constitute a sample, while the entire bulk of families constitutes the population, or aggregate.

The sample should be representative of the aggregate. In a selective investigation of food consumption by workers' families representativity implies a *mean figure per member of the family*, or, if family cash outlays are in question, the specific weight (percentage) of various food items in the total outlay. It is sample data of this kind (mean values, or percentages) that are representative of the aggregate.

In selective investigations the following main conditions should be satisfied:

1. The selection of samples must be strictly objective by homogeneous groups. In sampling the consumption of workers, statisticians must not select only the families of highly-skilled workers, who receive higher wages, or only the families of unskilled workers, receiving lower wages. Such biassed sampling would result in figures either higher or lower than the true mean.

2. An adequate number of sampling units must be taken. Statistical agencies verify livestock inventories, for example, by investigating not less than 10% of the farms in each district. This sampling percentage provides accurate data concerning livestock in each district.

The requirements of selective observation are mathematically based on the law of averages and particularly on the so-called law of great numbers. Applied to sampling this law implies that the more sets of samples are taken, the less the difference between the sample mean and the true mean (provided the variability of population remains the same) Furthermore, the magnitude of the difference may be mathematically estimated, i.e., the estimate of sampling error may be made beforehand. Similarly, if a limit is set to the sampling error, the required frequency distribution of sampling may also be calculated.

A great variety of sampling methods is applied to obtain representative selection, depending on the nature of the

population under survey. The three principal methods of sampling are random selection, systematic selection, and stratified selection.

Random selection implies that the sample units are picked out of the aggregate at random, by lot. In other words, every unit of the whole has an equal chance to be picked as sample. The number of samples necessary to yield accurate results is determined by the law of averages. In practice such random selection in its pure form is not applied. Systematic selection is used instead.

Systematic selection implies that the sample units are picked out in a definite sequence, at equal intervals from one another, staggered, etc.

In *stratified sampling* the aggregate to be sampled is first divided into strata or typical groups and a number of either random or systematic observations is taken from each stratum. The more complex the aggregate, the less uniform it is, and the more important it becomes to achieve representative sampling by dismembering the aggregate into more or less uniform type groups. Social phenomena stand out for their variability and complexity, and for this reason it is the stratified sampling method that is chiefly applied in statistics.

The stratified sampling method should not be confused with such "typical" sampling in which offhand estimates are made of units typical of the aggregate.The latter method is unscientific and incorrect, and may lead to grave errors. The methods of selective investigation in Soviet statistics are strictly scientific and provide for accurate and authentic information. Thorough checks are made of the representativity of selective investigations, and the resultant data may therefore be safely applied to the population.

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