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CHAPTER 4

Soviet Concern with Reliability; Errors; Mechanization

Soviet Concern with Reliability

EVEN a cursory reading of the Soviet literature reveals that the central statistical authorities have been well aware of the imperfect reliability of the data submitted to them. A closer study leaves no doubt that they have been gravely concerned over the problem, and that the question of accuracy of physical output data occupies the very center of this concern. It is also clear that the main source of inaccuracy is believed to be distortion of reported data by interested parties, aided by the negligence, if not abetted by the connivance, of the lower statistical agencies.

It is quite understandable that concern with data reliability should have been greatly intensified, as it was, in the early thirties, in view of the changes in the internal political atmosphere, the reorganization of industrial structure and management, especially the transition to a full-blown command economy, the turbulent economic conditions in general, and the mounting pressure for plan fulfillment, that characterized those years. It is also noteworthy that within two months of the completion of the First Five-Year Plan the USSR Supreme Court issued a resolution, dated February 27, 1933, which read (in part): ". . . The special attention of courts must be directed to the following criminal acts in record-keeping and reporting . . . 6. Premeditated submission of incorrect data with the purpose of indicating fulfillment or overfulfillment of a plan."[1] This was followed in the same year by a resolution of the Central Executive Committee (*Tsentral'nyi ispolnitel'nyi komitet*, abbreviated as *TsIK*) and *SNK SSSR*, entitled "On the Liability for the Submission of Incorrect Statistical Information and Reports, and for the Violation of Forms and Dates of Submission of Statistical Materials and Reports," dated November 27, 1933. It extended certain sections of the criminal code of the union republics to apply to "intentional," "systematic," and "malicious" acts of the sort indicated in its title.[2]

[1] *Sbornik postanovlenii Verkhovnogo Suda SSSR* [Collection of Resolutions of the USSR Supreme Court], Moscow, 1946, pp. 18f., as cited in Kh. E. Bakhchisaraitsev, *Spravochnik po zakonodatel'stvu dlia rabotnikov gosudarstvennoi promyshlennosti SSSR* [Legal Manual for Personnel in State Industry of the USSR], Moscow, 1951, p. 499.

[2] *Sobranie zakonov i rasporiazhenii Raboche-krest'ianskogo pravitel'stva SSSR*

Although the specialized literature of the middle thirties was on the whole more preoccupied with statistical organization, methodology, and coverage than with data reliability, it did occasionally reveal the seriousness of the authorities' concern on this score. For instance, the administrator of *TsUNKhU*, A. I. Kraval', is reported to have told the all-union conference on industrial statistics in December 1935 that: "The struggle against distortions in record-keeping and deception in reporting . . . must become an integral and important part of the work of statistical agencies."[3] Only a little over a year later, such distortions and deceptions were among the charges thrown at the alleged "wreckers" within the statistical apparatus, among them Kraval' himself.[4]

Since the middle of 1948, concern with the reliability of statistical information has been openly and frequently expressed in the specialized literature. It will be recalled that this was one of the reasons cited for the separation of the statistical apparatus from the *Gosplan* in August 1948, and attainment of a high level of data reliability was one of the principal assignments given to the new *TsSU* at the time. Shortly thereafter, on September 22, 1948, *TsSU* issued an order demanding that the personnel of the statistical apparatus "ensure the collection of truthful, scientifically justified, rigorously checked, and reliable statistical data, and fight against any outcropping of 'localistic' [*mestnicheskie*] tendencies in statistical work."[5] Similar orders are said to have been issued on subsequent occasions after inspection of the work of various local statistical offices. The question of data reliability has been—at least until the mid-fifties—one of the dominant themes of the editorials and articles in *Vestnik statistiki*, the organ of the new *TsSU*, and of the various other publications emanating from the statistical authorities in recent years.[6] Virtually every address by the administrator of *TsSU*,

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[Collection of Laws and Decrees of the Workers' and Peasants' Government of the USSR], Moscow, 1933, No. 70, p. 417, as cited in Bakhchisaraitsev, *op.cit.*, p. 499.

[3] *Plan*, 1936, No. 3, p. 27. [4] Cf. *Plan*, 1937, No. 8, pp. 22-26.

[5] I. Dugin, "O nekotorykh nedostatkakh v rabote s kadrami" [On Certain Shortcomings in Personnel Work], *V.S.*, 1951, No. 5, p. 55.

[6] E.g. L. M. Volodarskii, *Promyshlennaia statistika* [Industrial Statistics], Moscow, 1954, pp. 11-13; *idem*, "Gosudarstvennaia statistika i narodnokhoziaistvennoe planirovanie" [State Statistics and Economic Planning], *V.E.*, No. 8, 1955, p. 21; *idem*, *Statistika promyshlennosti* [Statistics of Industry], Moscow, 1956, p. 14; *V.S.*, 1952, No. 4, p. 13; 1953, No. 1, p. 23; 1958, No. 6, p. 20; and especially the editorial entitled "Reliability—the Most Important Law of Soviet Statistics," 1952, No. 2, pp. 8-20.

Starovskii, by one of his chief lieutenants (Volodarskii, Ezhov), or by one of the regional heads of the statistical apparatus before the frequent periodic conferences of statisticians from 1951 through 1953 dwelt at length on the theme of reliability.[7] It seems that in those years Starovskii hardly addressed his subordinates on any other subject, at least judging by the summaries printed in *Vestnik statistiki.*

The campaign to ensure the reliability of data submitted to the statistical offices reached its high mark approximately in 1952. After early 1953—that is, after Stalin's death—the campaign, as such, virtually disappeared from the pages of the specialized literature, although occasional references to the problem of data reliability have continued to appear. On the other hand, no outright claim of substantial improvement in this respect has been made by the statistical authorities. It is difficult for the outside observer to decide whether there has in fact been any such improvement in recent years, or whether the apparent subsidence of the campaign was largely due to the internal political shifts following Stalin's death, coupled with the usual spasmodic occurrence of such events in the Soviet Union.

The existence of the problem of data reliability has been attributed to the presence of "individual persons in enterprises and ministries" who try to "embellish the true state of affairs, to conceal or minimize mistakes and defects by inserting false data in their reports."[8] These individuals, it is said, are a small, irresponsible, dishonest, and unconscientious minority; but few as they are, their work is insidious and must be thwarted. How can these dishonest few get away with their shady acts? They can, it is admitted, because not all functionaries of the statistical apparatus are sufficiently alert or conscientious.

Hence there is the insistence that the record-keeping and reporting of enterprises and departments be subjected to constant and thorough supervision and checking. But checking cannot reveal irregularities where there is strong intention to conceal and little motivation to uncover. This explains the exhortations to honesty and uprightness on the part of those who submit the data and those who receive them. Thus we read in an article over the signature of the deputy chief of the personnel division of *TsSU* SSSR:[9]

[7] E.g. *V.S.*, 1951, No. 2, pp. 91-95, and No. 6, pp. 92-95; 1952, No. 2, pp. 92-95, and No. 5, p. 88.

[8] *Ibid.*, 1952, No. 5, p. 88. [9] Dugin, *op.cit.*, pp. 53 and 55.

"The chiefs of the statistical administrations of the union republics must pay close attention to the personnel of the local agencies of *TsSU*; they must proceed painstakingly with the selection and deployment of [statistical] workers; they must educate them in the spirit of honesty, truthfulness, and responsibility for assigned tasks; they must analyze the personnel, replacing the unsuitable workers and promoting to responsible positions the able and promising ones. . . .

"The chiefs of the statistical administrations must insist that, in resolving any question, all statistical workers bear only the interests of the state in mind, that they defend these interests in matters small as well as large, that they counter all expression of activity against the state, of localistic and narrowly departmental interests, and all forms of writing-up, misrepresentation, deception of the state, etc. . . ."

A year later, an editorial entitled "Raising the Standards of Performance of the *Raion* and City Inspectorates of *Ts*SU SSSR" asserted:[10]

"Truthfulness and adherence to principle are the distinguishing characteristics of the Soviet statistician. [This statement, of course, really means that there is some question of that.—G.G.] Everything that *raion* and city inspectors, as all other Soviet statisticians, do must be suffused with a zeal to depict the actual state of affairs correctly, objectively, and honestly. In all their work *raion* and city inspectors, as all Soviet statisticians, must adhere to [high] principles, and must place the interests of the state above everything else. [Such interests] . . . require that Soviet statisticians produce absolutely reliable data, which permit the drawing of accurate inferences on the condition of the economy and the resolution of questions of its further development.

"*Raion* and city inspectors are called upon to lead a decisive struggle against anti-state tendencies, against the attempts of some workers to place narrowly departmental and particularistic interests above those of the state, against attempts to distort reported data—to conceal unused equipment, raw materials, and supplies from the state, or to include in the reports of plan fulfillment output that has not been actually produced."

[10] *V.S.*, 1952, No. 4, p. 13. Cf. the editorial in *V.S.*, 1955, No. 6, where the references to honesty are implicit however.

It is worth noting that the exhortations to honesty and appeals to high principles in these and other passages are aimed chiefly at the lowest levels of the statistical apparatus, that is, at those levels which come into immediate contact with the suppliers of data, and where, therefore, control is most crucial and corruption most likely.

The suppliers of data—especially the accountants of the enterprises and departments—must also remember their principles. A well-known text on accounting in the industrial enterprise prefaces its section on the keeping of records of finished output with the following remarks:[11]

"The quantity of output can be ascertained from the primary documents on the transfer of finished products [to the warehouse]. However, it is not a matter of the simple arithmetic addition of the data on output recorded [in the documents]. It must be remembered that such an economically and politically important indicator as the fulfillment of the output plan is determined from these computations. Therefore, the absolute accuracy and truthfulness of this indicator must be assured. Any deviation from absolute accuracy and truthfulness on the part of the figure for output represents, in our country, a deception of the state and constitutes a crime. In distinction to capitalist records, Soviet records in general, and the accountant's records of output in particular, give a completely objective picture of actuality."

Textbooks for students and manuals for inspectors and auditors also provide abundant evidence of widespread distortion at the enterprise and departmental level, and of the concern among the various controlling authorities with this fact.[12]

[11] M. Kh. Zhebrak, *Kurs promyshlennogo ucheta* [Course in Industrial Accounting], Moscow, 1950, p. 242. The last sentence of the quotation is, of course, to be understood in the hortatory rather than the positive sense. The source proceeds to list ways in which finished output may be recorded inaccurately, e.g. by the inclusion of items before their acceptance by the technical inspectors.

[12] I. Ia. German, *Finansovyi kontrol' i dokumental'naia reviziia v mestnoi promyshlennosti RSFSR* [Financial Control and Documents Audit in Local Industry of the RSFSR], Moscow, 1948; A. Kh. Ermolaev and G. R. Nak, *Dokumental'naia reviziia na zheleznodorozhnom transporte* [Documents Audit on Railroads], 2nd ed., Moscow, 1950; D. I. Alenchikov, *Organizatsiia i tekhnika dokumental'noi revizii* [Organization and Methods of Documents Audit], 4th ed., Moscow, 1954; N. A. Sokolov, *Kompleksnye dokumental'nye revizii na zheleznodorozhnom transporte* [Comprehensive Documents Audits on Railroads], Moscow, 1955; and W. Kalkutin and W. Mitrofanow, *Revision und*

The leaders of the Party are not only aware of the imperfect reliability of the statistical data on which their day-to-day decisions must be based, but even see fit at times to speak out on the subject. From their point of view, the situation is doubly serious, in that individual Party members, far from being invariably the alert guardians of legality and morality, themselves commit acts of distortion and deceit.[13] At one time the Party Central Committee issued a demand to all subordinate units to uncover instances of writing up and to turn the culprits over for criminal prosecution; yet, the Party's "house organ" complained, the order was ignored "in some places."[14]

In sum, one can infer from the specialized literature on statistics that deception in reporting has been widespread, and that the authorities have been well aware of this fact and have been seriously concerned about it; although of course we are not told the over-all magnitude, or even the preponderant direction, of distortion. The plaintive and sometimes near-alarmist tone of the Soviet literature on the subject of data reliability need not, however, mean that the degree of inaccuracy in Soviet output statistics is very high from the standpoint of the student of the Soviet economy. We must remember that the tolerances of inaccuracy acceptable for planning and administering the Soviet command economy, which is the chief end of Soviet statistics, may be considerably more exacting than those with which outside observers are typically satisfied, and moreover that the Soviets are wont to overdraw any evil that they may be mounting a domestic "campaign" against.

Errors; Mechanization

Clerical errors may have been relatively frequent in the Soviet Union compared to other industrial economies. Not only are Soviet clerks as much prey to human failing as any others, but their low educational background, especially in the earlier years of the Plan era, their poor pay, rapid turnover, and primitive bookkeeping and calculating equipment—all suggest this impression. It is also likely that the dubious piece-work system of pay for statistical clerks that was in operation during the mid-thirties led to inaccuracy.[15] Still,

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Kontrolle der wirtschaftlichen Tätigkeit der Industriebetriebe (translated from the Russian), Berlin, 1955.

[13] See *P.Zh.*, 1955, No. 11, pp. 28-30. Cf. *New York Times*, June 26, 1955.

[14] *P.Zh.*, 1955, No. 11, p. 29.

[15] Cf. *Plan*, 1935, No. 1, p. 56; 1936, No. 3, pp. 36-39, No. 8, p. 57, and No. 12, p. 60; 1937, No. 1 p. 41.

since the recording and reporting of output occupies such a crucial place in the life of the Soviet enterprise and since industry as a whole is a privileged sector of the economy, it is a fair guess that statistics of industrial output suffer less from neglect and error than do other areas of Soviet statistics.[16]

For a country in which the official ideology extols orderly and complete record-keeping and in which the imperatives of planning and of day-to-day administration of a command economy require detailed and prompt information, the degree of mechanization of statistical work and accounting in the USSR has been extremely low. For instance, as late as 1953, only some 3 to 4 per cent of the 2.3 million then employed in "record-keeping and computation" (no doubt including accounting and statistical data handling) used electric calculating machines, while "the overwhelming bulk of these employees still perform laborious recording and computations . . . by hand, that is, without the benefit of any mechanical equipment."[17] Work by hand in this case presumably does not exclude use of the traditional Russian abacus which, although a slower device than its Chinese or Japanese cousins, not to mention modern accounting and calculating machines, is nonetheless a helpful and reliable aid to computation. It may be true, as Campbell argues,[18] that greater investment in accounting machines would have yielded a high return on the additional capital thus invested, but it is also easy to understand why the mechanization of office work was for so long, and largely still is, neglected. We only need think of the structure of priorities that has guided Soviet planners; the abundant supply of poorly paid, semiskilled, and almost exclusively female, clerical labor; and the virtual lack of institutionalized incentive for the individual enterprise to raise the productivity of, and to reduce the expenditure on, clerical workers. The brief remarks on mechanization that follow are based largely on Campbell's useful study.

The Soviets made a very late start in mechanizing their accounting and statistical work, and before the war proceeded very slowly.

[16] This may not be saying much. For instance, see Uranov's description from personal experience of the incredible neglect of accounting and record-keeping in some rural cooperatives before the war (Peter Uranov, "Consumer Cooperatives in the Soviet Union," mimeographed in Russian, Research Program on the USSR, 1954, pp. 135ff.). However, for the reasons stated, such a picture is perhaps not typical of industrial enterprises, except possibly the smallest.

[17] *P.Kh.*, 1953, No. 4, p. 94.

[18] R. W. Campbell, "The Mechanization of Accounting in the Soviet Union," *The American Slavic and East European Review*, February 1958, p. 80.

The only mechanical device in widespread use at that time was the so-called arithmometer, a small, hand-operated, lever-set calculator of low speed that was invented in Russia as early as 1874. Import of accounting and calculating machines, mostly from the United States and Germany, was limited. Domestic production, which continued before the war to concentrate on arithmometers, was also very small compared to the potential demand. Both production and imports of punched card machinery were still insignificant. Campbell points out that "in 1937, for instance, the United States produced for domestic use 172,789 units of calculating, adding, adding-listing, bookkeeping, and billing machinery, whereas the Russians *planned* to produce 5,500 comparable machines and 64,000 arithmometers."[19] Moreover, the quality of domestically produced machines was extremely low, and spare parts and repair services were very hard to obtain. Campbell writes that "in terms of stocks, which is the magnitude we are most interested in, the lag behind the U.S. was even greater than in production," and proceeds to estimate that, at the end of 1940, the stock was not over "35,000 of all kinds [of such machines] except arithmometers, the stock of which might then have been somewhere above 300,000, depending on how rapidly the old ones were discarded."[20]

During the war, due to lack of production, looting, war damage, normal wear and tear, and the absence of spare parts and repair facilities, the gains in mechanization that were made during the thirties were virtually wiped out. However, since the war the Soviets have made a much more serious effort to mechanize accounting and computation than before the war. In this they were considerably assisted by the removal of dismantled German plants to the Soviet Union and by the operation of some plants as "Soviet corporations" in Eastern Germany. The official index, of unknown reliability, claims a nearly twentyfold increase in the domestic production of computing machines between 1948 and 1955; but while the output in the former year in absolute terms is unknown, it must have still been very small, and the significance of this increase is difficult to appraise. It has also been claimed that the *stock* of such machines grew sixfold between 1949 and 1955,[21] although again obviously

[19] *Ibid.*, p. 63. My emphasis.

[20] *Ibid.*, pp. 65f.

[21] *Vestnik mashinostroeniia*, 1958, No. 8, p. 62. By 1957 the increase was sevenfold (V.S., 1958, No. 7, p. 83). Imports of calculating machines, almost entirely from Eastern Germany, have been as follows in recent years: 1955—4.9 thousand units worth $2.5 million (at 4 "foreign trade rubles" to the dollar); 1956—6.7 thousand, $3.3 million; 1957—9.2 thousand, $3.5 million

from a very small base. The number of so-called machine accounting stations, which are complexes of punched card machinery, is said to have increased 6.3 times over the same period,[22] and thus may have reached about one thousand by the end of 1955.[23] Since then the stock of computing and calculating machines, including the punched card variety, has undoubtedly continued to grow, and the decision to establish a machine accounting station in each of the economic regions created in 1957 probably gave a new push in that direction. As to *electronic* computing machines for office work, all indications show that at the time of this writing there are still hardly any. In brief, although the evidence is very meager, Campbell is able to conclude (and one must agree with him) that while "the postwar efforts of the Russians indicate a great advance over their prewar achievements, the degree of accounting mechanization achieved in the Soviet Union thus far is insignificant in comparison to that in the United States."[24] This fact, he believes, greatly reduces the fineness of detail of which Soviet accounting is capable (although so far as *statistical reporting* is concerned there seems to be an overdose of detail), and also slows down the flow of reports. How much the inadequate mechanization affects the *accuracy* of statistical reports, and especially of industrial output data, is more difficult to deduce. Nor is it clear to what extent the increased machine-processing of data by the local statistical agencies in the economic regions that is now being introduced will improve the quality (i.e. accuracy) of Soviet output statistics.

In any case, the serious problems of the reliability of industrial production statistics in physical terms do not seem to stem primarily from clerical errors. On the one hand, by their very nature, errors tend to offset one another, that is, do not lead to any discernible bias, and, on the other hand, the importance, to the fortunes of the Soviet industrial enterprise, of meeting physical production targets ensures that special attention is paid to output figures. Thus, reliability of industrial production data is likely to suffer less from errors than from the less "innocent" forms of distortion, to which I now turn.

(*Vneshniaia torgovlia SSSR za 1956 god* [Foreign Trade of the USSR, 1956], Moscow, 1958, p. 26 and *Vneshniaia torgovlia SSSR za 1957 god*, Moscow, 1958, p. 26).

[22] *Vestnik mashinostroeniia*, 1958, No. 8, p. 62.

[23] Cf. Campbell, *op.cit.*, p. 70.

[24] *Ibid.*, pp. 70f. According to a recent evaluation by a high *TsSU* official: "The degree of mechanization of statistical work, and especially of primary record-keeping, lags far behind the requirements of the economy" (*V.S.*, 1958, No. 7, p. 84).