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Summary and Conclusion

THE Soviet statistical system has been shaped by the needs of central planning and by the logic of administering a command economy, including the control and supervision functions that the latter implies. Industrial production statistics have rested, since the early years of the Plan era if not before, on continuous, comprehensive, detailed, and frequent reporting by the producing enterprises (except the smallest ones which are subject to periodic censuses). Commodity nomenclature is standardized, units of measure are specified, and standard reporting forms are prescribed. A good deal of methodological and definitional uniformity and consistency has apparently been achieved within the structure of reporting and between statistics and planning. A large and elaborate statistical apparatus, headed by the Central Statistical Administration (*TsSU*), has been built up. This apparatus receives data from the producers; processes, consolidates, and tabulates them; submits the results to various authorities; and publishes a certain amount of statistical information. Since 1948 the statistical apparatus has been organizationally separate from the planning apparatus, probably in order to make it a more effective check on the planners.

Soviet authorities thus dispose of very detailed and up-to-date industrial production information based on direct and comprehensive reporting of output. Physical planning and the operation of a command economy require this. On the debit side, we must note two principal considerations: the high cost of generating and communicating the information, and defects in its reliability.

The volume of economic reporting in the Soviet Union is exceedingly great, and the resources devoted to the recording, reporting, and processing of data are correspondingly large. Whatever advantages it may enjoy on other scores, a command economy suffers from a distinct handicap compared to a market-organized system in terms of economy of information. In the Soviet case this cost has been compounded in various other ways related to the nature of the socio-political order, as well as by very slow progress in the mechanization of statistical work and accounting. But reliability, not cost, is the main concern of this study, and I shall turn to it in this concluding chapter after digressing briefly to take note of two qualifications.

First, it must be stressed that this is not a comparative study of

the quality of statistics in the USSR and other countries. Whether Soviet statistics in general, and the statistics on industrial physical output in particular, are or are not in some relevant respects better than those of another country remains to be established by a separate investigation. Suffice it to mention here that information is rarely an end in itself, and that therefore any comparative study of this sort must take into account the sharply varying needs of different economic systems with regard to the volume, comprehensiveness, promptness, and precision of production data (above the level of the individual firm). Secondly, it must be remembered that this study is concerned with the statistics of *industrial output.* That is to say, it focuses on the production of commodities by industrial enterprises, and ignores the subsequent fate of the goods in the distribution network and their state of readiness for use by the consumers, be they producer goods or articles of final consumption. It would hardly be necessary to make this point had not the discussion in the preceding chapters heavily stressed the effect of systemic considerations on the reliability of reported production statistics. It is therefore appropriate to note that systemic considerations—especially Soviet-type planning, the command economy and the associated structure of incentives, and the sellers' market—are not neutral as to the degree to which the products of industry reach consumers or are usable by them.[1] It would seem, for example, that

[1] To illustrate: (1) The rates of breakage and spoilage in distribution channels are apparently very high in the USSR. For instance, it has been said that "usually" only 65 to 70 per cent of window glass sheets reach construction sites unbroken (article by Magnushevskii in *P.E.G.*, Aug. 23, 1957, p. 3). No doubt a substantial proportion of this damage is due to the carelessness of suppliers, which in turn is occasioned by the system of incentives and the sellers' market. (2) Deliberate destruction of producer goods may take place when performance is measured not by output but by the consumption of an input. The wanton spilling of gasoline mentioned in footnote 108, Chapter 5, is a case in point. Another example is the deliberate scrapping of unused structural steel by a construction enterprise because the apparent consumption of steel determines the volume of building accomplished, i.e. determines the degree of plan fulfillment (*Komsomol'skaia pravda*, March 30, 1958). An extension of the same principle is the waste of resources involved in maximizing the production of a service which is the end activity for the enterprise in question, but is only an intermediate good for the economy; e.g. the well-known excessive plowing done by the machine and tractor stations (which were largely abolished in 1958), or the unnecessary ton-miles (actual, not written up) hauled by trucks, in order to overfulfill their respective plans. (3) The goods received by the customer often deviate considerably from his specifications, and he is often forced to adapt the goods to his needs at considerable cost to himself (cf. G. E. Paraubek, "Nekotorye voprosy kachestva stroitel'stva" [Some Questions of the Quality of

an international comparison of volumes of industrial output, based to be sure on production data and concerned primarily with the comparative reliability of such data, cannot entirely ignore considerations of this sort.

Let us return now to the quality, and especially the reliability, of industrial output statistics in physical terms. The published figures are the end result of a long chain of statistical steps, beginning with the actual event and its primary recording. For present purposes this chain may be divided into two main stages: the successive recording, consolidating, and reporting of production data until they reach the highest levels in the statistical apparatus; and the publication of statistics, presumably based on these data. The problems raised by the two stages are quite different. The first stage brings up primarily questions of the numerical accuracy of the reported information. The second stage does this too, but in addition it raises serious questions of descriptive (including contextual) distortion, ambiguity, and (though not considered in this study) biased selection of data for publication. It is therefore desirable to separate the two sets of questions for analytical purposes. The user of Soviet industrial output statistics should bear in mind that with regard to any specific figure he may be the victim of one or both of two separate circumstances: the distortion of the information submitted to the authorities, and the distortion of the economic picture by the authorities in their publications.

To recognize the existence or likelihood of deception at the vari-

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Construction] in *Voprosy ekonomicheskoi effektivnosti novoi tekhniki v stroitel'stve* [Problems of Economic Efficiency on New Construction Processes], Moscow, 1958, p. 315; Vlasov in *P.E.G.*, July 13, 1956, p. 2). Again systemic considerations (e.g. the long lines of communication between expression of need and decision to produce, the system of incentives, the sellers' market) are undoubtedly responsible.

To pursue the last point somewhat further. By definition, more costs typically fall on, and fewer benefits (such as discounts) typically accrue to, the buyer in a sellers' market than in a buyers' or "neutral" market. Hence international price ratios, whether of producer or consumer goods, with the prices of, say, the sellers' market economy in the numerator, such as ruble-dollar price ratios, will tend to be biased downward in terms of what may be called "effective prices" to the buyer, if not in terms of transaction prices. This bias is augmented by the tendency of consumers (industrial or individual) in a sellers' market economy to become self-suppliers because of the undependability of external supplies, and to produce such goods at costs that often considerably exceed transaction prices, as indeed the Soviet literature amply attests to. The last, of course, is less true where self-supply aims primarily at avoiding or evading excise taxes, for instance, turnover taxes on consumer goods.

ous stages of the chain connecting reality with published data is not necessarily to subscribe to what, for want of a better term, may be called the "nihilistic position." This is the view, sometimes held and propagated by former Soviet political and economic officials, that any data published in the USSR are nothing but sheer manipulation for political purposes, and that, moreover, the reports submitted to the Soviet authorities from below contain such a large element of falsification, or even pure invention, that all Soviet statistics are utterly worthless for any serious purposes.

"Believe no figure that is published; for it is false or correct according to what the needs of the situation dictate," a German prisoner reports having been told by former functionaries of the Party's Central Committee and other old Party members who were fellow prisoners in a Soviet camp. And still others, economists or former managers, are said to have warned him repeatedly that "basically everything concerning our figures is sheer manipulation to achieve confusion; their handling is a science in itself." The reason: "Had we not developed corruption and manipulation of all plans, in the large and in the small, to the highest art and science, we would not have been able to execute any plan to any extent. Only the organizing force of our corruption and manipulation enables us to overcome to some extent the plan-wise chaos."[2] Similarly, Berliner was told by a former Soviet economist and ministry official, one of his "most reliable informants," that "the Soviet system of enterprise administration, the method of calculating the degree of success of the work of the enterprise and the system of financial operations are founded upon an enormous amount of falsification in all branches of production and in their accounting systems. Not a single enterprise, if it worked in full accord with all orders and decrees of the government and planning organs, would be able to function without interruption. Every day, for the sake of production, the official norms are violated, everywhere there is evasion, false figures, untrue reports, and so forth."[3]

Putting aside for the moment the question of distortion at publication, can we conclude from eyewitness testimony of this sort that

[2] Wilhelm Starlinger, *Die Grenzen der Sowjetmacht*, Würzburg, 1955, pp. 73f.

[3] Joseph Berliner, *Factory and Manager in the USSR*, Cambridge, Mass., 1957, p. 160. Berliner adds: "Perhaps these words are too strong. The statement cries out for quantitative evidence which in the nature of the case is not to be forthcoming."

the physical output data reported to the Soviet authorities, and consequently also the published statistics drawn from them, are devoid of meaning—at the worst a collection of Tippetts' numbers, or at best statistics that cannot possibly be comprehended by outsiders? I do not think so, for the following reasons:

1. As we saw in the preceding chapter, the published industrial output statistics (in physical terms) do make some sense, in that they do generally meet certain rough tests of internal and external consistency wherever such tests are possible and have been tried. Hence, the reported data that underlie the published figures must presumably also make some sense.

2. Certain known principles of Soviet managerial behavior, such as the universal quest for easy plans, indicate that there must be definite limits to falsification in reporting by the enterprise.

3. True, some of the data reported by enterprises and other entities undoubtedly have a very tenuous relation to reality, if any. This is probably especially so where the reported event or situation leaves no, or few, lasting traces to attract the attention of subsequent audits or inspections. A statistic of this kind is, for example, the percentage of the factory's staff that was covered by "socialist competition" in a given period. Such Soviet figures may indeed be worthless. But data on the physical output of industry are not of this order. They are probably much less subject to distortion from below than are many other Soviet statistics, not because there is little incentive to distort—there is plenty—but because of the limits placed on such distortion by the interests of customers, the difficulties of concealing large inventory shortages, the controls over the distribution of products and the allocation of inputs, the attention of authorities to this key segment of the economy, the possible severe penalties, and so forth.

4. Those who hold the "nihilistic" position are understandably impressed by the prevalence of cynicism and corruption in Soviet society, by the occasional daring feats of falsification on a large scale, and by the ingenuity involved in some cases. Yet it does not necessarily follow that the consolidated figures for whole industries bear no ascertainable relation to reality. In the vast majority of the actual cases of falsification of industrial output data described in the Soviet press, or recounted by such eyewitnesses as Berliner's informants and Tsonev, the relative magnitude of distortion is quite modest from our point of view (if not from the point of view of the Soviet statistical authorities).

5. Even if the data as they stand are patently unreliable, they can sometimes be adjusted to yield more or less satisfactory figures on the basis of various types of internal or external evidence. (Of course, if one believes that *no* figure published in the USSR is at all reliable, then there is also no basis for adjustment.)

But rejection of the "nihilistic" position is not tantamount to issuing a bill of health of Soviet statistics. We saw in Chapter 4 that the statistical authorities have been, and continue to be, seriously concerned about the reliability of the data submitted to them by enterprises and higher-level entities, although naturally they do not choose to reveal any quantitative estimates of the distortion in the reported data. We also examined in Chapters 4-6 much evidence on the presence of a substantial amount of data distortion, including falsification. However, this evidence is largely nonquantitative, and in considerable measure even aprioristic; in the few cases where it is quantitative, it is very fragmentary. Thus, while we can draw certain qualitative conclusions (that distortion exists, that in certain branches and at certain times it is likely to be greater or smaller than in other branches or at other times, that certainly it is in one direction or the other, and so forth), we are not able to estimate the quantitative extent of distortion in the information reported to the central authorities.

The problem of reliability of reported data is deeply rooted in the nature of the Soviet command economy. The output reports submitted by the enterprises and their administrative superiors simultaneously constitute the factual basis for national production statistics, provide the information for planning and the issuance of production orders, and determine the rewards and punishments meted out to the management and the rest of the production personnel. The rewards for plan fulfillment and overfulfillment by the enterprise are great; the punishment for failure may be severe. At the same time, within the enterprise, most of the workers are usually remunerated according to their own "norm" fulfillment and overfulfillment. Success with the plan or norm also brings various side benefits and advantages. Thus, disinterestedness in the reporting of output by the worker to his superiors, or by the enterprise to its administrative superiors (and at the same time to the statistical administration), is virtually ruled out. Nothing like the disinterestedness or boredom of the French subprefect who, in the early part of the last century, for thirty years sent the government the

same set of figures for the industrial production of his district[4] is conceivable in the Soviet case.

The structure of incentives therefore pushes the worker (or foreman) and the enterprise itself, and perhaps even the enterprise's superiors, to simulate plan fulfillment and to write up output. For reasons adduced earlier (Chapter 5), write-ups by workers may affect the recording of finished industrial goods less than the recording of intermediate operations, and may be less serious in industry than in construction. But they apparently do tend to distort commodity output statistics in an upward direction, although from the evidence at hand it is impossible to say for which commodities and to what extent.

More serious seem to be the manipulations by management. It is clear that management does at times, perhaps even fairly often, engage in write-ups "pure and simple," though again it is impossible to estimate their incidence and quantitative importance. In many cases the write-up is simply "borrowing" output from the succeeding period. The amount "borrowed" may often be small in relation to the annual rate of output and may be repeated at the end of each reporting period. This practice, although prevalent, may thus affect Soviet production statistics relatively little, especially over the longer run. Other kinds of write-up however may exaggerate the figures more seriously. Probably the most serious kind of write-up, and one that may have a considerable upward effect on the commodity production figures, is the widespread inclusion of *brak* (spoilage, rejects, substandard goods) and incompletely assembled articles in the reported finished goods totals.

The pressure to fulfill the plan, which is specified in physical units or in value terms derived directly from physical units, leads the Soviet industrial enterprise to stress sheer quantity of output at the expense of other dimensions of the product. I have called this the tendency toward the devaluation of the specified physical unit of measure (Chapter 5). The dimensions of the product other than the specified one are, first, quality in a general sense, and, secondly, other quantitative dimensions (e.g. if the specified unit is a weight unit, the other quantitative units may be area, count, size, etc.). The enterprise can often manipulate to some extent the other quantitative dimensions of the product, and it will tend to choose the *intra-*

[4] Mentioned by the French historian Michel Chevalier and cited by Arthur L. Dunham in *The Industrial Revolution in France, 1815-1848*, New York, 1955, p. 405.

commodity assortment that will maximize plan fulfillment in terms of the specified physical unit of measure.

Not all the tendencies operate toward the overstatement of output in physical terms; often the enterprise underreports its production. This may be deliberate, e.g. write-downs to conceal the illegal appropriation or diversion of the product, or it may be unintentional, merely reflecting prior theft or pilferage of the product. However, one gets the distinct impression from the evidence at hand that, on the whole, underreporting is a less serious problem than write-ups.

How can management get away with deliberate write-ups and write-downs, and with devaluing the intracommodity assortment? Are there not severe administrative and criminal sanctions provided for such offenses as inaccurate reporting, reduction of quality, deviation from standard specifications, and the production and outshipment of *brak*? Are there not a multiplicity of controlling and supervising agencies and a host of auditors and inspectors constantly keeping the enterprise and its personnel under surveillance? There are indeed, but, as we saw in the section on checks to distortion in Chapter 5, these safeguards, sanctions, and checks are frequently ineffective. Those persons within the enterprise whose duty it is to control the quality of output, to safekeep inventory, and to ensure the accuracy of records and reports—the quality inspectors, the chief accountant, the storekeepers, and so forth—are often loyal primarily to the enterprise rather than to the regime or to abstract principles; they are often part of a "web of mutual involvement" holding together the responsible officials of the firm and may be for various reasons under the manager's domination. Administrative superiors (*glavk*, ministry) may overlook the transgressions of enterprise management because their own criteria of success coincide with those of the firms. Outside authorities (the Party, the Procuracy, etc.) may be ignorant of the facts, or, if not, may be reluctant to stir up trouble, or may simply be bribed to look the other way. And lastly, potentially the most effective type of check, that by the transactors (the buyers of the products, the common carrier), is also far from perfect. The common carrier often does not verify the declared quantity of the shipment and besides may welcome exaggeration of the quantity as a help to fulfilling its own haulage plan. And because of the sellers' market, the buyer is often in a weak position to object to poor quality, inclusion of *brak* or incompletely assembled goods in the shipment, departure from

specifications and distorted assortment, and perhaps even shortages in quantity.

Where so little is firmly known, generalization is very difficult, and therefore the following considerations are offered merely as illustrative hypotheses.

1. The tendency to write up output probably increases with the following:

a. The approach of the end of the plan period. The last month of the year and the last year of the Five-Year Plan probably witness more extensive write-ups, as the pressure on management to fulfill plans is heightened.

b. Diminution in the supply of inputs. Since management is often not allowed to excuse itself by pointing to the absence of supplies, there must be a strong tendency to solve the production problem statistically by "borrowing" output from the future.

c. Excess of demand for a product over supply, which allows the producer to "chisel" on quality and quantity with relatively little risk of effective opposition from the buyers.

d. Heightening of pressure on producers for whatever reason.

e. The significance of premiums in the earnings of managerial personnel.

f. The importance of piece rates in the remuneration of workers.

2. The tendency to write up output probably varies inversely with the following:

a. The "countervailing power" of the buyer, that is, the degree to which the buyer can resist shipments that are low in quality or short in quantity. The contrast between industries working for the military effort and those working for the consumer comes immediately to mind in this connection.

b. The possibility of conducting effective inventory audits. For instance, commodities handled in bulk may permit of easier concealment of inventory shortages than, say, machinery.

c. The importance of continuous production processes. Write-ups, either by management or by workers, are probably more difficult to carry out in continuous production than in lot or batch production. Over the long run, this factor may tend to reduce the upward bias in Soviet output statistics.

d. The stability of input-output ratios. The more stable such ratios, the more limited, it would seem, are the possibilities of simulating performance.

3. Deliberate quality deterioration being an alternative to write-ups as a method of simulating performance, the two may vary inversely over the short run, depending on the particular side from which "the heat is on." Over the longer run they may vary together, since both are responses to the same set of circumstances, such as the severity of the plans, the efficiency (or inefficiency) of the supply system, the structure of rewards, the harshness of the political atmosphere, etc.

4. The replacement of one specified physical unit of measure by another, or the aggregation or disaggregation of the commodity category in the enterprise's plan (i.e. smaller or greater detail in production planning from above), may create a discontinuity in the commodity series. A change-over in the specified physical unit of measure is likely to bring about rapid adjustment in intracommodity assortment to maximize physical output under the changed circumstances. Thus a chained series of the output of the commodity in physical terms, linked in some fashion at the period of the change-over, is likely to show greater growth (smaller decline) than if the series were expressed either in the old or the new unit throughout. Similarly, an aggregation of the commodity category in the enterprise's plan probably furnishes the management with additional scope to manipulate intracommodity assortment to its advantage and thus to devalue the physical unit of measure; disaggregation would seem to work in the opposite direction (see Chapter 5).

5. The tendency for output to be underreported depends on the nature of the commodity, and particularly on whether it can be profitably and conveniently pilfered by workers or diverted by management into illicit channels. For instance, pilferage by workers might be expected to be much more prevalent in consumer goods industries than in heavy industry and where the goods are portable than where they are bulky (though we have noted exceptions).

The tendency for output to be underreported might also be expected to vary directly with: (a) general consumer privation, and especially its aggravation; (b) shortages of consumer goods in stores and the level of open market prices for them, i.e. generally speaking the degree of repressed inflation; (c) difficulties in the supply of producer goods, which might induce management to engage in various barter operations, which in turn may entail the deliberate writing down of output; and (d) the extent to which enterprises are self-suppliers. (These considerations are discussed at greater length in the section on underreporting in Chapter 5).

The effect of underreporting, therefore, is probably to exaggerate the production statistics of certain goods, particularly consumer goods, during such "hard times" as the early thirties, the war and immediately after the war compared with more "normal" times. But, on the other hand, this effect may be partly or wholly offset by the deterioration in quality and intracommodity assortment associated with the "hard times."

Nove has suggested that since "one could legitimately invoke . . . 'a law of equal cheating': over the economy as a whole, there is no reason to suppose that Soviet managers and their accountants falsify more in one year than in another, so the *rate of growth* is unlikely to be exaggerated on that account."[5] One could add that if the assumption is "legitimate" for the economy as a whole, it is perhaps at least as "legitimate" for an individual series. However, as we have seen, the conditions that determine the degree and direction of distortion may well vary from year to year; and convenience, or perhaps inevitability, and not legitimacy is likely to be the stronger justification for the assumption. Usually we simply lack the quantitative information necessary to adjust for the failure of the "law of equal cheating." And so we must grudgingly keep the law on its unmerited throne, supplementing our findings with qualitative caveats and provisos. This is especially likely to be the case in international (rather than temporal) comparisons. The point at which the qualifications nullify the assumption is, as in so many other respects, for the investigator and his conscience to decide in each particular instance.

Turning finally to distortion of statistics *at publication*, we encounter a completely different set of problems. Distortion by the reporting enterprises has meant essentially numerical distortion. While we cannot be certain that Soviet authorities do not practice numerical distortion in transferring the figures from their unpublished consolidated statistics to published material, we saw (Chapter 7) that so far this has not been demonstrated, although the opportunities of demonstrating it have admittedly been very meager indeed. At any rate, several empirical and a priori considerations led us to a weak presumption that there probably is no *numerical* distortion (falsification) of physical output data in the published Soviet statistics. Instead, a distorted picture of reality is very definitely presented by suppression and selective release of data, biased

[5] A. Nove, "The Pace of Soviet Economic Development," *Lloyds Bank Review*, April 1956, p. 3. His italics.

choice of bases of comparison, deliberate ambiguity in nomenclature and other categories, and so forth. It is inadvisable to proffer any general principles for the interpretation or rejection of statistics that are manipulated in this manner, except perhaps to reiterate that one question must always be uppermost in the investigator's mind: what are the figures trying to prove?