

MICHAEL KASER

The Reconstruction of Soviet Statistics

The Soviet statistical authorities first published an input-output table (for 1959) in their statistical yearbook of 1960; they had recommenced issuing their general abstracts in 1956—a direct consequence of, and only a few weeks after, the Twentieth Party Congress—following a lapse of nearly two decades.¹ The input-output table as published was incomplete, and the coverage of the annual abstracts has only modestly increased since it reached its present size in 1958. The lacunae have presented a challenge to Western economists in three respects. The first difficulty is in reconstructing a series only part of which has been officially published. The best example of this lies in the reconstruction of input-output tables described below. The second challenge is to estimate aggregates (including the filling in of time series) which the statistical authorities of the USSR choose either not to make public or to publish in nontabular form.² An example of this is the extraction of statements about wholesale prices to compile indexes for comparison with those of a Western country: a study of dollar-ruble valuation is among those noted here. Most of the studies in this field tend to be on economic relationships rather than economic activity, but certain gaps within the latter still have to be filled by outside estimation.³ The third problem is in the construction of magnitudes which the statistical organs of the USSR do not compile. The prime example is the compilation of national accounts on the “Western” definition, to which attention is paid below. But one could also include index numbers of a form—or with weights—differing from those published in the USSR.⁴

The reconstruction of the input-output table has recently occupied more

1. The present writer has a short history of Soviet statistics in Vladimir G. Tremblay and John P. Hardt, eds., *Soviet Economic Statistics* (Durham: Duke University Press, 1972), pp. 45–65.

2. The compilation of time series from occasional papers and sporadic remarks was, between 1938 and 1958, the chief task of “statistical Sovietology.”

3. A number of governmental and private agencies thus compile estimates of Soviet nonferrous metal production. The present writer has made a number of estimates of Soviet gold output, and of the balance of payments; see, for example, *International Currency Review*, May–June 1974, pp. 60–62.

4. M. R. Dohan’s *Volume Index of Soviet Foreign Trade* (forthcoming) is an example.

scholars and more resources than any other single study of Soviet statistics. The supersession of the 1959 table by one for 1966 (one for 1972 has also been compiled, but has not yet been published) has meant that most work is concentrated on 1966. The most important examination has been by a team of researchers supported by the U.S. Arms Control and Disarmament Agency.⁵ Acknowledgment is given in the preface of this book to twelve other economists well known for their work in the Soviet field, as well as to the programmers and other assistants required because of the size of the task. Two-thirds of the volume is a description of the conscientious and painstaking piecing together of the information available in the published table and from other Soviet sources, and of the tests used to verify the consistency of estimates. The remainder of the book deals with the key magnitudes of social accounting (total product and expenditure on capital formation, private and public consumption) and factor use (expanding the published capital matrix, and showing manpower input), as well as two kinds of foreign-trade balance, which can be extracted from the Soviet presentation. Of particular interest, in view of the contemporary work on reconstructing data on the Soviet national income, is the verification of the estimates of gross social product with other Soviet statements on such aggregates, and their breakdown by branch of origin. The authors point to an “exasperating feature of Soviet writing on input-output” in the failure to state whether material used came from the published or the unpublished version of the input-output table. (It might be noted, incidentally, that the authors rely—on pages 182–217—on a superseded edition of Petrov’s established textbook, *Kurs ekonomicheskoi statistiki*, for their definition of the agricultural sector.)

A panoply of supporting and derivative studies have appeared from two sources. Duke University and the University of North Carolina have combined efforts to produce *Occasional Papers on Soviet Input-Output Analysis*. The vade mecum for all workers in this field is the first publication in the series: V. G. Treml, *Input-Output Analysis in the USSR: An Annotated Bibliography* (February 1973).⁶ This bibliography begins with the late fifties, when the ideological inhibitions to the use of this technique were officially removed. Besides the official statistics of the Central Statistical Administration, the work includes all Soviet books and journal articles on the topic, as well as references in conference and newspaper reports. Studies on Soviet input-output by Western writers in the decade 1962–72 amount to seventy-four entries. The bibli-

5. V. G. Treml, D. M. Gallik, B. L. Kostinsky, and K. W. Kruger, *The Structure of the Soviet Economy: Analysis and Reconstruction of the 1966 Input-Output Table* (New York: Praeger, 1972).

6. This work has since been published in revised form with many significant additions and totaling some 950 items: V. G. Treml, *Input-Output Analysis in the USSR: An Annotated Bibliography* (New York: Praeger, 1974). The paper forming the first edition is now out of print.

ography also lists translations into English of relevant Soviet literature. For those daunted by the size of Trembl's compilation, a more selective Soviet bibliography is found in Michael Ellman's spirited analysis of the last decade's debate on the application of mathematical methods to Soviet planning.⁷ Ellman's discussion of the arguments among Soviet economists and planners is an essential complement to any consideration of the significance of the production of "computerizable data" in the Soviet Union.

The *Occasional Papers* have also begun to include analyses of individual sectors on which illumination is thrown by the input-output table—notably A. L. Moses, *Selected Topics on Transportation and Input-Output in the Soviet Union* (April 1974). But in the general analysis of the Soviet economy the most important results have come from the derivation of wholesale prices. Since Soviet official sources furnish only a general time series, in addition to (rare) price lists, considerable light can be thrown on the Soviet economic mechanism itself. Among these areas of interest, the most significant is certainly the burden of taxation. Steven S. Rosefielde's publication in the series, entitled *The Complete Producers' Price Soviet Input-Output Table for 1966* (June 1974), demonstrates the very large distortion of the pattern of production when valued at final (tax included) price, in comparison with wholesale price (in other words, production price—namely, those paid by Soviet enterprises). He shows that the "turnover tax distortion" is 58 percent of the aggregate value of final consumption for consumers' goods, 13 percent of natural-resource materials, and 7 percent of producers' goods. The "distortion" of the value of agricultural goods by the addition of taxation is a mere 1.5 percent, because of subsidies and because turnover tax is usually levied in the fabricating sector. It has always been a standard feature of the discussion of the USSR fiscal system (by Soviet authors as well as outsiders) that it depends heavily on final consumer demand, but Rosefielde's work provides precise documentation.

Research on the same topic, and involving many of the same authors, has also been published by the U.S. Department of Commerce (Bureau of Economic Analysis) in its *Foreign Economic Reports*. The first of these is V. G. Trembl, B. L. Kostinsky, K. W. Kruger, and D. M. Gallik, *Conversion of Soviet Input-Output Tables to Producers' Prices: The 1966 Reconstructed Table* (July 1973). This report shows magnitudes similar to the Rosefielde study, although exhibited by industrial branch rather than by commodity group. They indicate that revaluing the input-output data from producers' to purchasers' prices decreases the aggregate value by 13 percent, but that these dec-

7. Michael Ellman, *Planning Problems in the USSR: The Contribution of Mathematical Economics to Their Solution, 1960-1971* (Cambridge: Cambridge University Press, 1973).

rements are as high as 41 percent for food processing and 36 percent for textiles and apparel. The same series includes a short note on two dynamic models of the U.S. economy which are of interest in relation to Soviet statistics by reason of their Marxist flow classification: Vladimir G. Trembl and Dimitri M. Gallik, *Soviet Dynamic Input-Output Models of the United States Economy* (report no. 7, August 1973).

In countries other than the United States few studies have appeared in monograph form. Ellman's work, which includes substantial analysis of this field, has already been mentioned, and a major symposium by French scholars has appeared, edited by Henri Chambre.⁸ Among the studies included, the one by G. P. Sokoloff describes and reconstructs in summary form not only the 1966 table but also its simpler but pioneering antecedent of 1923/24. Sokoloff republishes, with some modification, a "tentative input-output table for the USSR, 1941 Plan" which Norman Kaplan and others compiled for the RAND Corporation in 1952. A reduced matrix for China (1970) by A. Brender is also included. If symposium papers may also be covered in this review article, the combination of standard annual series with input-output benchmark years by Hans-Jürgen Wagener must also be noted.⁹ His series run from 1950 to 1971 for eleven industrial branches and one miscellaneous group.

Another method for deriving statistics for the Soviet Union lies, as already noted, in extracting data on relations for which the Soviet authorities do not produce a series. By far the most acute controversy, and in international political terms that of greatest interest, is over ratios whereby ruble values can be converted to those prevailing in a market economy. The U.S. dollar is almost invariably chosen, but notable studies have been made in terms of the pound sterling and the French franc.¹⁰ The monographs on the dollar-ruble ratio include a paper by a U.S. government agency and one by the RAND Corporation.¹¹ The origin of the latest round of controversy and its evolution have been admirably summarized elsewhere.¹²

8. "Économie mathématique, études de secteurs en URSS et en Europe de l'Est," *Cahiers de l'ISEA*, ser. G, no. 31, Institut de Science Économique Appliquée, Paris, February-March 1973.

9. Hans-Jürgen Wagener, "Zur sowjetischen Statistik der industriellen Inputs und Outputs," *Yearbook of East-European Economics*, 4 (1973): 439-80.

10. Philip Hanson, *The Consumer in the Soviet Economy* (London: Macmillan; Evanston: Northwestern University Press, 1968), and, earlier, Alec Nove, *Was Stalin Really Necessary?* (London: Allen and Unwin, 1964). Anita Tiraspol'sky, "Le pouvoir d'achat du rouble en 1972," *Revue de l'Est*, 5, no. 1 (January 1974): 79-123.

11. General Accounting Office, Comptroller General of the United States, *Comparison of Military Research and Development Expenditures of the United States and the Soviet Union* (Washington, D.C.: Department of Defense, January 1972). A. S. Becker, *Ruble Price Levels and Dollar-Ruble Ratios of Soviet Machinery* (Santa Monica: RAND Corporation, January 1973). See also an earlier study, Emile Benoit and Harold Lubell,

The parallel Soviet work on the ruble-dollar ratio has been usefully summarized by Treml and Gallik in *Soviet Studies on Ruble/Dollar Parity Ratios* (no. 4 in the *Foreign Economic Reports* series, November 1973). The reconstruction of Soviet statistics and their surrogates into the national accounting aggregates of market economies has a still longer history.¹³ The latest and most thorough examination is by Abraham S. Becker.¹⁴ He develops the methodology pioneered by Bergson in studies for the RAND Corporation, but his book not only carries forward and greatly expands the earlier accounts but also undertakes a conceptual evaluation of the general state of such studies. As a textbook in understanding a national accounting system and the divergencies between Western and Soviet definitions, and as an exercise in the valuation of national accounts, it should long be a standard work. Regrettably the time series ends with 1964, although a forward (*ex ante*) projection is made of the 1965 account as shown in the Seven-Year Plan. A delay in completing the book (which in any case took some time to appear) would have enabled Becker to compare these with the actual (*ex post*) accounts for 1965.

The final area of reconstruction is the extraction, from a variety of series, of time series which are not available in standard Soviet abstracts. R. A. Clarke undertook his work because he "began to feel that a considerable waste of time was frequently involved in searching for data because one often could not know what particular volume to consult."¹⁵ He goes on to explain that Soviet practice tends not to provide a complete series (as in most Western abstracts) for, say,

"The World Burden of National Defense," in Emile Benoit, ed., *Disarmament and World Economic Interdependence* (Oslo: Universitetsforlaget; New York: Columbia University Press, 1967), pp. 29–59.

12. Michael Boretsky, "The Technological Base of Soviet Military Power," and Stanley H. Cohn, "The Economic Burden of Soviet Defence Outlays," in U.S. Congress, Joint Economic Committee, Subcommittee on Foreign Economic Policy, *Economic Performance and the Military Burden in the Soviet Union* (Washington, D.C., 1970), pp. 189–231 and 166–88 respectively; Alec Nove, "Soviet Defence Spending," and Michael Boretsky and Alec Nove, "The Growth of Soviet Arms Technology: A Debate," *Survival*, 13, no. 10 (October 1971): 328–32, and 14, no. 4 (July–August 1972): 169–77, respectively, and Alexander Woroniak, "Le problème de la conversion du rouble en dollar," *Revue de l'Est*, 5, no. 1 (January 1974): 5–54. An anonymous paper, "La place réelle des charges militaires dans la défense nationale de l'URSS," in *Études 1972 sur les économies orientales*, Groupe d'Études Prospectives Internationales, Paris, 1972 (mimeographed), points to the shortcomings of ratios which (like Benoit and Lubell, "World Burden of National Defense") assume that military pay equals opportunity cost. That study uses, *inter alia*, Kaplan's construct of the 1941 input-output table.

13. Surveyed by the present writer in "Estimating the Soviet National Income," *Economic Journal*, 67, no. 265 (March 1957): 83–104.

14. Abraham S. Becker, *Soviet National Income, 1958–1964: National Accounts of the USSR in the Seven Year Plan Period* (Berkeley: University of California Press, 1969).

15. R. A. Clarke, *Soviet Economic Facts, 1919–1970* (London: Macmillan, 1972).

the ten years preceding the date of publication, but only for selected benchmarks. His book contains seventy-four tables, of which the majority (thirty-nine) are of industrial production and eighteen are on agriculture. The remaining seventeen tables, which make up a "general" section, will be the most frequently consulted, since the earlier time series (for example, wages, the budget, and foreign trade) have to be looked up in a variety of sources. A particular advantage of the study is the inclusion of comparable series for the 1920s, and it is for this reason especially that Clarke's work has not been superseded by a much bulkier Soviet volume.¹⁶ This official Soviet compilation of historical series, issued for the fiftieth anniversary of the October Revolution, falls short of comprehensiveness by omitting many earlier years. In one sense it is an enlargement of the regular yearbooks—for example, the industrial production index is given for 1922, annually for 1928–40, and from 1940 onward. Here, as in Clarke's book, the wartime years, on which very little research has been published, have been omitted (though Clarke reproduces data, for example, on foreign trade where these have exceptionally been made available). The Soviet abstract falls in line with the regular annual publications, although it drops the methodological appendix that is included in the regular yearbook, and which fortunately re-emerged with the one for 1972.¹⁷ Because the historical abstract was published in 1972, only the later volume contains actual 1972 data.

It is a sign of retrogression that these latest abstracts contain no subject index. An index last appeared in the yearbook for 1967, and one could perhaps see its disappearance as symbolic of the attitude of the Soviet Central Statistical Administration toward their customers: the less help given to users, the better. The motto is not likely to change while the present director, Starovsky, holds office. Might it be hoped that a successor will remove the need for any reconstruction of Soviet statistics?

16. *Narodnoe khoziaistvo SSSR, 1922–1972 gg.* (Moscow, 1972).

17. *Narodnoe khoziaistvo SSSR v 1972 g.* (Moscow, 1973).