Japanese Cabinet Committee on Statistics

The existence of this Committee, directly responsible to the Prime Minister, is a hopeful augury of statistical regeneration. It is composed of government officials and a larger number of university economists and statisticians. It is taking the leadership in developing a statistical system, in reorganizing important statistical work in the government, and in improving the caliber of statistical personnel.

The Diet has passed a law giving the Committee the authority it requested. During the drafting stage the Mission discussed with the Committee at length the provisions of this legislation, as well as the issues and concepts involved in the creation of the Committee itself. Both the creation of the Statistics Committee and the Statistics Law are nevertheless the product of the independent initiative and ideas of Japanese intellectuals.

The Committee will not be able overnight to revolutionize the quality and character of Japanese statistics. To carry out its staff functions it must gain the understanding, cooperation and participation of the government officials concerned; and it must develop further its own understanding of the job to be done. It will also require patience and tolerance as well as advice and pressure from SCAP. In turn it will need to apply the same attitudes and policies toward the Japanese agencies that collect, compile and interpret statistics. If all goes well in these various respects the Committee should be able within two years to develop successfully its own

pattern of operation and to set up standards for the improvement of official data.

The Cabinet Committee on Statistics is the agency wherein lies the hope for sound, indigenous improvement in Japanese statistics. The views of the Mission upon questions of organization falling within the Committee's scope were for the most part conveyed to it informally. However, some recommendations were brought together more formally in a "Preliminary Report on Japanese Statistical Organization" prepared by the Chief of the Mission before his departure from Japan.

The Cabinet Bureau of Statistics

This "operating" agency, corresponding approximately to the Bureau of the Census in the United States, is not to be confused with the Cabinet Committee on Statistics. In the Preliminary Report,

We recommend that the collection of official data be centralized to the maximum practicable degree in the Cabinet Bureau of Statistics.

The reasons for this recommendation include the general shortage of trained personnel and the importance of making maximum use of those who are available. Centralization in the Cabinet Bureau would permit a more efficient pooling of the limited technical personnel and facilities than would the alternative of decentralization, despite the real advantages of the latter to administrative departments which would retain more intimate control of specialized data.

It will be easier and quicker to build a staff inbred with the highest ideals of objectivity and with a tradition of inviolability of accuracy and independence of statistics if the work is separated from operating and policy issues. Japanese statistics with their tarnished past carry a heavier burden on this score than those of most countries.

Moreover, such centralization will simplify the development of a coordinated set of data by divorcing it from many of the bureaucratic issues of overlapping jurisdiction which will arise as statistical work is scattered among the ministries. To carry our proposals further,

We recommend that field staffs for the collection of statistics be consolidated into a single staff.

The reasons for such consolidation are parallel to those just given. The larger costs of statistical work are for the actual collection of information from individuals or business establishments. A single field staff can more effectively utilize the available skilled personnel. It will require and can therefore justify better trained people, and can better organize training programs of its own.

This recommendation implies some transfers of statistical responsibility to the agency responsible for the field force from the governments of prefects and municipalities as well as from ministries of the central government in Tokyo. The character, extent and timing of such transfers should be determined by the Committee on Statistics.

Since a complete centralization of statistical work in the Cabinet Bureau or anywhere else would be neither practicable nor desirable, the governmental agencies concerned in any transfer should be given an ample opportunity by the Committee to participate in its planning and to present their views upon its proposed decisions.

SCAP Direction of Japanese Statistics

As indicated above, it is our opinion that permanent and sound improvement of Japanese statistics can be accomplished only if the Japanese Government itself assumes responsibility for developing a system natural to Japan. This result depends further on the Japanese being permitted to exercise their own judgment and apply their understanding of the Japanese customs and conditions. However, the Japanese have not yet acquired skill in using statistics for the solution of current problems. It is probable too that in many of the aspects of routine clerical organization and techniques Americans have greater experience.

At this stage of Japanese statistical development, SCAP will not get the information it requires unless it provides continuing statistical guidance and advice. Its operational and policy needs must be anticipated and translated into statistical operations. This will require the most highly trained personnel it is possible to obtain. This SCAP personnel will need to help organize and develop the individual statistical series and to supply the insight necessary to weave these into a consistent system. There is also continuous

need to advise Japanese officials in the rebuilding of a statistical system.

To avoid confusion in results and conflicting instructions to the Japanese,

We recommend that the economic statistical interests and activities of SCAP be subject to control of a single division.

SPECIFIC STATISTICAL PROBLEMS

In addition to the over-all review of the Japanese statistical organization, members of the Mission devoted themselves to a wide range of specific statistical problems. Several of the major problems dealt with are discussed below.

Statistical Needs for Stabilization Program

One of the more urgent and pressing problems with which the Mission has been concerned is the development of a current statistical reporting program, to provide information essential to the proper functioning of governmental economic control machinery. Such machinery must be to a major degree a statistical operation. Without a vast amount of accurate, current statistics the operation of such governmental machinery is impossible.

Data are needed on the supplies of critical materials; the quantities of critical materials needed from month to month to meet the requirements of the occupation forces, the minimum Japanese economy and export trade; bills of material, production costs, production rates and schedules; inventories; shipments; wages, prices, cost of living and the like.

The Mission has made some contribution to the development of such data, particularly with respect to the labor force, employment, unemployment, wages, cost of living indexes, measurement of national income, and better reporting of government expenditures and receipts.

The Economic Stabilization Board

The Mission has also discussed extensively the kind of organization needed in the Economic Stabilization Board to handle such extensive data. However, the Mission's contribution here has been seriously limited because of the wholly inadequate progress of the Japanese Government toward establishing the Economic Stabilization Board as an effective operating agency.

This new governmental agency, by Imperial Ordinance, has been made responsible for "formulating fundamental policies and plans with reference to production, distribution, consumption of commodities and to labor, prices, finance, transportation and other economic matters and promotion of the functions of the various government offices concerned." It is therefore the body which should determine what current statistics are required to operate the proposed system of economic controls.

The failure of the government to organize and staff this Board adequately, and the consequent failure of the Board to develop plans, policies and procedures, have prevented development of the basic statistics collection program needed for a stabilization program. This program should be worked out by the Board with the cooperation of the Cabinet Committee on Statistics. The assistance of the Mission on the

problems of the Economic Stabilization Board of necessity has been limited. It has consisted principally of discussions with various members of the Board's staff concerning problems of Board organization, procedure, delegation of authority to other agencies of government, education, publicity and enforcement.

Statistics on Production

The basic economic problem in Japan today is production. Securing facts about production has been complicated by the Japanese practice of relying on "control associations" for such data. The entire pattern of production reports needs review and revision. This is a major job, beyond the resources of the Mission within the time available.

We recommend that a special group of consultants be secured from the United States to advise on problems related to the development of a rounded program of production statistics.

Estimates of National Income

Estimates of national income and gross national product provide important statistical tools for analyzing the structure and operations of an economic system. They are a framework within which the need for and probable effects of economic policy and administrative actions in many fields can be gauged. Estimation in this field calls upon almost every type of basic statistical data--among others, censuses of population and business activity, current financial, foreign trade, and industry reports; the types of economic data frequently included in tax returns and administrative records; and governmental budget documents.

The quality of national income and product estimates depends on the degree to which the basic statistical system of a country is complete, integrated and consistent. The Mission has therefore laid stress on the primary importance of improvements in basic census programs covering population and business enterprises and coordination of current statistical surveys and reports covering production, wages and employment, business entrepreneurial income, consumer expenditures and prices, and others.

Work of the Mission in the field of national income has centered in the Ministry of Finance, but involved also the Ministry of Commerce and Industry, Bank of Japan, and Cabinet Bureau of Statistics. This work consisted of:

(1) Clarification of basic concepts and definitions, which have become standard in national income work of Western nations. A number of recommendations were made and agreements reached on the conceptual framework to be used henceforth in Japanese national income accounts.

(2) A program of concrete work on the development of current estimates of income payments to individuals has been formulated and is being carried out, though with grossly inadequate statistics and technique.

(3) Developments are fairly well along in designing a quarterly sample survey of unincorporated (mostly small) business enterprise in major industries, in order to obtain sufficiently reliable estimates of net income of this group. The available statistics indicate that income of business entrepreneurs is currently two to four times as

large as total wages and salaries. This is a major area reflecting black market activity, inflationary pressures and tax evasion. It is the opinion of the Mission that institution of this survey should await further development of plans for a census of business establishments later in 1947.

(4) The needs of national income and product analysis for basic data have been reflected in discussion between SCAP and Japanese Government agencies concerning a 1947 population census; a 1947 Census of Business Establishments; a regular Census of Factories covering 1947; and a number of current periodic surveys covering labor force, employment and wages, and consumer prices and expenditures.

(5) The work done by the Mission on improving the system of reporting government expenditures and receipts has also reflected the particular requirements of national income work.

(6) Despite a large number of conferences with people in various Japanese ministries, covering various problems of definition, measurement, programs for collecting and tabulating basic statistics, etc., it has not been possible thus far to make an impression on all important areas where gaps exist in the data, or data and techniques are deficient. Japan needs to develop almost from scratch both periodic censuses and current sample surveys covering volume of activity or sales, net income, wages, etc., in the fields of construction, retail, wholesale and service trades, and other important sectors of the economy. Data on the profits of corporations, and the net incomes of farmers are inadequate. Development of estimates on purchases by consumers has

barely begun. No data exist on capital expenditures by business.

Japan needs to train more economic statisticians in the concepts, measurement and analysis of national income and product accounts, requiring several years before the work can be firmly established. In the meantime the Mission feels that major and fairly rapid improvements are being made.

Banking and Related Financial Statistics

Banking and related financial statistics appear to be among the better developed areas of the Japanese statistical system, and the Mission has concerned itself with them less intensively than with fiscal statistics. Nevertheless it would appear desirable to take inventory of the available data in this field, and to appraise them in terms of reliability and appropriateness to the Japanese financial structure. Certain questionable accounting practices are already known. The shortcomings noted by SCAP officials in the Japanese system of bank examination suggest that attention might be given to the degree of uniformity in accounting and reporting practices among banks.

The work of the Mission in this field has included a limited inquiry into the administration of the bank reporting system; initial steps toward an inventory of banking and related financial data and the detection of significant gaps in such data; and a special investigation of the problem of covering financial enterprises in the proposed census of establishments. Specific recommendations on this latter problem have been transmitted. Incidentally, the Mission has joined with members of the staff of SCAP in the initial planning for a program involving financial reports from corporations.

We recommend that a thorough inventory of banking and related financial data be taken as a first step toward appraising these statistics and making necessary improvements.

It may be remarked in passing that the activities of SCAP in connection with Japanese financial data, governmental as well as private, are of several types. They include the collection of data for administrative use; the collection of statistics for more general economic analysis; and the development of sound statistical programs to be left as a legacy to the Japanese. If these activities are to be well coordinated and if confusion is to be avoided, close cooperation must prevail among the several interested offices within SCAP. Particularly must there be cooperation between the operating staffs and the research and statistics staff, and recognition must be given to the proper role of the research and statistics staff as a service and coordinating agency in connection with data collection programs.

Statistics of Government Finance

Experience of SCAP with statistics of Japanese public finance has shown these data to be seriously inadequate. Improvement is to be sought in part through better analysis and presentation of data, in part through basic improvement of the government financial procedures and internal reporting. To some extent, of course, improvement depends on recovery from the disorganization of government offices and communications incident to the war.

Fortunately improvement is underway in various respects under the guidance of SCAP personnel. The budget has been simplified and

otherwise improved; changes are being made in government procedures; and the government is committed to a general review of its accounting system.

Within this context the Mission devoted its efforts in several ways to the improvement of fiscal statistics. Mission activities have included cooperation with other SCAP personnel in the review of pending Japanese financial legislation related to financial statistics; discussion with Japanese officials of American practices, including reporting on the status of appropriations; making available to them American materials and models useful in the revision of accounting and reporting practices; and particularly negotiations with representatives of the Finance Ministry and the Bank of Japan relative to statistics on government receipts and disbursements.

The object of these negotiations has been the improvement of current data on the receipts and disbursements of the treasury on a basis roughly analogous to that of the Daily Treasury Statement in the United States. Particular emphasis has been placed on the need for an unambiguous presentation showing the relationships among receipts, disbursements, changes in the treasury balance, and changes in the public debt. Much attention has been given to the problem of integrating into a useful summary report the data for the general and the various special accounts.

These negotiations have been fruitful. An experimental monthly report from the Bank of Japan to the Research and Statistics Division of ESS has been inaugurated in a form intended by the Japanese to conform as much as possible to expressed needs. It will require further

clarification and possibly revision, but if discussions are faithfully continued data suitable for inclusion in the monthly statistical bulletin may be available within a short time. It is encouraging that the Japanese have expressed an intention to prepare for their own use a report along the lines of this new report to SCAP. If a representative of SCAP continues to work with them there may ultimately be reached an agreement on a mode of presentation acceptable both to the Bank of Japan and to SCAP.

We recommend that negotiations on the current report on governmental receipts and disbursements be pursued with the objective of obtaining a publishable monthly summary within the very near future.

We recommend that the limited staff time now available in SCAP to guide the Japanese in the highly technical work of reviewing and revising governmental financial practices be supplemented by the services of one or more American specialists in this field.

Price Indexes

Even for stable and well balanced economies, current information on the general price level and on the magnitude and direction of price changes has long been regarded as important. For an economy in the condition of Japan's today, with the peacetime pattern of production and distribution seriously disrupted and subject to powerful inflationary stresses, it is essential that accurate and up-to-date price information be available. Such information not only provides an over-all indication of the intensity of the inflation; it also provides the necessary background for the daily decisions that must be made on wages, rationing

and price controls, and for the eventual determination of the terms of trade between Japan and the rest of the world.

The measures of wholesale and retail price levels developed by the Japanese Government before the war relied upon reports supplied by sellers. As long as the bulk of domestic commerce took place in established trade channels and at official prices, these measures were adequate. As increasing amounts of goods were diverted to black market channels and sold at prices widely different from official prices, their area of usefulness steadily diminished and became increasingly dangerous as a basis for policy decisions.

Before the Mission's arrival the Research and Statistics Division of SCAP had initiated two new reporting systems, one of retail prices, conducted by the Cabinet Bureau of Statistics, the other of wholesale prices, conducted by the Bank of Japan. Both rely on reports of "prices paid" furnished by purchasers (consumers in the case of retail prices, industrial establishments for wholesale prices).

The chief task of the Statistical Mission in this field was to develop technical measures of price changes from the data supplied by these surveys. A preliminary index of retail price changes since July 1946 is now available for Tokyo and plans have been completed for extending this index to other parts of Japan, as well as for developing a series of related measures. The Mission has also worked with the Bank of Japan in developing similar plans for the field of wholesale prices.

It is our judgment that both surveys were soundly conceived to meet immediate requirements and that they provide information that could not have been obtained in any other way. Even more than for most statistical surveys, however, the usefulness of these surveys will depend on the skill and judgment with which the data are analyzed and interpreted. Such data are extremely "tricky" unless handled with the highest skill and it will not be possible to relegate them to routine handling by clerks. In our opinion a considerably larger professional staff is required than is now available.

Although we have considered the advisibility of continuing both surveys after a return to more normal economic conditions, we have reached no conclusion on the matter. There should be a careful reconsideration of basic techniques and procedures at that time.

The Monthly Report on the Labor Force

One of the greatest innovations in American statistics during the last ten years has been the monthly sample survey of the population to determine the number of people in the labor force and the number of unemployed. This type of survey was initiated by the Research and Statistics Division of SCAP through the Cabinet Bureau of Statistics last September. If properly developed, it should provide an unexcelled current picture of Japanese home conditions on the following: hours of employment for pay or family work; home employment for pay; number of hours spent seeking work; number of hours spent seeking food; number of

workers per family; crude occupation and industry of workers (e.g., entrepreneurs, wage earners, etc.); doubling-up of families in one house; breaking-up of households as the housing situation eases; characteristics of repatriates; time lost through sickness or search for food; school attendance; special problems in nutrition and food; and a host of other household characteristics.

So far no figures have been obtained from this survey that have been deemed reliable enough to publish, largely for the following reasons:

1. Poor adaptation of the questionnaire to Japanese conditions, resulting in failure to elicit information that is really needed;

2. Failure to exploit the opportunities afforded by this monthly household survey by adding variable auxiliary questions, month by month, to provide enlightenment on current figures obtained on employment and unemployment, and to provide information on related questions;

3. Inefficient selection of the households constituting the sample.

For these reasons

We recommend that the questions on the monthly survey of the labor force be revised at once; that auxiliary questions be added from time to time as needed; and that the sample be revised.

If an efficient sampling plan were developed it should be possible to reduce the sample to about 25,000 households, and at the same time

to obtain greater precision than is obtained now from the sample of 90,000 households. Such a reduction in size of the sample would also reduce the burden of response and the workload in the Cabinet Bureau of Statistics, and save a considerable amount of paper. A proper sampling plan would also change the individual households included in the sample every 6 or 8 months, to provide relief from the burden of response. Thus far, the same households have been revisited regularly since September. Development of an efficient sample for this monthly enumerative survey of households should also provide samples for other inquiries which cannot be made as auxiliary questions on the labor force survey.

The development of an efficient sample of areas for this monthly report and other household surveys, and for surveys of business, is a professional job and will require that a top-ranking statistician be in charge of sampling. Therefore,

We recommend that the Research and Statistics Division of SCAP appoint to the staff an expert in sampling at the P-7 or P-8 level to develop a modern and efficient master sample of households. It is further recommended that this expert be asked to teach modern sampling theory and practice to Japanese personnel in statistical offices and in the universities.

SUMMARY OF RECOMMENDATIONS

The Statistical Mission to Japan recommends:

1. That the Japanese Government, through suitable adjustments in administrative organization, personnel policies and salary scales, seek to enhance the official status and prestige of statistical positions within its service. (p. 4)

2. That the Japanese Government, as soon as conditions permit, encourage and assist members of its university faculties and promising graduate students to travel abroad for statistical study in foreign universities and statistical organizations; and that it make similar arrangements for key members of statistical personnel in the government agencies. (p. 4)

3. That in connection with the revision of the educational system deliberate and careful steps be taken at all school and university levels, and especially the primary grades, to foster intellectual objectivity and factual habits of thought. (p. 5)

4. That the collection of official data be centralized to the maximum practicable degree in the Cabinet Bureau of Statistics. (p. 7)

5. That field staffs for the collection of statistics be consolidated into a single staff. (p. 8)

6. That the economic statistical interests and activities of SCAP be subject to control of a single division. (p. 10)

7. That a special group of consultants be secured from the United States to advise on problems related to the development of a rounded program of production statistics. (p. 12)

8. That a thorough inventory of banking and related financial data be taken as a first step toward appraising these statistics and making necessary improvements. (p. 16)

9. That negotiations on the current report on governmental receipts and disbursements be pursued with the objective of obtaining a publishable monthly summary within the very near future. (p. 18)

10. That the limited staff time now available in SCAP to guide the Japanese in the highly technical work of reviewing and revising governmental financial practices be supplemented by the services of one or more American specialists in this field. (p. 18)

11. That the questions on the monthly survey of the labor force be revised at once; that auxiliary questions be added from time to time as needed; and that the sample be revised. (p. 21)

12. That the Research and Statistics Division of SCAP appoint to the staff an expert in sampling at the P-7 or P-8 level to develop a modern and efficient master sample of households. It is further recommended that this expert be asked to teach modern sampling theory and practice to Japanese personnel in statistical offices and in the universities. (p. 22)

ORIGIN AND PURPOSE OF THE MISSION

A CINCAFPAC message to the War Department, 31 October 1946, requested recruitment for a short term mission of six top flight statisticians and econimists able to give technical advice on the following: Reorganization of the statistical services of the Japanese Government; census of manufactures; census of distribution; construction of current index of industrial production; construction of various price and cost of living indexes; banking and financial reporting systems; critical review of gross national product and national income estimates; advice on sampling techniques, particularly in connection with existing consumer expenditure and labor force surveys.

In complying with this request, the War Department sought the assistance of the Division of Statistical Standards of the Bureau of the Budget. This Division has over-all responsibilities for control and coordination of the statistical activities of the Federal Government. Eventually it was agreed that the Division should undertake to staff and direct the Mission.

Stuart A. Rice, Assistant Director of the Bureau of the Budget in Charge of the Division of Statistical Standards, served as Chief of the Statistical Mission to Japan, and Peyton Stapp, Assistant Chief of the Division of Statistical Standards, served as Deputy Chief of the Mission. Other members of the Mission were Jerome Cornfield, Edward T. Crowder, W. Edwards Deming, Michael Sapir and Ernest A. Tupper.

Messrs. Rice and Stapp arrived in Tokyo on December 22, and the other members of the Mission arrived early in January. Because of his duties as United States representative in the Statistical Commission of the United Nations, it was necessary for Mr. Rice to limit his stay in Japan to four weeks, leaving Mr. Stapp in charge of the Mission in Japan.

Members of the Mission wish to express their appreciation to Mr. Emerson Ross, Chief of the Research and Statistics Division of SCAP, to his co-workers in that Division, and to the numerous Japanese scholars, officials and statisticians who were consulted. Professor Masao Takahashi of Kyushu Imperial University and Dr. Shigeto Tsuru of the Research and Statistics Division were particularly helpful.

LIST OF REPORTS AND MEMORANDA PREPARED BY THE MISSION

Reports

Progress Report, 22 December to 15 January: Stuart A. Rice

Personnel Requirements for Research and Statistics Division: Stuart A. Rice

Preliminary Report on Japanese Statistical Organization: Stuart A. Rice and Peyton Stapp

Modernization of Japanese Statistics - Summary Report of the Statistical Mission to Japan: Stuart A. Rice and Peyton Stapp

The Construction of an Index of Consumer Prices in Japan: Jerome Cornfield

Preliminary Index of Retail Food Prices in Tokyo: Jerome Cornfield

A Possible Program for a Balanced Japanese Economy: Michael Sapir and Alvin Melnick

Japanese National Income Statistics - Appraisal and Program: Michael Sapir

Working Paper on Japanese Financial Statistics: Edward T. Crowder

Selected Memoranda

The Monthly Report on the Labor Force and Supplement - 10 March and 24 March 1947: to Peyton Stapp from W. Edwards Deming

Plans for Entrepreneurial Income Survey - 15 April 1947: to Emerson Ross et al. from Michael Sapir

Suggestions for Current Statistics on Government Receipts and Expenditures - 4 March 1947: by Edward T. Crowder

Comments on Form Proposed by Representatives of Bank of Japan for a "Monthly Statement of Receipts and Expenditures of the Japanese Government" - 9 April 1947: by Edward T. Crowder

Financial Institutions and the Census of Establishments - 12 April 1947: to Peyton Stapp from Edward T. Crowder

Construction Statistics - 4 February 1947: to Emerson Ross from Peyton Stapp

Census Program - 13 February 1947: to Emerson Ross from Peyton Stapp

"Labor Census" 1947 - 28 January 1947: to William V. Turnage from Peyton Stapp

Memoranda on the organization of information for the Stabilization Program: to Emerson Ross from Ernest A. Tupper

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THE CONSTRUCTION OF AN INDEX OF CONSUMER PRICES IN JAPAN

A REPORT OF

Statistical Mission to SCAP of the Division of

Stetistical Standards

Jerome Cornfield, U.S. Bureau of Labor Statistics

Summary of recommendations

1. The following types of measures are required:
   a) an index of actual average prices
   b) an index of legal prices
   c) an index of black market prices
   d) a measure of percent purchased in the black market
2. The measures should cover four week intervals, since measures for shorter periods are subject to an inherent instability.
3. The index number form used should be a geometric mean of two separate indexes, one using base period weights, the other using current period weights.
4. The period July 1, - Dec. 31, 1946 is recommended as the base period, July 1, 1946 - March 31, 1947 as the weighting period.
5. The indexes should apply to wage earners and salaried workers only and not to the entire population.
6. The collection of prices from retail outlets for those commodities for which the Consumer Price Survey will furnish unsatisfactory results should be begun immediately.
7. Seasonal commodities should be included in the index, with no change in price assumed during periods in which they are not available.
8. Serious consideration be given to the possibility of defining "legal prices" as those prices actually paid by consumers for goods officially rationed, "black market prices" as everything else.

9. Comparisons of current prices with periods prior to July 1946 be obtained by

a) computing a single comparison between Dec. 1944 and July - Dec. 1946.

b) using the Cabinet Bureau's index for periods prior to Dec. 1944.

c) making no attempt to interpolate for any of the intervening periods but August 1945.

Index numbers are a device for summarizing a multiplicity of changes, too complex and varied to be understood in their entirety. The development of index number methods has involved the discovery of a few easily grasped, comprehensive summary measures, which are useful partly because they satisfy certain tests of internal consistency and partly because, as experience has shown, the detail which is lost in the process of summary is unessential detail. But this experience was gained in a special type of economic circumstance, one in which the play of market forces resulted in a large measure of uniformity among price quotations. In such single price economies the movement of price quotations and the movement of actual average prices paid are measures of essentially the same phenomenon.

Japan today has a dual price economy, however. Goods move to consumers through two different channels, the official and the blackmarket, each channel having its own system of prices. In the last quarter of 1946, for example, approximately one-third of all staple foods purchased by Tokyo consumers were purchased through the blackmarket but at prices five to six times above those prevailing in official channels. Changes in average prices paid by consumers are consequently affected not only by changes in prices quoted but also by the amount purchased in the different markets. Methods of measurement appropriate to single price economies may consequently to be inapplicable at present in Japan. In view of this the entire range of index number measurement must be reexamined in the light of the special situation prevailing here today.

The first question that must be faced is whether the most useful summary measure for the present situation would be a summary of the movement of price quotations, or of average prices actually paid. The indexes of black market prices and of official prices that appear currently in many newspapers and periodicals are essentially indexes of price quotations; they will change when and only when prices change, but will not necessarily give an indication of the change in prices actually being paid by consumers. For many purposes measures of change in price quotations are sufficient. They are clearly insufficient, however, for at least one purpose - comparison with the movement of wages or any other form of income. For this purpose only an index of average actual prices paid will be satisfactory. Since the relation between wages and prices is one of the most crucial problems in Japan today, it seems clear that an index of actual prices paid is required. The Consumer Price Survey, initiated by the R&SD and now being currently conducted by the Cabinet Bureau of Statistics, while not entirely free of shortcomings, some of which are discussed at a later point in this memorandum, and some of which are discussed in an accompanying memorandum, does provide a continuing and current record of prices paid and quantities purchased by a representative sample of urban households, and consequently provides most of the basic statistics required for the construction of an index of average prices paid.

The movement of such an index, while of the first importance, will be affected by many factors and will, in consequence, be difficult to understand. In addition to being affected by all the factors that affect price quotations

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The movement of such an index, while of the first importance, will be affected by many factors and will, in consequence, be difficult to understand. In addition to being affected by all the factors that affect price quotations

it will also be influenced by all those factors which affect the volume of purchases made in each of the two major markets. It would seem therefore as if several different types of indexes are required, to wit:

1) an index of average actual prices

2) an index of legal prices

3) an index of black market prices

4) an index of percent purchased in the black market.

Time period

A price quotation applys to a point in time - the fifteenth day of a given month, Wednesday of a given week, or the close of business of a single day. An average price paid applies to a finite interval of time. If price quotations for a commodity are required at frequent intervals, no problem arises - the points of time to which the price quotations refer simply become more closely spaced. If average prices paid are required at frequent intervals, however, a problem does arise, since the finite interval of time to which they apply must be shortened. While price quotations will either be unchanged or will change smoothly from one point of time to the next, average prices paid can be quite unstable from one finite interval of time to the next, if the interval itself is too short. This is particularly true in a dual price system like Japan's where irregularity in ration deliveries may result in extreme shifts from one market to another with equally extreme shifts in average price paid. Thus, while we can have price quotations reported as frequently as we wish, we have no such freedom with respect to average prices paid. The instabl lity of the data themselves must determine the length of the interval to which the average prices apply.

Experimentation with the data suggests a four week interval as the shortest possible interval that can be used. As can be seen from Table 1 the two week averages for important food groups like staples and fish tables are too unstable to be used safely, while for lesser groups like condiments and liquor the instability is so marked that even the four week average fails

to eliminate it completely.

Perhaps the most interesting result is that the all foods index for a four week period need not lie between the individual all foods indexes for each of the two week periods. (last two columns of Table 1). This is a consequence of the fact that the price for each individual food for a four week period is a weighted average of the two week prices[1/] and since high prices tend to be associated with low consumption are given low weights. A more complete explanation can be found in note 1. The conclusion to be drawn is that no matter what the basic period for which the indexes are computed, indexes for longer periods cannot be obtained by averaging the indexes for the component periods. If the basic indexes are computed for four week periods, for example, the annual average index cannot be computed as the average of the 13 four week indexes. It must be obtained by computing the average price for each commodity for the extended period and recomputing the index.

It is recommended that the period for which indexes be computed cover four weeks. If it is essential to issue indexes at more frequent intervals, overlapping four week intervals can be used, i.e., July 1-28, July 15 - August 11, July 29 - August 25, etc. The use of overlapping four week periods will reintroduce some, although not all, of the instability inherent in two week averages, however.

1/ The point is perhaps obvious, but in any event it should be noted that the four week average price is no more an unweighted average of the individual two week prices than the two week price is an unweighted average of the one week prices or than the one week price is an unweighted average of the daily prices. It is computed by dividing total expenditure during the period by total quantity, or what amounts to the same thing, computing the weighted harmonic mean of the two week periods, the weights being quantities purchased.

Form of index number

Most price index numbers now in current use are of the same type, aggregative index numbers with constant base period weights. Experience under a fairly wide range of circumstances has indicated that most index numbers are insensitive to changes in weights, so that the choice of a weighting period or the choice between constant and variable weighting systems is usually considered to be of comparatively minor importance. This is not true in Japan today.

An immediate consequence of the dual price system is that changes in quantities purchased and in average prices paid are closely associated. By way of illustration three bivariate distributions of price and quantity are attached. For each of the three it is clear that high prices and low purchases are associated, as are low prices and high purchases. The inverse association is a direct consequence of the fact that when a commodity is available in large quantities, it can usually be purchased at low prices through official channels, but when only small amounts are available, the bulk of the purchases must be made in the black market.

Because of this close association between prices paid and quantity purchased, as well as because of the wide range of variation in prices and quantities, the weighting system used will have an important effect on the index. By way of illustration Table 3 shows the results obtained when the same prices are combined into an index number by use of several different weighting systems.

The systems are:

Comparisons with the base period using:

a) base period weights

b) current period weights

c) the geometric mean of indexes a & b.

Comparisons with the previous period chained back to the base period using:

a) previous period weights

b) current period weights

c) the geometric mean of indexes a & b.

The six indexes are in fairly wide disagreement, the results for the Dec. 16 - Jan. 12 period ranging from a 13 percent decrease to a 23 percent increase over the base period, a discrepancy far surpassing, so far as is known, any disagreement ever occasioned by different weighting systems in a single price economy.

It is of course meaningless to ask which of the six indexes is most correct. Each provides an answer to a different question and the only proper query is which the most useful question to ask. Generally speaking, the three indexes based on comparions with the base period are more useful for establishing the long term movement of prices and, while the three indexes based on comparions with the previous period and chained back to the base are more useful for the purpose of estimating the current movement of prices but may give a progressively deteriorating comparison with the base period.

More specifically:

a) the current periodweighted comparison with the base period will not necessarily give a comparison between two successive period which lies between the price changes for the individual commodities for the two successive periods.

b) the base period weighted comparison with the base period will always give a comparison between successive periods which does lie between the individual price changes for those periods, but with weights that may bear little relation to the current volume of transactions.

c) both types of comparisons with the previous period will, when chained back to the base period, give a comparison that does not necessarily lie between the price changes for the individual commodities from the base period.

In brief no one index will necessarily provide all the comparisons that an index number is usually expected to provide. It is impossible to choose an index number form on the basis of purely theoretical considerations alone. The actual behaviour of the different index numbers must be inspected. There are several points to be noted about the behaviour of the indexes presented in Table 3.

a) the two period to period indexes show considerable disagreement not merely with respect to long term level but also with respect to short period changes. Thus one index shows a slight increase from August to September, the other a 5 percent decrease. Several periods later one index shows a 15 percent increase the other a 2 percent increase.

b) the period to period changes shown by the base period comparison indexes invariably lie between the period to period changes shown by the two indexes especially designed for that purpose. This suggests that the period to period changes yielded by these indexes may be as reliable as those yielded by the indexes especially designed for that purpose.

c) the long term level of the two indexes based on period to period comparisons are in such serious disagreement as to indicate that at least one, and quite possibly both, give an unreliable measure of the long term movement of ~~the~~ prices.

These considerations would suggest that indexes compared back to the base period provide the most promising approach, not only for long term comparisons but for short term comparisons as well. It is well knwon of course, that in theory both the base period and the current period weighted indexes have biases in them, but in opposite directions.1/ The geometric mean of the two indexes is free, however, of these biases. It is therefore recommended that the index number form used be a geometric mean of the base period and current period weighted comparisons with the base period, the index

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1/ The matter has been thoroughly explored in Irving Fisher's Making of Index Numbers and need not be considered in detail here. Briefly, it revolves around what Fisher calls the time reversal test. Roughly speaking this test says that any index number which yields a certain change between periods 1 and 2 should yield the reciprocal of that change when used to compute the change between periods 2 and 1. This requirement, which is of course satisfied for a single commodity, although purely formal, is nevertheless reasonable. For base period weighted indexes it implies that $\frac{\sum q_o p_t}{\sum q_o p_o}$ be the reciprocal of $\frac{\sum q_t p_o}{\sum q_t p_t}$.
Inspection of Table 3 indicates that this is not true and that their product exceeds unity. In Fisher's terminology this indicates an upward bias in at least one of the two indexes. The reverse is true for current period weighted indexes since the product of $\frac{\sum q_t p_t}{\sum q_t p_o}$ and $\frac{\sum q_o p_o}{\sum q_o p_t}$ falls short of unity.

number computed in column 3 of Table 3. The algebraic form of this index is

$$\sqrt{\frac{\sum q_0 p_1}{\sum q_0 p_0} \frac{\sum q_1 p_1}{\sum q_1 p_0}}$$

Another advantage of this form is that if present plans to compute an index of quantity purchased materialize, such an index can be obtained by dividing an index of total expenditure by an index of prices, the result being identical with the result that would have been obtained if a quantity index were directly computed by means of the formula:

$$\sqrt{\frac{\sum p_0 q_1}{\sum p_0 q_0} \frac{\sum p_1 q_1}{\sum p_1 q_0}}$$

Choice of base period

Ordinarily two different concepts are covered by the phrase "base period:"

a) the period in which the index equals 100

b) the period to which the quantity multipliers in an index using constant weights apply.

We shall refer to the former as the base period, the latter as the weighting period. These periods do not need to be, and usually are not, the same. Thus the BLS index of consumer prices equals 100 for the period 1935 - 39, but the quantity multipliers apply to the period 1934 - 36. Similarly the Bank of Japan index of wholesale prices equals 100 for the year 1933, but the quantity multipliers apply to 1932-34. Furthermore, for such indexes it is possible to shift the base, keep the same quantity multipliers and avoid internal contradictions. Thus, it is possible to shift the base of the Bank of Japan wholesale price index so that 1945 rather than 1933 is equal to 100, for the overall index and each of its components, retain the 1932-34 quantity multipliers, and have the overall index still be a weighted average of its components.

No such change is possible for indexes with current weights. A shift of base for such an index can result in an all items index higher than any of its components. Consequently once a base period is chosen for such an index it can be shifted only by completely recomputing it; i.e., for practical purposes, the base cannot be shifted.

In selecting base period and a weighting period for the proposed index, therefore, we have two initial criteria.

1) the base period and the weighting period need not be the same.

2) the base period can be changed only with great difficulty once it is selected.

It is clearly desirable, of course, to have both the base and the weighting period cover as long a period as possible, the base period in order to iron out abnormal price relations, and the weighting period to average out the shortages and occasional gluts as nearly as possible. The longest practical period for both purposes starts with July 1 and ends with March 31, since the actual tabulations required for the computation of the index should start before data for periods later than March 31 are available. For many purposes this is still too short, particularly from the point of view of ironing out seasonality in consumption. It is nevertheless recommended as the weighting period.

The same period has certain disadvantages as a base period, none of them serious, but all revolving about the unusual nature of a nine month base period. Most non-technicians would regard the choice of the last six months of 1946 as natural, but its extension three additional months as mongrel. Rightly or wrongly, the choice of a base period which does not correspond to a natural division of the calendar is sometimes regarded as an attempt to 'fix' the index. The period July 1 - Dec. 31, 1946 is consequently recommended as the base period.

Definition of Average Price

Up to this point we have assumed without discussion that an appropriate measure of the average price paid for a commodity is total expenditure divided by total quantity purchased. Whether this is in fact an appropriate definition depends largely on the questions we wish the index to answer. In single price economies indexes of consumer prices with either constant or variable weights can be interpreted as providing an answer to the following question. "How would the cost of purchasing some fixed bill of goods and services today compare with the cost of purchasing that same bill of goods and services at some previous period?" If we wish to answer that question in a dual price economy, the provisional definition of average price we have used up to this point is not appropriate. The question that the provisional definition answers is, "How would the cost of purchasing some fixed bill of goods and services today compare with the cost of purchasing that same bill of goods at some previous period, if the fixed bill could in fact have been purchased at the prevailing average prices."

In the situation assumed in Table 4 we have two periods, with three kilograms of a particular commodity officially distributed in the first period and only one in the second. In both periods price quotations and the amount purchased in the black market remain the same. The actual average price paid per kilogram has risen 50 per cent. On the other hand the increase in the cost of 4 kilograms, has risen not by 50 per cent, but by 100 per cent, since 4 kilograms could be purchased in the second period only by buying

three in the black market.

This example suggests and note 2 demonstrates that the actual average price paid for a commodity will increase and decrease less than the cost of purchasing either the first or the second period's actual quantity in both periods. That is, the change in actual average price is less sensitive to changes in the ration than are the alternative measures. This consideration does not indicate which answer is "correct"; it merely serves to point up the different nature of the questions we can ask and help decide which we most urgently need to answer. The first question is equivalent to asking "How much should wages be raised to permit families to purchase some fixed bill of goods", the second one is equivalent to asking, "How much could be purchased with the prevailing wage in each periods." Ordinarily one index will serve to answer either question; in the present situation in Japan two separate measures would be required. Actually of course it is far more useful to ask the second question. For this reason the use of the actual average price is recommended.

This presupposes that the price movements which are available apply to wage earner families. Actually the Consumer Price Survey covers all urban families. In a single price economy the movement of price quotations is much the same for all elements of the population, so that confining the price quotations to outlets patronized by wage earners is in the nature of a statistical refinement. In a dual price economy the movement of actual average prices paid will vary considerably from one group of the population to another since the movement will be largely influenced by percent purchased

in the black market, which is in turn a direct function of income. Confining the price quotations to wage earners in such a situation is more than a refinement. It is doubtful if the movement of prices for all elements in the urban population can properly be compared with anything other than all income payments. It is therefore recommended that separate tabulations be prepared for wage-earners (although salaried workers and government employees might also be included) and that separate indexes for this group be computed.

Specification

There are two classes of items for which the price data obtainable from the Consumer Price Survey are unlikely to be satisfactory.

a) Those for which there will be no reports on quantity purchased, gas, electricity and newspapers, for example.

b) Those for which quantity purchased will be available, but for which variations in the quality of the product will be pronounced, shoes, for example.

For both classes of commodities it will be necessary to collect prices from vendors if satisfactory price data are to be obtained. The commodities for which such collection will be necessary can be determined only by detailed examination of the consumer budget, balancing in many cases the error introduced by variations in quality if one technique is used against the error introduced by inadequate measures of black market prices and sales if the other technique is used.

The determination of the commodities for which quotations from vendors are required and the actual collection of the prices should be begun as quickly as possible for two reasons:

a) The collection of prices for back periods introduces errors of memory on the part of many vendors which is in direct proportion to the length of the back period.

b) The volume of second hand clothing being purchased suggests that store pricing may be necessary for many, if not most, articles of clothing and consequently a task of significant proportions.

Seasonal Commodities

There are many commodities which will be of considerable importance at some times of the year and unavailable at other times for strictly seasonal reasons - many fruits, vegetables and articles of clothing. From the point of view of index number construction this presents a problem which can be met in only one of two ways:

a) omitting all seasonal commodities from the index.

b) imputing a price movement to them for those periods for which prices are unavailable.

(The problem arises only for the index with constant base period weights; a zero weight is assigned to those commodities for which no prices are available in the index using current weights).

The second alternative is recommended. There are various forms of imputation than can be used - assigning the price movements of similar

commodities, or of the group of which the seasonal commodities are part. Experience in America suggests, however, that the best, as well as the simplest, procedure is to assume no change in price during the months for which no prices are available, the apparent bias towards sluggishness in movement thus introduced being roughly compensated for by the sharp price changes of the seasonal commodities introduced after a period of non-availability.

Legal and black market purchases

It is clear that the price movements of the overall index of actual average prices paid must be supplemented by other measures, the movement of official prices, of black market prices and of percent purchased in the black market. Two general types of questions arise when this is attempted.

a) The statistical operations required to define official and black market purchases.

b) The statistical form which the overall measures must take to be consistent with an overall index of actual average prices.

In theory, every, or almost every, commodity in Japan has an official price, sales above which are illegal. In practice the utter ineffectiveness of many of the controls has had its statistical consequences. Neither the Research and Statistics Division nor the Price Control and Rationing Division of ESS, nor, it is to be suspected, the Japanese Government itself, can say with certainity what the legal price of many commodities is. The bewildering variety of legal prices quoted for the same commodity, the

frequency with which erroneous statements of legal prices are discovered, the most striking example being a 600 percent error in the legal price for as important a commodity as lumber, and the lack of any single agency in the Japanese Government with overall responsibility for setting prices have made the task of maintaining a current file of legal prices an extremely difficult one. While efforts to achieve an increasingly accurate system of current reporting of legal prices should continue, it is doubtful whether a satisfactory set of data for statistical purposes can be obtained in this manners within a reasonable period of time.

An alternative system, and one in which the accuracy of the data are more nearly subject to the control of the Research and Statistics Division, is the following:

a) Distinguish between those commodities which are subject to rationing and those which are not.

b) Have the households reporting in the Consumer Price Survey distinguish between rationed purchases and unrationed purchases and maintain this distinction in the tabulations.

c) Compute separate measures of price and quantity for

   1) commodities subject to rationing actually purchased through official channels.

   2) commodities subject to rationing not purchased through official channels.

   3) commodities not subject to rationing (in turn broken down into official and black market purchases if the necessary price data can be obtained from the Japanese Government and are of sufficient

accuracy to warrant the break down).

This procedure would seem to have several advantages. For commodities, subject to rationing, a segment that may easily amount for half of total expenditure, accurate data should be obtainable with minimum use of scarce professional personnel.[1/] Secondly, it will provide additional information which should prove extremely useful in appraising the existing rationing machinery.

On the formal problem of discovering supplementary measures which are consistent with the overall index we can start by defining the criterion of consistency. If an overall measure of

W_0 = percent purchased in the black market in the base period

W_t = an overall measure of percent purchased in the black market in the current period

I_{1t} = an index of official prices in the current period compared to official prices in the base period

I_{2t} = an index of black market prices in the current period compared to official prices in the base period

I_{20} = an index of black market prices in the base period compared to official prices in the base period

I_t = an index of actual average prices paid in the current period compared to actual average prices paid in the base period,

the criterion of consistency can then be written as

$$I_t = \frac{W_t I_{2t} + (1-W_t) I_{1t}}{W_0 I_{20} + (1-W_0)}$$

1/ A test of the reporting problems involved should be undertaken by the Cabinet Bureau of Statistics.

That is to say, the measures of percent purchased in the black market, of official prices and of black market prices must be such that when the two separate indexes are weighted together they yield the overall index of actual average prices paid. It is shown in note 3 that there are no indexes which are consistent in this sense, but that the following formulas may yield results consistent enough for most purposes.

$$W_0 = \frac{\sum \frac{Q_{20}}{Q_0} Q_0 P_0}{\sum Q_0 P_0}$$

$$W_t = \frac{\sum \frac{Q_{2t}}{Q_t} (Q_0 P_{1t} + Q_t P_{2t})}{\sum (Q_0 P_{1t} + Q_t P_{2t})}$$

$$I_{1t} = \sqrt{\frac{\sum P_{1t} Q_{10}}{\sum P_{10} Q_{10}} \frac{\sum P_{1t} Q_{1t}}{\sum P_{10} Q_{1t}}}$$

$$I_{2t} = \sqrt{\frac{\sum P_{2t} Q_{10}}{\sum P_{10} Q_{10}} \frac{\sum P_{2t} Q_{1t}}{\sum P_{10} Q_{1t}}}$$

The notation used is explained in note 3. There are two points to be noted about these results.

a) The measure of percent purchased in the black market is a weighted average of percent of quantity purchased in the black market for each commodity, the weights being expenditure weights or their equivalent, however.

b) The index of black market prices in any period uses as a base not black market but official prices in the base period. The weights consequently are quantities purchased at official prices.

Long term comparisons

We have been concerned up to this point with the problems of computing an index from July 1946 to date. It is important, for some purposes, however, to have a comparison of the current level of prices with some preoccupation and pre-war period. This problem is of an essentially different order from those we have been considering for two reasons:

a) No price data are available from the Consumer Price Survey prior to July 1946.

b) The price index of the Cabinet Statistics is available for periods prior to July 1946, although it probably does not provide a trustworthy measure of the movement of prices after January 1945.

For purposes of obtaining a longer comparison the following steps would seem to be the simplest and most feasible.

a) Use the Cabinet Bureau index for all periods through Dec. 1944 and the index derivable from the Consumer Price Survey for all periods beyond July 1946.

b) Obtain a single link between Dec. 1944 and July - Dec. 1946 by a direct comparison between the prices for the earlier period as reported by the Cabinet Bureau and the later period as reported by the Consumer Price Survey. In making this comparison true comparability of prices should not be jeopardized for the sake of more extensive commodity coverage. Such a comparison might be based on two different indexes, one using the Cabinet Bureau weightes, the other using the base period weights of the Consumer Price Index,

with the separate indexes combined by use of Fisher's 'ideal' formula.

c) The amount of work involved in obtaining indexes for intervening periods from the seemingly abundant, but actually fragmentary price data available, is out of all proportion to the value of the result, and, with the possible exception of August 1945, should not be attempted.

TABLE I

Comparison of four week and two week averages for selected foods,

Tokyo

Period	Staples		Fish		Dairy Products		Condiments		Liquor		Beverages		All foods	
July 1-14	100		100		100		100		100		100		100	
		100		103		100		119		122		116		103
July 15 - 28	100		108		100		151		213		136		108	
July 29 - Aug 11	68		74		100		89		504		38		88	
		77		67		100		96		123		56		82
Aug 12 - 25	91		60		99		107		94		100		87	
Aug 26 - Sept 8	82		56		107		151		222		108		87	
		71		70		106		107		320		107		84
Sept 9 - 22	62		93		105		85		876		106		93	
Sept 23 - Oct 6	55		96		89		316		166		121		93	
		57		111		105		218		180		122		89
Oct 7 - Oct 20	60		127		121		153		257		123		93	
Oct 21 - Nov 3	48		168		126		216		202		120		95	
		46		152		121		169		297		109		86
Nov 4 - Nov 17	45		142		116		147		619		100		94	
Nov 18 - Dec 1	52		148		103		170		802		114		98	
		58		162		130		170		233		125		92
Dec 2 - Dec 15	64		176		151		174		183		141		101	
Dec 16 - Dec 29	71		268		142		166		270		115		113	
		70		263		151		202		345		126		120
Dec 30 - Jan 12	67		258		162		300		433		137		136	

TABLE 2

Joint Distribution of Associated Price and Quantity Relatives (July 1-14 = 100) for 15 successive two week periods, Tokyo, July 1- Jan. 26.

STAPLE FOODS

Price relative \ Quantity relative	∠ 85	85-99.9	100-114.9	115-129.9	130-144.9	145 +
100-109.9	1		1			
90- 99.9	1					
80- 89.9		1				
70- 79.9						1
60- 69.9			1	111	1	
50- 59.9				11	1	
40- 49.9						11

CONDIMENTS

Price relative \ Quantity relative	∠ 30	30-44.9	45-59.9	60-74.9	75-89.9	90 +
300 & over	11					
250-299.9						
200-249.9		1	1			
150-199.9		1	1	1111		
100-149.9			1		1	1
Less than 100					11	

LIQUOR

TABLE 2 (Continued)

LIQUOR

Price relative \ Quantity relative	< 20	20-39.9	40-59.9	60-79.9	80-99.9	100 +
700 +	11					
550-699.9	1					
400-549.9	1	1				
250-399.9	11		1			
100-249.9		11	1		1	1
< 100				1		1

TABLE 3

Food prices in Tokyo, July 1 - Jan. 12, fixed and variable weights, base period and previous period comparisons

(July 1 - 14 = 100)

Period	Comparisons with base period			Comparisons with previous period		
	Fixed Weights	Current Weights	$\sqrt{(1) \times (2)}$	Previous period weights	Current period weights	$\sqrt{(4) \times (5)}$
	(1)	(2)	(3)	(4)	(5)	(6)
July 1 - 28	102.9	101.1	102.0	102.1	101.9	102.0
July 29 - Aug. 25	81.8	79.1	80.4	83.1	77.9	80.8
Aug. 26 - Sept. 22	83.9	76.4	80.0	83.2	74.0	78.6
Sept.23 - Oct. 20	88.7	80.0	84.2	89.5	75.5	82.6
Oct. 21 - Nov. 17	86.3	75.8	80.9	87.7	70.6	79.4
Nov. 18 - Dec. 15	92.0	85.2	88.5	99.3	72.0	85.8
Dec. 16 - Jan. 12	120.1	108.3	114.1	123.0	87.3	105.2

Col. 1 - $I_t = \Sigma p_t q_o / \Sigma p_o q_o$

Col. 2 - $I_t = \Sigma p_t q_t / \Sigma p_o q_t$

Col. 4 - $I_t = I_{t-1} \Sigma p_t q_{t-1} / \Sigma p_{t-1} q_{t-1}$

Col. 5 - $I_t = I_{t-1} \Sigma p_t q_t / \Sigma p_{t-1} q_t$

TABLE 4

Hypothetical example illustrating difference between increase in average price, in cost of four kilograms and cost of two kilograms

Period	Purchases in:				Average price per kg.		
	Official channels		Black market		Actually paid in each period	If 4 kilograms are purchased	If 2 kilograms are purchased
	Price paid	Quantity purchased	Price paid	Quantity purchased			
First	4	3	20	1	8	8	4
Second	4	1	20	1	12	16	12

Note 1 :- Proof that an index for a four week period can lie outside the range of the individual two week indexes.

Notation

Price for 1st commodity in 1st two week period — p1

" " " " " 2nd " " " — p2

Quantity purchased for 1st commodity in 1st two week period — q1

" " " " " " 2nd " " " — q2

Then, the average four week price for 1st commodity

$$\text{is} \quad \frac{p_1q_1 + p_2 q_2}{q_1 + q_2}$$

$$\text{and either } p_1 \leq \frac{p_1 q_1 + p_2 q_2}{q_1 + q_2} \leq p_2$$

$$\text{or} \quad p_1 \geq \frac{p_1 q_1 + p_2 q_2}{q_1 + q_2} \geq p_2$$

That is, the four week average price for the first commodity must lie between the individual two week prices.

If we let P1 and P2 stand for the prices of the second commodity and Q1 and Q2 stand for the quantities, the same conclusion holds:

$$\text{either} \quad P_1 \leq \frac{P_1 Q_1 + P_2 Q_2}{Q_1 + Q_2} \leq P_2$$

$$\text{or} \quad P_1 \geq \frac{P_1 Q_1 + P_2 Q_2}{Q_1 + Q_2} \geq P_2$$

Finally, if we represent

the quantity of the 1st commodity consumed in the base period by — W1

and the quantity of the 2nd commodity consumed in the base period by — W2

the base period price for the 1st commodity by p_0

" " " " " " 2nd " " P_0,

the index for the 1st two week period becomes

$$\frac{p_1 W_1 + P_1 W_2}{p_0 W_1 + P_0 W_2},$$

the index for the second two week period

$$\frac{p_2 W_1 + P_2 W_2}{p_0 W_1 + P_0 W_2},$$

the index for the four week period

$$\frac{W_1 \dfrac{p_1 q_1 + p_2 q_2}{q_1 + q_2} + W_2 \dfrac{P_1 Q_1 + P_2 Q_2}{Q_1 + Q_2}}{W_1 p_0 + W_2 P_0}$$

Two cases now arise, that in which

$$\frac{p_1 W_1 + P_1 W_2}{p_0 W_1 + P_0 W_2} \leq \frac{p_2 W_1 + P_2 W_2}{p_0 W_1 + P_0 W_2}$$

$$\text{and} \quad \frac{p_1 W_1 + P_1 W_2}{p_0 W_1 + P_0 W_2} \geq \frac{p_2 W_1 + P_2 W_2}{p_0 W_1 + P_0 W_2}$$

It will be sufficient to consider the first case. The question then becomes, is the following inequality necessarily true.

$$\frac{W_1 p_1 + W_2 P_1}{W_1 p_0 + W_2 P_0} \overset{?}{\leq} \frac{W_1 \dfrac{q_1 p_1 + q_2 p_2}{q_1 + q_2} + W_2 \dfrac{P_1 Q_1 + P_2 Q_2}{Q_1 + Q_2}}{W_1 p_0 + W_2 P_0} \overset{?}{\leq} \frac{W_1 p_2 + W_2 P_2}{W_1 p_0 + W_2 P_0}.$$

$$\text{or} \quad 1 \leq \frac{W_1 P_1 \dfrac{q_1 + q_2 \frac{p_2}{p_1}}{q_1 + q_2} + W_2 P_1 \dfrac{Q_1 + Q_2 \frac{P_2}{P_1}}{Q_1 + Q_2}}{W_1 p_1 + W_2 P_1} \leq \frac{W_1 p_1 \dfrac{p_2}{p_1} + W_2 P_1 \dfrac{P_2}{P_1}}{W_1 p_1 + W_2 P_1}$$

Or in other words is the weighted average of

$\dfrac{q_1 + q_2 \frac{p_2}{p_1}}{q_1 + q_2}$ and $\dfrac{Q_1 + Q_2 \frac{P_2}{P_1}}{Q_1 + Q_2}$ necessarily

greater than 1, but less than the index change from period 1 to period 2.

If we assume, however, that $\frac{p2}{p1} > 1$ and $\frac{P2}{P1} < 1$, then $\frac{q1 + q2\frac{P2}{P1}}{q1 + q2} < 1$.

$\frac{q1 + q2\frac{p2}{p1}}{q1 + q2}$, which always > 1, can be made to approach more and more closely to 1 by decreasing q2. In that case, we have a weighted average of two quantities, one of which is < 1, and the other of which can be made to approach 1 more and more closely. In that case, the weighted average of the two can be made less than 1, and the inequality will be false.

Note 2 :- Behavior of actual average price and cost of purchasing previous and current period's actual quantity.

Notation

Period	Purchases in:			
	Black market		Official channels	
	Quantity purchased	Price paid	Quantity purchased	Price paid
1	q11	p11	q12	p12
2	q21	p21	q22	p22

There are three possible measures of price change

Change in actual average price

$$\frac{q21\ p21 + q22\ p22}{q21 + q22} \quad \frac{q11 + q12}{q11\ p11 + q12\ p12}$$

Change in the cost of purchasing the first period's quantity in both periods

$$\frac{q22\ p22 + (q11 + q12 - q22)\ p21}{q11\ p11 + q12\ p12}$$

Change in the cost of purchasing the second period's quantity in both periods

$$\frac{q21\ p21 + q22\ p22}{q12\ p12 + (q21 + q22 - q12)\ p11}$$

To find the circumstance under which the second measure exceeds the first, we write

$$\frac{q22\ p22 + (q11 + q12 - q22)\ p21}{q11\ p11 + q12\ p12} > \frac{(q21 \quad p21 + q22\ p22)}{(q21 + q22)} \quad \frac{(q11 \quad + \quad q12)}{(q11\ p11 + q12\ p12)}$$

if we let total quantity in the 1st period = Q1

in the 2nd period = Q2

total expenditure in the 1st period = E1

in the 2nd period = E2,

this simplifies to

$$E2 \div (Q1 - Q2)\, p21 > E2\frac{Q1}{Q2}$$

or $$p21\,(Q1 - Q2) > \frac{E2}{Q2}(Q1 - Q2)$$

If $Q1 - Q2 > 0$, then the inequality is true whenever $p21 > \frac{E2}{Q2}$, but if $Q1 - Q2 < 0$, the inequality is false whenever $p21 > \frac{E2}{Q2}$. That is, if the black market price in the second period exceeds the actual average price, when there is a decrease in quantity available the second measure of price change will exceed the first, when there is an increase in quantity available the second measure will be less than the first. Or, the second measure will show sharper price increases when there are shortages and sharper price decreases when the ration becomes available.

The proof that the third measure exceeds the first when there is a decrease in quantity available and is exceeded by it when there is an increase is similar.

Note 3: Formal relations between measures of percent purchased in black market, indexes of legal prices, black market prices, and actual average prices paid.

Notation

Base period	Price		Quantity
Official	P10	Q10	Q0 = Q10 + Q20
Black Market	P20	Q20	$P0 = \frac{P10\ Q10 + P20\ Q20}{Q0}$
Effective	P_0	Q0	
Period τ			
Official	$P1\tau$	$Q1\tau$	$Q_\tau = Q1\tau + Q2\tau$
Black Market	$P2\tau$	$Q2\tau$	$P_\tau = \frac{P1_\tau Q1_\tau + P2_\tau Q2_\tau}{Q_\tau}$
Effective	P_τ	Q_τ	

Considering the index with constant base period weights then, for period τ the index of official prices is

(1) $$\frac{\Sigma P1\tau\ Q}{\Sigma P10\ Q} = I_{1\tau}$$

where Q represents some unspecified quantity weight, either Q10, Q0, or Q20

The black market index is

(2) $$\frac{\Sigma P2\tau\ Q}{\Sigma P10\ Q} = I_{2\tau}$$ for period

and $$\frac{\Sigma P20\ Q}{\Sigma P10\ Q} = I_{20}$$ for the base period

where the Q is still unspecified.

Then if we let

W_t = a measure of percent purchased in black market, period t

WO = a measure of percent purchased in black market, base period

The overall index of effective prices should be

$$\frac{W_\tau I_{2\tau} + (1 - W_t) I_{1\tau}}{WO\ I_{20} + (1 - WO)}$$

This can in turn be written as

$$(4) \qquad \frac{\frac{W_\tau}{1 - WO} I_{2\tau} + \frac{1 - W_\tau}{1 - WO} I_{1\tau}}{\frac{WO}{1 - WO} I_{20} + 1}$$

Now for a directly computed index of average actual prices paid, with constant base period weights, we have

$$\frac{\sum p_\tau q_0}{\sum p_0 q_0},$$

which is equal to

$$\frac{\sum q_0 \dfrac{p_{1\tau} q_{1\tau} + p_{2\tau} q_{2\tau}}{q_\tau}}{\sum q_0 \dfrac{p_{10} q_{10} + p_{20} q_{20}}{q_0}},$$

which reduces to

$$\frac{\sum \frac{q_0}{q_\tau} q_{1\tau} p_{1\tau} + \sum \frac{q_0}{q_\tau} q_{2\tau} p_{2\tau}}{\sum p_{10} q_{10} + \sum p_{20} q_{20}}.$$

Dividing all four terms by $\sum p_{10} q_{10}$ we obtain

$$\frac{\dfrac{\sum \frac{q_0}{q_\tau} q_{1\tau} p_{1\tau}}{\sum q_{10} p_{10}} + \dfrac{\sum \frac{q_0}{q_\tau} q_{2\tau} p_{2\tau}}{\sum q_{10} p_{10}}}{\dfrac{\sum p_{20} q_{20}}{\sum p_{10} q_{10}} + 1}$$

or

$$\frac{\frac{\sum P1\tau\, Q10}{\sum P10\, Q10}\;\frac{\sum \frac{Q0}{Q\tau} Q1\tau\, P1\tau}{\sum P1\tau\, Q10} + \frac{\sum P2\tau\, Q10}{\sum P10\, Q10}\;\frac{\sum \frac{Q0}{Q\tau} Q2\tau\, P2\tau}{\sum P2\tau\, Q10}}{\frac{\sum P20\, Q10}{\sum P10\, Q10}\;\frac{\sum P20\, Q20}{\sum P20\, Q10} + 1}$$

or referring back to (1), (2), & (3)

$$(5)\qquad \frac{I_{1\tau}\;\frac{\sum \frac{Q0}{Q\tau} Q1\tau P1\tau}{\sum P1\tau Q10} + I_{2\tau}\frac{\sum \frac{Q0}{Q\tau} Q2\tau P2\tau}{\sum P2\tau Q10}}{I_{20}\;\frac{\sum P20\, Q20}{\sum P20\, Q10} + 1}$$

If we can interpret $\frac{\sum \frac{Q0}{Q\tau} Q1\tau P1\tau}{\sum P1\tau Q10}$ as $\frac{1 - W\tau}{1 - W0}$

$$\frac{\sum \frac{Q0}{Q\tau} Q2\tau P2\tau}{\sum P2\tau Q10} \text{ as } \frac{W\tau}{1 - W0}$$

and $\frac{\sum P20\, Q20}{\sum P20\, Q10}$ as $\frac{W0}{1 - W0}$

then (5) is of the same form as (4) and all four measures are consistent with each other.

Write $\frac{\sum \frac{Q0}{Q\tau} Q1\tau P1\tau}{\sum P1\tau Q10}$ as $\frac{\sum Q0\, P1\tau \frac{Q1\tau}{Q\tau}}{\sum Q0\, P1\tau}\;\frac{\sum Q0\, P1\tau}{\sum Q10\, P1\tau}$

Then, $\frac{Q1\tau}{Q\tau}$ is the % of a particular quantity purchased in the black market in period τ and $\frac{\sum Q0\, P1\tau \frac{Q1\tau}{Q\tau}}{\sum Q0\, P1\tau}$ is the weighted ave. percent of all commodities purchased through official channels in period τ, the weights being $Q0\, P1\tau$ for each commodity (i.e. base period quantity purchased from all sources times official price in period τ). I. E. it can be interpreted as $1 - W\tau$. By an identical process of reasoning $\frac{\sum Q0\, P1\tau}{\sum Q10\, P1\tau}$ can be interpreted as $\frac{1}{1 - W0}$, i.e.,

the reciprocal of percent purchased ~~through official channels~~ in the base period. That is

$$\frac{\sum \frac{Q0}{Q\tau} Q1\tau P1\tau}{\sum Q10 \; P1\tau} \quad \text{can be interpreted as} \quad \frac{1 - W\tau}{1 - W0}$$

It can be shown similarly that

$$\frac{\sum \frac{Q0}{Q\tau} Q2\tau P2\tau}{\sum P2\tau Q10} \quad \text{can be interpreted as} \quad \frac{W\tau}{1 - W0}$$

and that

$$\frac{\sum P20\, Q20}{\sum P20\, Q10} \quad \text{can be interpreted as} \quad \frac{W0}{1 - W0}$$

Finally, then (5) can be written as

$$\frac{\frac{1 - W}{1 - W0} I_{1\tau} + \frac{W}{1 - W0} I_{2\tau}}{\frac{W0}{1 - W0} I_{20} + 1}$$

which is identical with (4)

If we now tabulate the various measures of percent purchased in the black market, we find that we have equated

$$\frac{\sum \frac{Q1\tau}{Q\tau} Q0\, P1\tau}{\sum Q0\, P1\tau} \quad \text{to} \quad 1 - W\tau$$

and $$\frac{\sum \frac{Q2\tau}{Q\tau} Q0\, P2\tau}{\sum Q0\, P2\tau} \quad \text{to} \quad W\tau$$

Although, by definition, $\frac{Q1\tau}{Q\tau} + \frac{Q2\tau}{Q\tau} = 1$, $W + (1 - W) \neq 1$ since different weights are used in the two indexes. Furthermore, we have equated

$$\frac{\sum \frac{Q20}{Q0} Q0\, P20}{\sum Q0\, P20} \quad \text{to} \quad W0$$

$$\frac{\sum \frac{Q10}{Q0} Q0\, P1\tau}{\sum Q0\, P1\tau} \quad \text{to} \quad 1 - W0$$

$$\frac{\sum \frac{Q10}{Q0} Q0\, P2\tau}{\sum Q0\, P2\tau} \quad \text{to} \quad 1 - W0$$

$$\frac{\sum \frac{Q10}{Q0} Q0\, P20}{\sum Q0\, P20} \quad \text{to} \quad 1 - W0$$

We thus ~~have~~ HAVE three different estimates of I - WO, percent purchased in official channels, each one being a weighted average of $\frac{Q10}{Q0}$, that is the percent purchased through official channels for the individual commodities, but ~~that the~~ WITH THAT weights differ from commodity to commodity.

We can thus conclude that no measures of Wt, We, I1t, I2t, I2o and It exist which are in general algebraically consistent with each other. They will fail of consistency to the extent that differences in weights can generate differences in results. We have seen that weight differences are correlated with price differences and hence generate different, in fact substantially different price indexes. It does not follow that weight differences will generate equally subetantial differences in percent purchased in the black market. For that reason the following approximations may provide an arithmetic consistency, good enough for practical purposes, although only actual computations can verify this.

$$Wo = \frac{\sum \frac{Q2o}{Qo} Qo\ P2o}{\sum Qo\ P3O}$$

$$1 - Wo = 1 - \frac{\sum \frac{Q2o}{Qo} Qo\ P2o}{\sum Qo\ P2o}$$

$$Wt = \frac{\sum \frac{Q2t}{Qt} Qo\ P1t}{\sum Qo\ P1t}$$

$$1 - Wt = 1 - \frac{\sum \frac{Q2t}{Qt} Qo\ P1t}{\sum Qo\ P1t}$$

$$I1t = \frac{\sum P1t\ Q1o}{\sum P1o\ Q1o}$$

$$I2t = \frac{\sum P2t\ Q1o}{\sum P1o\ Q1o}$$

$$I2o = \frac{\sum P2o\ Q2o}{\sum P1o\ Q2o}$$

These approximations apply only to the index with constant base period weights. An identical process of reasoning lends to the following approximations for the index with variable current weights.

$$W_o = \frac{\sum \frac{Q_{20}}{Q_0} Q_t P_{10}}{\sum Q_t P_{10}}$$

$$1 - W_o = 1 - \frac{\sum \frac{Q_{20}}{Q_0} Q_t P_{10}}{\sum Q_t P_{10}}$$

$$W_t = \frac{\sum \frac{Q_{2t}}{Q_t} P_{2t} Q_t}{\sum P_{2t} Q_t}$$

$$1 - W_t = 1 - \frac{\sum \frac{Q_{2t}}{Q_t} P_{2t} Q_t}{\sum P_{2t} Q_t}$$

$$I_{1t} = \frac{\sum P_{1t} Q_{1t}}{\sum P_{10} Q_{1t}}$$

$$I_{2t} = \frac{\sum P_{2t} Q_{1t}}{\sum P_{10} Q_{1t}}$$

$$I_{2o} = \frac{\sum P_{2o} Q_{1t}}{\sum P_{1o} Q_{1t}}$$

It is an awkward consequence of the necessity for internal consistency among the measures that for the index with current weights the measure of percent purchased in the black market during the base period also uses current weights and consequently may change somewhat from period to period. For this reason a second order of approximation must be introduced and W_o becomes $\frac{Q_{20}}{Q_0} P_{10}$. ~~$Q_{20}$ P_{10} / Q_0 P_{10}~~ $\sum \frac{Q_{20}}{Q_0} Q_0 P_{10} / \sum Q_0 P_{10}$

Combining the measures for the constant and current weighted index we have finally

$$W_o = \frac{\sum \frac{Q_{2o}}{Q_o} Q_o P_o}{\sum Q_o P_o}$$

$$W_t = \frac{\sum \frac{Q_{2t}}{Q_t} (Q_o P_{1t} + Q_t P_{2t})}{\sum (Q_o P_{1t} + Q_t P_{2t})}$$

$$I_{1t} = \sqrt{\frac{\sum P_{1t} Q_{1o}}{\sum P_{1o} Q_{1o}} \frac{\sum P_{1t} Q_{1t}}{\sum P_{1o} Q_{1o}}}$$

$$I_{2t} = \sqrt{\frac{\sum P_{2t} Q_{1o}}{\sum P_{1o} Q_{1o}} \frac{\sum P_{2t} Q_{1t}}{\sum P_{1o} Q_{1t}}}$$

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Preliminary Index of

Retail Food Prices in Tokyo

Economic and Scientific Section
Research and Statistics Division

Price and Distribution Branch

April 1, 1947

F

ECONOMIC AND SCIENTIFIC SECTION
RESEARCH AND STATISTICS DIVISION
Price and Distribution Branch

The Research and Statistics Division is engaged in the preparation of a series of indexes of consumer prices which will eventually cover all of urban Japan and the entire range of consumer purchases, as well as several supplementary measures to assist in interpreting these price movements. The present index of retail food prices in Tokyo is the first in this series. It is preliminary in several respects. The base period now used, July 1 - 14, is too short a period; the list of commodities covered may require expansion; a more precise measurement of price movements for staples, fish and vegetables may also be necessary. Despite these qualifications the index provides a reasonably accurate indication of the general movement of food prices in Tokyo since last summer, and one whose broad outlines will not be affected by subsequent revisions. Undue importance should not be attached to slight changes over short periods of time, however.

The broad movements of the index must be interpreted in the light of the dual price system that prevails in Japan today. Commodities move to consumers through two different channels, the official rationing system and the black market, but at widely differing prices. Thus, in the last quarter of 1946 approximately one-third of the staple foods purchased by Tokyo consumers came from the black market, but at prices 5 to 6 times above official prices. Because the amount of goods available through official channels is subject to sharp fluctuations, actual average prices paid by consumers can, and frequently do, rise or fall by a considerable amount, even when the separate prices quoted for black market and for official purchases show no change. In economies with

single price systems, such as the U. S. today, measures of price quotations and measures of actual average prices paid are measures of an identical phenomenon, whereas in Japan price quotations can change in one direction, while actual average prices paid can change in another. The present index measures changes in actual average prices paid and will consequently be influenced by changes in the effectiveness of the rationing system as well as by changes in price quotations.

Another immediate consequence of the dual pricing system is that changes in quantities purchased and in average price paid are closely associated. The average price paid for soy sauce for example rose 100 percent from July to February, but the quantity purchased dropped 60 percent, while contrariwise, over the same period the average price paid for bean curds dropped 30 percent while quantity purchased rose seven fold. This inverse association between consumption and price is a direct consequence of the fact that when a commodity is available in large quantities, it can usually be purchased at low prices in official channels, but when only small amounts are available, the bulk of the purchases must be made in the blackmarket. Because of this, the weights used will have an important effect on the index. An index which used July weights for example, would show more of a price increase from July to February than would an index using February weights. The present index is obtained by computing two separate indexes, one of which uses July weights, the other of which uses current month weights, which are then combined into a single index by use of Irving Fisher's "ideal" index number formula.

At present 37 foods are included in the index, but three of these are composites. Staple foods are represented by the average cost per sho or rice equivalent for all staples, vegetables and fish by the average price per 100

momme of all vegetables and fish respectively. The following tabulation shows the foods included as well as their relative importance in each of the two indexes:

Items covered	Weight during Jan. 27 - Feb. 23 period	
	Base period weighted index	Current period weighted index
Staples	29.2	33.0
Fish	20.0	18.4
Vegetables	10.0	8.4
Beef	6.4	7.5
Cigarettes, "Peace"	3.5	3.0
Beverages		
Sake, refined	3.9	1.2
" , unrefined	0.2	0.1
Beer	0.7	0.7
Tea, Bancha	0.5	0.5
" , Gyokuro	0.3	0.2
" , Sencha	0.4	0.4
Dairy products		
Milk	0.1	0.1
Eggs	1.5	1.8
Butter	1.7	0.7
Dried vegetables		
Kanpyo	0.2	1/
Dried radish	1/	0.1
" mushroom	0.3	1/
" sweet potato	0.2	0.1

Condiments		
Soy sauce	4 4	1.8
Salt	2.1	0.7
Miso	1.9	1.4
Soy substitute	2.5	1.9
Vinegar	0.2	0.1
Sugar	0.3	0.3
Fish oil	0.7	0.1
Soy bean oil	1.0	0.1
Pickled Foods		
Konnyaku	1.2	0.6
Takuan	0.1	3.1
Pickled plum	0.5	0.4
Bean curd	0.1	0.7
Preserved tangle	0.5	0.8
Wasabi-zuke	1/	0.2
Hanpen	0.1	0.8
Satsuma-age	1/	1.5
Fruits & confections		
Orange	0.1	4.4
Apple	0.6	1.8
Sarashi ame	1.4	2.6

1/ Less than .05 percent

The prices and the weights used are obtained from direct reports furnished every two weeks by a representative sample of urban consumers. The reporting program was initiated by the R&S Div. but is now being currently conducted by the Cabinet Bureau of Statistics, an agency of the Japanese Government. (Japanese Economic Statistics, February 1947 - for further details.)

Deliveries of rationed commodities are made at irregular and unpredictable intervals. Actual average prices paid by consumers for particular commodities are consequently subject to considerable short term instability, rising sharply in weeks when rations are not delivered, and falling precipitately when the ration is once again available. An index of food prices which covered successive one or two week periods would consequently be subject to the same short term instability as the average prices on which it is based. For this reason the present indexes of food costs cover a four week period, despite the many additional uses that could be found for a weekly or bi - weekly index. In order to have a more current indication of the movement of prices than can be provided by indexes computed at four week intervals, however, the present indexes are computed for over-lapping rather than successive four week intervals. Thus the next period for which data will be available will be the period Feb. 10 - March 9, even though the last period covered is Jan. 27 - Feb. 23.

Preliminary Index of Retail Food Prices, Tokyo

July 1 - 14, 1946 = 100

Period	All Foods	Staples	Non-staples
July 1 - 28	102.0	100.0	103.7
July 29 - Aug. 25	80.4	77.1	83.3
Aug. 26 - Sept. 22	80.0	70.7	87.9
Sept. 23 - Oct. 20	84.2	57.4	103.5
Oct. 21 - Nov. 17	80.9	46.1	104.1
Nov. 18 - Dec. 15	88.5	58.3	108.3
Dec. 16 - Jan. 12	114.1	69.5	142.4
Jan. 13 - Feb. 9 1/	124.4	75.3	155.4
Jan. 27 - Feb. 23 1/	126.0	81.4	155.5

1/ Overlapping four week periods

Preliminary Index of Retail Food Prices, Tokyo

July 1 - 14, 1946 = 100

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July 1 - 28	102.0	100.0	103.7
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Oct. 21 - Nov. 17	80.9	46.1	104.1
Nov. 18 - Dec. 15	88.5	58.3	108.3
Dec. 16 - Jan. 12	114.1	69.5	142.4
Jan. 13 - Feb. 9 1/	124.4	75.3	155.4
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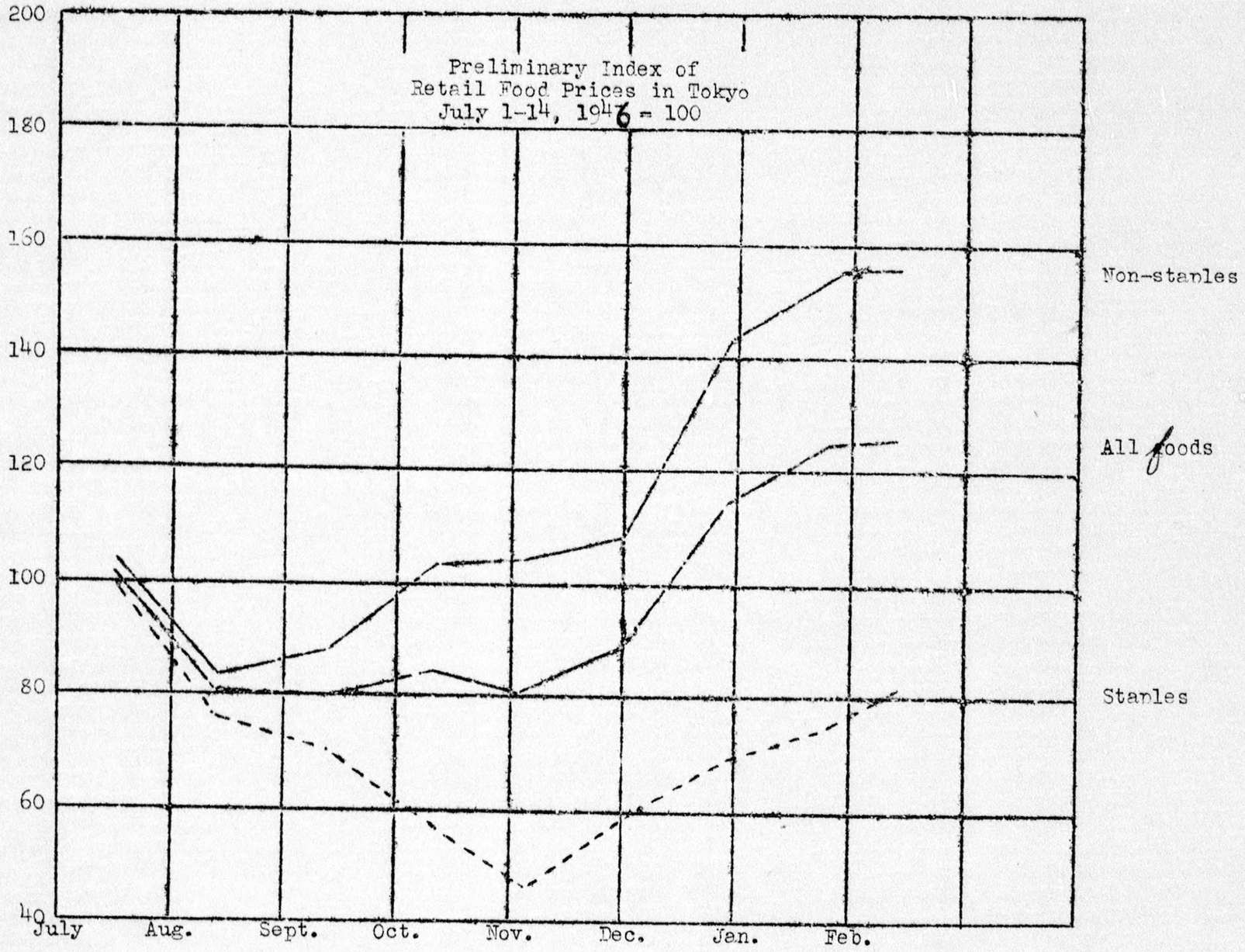
1/ Overlapping four week periods


Preliminary Index of
Retail Food Prices in Tokyo
July 1-14, 1946 = 100
200
180
160
140
120
100
80
60
40
July
Aug.
Sept.
Oct.
Nov.
Dec.
Jan.
Feb.
Non-staples
All foods
Staples

A POSSIBLE PROGRAM FOR A BALANCED JAPANESE ECONOMY

Michael Sapir and Alvin Melnick

(Being revised--copy not available)

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JAPANESE NATIONAL INCOME STATISTICS

Program and Appraisal

By Michael Sapir

STATISTICAL MISSION TO JAPAN

July 1947

JAPANESE NATIONAL INCOME STATISTICS

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INTRODUCTION

The special Statistical Mission to Japan 1/ during early 1947 was asked among other things to look into and critically evaluate the work on national income and product statistics being done in Japan. Development of a sound program of national income estimation was considered important both to the occupation authorities in administering occupation policy and to the Japanese in the rehabilitation and planning of their economic life.

A national income division was already in existance in the Ministry of Finance when the Mission got to Japan. Under previous guidance from SCAP it was at work on a program of developing various series of estimates; this program is discussed elsewhere in this Report. The principal people in the National Income Division had at least a rudimentary knowledge of the field, both in terms of conceptual relationships and statistical methodology. The principal problems were to sharpen the conceptual focus and understanding of the Japanese; to review, and if need be, to recommend changes in their program of work; and to consider with them the sources of statistical data, programs to fill the major gaps in primary data, and methods of estimation of the national income components. Only a modest beginning could be made in the consideration of these problems, given the limited time at the disposal of the Mission.

Mention ought to be made of the particular importance of the language barrier in carrying on the work. The process of interpretation via third parties, however skilful, is at best a creaking tool for the job of communication. This is especially so with respect to abstract conceptual discussions, matters of definition, and the like. Unfortunately the glib use of terms like "national income," "wages" and so on makes no allowance for the different cultural contexts in which these terms are used in Japan and the United States; it is easy therefore to reach apparent understandings on meanings of terms when in fact the waters of incomprehensibility run deep. Three months was too short a period in which satisfactorily to hurdle this problem.

The present writer was, however, capably aided in this as in all aspects of the work by a great number of Japanese economists and statisticians with whom he worked closely. Mr. Shigeto Tsuru was invaluable in his broad knowledge of economics and national income work. Professor Masao Takahashi served repeatedly as an able and sophisticated interpreter and accompanied the writer on several valuable and eye-opening field trips to investigate various sectors of the Japanese economy. Without these two colleagues no progress could have been made in the work. Special thanks are also due to Mr. Mori of the Cabinet Bureau of Statistics.

Messrs. Asano and Takahashi of the National Income Division in the Ministry of Finance were most cooperative in explaining and discussing their work. Although specific mention cannot be made here of all who helped, I should like to express my appreciation for the many other officials in the Japanese government with whom fruitful discussions were held.

1/ See the report Modernisation of Japanese Statistics, April 1947, for the background and scope of the Mission's work.

Chapter I

MAJOR RECOMMENDATIONS

1. We recommend that SCAP help establish in the economic policy and administrative agencies of the government the prestige and importance of comprehensive, consistent and reliably accurate national income-product statistics. The Cabinet Committee on Statistics might well be an instrument for this purpose, through some of its present membership it is well-equipped for the job.

2. We recommend that efforts be directed as rapidly as possible at obtaining current information for 1947 and 1948 on the size and composition of national income and gross national product. This is of strategic importance in locating and measuring the sources of inflationary pressures, developing sound economic and fiscal policy, and evaluating the effectiveness of administrative actions taken. In particular there is special need for developing reliable data on the profits and net income of business and agriculture, on the volume and character of consumer spending, and on private business investment.

3. We recommend much closer relationship between the National Income Unit in the Finance Ministry with the Cabinet Committee on Statistics and other statistical agencies of the government. There is a strong natural complementarity in their aims and efforts which must transcend any bureaucratic considerations. Specifically, the National Income Unit should clear plans for surveys, broad programs of work on national income, etc. with the Cabinet Committee.

4. We recommend immediate steps to strengthen the professional technical competence of the National Income Unit, through intensive training of qualified people in the problems and concepts of national income, and development of modern courses in the universities to provide trained people for the future.

5. We recommend that selected qualified Japanese economists and statisticians should in due course be encouraged and aided to study in the U.S., England, etc. the developments of both theory and practice in the field of national income accounts. At the same time aid and guidance ought currently to be provided by SCAP's economic and statistical staff through recruitment of qualified staff who could advise the National Income Unit, cooperate in the work of the Cabinet Committee on Statistics, give lectures and courses in the Universities, etc.

Chapter II

SUMMARY

1. National income and product estimates are rapidly coming to be among the most important and powerful statistical tools for shaping and evaluating economic policy and administration in the more important nations of the world. The determination of government policies and plans, of government fiscal and budgetary actions, is coming increasingly to be put in the setting of the "Nation's Budget" -- or a set of "social accounts" --which sets forth the volume and composition of production, the flows of income generated by the production process, and the way in which the recipients of these incomes use them for payment of taxes, spending on consumption or saving and investment in various forms.

2. Such sets of national income and product accounts--if based on complete, reliable and effectively presented statistics--would be now, and will in the future be of inestimable value to Japan. In terms of longer-run plans for her rehabilitation and reconstruction Japan will find many applications of national income accounting. In terms of current problems of inflation, of effective and equitable economic stabilization, Japan would now be in a better position to appraise and control the situation if her government policy officials and administrators had more complete and reliable statistics on the component sectors of the economy which taken together measure national income and product. 1/

3. Interest and some superficial work on national income began in Japan in the 1920's. The first serious effort was the estimate for 1930 of the Cabinet Bureau of Statistics. During the 'thirties considerable work was done in developing a series of national income figures. All of the estimates suffer from a certain amount of conceptual confusion and methodological inexpertness. More basically, the underlying statistics were generally incomplete, inaccurate and otherwise unreliable. A crftique of these Japanese estimates follows, dealing largely with the inadequacies of the basic statistics.

4. There is some evidence suggesting that Japan officially exploited the upward trend of its national income figures in the 1930's for nationalistic and propaganda ends. Even more, during the war, a peculiar and confused series of estimates of the National Savings Fund --intended as a kind of measure of over-all national income --was designed by the Ministry of Finance for patriotic propaganda purposes, e.g. to depress private consumption and stimulate savings subscriptions to war bonds.

5. Attempts have been made during and since the war by American technicians to estimate the prewar and wartime national income or gross national product of Japan. These estimates too are briefly considered in the Appendix. They should at least serve to influence the Japanese to take a more objective, critical and methodologically more precise and sound approach toward their own official statistics and thus should stimulate real progress in the national income field.

1/ See summary report by the Mission, "Modernisation of Japanese Statistics," April 1947, pp. 12-15, section dealing with national income estimates.

6. The Japanese have moved since the war's end to establish national income work on a sounder basis. In consultation with SCAP experts and the Statistical Mission the National Income Division within the Ministry of Finance has set forth a program of work which is discussed more fully below. It shows marked improvement in conceptual clarity and involves implicity a tremendous program of improved basic statistics. However, the program needs more clarification, and more systematic analysis in terms of specific projects and units of work, time schedule, etc.

7. The National Income Division requires not only more but better-trained economists and statisticians to guide and develop the work. Acquisition in Japanese libraries of voluminous literature that has appeared on national income problems during the last few years especially in the United States and England is an urgent requirement. Study and assimilation of these materials is even more important. If possible, study in the United States by one or two capable young Japanese government economists, and further guidance by experts within SCAP on various aspects of national income work are highly desirable developments. In addition, more staff of all sorts is required by the National Income Division; high in importance are more trained statistical clerical help and some statistical calculating machines.

8. National income and product estimates will be reliable only if the basic data on production and distribution of goods and services in different industries and on flows of income to various sectors of the population are adequate and consistent in coverage, reliably and accurately reported and tabulated, and obtained regularly through the operations of a well-integrated and efficiently administered statistical system comprising Census surveys, current sample reporting programs, and skilful use of data developed by operating and administrative reports.

The foregoing and additional discussion elsewhere in this Report leads to the list of recommendations made earlier looking toward the development of firm foundations for national income work in Japan as soon as possible.

Chapter III

THE NATIONAL INCOME DIVISION OF THE FINANCE MINISTRY AND ITS PROGRAM OF WORK

Structure of the Division

The National Income Division is located in the Japanese Ministry of Finance. This Ministry is really equivalent roughly to a combination of our own Treasury Department, aspects of the Federal Reserve Board, and Budget Bureau (in terms of fiscal reporting and analysis and budgetary control). As such it is one of the most powerful agencies of government, with power of the purse over other agencies, including their statistical collection and research activities. In addition to the Executive Office of the Minister the Finance Ministry is divided into ten Bureaus. In one of these, the Financial Review Bureau, there is located a Statistical Research Section. The National Income "Division" is part of this section. It in turn is subdivided further into a Statistical Analysis and Current Reporting Unit; an Income Payments Unit; a National Income Unit; and a Gross National Product Unit. Some of these units exist only on paper or are at best in an embryonic state.

Mr. Asano and Mr. Takahashi are chiefs of the National Income Division and assistant chiefs of the Research Section. The National Income Division included, early in 1947 about 20 people, including professional and clerical. The head of each of the four units is a university graduate, but apparently in no case is he really trained either as an economist or statistician.

In addition the National Income Division is at least nominally advised by a Committee of Experts of about a dosen important economists and statisticians, headed by Professor Yamaguchi of the Tokyo University of Commerce. Its purpose is to review and advise on methodology used, and to review the actual estimates.

Relationship to other government agencies

There exists an Interdepartmental Committee on Economic Statistics, with one or more representatives from every department in the Cabinet. This Committee meets once a month to "discuss data"--presumably chiefly plans for statistical surveys and to some extent problems of statistical coordination, comparability of definitions, classification, etc. It is not clear that this Committee has ever been particularly effective, although the national income people have referred various questions to it in recent months.

Recently there has been established a Cabinet Committee on Statistics, operating under a recently enacted Statistics Law. The Mission has been instrumental in advising and helping to establish this Committee as the top authority in the government for coordination of statistics and development of a sound statistical system 1/. However, the Finance Ministry has on the whole cooperated less effectively with the efforts of this Committee than most government departments. This situation was improving, however, by the time the Mission left Japan. Specifically the National Income Unit was, on the insistence of the Mission, seeking the advice and comment of the Cabinet Committee on plans for an entrepreneurial income survey in relation to a program of censuses and other current statistical surveys being planned for 1947-48.

1/ See the Summary Report of the Mission, "Modernization of Japanese Statistics," April 1947, pp. 6-7.

It is evident that the National Income Unit needs internal strengthening. It needs more well-trained economists and statisticians as well as more adequate clerical staff. At the same time the Unit, and the entire Ministry, must develop a broader understanding of the inter-relationships of all statistical programs and the necessity for maximum pooling of efforts among agencies. As a consumer of almost everyoneelse's basic statistics, the national income estimators should realise the focal role they can play in promoting a modern integrated statistical system for Japan.

Program of work of National Income Unit

An extensive series of discussions was held covering a range of topics, including problems of theory, concepts and definitions, methods of estimation and the character of existing data for the various sectors of the national income and product field, and concrete plans for new survey data, especially in the field of entrepreneurial net income and corporate profits.

The following are the projects on which work is currently under way or is planned in consultation with and under the direction of Research and Statistics Division:

(a) Estimates for fiscal years 1946, 1947 and forecasts for 1948 of the national income in terms of factor shares of income and in terms of net value added by industry. (The Japanese fiscal year runs from April 1 to March 31.) This work is being done in part at the request of the Economic Stabilization Board.

(b) Estimation on a current monthly basis of income payments to individuals starting January 1946. This work was undertaken as a result of joint planning with SCAP. Thus far very crude estimates have been developed for January to June 1946. (Upon leaving Japan the writer of this report suggested that by the summer of 1947 the Unit should aim to have at least a rough set of estimates of National Income and Gross National Product by half years for 1946 and first half 1947; and an extension of the monthly income payments series through June 1947. An effort to accomplish these objectives was promised.)

(c) Plans for a sample survey of nonfarm unincorporated business in order to estimate net entrepreneurial income. This item is currently the largest element of income payments, yet there is almost complete lack of knowledge regarding its size and distribution. Knowledge of this income is crucial for economic stabilization measures aimed at the black market, for adoption of a sound and equitable tax program, and for many other programs. Original suggestion for such a sample survey came from SCAP. This writer spent considerable time in critically reviewing the draft proposal of the Ministry of Finance in terms of the universe to be

covered, the size and design of the sample, the character and content of the questionnaire and instructions, the problem of selection and training of field enumerators, size of budget required, etc. The National Income Unit has made major revisions in its plans in accordance with the recommendations. The problems of estimating entrepreneurial income are discussed further below 1/.

(d) It is planned to start work soon on estimation of an official historical series on net national product and income payments for the years 1930 to date. This will be of special usefulness in connection with longer-run planning programs for industrial rehabilitation, foreign trade development, full employment; taxation and government spending, etc.

The series to be established are patterned closely after the model of United States national income work, particularly after account is taken of recent revisions made in American concepts, definitions and coverage. There is, however, insufficiently clear understanding on the part of the Japanese of the conceptual interrelationships among the national income and product components. There is thus no present intention to present data in the highly fruitful and illuminating form of double-entry "accounts" for the different sectors of the economy--business, agriculture, the consumers, government, etc. As data are improved and gaps filled, and as sophistication and experience in manipulating the concepts and the figures develop, the Japanese can be expected to remedy these present deficiencies.

It will, of course, take several years for this program of work to become firmly established andto bear fruit in terms of reliable statistical series. There must first of all be developed a core of better trained technicians to design and guide the work. And the rate of progress in building good estimates is determined and conditioned by the speed with which the Japanese erect a soundly conceived and well-articulated statistical system comprising periodic censuses of population and all sectors of economic activity and a comprehensive current reporting system based on modern scientific sampling principles and geared to the important policy and operating needs of government and the public.

We turn now to a discussion of the nature and quality of present Japanese statistics in the various areas of production, income flow, and expenditure. This treatment will illuminate sharply the major defects and thus the necessary course to improvement in the basic statistics that underlie the estimation of national income and product.

1/ A special memorandum on this topic by M. Sapir to Emerson Ross was prepared, entitled "Plans for an Entrepreneurial Income Survey;" April 15, 1947.

Chapter IV

APPRAISAL OF JAPANESE STATISTICS BASIC TO NATIONAL INCOME AND PRODUCT ESTIMATES

National income work literally calls upon almost the entire statistical resources of a nation. It utilises Census materials; current sample reports to government or other collection agencies covering households, producers and employers, in all lines, financial institutions, etc; government budget documents; records of business firms themselves; and the data to be found in many types of administrative report forms and records such as tax-reporting schedules, rationing control forms, etc. The estimates of national income and national product are no better than the primary source data they rest on.

It will be useful first to outline quite briefly the over-all character of basic Japanese statistical sources which feed national income needs. We shall then turn to a short appraisal of the data available for the major specific sectors of national income and product.

Census Programs

1. The taking of population censuses is well established in Japan and the resulting demographic and economic information has been basic to past as it must be for future work of revealing the characteristics of the population and labor force. The Cabinet Bureau of Statistics has been the agent for the collection and tabulation of data.

   The first postwar Census was taken November 1, 1945 and suffered from various defects of underenumeration. No data are available from it on industrial or occupational characteristics of the population. A second Census was taken April 26, 1946, apparently much improved in technique and accuracy. It obtained important data on employment status of the working-age population, though not by detailed industries or occupations. It also omitted from the labor force account persons over 61 years of age (Japanese style); a rough independent estimate made in SCAP suggests this might mean as many as 2.5 million people. Another population Census is planned for October 1947, which it is hoped will in particular provide more complete and reliable data on repatriation and internal migration of the population than the preceding censuses.

   With the past traditions of population counting and control under a police-state, and with the technical aid and guidance currently being provided by SCAP, population censuses provide one of the strongest pillars at present in Japanese statistics and provide the source of data for the design of many types of economic surveys.

2. "Labor Censuses" - These have been conducted by the Cabinet Bureau of Statistics every three years starting in 1924, and annually commencing with 1944. It is taken as of June 30. The 1945 survey is reputed to be of little value. That for 1946, partial results from which are now available, was strongly influenced by SCAP in its planning and execution. At least for some kinds of data the results obtained are probably fairly reliable and of considerable value. In terms of industrial coverage the

Labor Census has been the broadest economic survey regularly conducted in Japan. It at least aims to cover all establishments "with one or more (paid) employees 1/... in manufacturing, construction, utilities, mining, quarries, transportation and communications, trade, public service, professional work and other work in offices and at special sites." It also, at least in 1946, covered establishments in agriculture, forestry and fishing. But it clearly and specifically excludes all economic activity consisting solely of self-employed persons, unpaid family workers, and miscellaneous nooks and crannies of the economy. In a country like Japan these are serious omissions.

The Labor Census obtains data on employment status for the beginning and end of the schedule month; manhours worked during the month; and wages, salaries and money allowances paid. For 1946, on the suggestion of SCAP, a question was inserted on the value of production in manufacturing, mining and quarries during the previous 12 months. This was desired in order to get additional information on production and check on the reliability of the regular Factory Statistics.

3. For 1947 the Mission and SCAP proposed abandonment of the Labor Census and the taking on a test basis of an even broader Census of Business Establishments as of October 1. It is designed to obtain minimal data on employment, wages and salaries, and value of production, sales or receipts from the entire range of business and government enterprises, not only establishments with paid employees but household enterprises and the self-employed as well. It is felt that tising it in with a Population Census affords the maximum chance of success in a country like Japan.

4. The last periodic census of any general scope is the yearly Factory Statistics, essentially a Census of Manufactures although the construction industry has been covered in nominal though clearly not adequate fashion. The Census of Manufactures is conducted as of the end of each year by the Ministry of Commerce and Industry. It goes back to 1920 on an annual basis and beyond that to 1909 on a quinquennial basis. The data for the 1944 and 1945 Censuses have not been tabulated although 1945 is now in process. They are in any case of doubtful value. The taking of the Census for 1946 was completed early this year. Factory Statistics obtains data on the gross value of production by commodity by industry; on employment at the end of the year as well as average quarterly employment; and on wages and salaries for each quarter of the year. Up to 1939 it covered only regular establishments with 5 or more employees; however, since then it also obtains data on a less detailed basis from smaller establishments as well. Serious problems of industry classification arise, it may be noted, out of the fact that Japan has so many mixed manufacturing-retailers. It might be noted, too, that manufacturing in Japan covers "gas and electric" industries.

1/ Before 1944 it covered establishments with 5 or more employees.

Specific deficiencies in the data from these censuses are discussed further along in connection with national income series. However it may be noted in general that a characteristic of Japanese official statistical work has been its lack of integration and concern for consistency of coverage, definition, and classification; its unconcern for overlapping and duplication of effort; It is certainly true too that the collection of basic statistics has not often been informed and shaped by a clear understanding of the analytical or administrative uses to which the data will be put. This deficiency, however, is by no means confined to Japan.

Administrative Reports as a Source of Data

Of primary importance in the economic statistical sources of most advanced countries are the data obtained in government budget documents, tax collection forms--both individual and business--price control, rationing, and allocation forms, permit applications, registration forms, etc. The Japanese Central and local governments of course have a great variety of such reports and forms. On the whole, however, they are far less well-designed from the point of view of statistical and analytical needs then is true for the United States; and there is little or no established tradition for so using them. The budgetary reporting system of the Central Government is mentioned further along in connection with the estimation of government expenditures. It is also the subject of a special report by a colleague on the Statistican Mission 1/. The corporate tax reports are virtually useless because of grave defects and loopholes in the tax laws and laxness in tax collection and administration. The same is true for individual income taxes, for sales and excise taxes, etc. Without extensive overhauling and tightening up of the Japanese fiscal system there is little use in trying to utilise the records and reports for analytical purposes. Currently the black market forces are so strong and administration of economic stabilization measures so flagrantly weak that "data" obtained in administrative forms for price, rationing and allocation programs are virtually worthless.

Current Reporting Systems.

There exist a number of monthly or quarterly sample surveys covering many areas of economic activity. There is now a monthly establishment report on employment in manufacturing, mining and quarrying, and portions of transportation, trade and finance. There is also a monthly survey of the labor force patterned after the American MRLF and designed to give over-all data on labor force participation, employment and unemployment. Under SCAP direction and planning, the Ministry of Commerce and Industry is collecting monthly establishment reports on production volume from a sample of plants in many important lines of manufacturing. These data are of critical importance to the government and to SCAP in the planning of production, imports and exports, economic stabilization measures, etc. 2/. The coverage of the series is inadequate, the samples of reporting establishments defective, and there is ample reason for believing the data are in many cases unreliable due to

1/. Cf. "Working Paper on Japanese Financial Statistics" by E. T. Crowder.
2/. The data on production are used for the construction of monthly index numbers of industrial production within the Research and Statistics Division of SCAP. See the regular monthly bulletin "Japanese Economic Statistics."

attempts at evasion on the part of respondents. The Ministry of Agriculture obtains monthly crop production and outlook reports and data on grain and other foodstuffs collection and distribution. These data also are subject to unknown but possibly serious biases of non and under-reporting, especially now in a period of extreme shortages, inflation and black market speculation and profiteering.

Monthly data on imports and exports by commodity are available and are probably relatively good at the present time. There is likewise, since mid-1946, a monthly sample survey on family expenditures by type of goods and services and yielding data on quantities purchased and unit prices paid, whether official or black market. This survey, designed and directed by SCAP, is operated by the Cabinet Bureau of Statistics; it is still in a semi-experimental stage, though the data are beginning to be utilised for construction of a retail price index. Data on average expenditures per family by category of goods and services have been shown for many months in the SCAP Statistical Bulletin referred to above; this series may be useful in the estimation of aggregate consumer expenditures as a component of gross national product although not yet adequately tested.

In summary there are current monthly data available on production, incomes, expenditures and prices of some types and for some sectors of the economy. The adequacy of coverage and of the samples, the clarity of definitions, and the reliability of the reported data in general leave much to be desired. There are absolutely no data on production, volume of sales, or other measures of level of activity for such crucial industry sectors as retail and wholesale trade, the service and financial industries, the construction industry, or forestry and fishing. Similarly, direct data on incomes other than wages and salaries are almost entirely lacking; this includes especially farm net incomes, and net business profits both of corporations and of unincorporated enterprise. No current statistical reports exist for the estimation of business investment in the form of construction, capital equipment or inventories; for the reliable estimation of aggregate consumer expenditures; or for the expenditures of local government; while the data on central government expenditures are in need--and now in process--of considerable improvement.

We turn now to brief notes and comments on the major deficiencies that now exist in the basic data for the various specific sectors of national income and product. This leads in many cases to recommendations for action looking to improvement in the data.

Chapter V

NATIONAL INCOME BY DISTRIBUTIVE SHARES

National income by distributive shares measures the net value of current production of the economy. This net value is the summation of the "cost" payments to the various cooperating factors of production in all sectors of the economy, and comprises wages and salaries; net income or profits of both corporate and unincorporated business, including farmers; interest, net rents and royalties; and contributions to social insurance programs. It thus affords a basic over-all view of the volume and distribution of the income or purchasing power of the population made available in the production process.

We will take up briefly and in turn the nature of present Japanese statistical data for the various income shares, starting with wages and salaries.

Wages and Salaries

1. One of the basic problems involved in statistical estimates of wages and salaries for the various industry sectors is the almost unbelievable complexity of the wage system in Japan, indeed of the very notion of wages. The concepts of a basic or standard wage-rate for an occupation, or of pay in rough accordance with efficiency or productive result seem completely alien to Japan. Instead there is an elaborate hierarchical and traditional system of payments based on status, and considerable paternalism 1/. As long as this system prevails--and it shows a remarkable inertial force--the collection and analysis of Japanese wage statistics will be a nightmare. This in itself passes no judgment, however, on the wisdom, efficiency or justice of the wage-system as a working institution in Japanese culture.

1/ The number and diversity of extra allowances, bonuses, and gratuities paid to workers in Japanese industry seem limitless. The writer has seen on actual payroll records of firms, or has read or heard of at least two dozen "extras." Entrance wages for a given job will vary according to the age, sex and education of the worker; the differentials are strikingly large. There is generally an annual increment to the wage, i.e. a length-of-service bonus. There is a generalized, though not legally required, system of family or dependency allowances, usually now 100 yen per dependent; there is often a bonus for regular attendance, or for good conduct (!); there are generally mid-year and end-of-year special bonuses to all employees, representing a form of profit-sharing; there are often special bonuses in kind of useable or saleable merchandise given to especially meritorious workers. It is quite frequent to have allowances for the relative degree of danger on a job; there are night shift allowances; overtime pay, graded according to the hour of overtime involved; there are "place" differentials, i.e. premiums paid in Tokyo and a few other large cities to adjust for cost-of-living differences. Some firms pay transportation allowances for workers who travel especially far; some pay clothing or housing allowances; and at least partial wage payments in kind are common place in many types of enterprise, especially in agriculture, fishing, etc.

2. Present Census programs are not adequate as to coverage nor reliable in the data collected. Factory Statistics, covering manufacturing and at least part of construction, provides the only fairly reliable source for annual data for any major segment of the economy. The Labor Census, though in theory and design it covers the entire universe of establishments with one or more paid employees, still fails to cover households and many small irregularly organized and run enterprises. Furthermore it is known that many employers of only 1, 2, or 3 people will not bother to fill in and return the schedule asking for employment and payroll data. A further defect is that it obtains wages of employees for only one month in the middle of the year; in view of the problem of seasonal fluctuations and cyclical or secular trend, this figure is of limited usefulness in making annual estimates.

3. So far as agricultural wage labor goes, there are no regular annual or longer-term Census programs which obtain employment and wage data. Likewise knowledge of such activities as forestry and fishing, which in many cases are interwoven with agriculture, is almost nonexistent.

4. In the past work on national income, annual wages and salaries have often been calculated by multiplying average wages obtained from establishment or household sample surveys by the estimated working population earning wages or salaries in various industries or occupations and status categories--operatives or "regular laborers," technical and administrative staff, etc. However, the most recent population censuses have not been tabulated for whatever data they may contain on industrial or occupational characteristics of the working population, and the 1946 Census specifically excluded the aged labor force over 61 (Japanese style), although most of the latter are undoubtedly self-employed entrepreneurs. Furthermore, the sample surveys from which average earnings have been or currently may be derived are extremely unreliable, unsatisfactory as to industrial coverage, consistency between surveys, etc.

5. The reporting and collection of personal income taxes is so haphazard and inefficient in Japan that the tax records, even if they were systematically tabulated and analyzed, would be practically worthless statistically for estimating wages or anything else. In fact they are generally piled up in the Ministry of Finance and never analyzed.

6. The present monthly wage and employment survey is probably the best current periodic report for obtaining at least the trend--and possibly the level--of average and aggregate wages by industry. Since it is on an establishment basis it is of course not comparable with population or household type reports. The present sample survey, replacing the previous one started by CBS in 1944, was inaugurated December 1946 with the advice and aid of SCAP. It is a sample of 5,000 establishments in selected industries with heavier sampling of the larger establishments. (The Labor Census for 1946 reports a grand total of over 654,000 establishments in Japan in all lines of industry). However, there are no really adequate "benchmark" totals to tie it to, and there are many defects and grave uncertainties as yet about the sample results themselves. Inadequacy of industrial representativeness is critical; for example only department

stores of more than 100 employees are covered in retail trade; only quarries and mines of more than 50 employees are sampled; there is absolutely no sample coverage of construction, government or private interurban railroads, small factories in manufacturing of under 30 employees, or of establishments in the service industries, agriculture, forestry, or fishing. Even for the industries covered, there are not adequately current and reliable "population" estimates by which to blow up the sample results on average wages, although the final results of the 1946 Labor Census and the proposed 1947 Census of Business Establishments should go far to remedy this defect. Finally wages are defined to include regular payments and special allowances up to 3 months regular periodicity; they do not include semi-annual or annual bonuses, or the value of payments in kind. Also, in the current inflationary period this series fails to reflect the apparently substantial effects of special supplementary payments made by many employers to workers ostensibly as "loans" but obviously in fact as disguised wage increases to circumvent the wage stabilization program.

7. There is a small monthly sample survey of farm wages conducted by the Agricultural Research Institute, an organ of the National Agricultural Association. It obtains from 3 representative villages in each of the 46 prefectures a report on the maximum and the modal wage of hired farm workers. It has not been possible for the writer to form any judgment on the reliability and possible usefulness of this survey for national income purposes.

Recommendations on Wage and Salary Data

1. Fairly reliable "benchmark" estimates for nonfarm wages and salaries probably ought to be obtained from a few well-planned Census programs which also obtain employment and possibly also production figures. Factory Statistics should remain as a solid pillar for the manufacturing sector of the economy. The old Labor Census appears on the whole ill-designed and in part needlessly duplicative of Factory Statistics 1/. The substitution of a broader and simpler survey such as the proposed Census of Business Enterprises for 1947 may prove wise, perhaps annually or biennially at first, later on less frequently as current reporting systems are established. Such censuses should aim at getting an annual payroll figure, and either representative quarterly or monthly payroll period data for use in short-period series.

2. There is need in this, as in all sectors of Japanese statistics, for working out and adhering to a uniform standard industrial classification, for manufacturing and other industries.

1/ There is need of intensive critical comparison and reconciliation of these two surveys, e.g. for 1946. Noting that one is taken as of June 30, the other as of December 31, and noting, too that the definition of manufacturing is somewhat broader in the Labor Census, the latter survey apparently yields a figure of employment 30-odd percent higher than Factory Statistics.

3. The current monthly establishment reporting program for employment and wages in nonfarm industry needs to be further strengthened to obtain wider and more representative industry coverage, (e.g. trade, construction); a better sample of the smaller establishments in each industry; and more clear-cut and consistent definition of "wages" in the schedule.

4. The problem of estimating farm wages, a relatively small segment of the national total, requires a separate yet properly integrated program of periodic Agricultural Censuses and current sample reporting. The Ministry of Agriculture needs to cooperate more fully with the other statistical agencies, especially via the Cabinet Committee on Statistics.

5. Population Census programs should continue to be useful as a basis for estimating the incomes of the Japanese people, including wage income. Problems of classification by industry must be satisfactorily solved by government statistical agencies however, particularly if data on employment by industry (and occupation) derived from households are to be combined with data on average wages derived from establishment reports.

6. Major improvement might come in Japanese wage statistics as a by-product of adopting a broad modern social security system covering old age insurance, unemployment compensation, etc. In the United States the wage data reported on administrative forms to Bureau of Old Age and Survivors Insurance and Bureau of Employment Security are the solid foundation for the national income estimates of non-farm wages and salaries.

Corporate Profits

Even before the war Japanese data on corporate profits were grossly inadequate. The operations of the Zaibatsu and large family concerns--dominating the industrial, commercial and financial affairs of the country--were largely a well-kept secret. The corporate business tax law of Japan is so weakly designed and administered that the returns are of virtually no use for analytical work. Finally, standards of accounting are notably lax in Japan; there is no profession of certified public accountants, no real requirements for accountability of Japanese corporations to the stockholders or the government. As a result there is general lack of uniformity in the concepts and methods used in business accounts.

The improvement of statistics in this sector must therefore rest first of all on the development of honest and systematic modern accounting methods, with legal requirements for responsible public auditing of corporate financial reports. This is clearly a major long-term reform of business practice.

The second pillar on which any progress must rest is the drastic reform of the business tax laws and administration. Only when all or the major part of the corporate business community are compelled to make complete returns of gross income, costs and net income for tax purposes, on the basis of a well-drawn tax statute can we hope to have complete, reliable, and consistent statistics. There is at present nothing remotely resembling the Statistics of Income, Part II, published in the United States by the Bureau of Internal Revenue. There is, however, a regular annual report on Company statistics published by the Ministry of Commerce and Industry for the prewar years. It is not available for the late war or postwar period; in any event the data on profits are adjudged by other investigators to be conceptually unclear and statistically weak.

It must be noted that in Japan the term "juridical person" is applied in a sense broader than our "corporation." It includes, for example, partnerships, which therefore are excluded from the universe of unincorporated business entrepreneurs. There are four major types of private juridical persons, in addition to government-owned and operated corporate enterprises such as the railroads.

The Finance Ministry has developed and submitted to this writer and the Research and Statistics Division of SCAP a plan for a regular corporate financial reporting system. It is aimed to make it a semi-annual report from a sample of 1,000 corporations; schedules are to be taken from only 600 firms the first time as a trial survey. The sample is selected from the lists of corporations by industry kept by the Internal Revenue Office. Ten size groups of corporations, classified by amount of paid-up capital, will be sampled, with 100 percent coverage of the largest firms and diminishing coverage of the smaller size groups. It is a boon that in Japan apparently over 90 percent of all corporations including the important ones, operate on the same fiscal year as the government, i.e. ending March 31. There was no time available to this writer to really appraise the proposed survey from the point of view of sample design, questionnaire, tabulation, financial cost, etc. It is proposed by the Finance Ministry that actual conduct of the survey be placed in charge of the Mitsui Trust Company, a private business firm. This probably should not be permitted, on technical and policy grounds, at least until proper checks have been made on this company and alternatives are fully explored, with the knowledge and aid of the Cabinet Committee on Statistics. A second observation is that the data will not be uniform or reliable unless and until improvements are made in business accounting practices. Furthermore with so many firms, and in particular the Zaibatsu companies and big family concerns, undergoing dissolution, financial reorganisation, etc. the present is a particularly clouded time for obtaining a picture of corporate operations and profits. The proposed sample survey should therefore be more critically and fully appraised in SCAP before it is made a part of the newJapanese statistical system.

Entrepreneurial Income (Nonfarm)

There is no sector of national income currently more important than the net profits of entrepreneurs (chiefly small unincorporated businessmen 1/, but including also independent professional men). Yet, there are no direct data, complete or partial, past or current, which can be relied on to show the level, composition or trend of entrepreneurial income.

Some notion of the importance of this income share in the current economic scene is gleaned from the fact that for the first half of 1946 it is estimated--extremely crudely by the National Income Unit--as being about 3 times as large as the nation's aggregate wage and salary bill. There is strong presumptive evidence that the black market and the general price inflation are the major explanation. Statistical data on the situation are badly needed to guide economic policy of many sorts.

1/ As noted earlier, partnerships in the American sense represent in Japan juridical persons and are included in the corporate sector of business.

There has never been in Japan a Census of Business covering the trade and service industries. A 1939 Census of "Commodities," the precise nature of which is still confusing to this writer, is the closest approximation. Results were never utilized for economic analysis, nor as far as could be ascertained, as a basis for national income estimates.

Being a nation with myriads of small entrepreneurs in manufacturing, retail and wholesale trade, fishing, and the countless service industries, it will be necessary for Japan to develop wholly new statistical programs covering these areas if her reorganized statistical system is to make sense.

1. It is necessary to define clearly what the "universe" of entrepreneurs is meant to cover, in terms of industry and type of "business" organisation.

2. A periodic comprehensive Census of Business Enterprise needs to be developed. The presently proposed 1947 Census--to be taken as of October 1--is largely experimental in character, and will use an extremely brief and simple schedule. Depending on analysis of results obtained this time such a Survey may need to be run on the same or less comprehensive basis and perhaps every year until experience is gained and current reporting sample surveys are established. The chief data needed from the national income viewpoint are good figures on volume of sales, receipts from business or professional activity. It is at this stage unrealistic to consider going further to obtain "cost" data from small businessmen, in order to arrive at net income figures 1/.

3. The income tax records collected by the Ministry of Finance should be a major source of comprehensive data on business net income. However, before that can be the case the tax system of Japan must be completely revamped and modernized, and efficiently and rigorously enforced. At present the filing of returns is apparently largely a matter of whim; many individuals fail to report, there is wholesale underreporting of taxable income, and tax collection is a casual process. There is no present appreciation in the Finance Ministry of the potential value of tax returns for statistical and economic research.

1/ The rudimentary nature of bookkeeping in Japanese business and the almost whimsical attitude towards it is strikingly illustrated by the case of a cloissonné factory in Kyoto visited by the writer. The aim was to "pretest" the proposed simple questionnaire for the Census of Business Establishments in October 1947. The firm is a typical family enterprise, the present owner-manager being the third generation, and his eldest son, now a skilled chemist working in the shop, slated to succeed him. Mr. X, the owner, meets the payroll for the 47 hired workers he had in April; makes the purchases, often quite large transactions, of various raw material; and handles the sale of the product. In addition he is patriarch of the shop. Yet, with this scope of activity, Mr. X maintains no regular set of books or accounts, and carries all these various transactions largely in his head. When asked if he didn't feel the need of a bookkeeper, Mr. X--educated in American colleges--agreed he did, and explained he had in fact been constantly on the look-out for some family relative (sic!) with such training and experience.

4. There is needed a current sample survey or set of surveys which will report gross income or receipts and expenditures for a cross-section of unincorporated businesses and the professions. This should probably be a quarterly or perhaps to start with a semi-annual program. Much experimenting needs to be done on the kind of approach and content of schedule to be used. It may well be that for the very small enterprises in which the business is intertwined with family living the household interview and diary-reporting system may be required in order to obtain income and expense data. In the case of larger, more stable and "rationalized" businesses, it may be possible to use a "business-type" schedule directly to obtain data on business gross and net income.

5. A sample survey of entrepreneurial income has already been designed by the National Income Unit of the Finance Ministry. It has been intensively reviewed by the Mission and considerably modified as a result, in terms of sample design, coverage, and proposed questionnaire. It will be given experimental field tests this year and ought to be ready for first application early in 1948 after the results of the 1947 Census of Business Establishments have been tabulated. (For an extensive critique of the plan see the memorandum: Plans for an Entrepreneurial Income Survey, to Emerson Ross et al. from Michael Sapir, April 15, 1947).

Farm Entrepreneurial Income

Without a more intensive study of existing statistical sources than this writer could undertake, it is difficult to know how reliable the estimates of farm net income are or how they can best be improved. Extraordinary difficulties beset the income estimator in postwar Japan, because of the wide-spread black market with consequent evasion by farmers in reporting the amount of crops, the size of their income, etc.

Probably the best method of calculating the net income of farmers is to use the Population Census distribution of the gainfully occupied--and intercensal sample surveys of population and labor force--in conjunction with careful sample studies of farm household income and expenditure which will yield reliable average net income figures stratified perhaps by area, size of farmer, type of principal crop, etc. Especially in Japan, a nation of small-scale peasants, the estimation of agricultural net income must remain quite crude.

The National Income Unit needs to explore the problems in this field far more extensively and critically than they have done. They should also develop statistical programs in close association with the Ministry of Agriculture and Forestry. For example, the problem of data collection in the fishing and forestry industries--both currently of critical importance--is closely tied in with the same problems for agriculture.

Other Income Shares

There are several other income shares which enter into the standard definition of national income to which Japan is now attempting to conform. These are net rents paid to individuals, interest, and supplements to salaries and wages, chiefly in the form of contributions to social insurance funds.

There was no opportunity adequately to explore these data areas with the Japanese national income people. Social security contributions however are of insignificant proportions in Japan since the social insurance system is of a most rudimentary character. Data on interest paid to or received by individuals are grossly inadequate; the only available approach appears to be by multiplying estimated bond holdings of individuals by an average interest rate. Data for this component will be improved substantially if the tax reforms spoken of earlier are made and systematic statistical reports are issued on the basis of the returns. As for net rents and royalties, data are almost entirely lacking, especially for urban rents on dwellings.

Chapter VI

GROSS NATIONAL PRODUCT OR EXPENDITURES

The gross national product represents the money value of the goods and services produced by the economy measured in terms of the prices paid for them by the ultimate purchasers. In broad terms the components that comprise the total are the purchases by households (consumer expenditures); outlays of business enterprises on capital goods (net private domestic investment); expenditures by government for goods and services; and the net foreign balance on current account (net foreign investment). More direct measurement of the value of current production is also conceivable, in terms of the contributions made to total production by each industry sector-manufacturing, trade, etc. The data required for statistical measurement are generally less complete or reliable for this approach, although in the case of Japan this may not be the case.

The Japanese have never been familiar with the concept or made any estimates of the gross national product. It has become in recent years one of the most important ways of analyzing the structure and workings of the economy in Western countries and is an important aid to government policy making. For Japan to develop good national product estimates will involve many new statistical programs and series not now available.

Consumer Expenditures

At the present time there are no official current data in Japan providing a picture of the aggregate level, the composition, or the trend of consumer expenditures. This is a critical shortcoming in a period of inflationary pressures when it is desirable and indeed necessary to know the intensity and direction of consumer demands in relation to incomes, prices and supplies of goods available.

The only current data of importance on consumer expenditures are derived from the Consumer Price Survey, directed by SCAP and operated and tabulated by the Cabinet Bureau of Statistics. About 5000 urban families are sampled in 26 cities all over Japan; they report every two weeks on their expenditures, quantities purchased and prices paid for a wide range of goods and services. The trend of average expenditures by urban families can probably be obtained with a fair degree of reliability, since the sample is well and efficiently designed; there may be serious problems of bias due to non-response, and errors in tabulation are always prevalent in Japanese statistics owing to faulty technique, and inadequate equipment and control checks. However, there has not been sufficient experience or experimentation as yet to determine whether the sample results can be "blown up" by appropriate population weights to yield good estimates of aggregate nonfarm consumer expenditures. In any case the expenditures and imputed consumption of the rural population are not covered.

Japan clearly needs as rapidly as possible the development of a statistical program to yield good benchmark and current estimates of consumer expenditures. Basic to such a program would be the following:

1. Considerable testing and improvement of the expenditures data obtained in the Consumer Price Survey and the development of reasonably accurate population or household weights to use in "blowing up" the sample results to obtain usable aggregates. Possible extension of the survey, or development of a separate survey more appropriate to the rural population, need to be considered.

2. A regular Census of Business Establishments, whether every year, or every two or ultimately five years, would provide basic material on retail sales useful for an estimate of consumer expenditures on commodities. The reliability of this approach, giving at best partial coverage of actual total consumption, would probably not be very good.

3. A current reporting system to obtain quarterly or monthly data on retail sales is an urgent requirement to give some idea of the market trend of consumer buying of goods at least in cities.

4. The coverage of the service industries--amusements, transportation and utilities, laundries, education, and the various professional services--requires the designing of proper periodic surveys, and in some cases utilisation of e.g. excise tax data as a basis for statistical estimates.

5. In the longer run it will be most desirable for Japan to develop much better and more reliable data on the production of commodities as a starting point for tracing their flow through distributive channels to the ultimate consumer. This will require abundant data, most of it not now available or reasonable to expect for several years, on changes in inventory holdings throughout the distributive system; on imports and exports and exports of the various commodities; on distributive "mark-ups" for the various categories of goods as they move from producer to retailer, etc.

6. Since so much of what the Japanese consume does not flow through the market-place with a pecuniary price-tag, it will always remain difficult to get a complete picture of consumer expenditures or of physical consumption by any of the approaches already suggested. The problem is acute for the rural population, and relatively more significant for the urban population in Japan than in say the United States, or England. Sample studies can provide adequate data for imputing values to commodities produced and consumed or services rendered without any money exchange transactions; they are among the most difficult to design, execute, or interpret and should not obtain a high priority in the development of Japan's statistical system.

Domestic Capital Investment

It is customary to include in this category the expenditures for new construction, both residential and nonresidential; business purchases of machinery and other capital equipment; and the value of the net changes in business inventory holdings of goods. It should be kept in mind that statistical data for estimates of these items are extraordinarily weak even in the United States. Yet the economic activities covered by these statistics are of central importance in the dynamic operation of any economy.

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In Japan, either before, during or since the war, there are no direct data available on any of these important sectors of the economy. There is absolutely no tradition of statistical estimation or economic analysis of investment activity.

Because of pressure of other matters, and the currently low level of private business investment outlays, little effort was made to ascertain the nature of the problems confronting development of statistical programs in this field. In one meeting with the national income unit of the Finance Ministry it was ascertained that a program looking towards at least rough estimates is under way.

1. The Finance Ministry is planning a sample survey of 1,000 corporations to be taken every six months. It will be designed to give some idea of the magnitude of plant and equipment outlays and of net inventory change. Since no actual plan has as yet been submitted to SCAP for this survey, there is no point in raising the many serious questions that occur as to the sample, the questionnaire and concepts to be employed, the nature of business accounting records, etc.

2. The Economic Stabilization Board is supposed to develop a project for checking the amount of funds approved and licensed by the Finance Ministry and the Bank of Japan for new capital financing by Japanese firms. Thus, over 1,000 firms have actually been granted loans of one million yen or over. But the usefulness of this set of data for general statistical purposes is highly questionable. The sample is probably unrepresentative. There are problems of timing, of multiple borrowers, etc.

3. For a few major industries there are data--of quality unknown at present--on new construction and equipment expenditures. This is true of the coal mining industry, reporting to the Coal Board in the Ministry of Commerce; for the chemical fertiliser industry; for railroads and shipbuilding; for iron and steel; and for cotton spinning.

4. Factory Statistics provide annual data on new capital investment in manufacturing industry--with the deficiencies of coverage previously noted. But the data are of exceedingly doubtful reliability, and are available only after a lag of from one to two years.

5. There are no statistics really worth mentioning on the volume of residential construction, although indirect measures can be crudely attempted on the basis of the allocations--preferably the actual flows--of basic construction materials such as steel, cement, lumber, etc.

6. There are absolutely no data currently on the inventory holdings of Japanese business.

It is evident that Japan must start from scratch to develop good statistics in all these fields. From the point of view of current stabilization problems, rather than national income estimates per se, the most critical area is undoubtedly construction. The Statistical Mission was able to offer some preliminary advice on this area of statistics, but the work is only commencing.

The Net Balance of International Payments on Current Account (net foreign investment)

Statistics on commodity imports and exports have always been relatively a strong point in Japan. Nevertheless there is real need for improvement in the proper reporting of goods shipments and receipts at the ports, proper commodity classification, tightening up of administration to prevent smuggling, etc.

The data on the "invisible" and service items in the balance of payments are grossly inadequate and require intensive work on the part of specialists. There is real need for more expert American help on developing foreign trade and balance of payments statistics.

The net balance of payments as a component of gross national product measures for the current period the net foreign investment made by the domestic economy collectively. If export exceed import items this net investment is positive; if imports exceed exports it is negative. For a country like Japan whose economic life is dependent on foreign trade the development of accurate and comprehensive statistics on the balance of payments and on international capital transactions is of central importance.

Government Expenditures for Goods and Services

The central government is currently the largest single "customer" for the output of the Japanese economy. Since the large deficits are one of the most serious factors in the inflationary situation, the development of complete, accurate, and intelligible data on government receipts and expenditures is critical. The many technical and administrative problems bound up in the development and operation of an efficient modern budget reporting system were the special focus of attention on the part of a member of the Statistical Mission 1/.

Data on central government finance are available in official Budget documents, and in current reports prepared by the Bank of Japan and the Finance Ministry. However, they have been found unsatisfactory as to reliability and meaning by SCAP officials and the Mission. So far none of the current data have been considered fit for publication in the monthly bulletin of statistics.

From the point of view of gross national product the problem is to obtain a complete and non-duplicating total of government expenditures which represents payments for commodities or services currently "produced." It is necessary to exclude transactions of a purely financial or bookkeeping character, involving internal transfers between the various government accounts, since otherwise duplication would be present. Such an item as debt repayment is eliminated. The purchase of already existing assets--buildings, equipment and of course land--need to be segregated and kept out of the figures. In terms of the concept of "product" being used in modern national income work, interest on public debt is excluded as a purely transfer expenditure. Special and complex problems arise in connection with the proper accounting and statistical handling of operations--both on current and capital account--of government corporate enterprises which produce and sell goods or services to the public at a price 2/.

1/ See the report by Edward T. Crowder, Working Paper on Japanese Financial Statistics, July 11, 1947.

2/ For a statement on the new American methods of handling the corresponding problem, see National Income, Supplement to the Survey of Current Business for July 1947, especially pp. 4-5.

Present financial reporting practices within the Japanese government fail adequately to permit a clear and unambiguous treatment of government expenditures along the lines indicated. The published daily training statement contains "a confusing mixture of general and special account transactions, interaccount transfers, and transactions within and outside the budget, without a clear-cut segregation of borrowing from other types of transactions" 1/. As a result of efforts and negotiations conducted by SCAP and the Mission with the Japanese, a program has been inaugurated looking to basic improvement in the financial reporting system. Progress in implementing the proposals agreed to is being made by the Bank of Japan. It seems likely that reasonably good current figures on central government expenditures will be available before many more months.

There was no opportunity to explore the problem of local government budgetary practices and statistics. It was made clear to the writer, however, that major problems remain to be tackled in this field too. Budgetary accounting methods and records are rudimentary in many prefectural governments; they probably do not even exist for many of the towns and cities. The relationships between local and central government have in the past been exceedingly close as regards fiscal matters, with the central government both obtaining a share of local revenues and making substantial subsidy payments to local government. Insofar as this system still operates it will be necessary to integrate the statistics carefully to avoid overlap and duplication as well as to see that gaps in the data are filled.

1/ Crowder, op. cit., page 5 and Appendix.