ON THE FIVE YEAR ECONOMIC PLAN IN JAPAN

——Some Methodological Considerations——

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I. *Introduction*

The "Five Year Economic Plan" (1956–1960) was drawn up by the Japanese Government at the end of 1955 and approved by the Diet a little afterward.[1] It is the first plan formally recognized as the national policy of the Government after the War. Although the idea of economic planning was growing in popular favour in these ten years, we can not deny the fact that a strong hatred against the war-time controls was still prevailing among some of us. Under the government of *Jiyuto* (one of the conservative parties) which remained in power for about seven years since 1948, the economic planning was not given a warm reception and several plan-formulations were attempted merely in semi-official form.[2] At the end of 1954, when the Hatoyama Cabinet was formed as a result of merger of two conservative parties (*Jiyuto* and *Minshuto*), the preparation for a new plan-making was set to work and the amendment of its draft originally called "Six Year Economic Plan" was published after a year as "Five Year Economic Plan", which constitutes the subject of this paper.

We shall be concerned in this paper with some methodological considerations as to techniques of the Japanese Plan. The techniques of planning may widely differ from country to country. Moreover, within any one country, they may undergo some changes through various circumstances. In the present situation of Japan, something more powerful than the fiscal-policy planning, but not so radical as the mobilization-planning, seems to be looked for, although this midway is not always clearly grasped. It is also the point at issue in the Five Year Economic Plan. We can discuss the matter from the political point of view or from that of practicians. But, subsequent considerations, which may be called scientific, shall be confined to narrow limits. In fact, the purpose of this paper

[1] The Plan is formally called "*Five Year Economic Self-Support Plan*" and was published on December 23rd, 1955.

[2] The plans which was hitherto made by the Government are as follows: (1) the Economic Recovery Plan (1948–1952), 1948. (2) the Secondary Recovery Plan (1949–1953), 1949. (3) the Economic Self-Support Plan (1951–1953), 1951. (4) the Economic Development Plan of 1965, 1954. Of these plans, the second one is the most detailed containing numerical data in a large scale. The last one is noteworthy as the direct antecedent of the new Plan.

is only to make explicit the assumptions underlying the Plan and to clarify the fundamental problems involved in it, so far as the techniques of planning are concerned.

II. *The General Formula and the Basic Numerical Tables*

At the outset, the general formula of the Plan should be investigated. The Plan, as we are told, has been made on the basis of the formula given in Gerhard Colm's "the American Economy in 1960".[3] It is, however, not exactly the same as that of Colm, as will be pointed out in the sequel. So far as the main idea is concerned, the Plan seems to follow Colm's formula and along the procedure as shown schematicly in the following lists:

(1) Increase of workers
(2) Increase of productivity per capita
→ (3) Increase of national product

(5) Increase of personal consumption
(6) Increase of private capital formation
(7) Increase of government expenditure
→ (4) Increase of national expenditure

In other words, by estimating (1) the increase of workers and (2) the increase of productivity per capita, (3) the increase of national product is conjectured. Then, corresponding to (3), (4) the increase of national expenditure is estimated, which are divided into three items, namely (5) the increase of personal consumption, (6) the increase of private capital formation and (7) the increase of government expenditure. So much for the formula adopted by the Japanese Plan and the same given in Colm's writing above mentioned.

There are, however, some divergencies of the Japanese Plan from Colm's formula. The most important point lies in the fact that the former takes account of the structural change of industries somewhat in detail, while Colm scarecely takes it into consideration by assuming that the future progress of productivity as a whole may be stable and steady. This divergency may be perhaps due to the difference of economic patterns between two countries. In a highly advanced economy, such as in the United States, a fairly steady secular trend in technical productivity seems to be recognizable.[4] But in such a country as Japan, which is not

[3] Gerhard Colm: *The American Economy in 1960.* Economic Progress in a World Tension, A National Planning Association Staff Report, December 1952.

[4] See John W. Kendrik's article, "National Productivity and the Long-Term Projection" in *Long-Range Economic Projection, Studies in Income and Wealth*, Vol. XVI. (National Bureau Committee for Economic Research) 1954. It should be noted that the subject of this article is to treat productivity trends in sectors of industry, and that the author emphasizes in conclusion: "A fairly steady secular rate of growth in technical productivity seems to be among the more persistent features of a highly industrial economy."

so highly industrialized and moreover confronted with external severe competition in the world market, the growth of productivity is largely dependent upon the structural change of industries, which may be under the influence of national policy. This is the reason why the Japanese Plan tries to take account of the structural change of industries somewhat in detail.

Bofore we proceed with further investigation, some basic numerical tables in the Plan will be shown. In the first place, the framework of the Plan can be expressed in the following two tables concerning gross national product and gross national expenditure, which respond to the above mentioned lists.

Table I. Gross National Product

	1954	1960	rates of increase
Number of workers (1,000)	39,820	44,860	112.7
Per capita annual production (1,000 *yen*)	181.8	215.6	118.6
Gross national product (100 mil. *yen*)	72,410	96,730	133.6

In this table, the gross national product is computed from the estimations of two items, namely, the number of workers on the one hand, which is in turn based on the estimates of population and labour force, and the productivity per capita on the other. Here the number of workers is estimated on the assumption that the employment situation might be improved as high as possible. It does not mean the achievement of full employment in a strict sense. In view of the fact that there is now a considerable number of latent unemployment (disguised-employment suffering from low income and short work hours), a special consideration must be paid to the employment problem. According to the Plan, the policy should be fundamentally such that the economic activity will be enlarged as far as possible to provide many opportunities for employment and that the latent unemployment will be taken care of by increasing their income. But, in regard to the latent unemployment, no information is available of the numerical data. In the last column of the above table are shown the rates of increase on the base of 1954, which can be converted into the annual rates, namely 2% for workers, 3% for productivity and consequently 5% for gross national product.

Table II is concerning the national expenditure. The total amount is the same as that of gross national product in the Table I, both being correspondent to each other. But here the expenditure is classified into four

Table II. Gross National Expenditure

	1954	1960	rates of increase
Personal comsumption (100 mil. *yen*)	46,150	60,140	130.3
Private capital formation	11,100	17,410	156.8
Government purchase	13,850	18,960	136.9
Current oversea surplus	1,310	220	16.8
Gross national expenditure	72,410	96,730	133.6

items with different rates of increase respectively. Judging from the rate of total expenditure, 133.6%, the private capital formation is very high, while the personal consumption is somewhat low, and the government purchase is a little high.

Now, we must add some more numerical data. As above mentioned, the Plan is somewhat divergent from Colm's formula, in particular with

Table III. Production Index

	1954	1960
Primary Industry	100.0	120.5
Secondary Industry	100.0	153.7
Mining	100.0	125.2
Food processing	100.0	142.0
Textiles	100.0	132.0
Printing	100.0	135.7
Chemical	100.0	183.0
Rubber & leather	100.0	140.5
Lumber	100.0	145.5
Ceramics	100.0	155.3
Metals	100.0	159.0
Machinery	100.0	160.0
Tertial industry	100.0	128.7

Note:—We can calculate the weights of each industry from other statistical sources. The proportion of the national income attributed to each industry is computed at 21.5 in the primary, 30.8 in the secondary and 48.2 in the tertiary in 1954. We obtain 2.3 for mining by a similar computation. As regards each manufactural industory, its relative proportion of "added value" is available and the proportion based on the whole national income is computed as follow: 2.69 in food processing, 3.09 in textiles, 1.33 in printing, 3.39 in chemical, 0.53 in rubber & leather, 0.88 in lumber, 1.34 in ceramics, 3.38 in metals and 4.91 in machinery.

respect to the structural change of industries which it takes into consideration. The above Table III as to production indices will show how the expansion of each industry is to be expected in the Plan.

From these figures, we know that the rate of increase of secondary industry is rather high and that in it the heavy and chemical industries (such as chemical, ceramics, metals and machinery) are expected to expand to more marked degree in this Plan. Along with this table, some important commodities in each industry are examined and their production targets are computed in the Plan, but they are not indicated here.

Table IV. Foreign Trade

	1954	1960	rates of increase
Export (mil. $)	1,602	2,660	166.0
Import (mil. $)	1,692	2,590	153.1

With regards foreign trade, the projection is shown in Table IV. It is required for the Japanese economy to maintain the balance of payments by the normal foreign trade. The requirement is therefore that of "self-support" as is explicit in the title of this Plan. The import expansion should be controlled to the extent, in which we can keep a reasonable balance of payments by means of the most efficient operation of foreign currency at our disposal as well as of the development of industries, which can contribute to the improvement of self-sufficiency. On the other hand, the rapid expansion of export trade is necessary and the competitive power of our export goods must be strengthened by means of industrial rationalization, improved productivity, acquisition of new overseas market, etc.

Table V. Private and Fiscal Investment

	1954	1960	rates of increase
Private capital formation (100 mil. *yen*)	11,100	17,410	156.8
Equipment	7,850*	12,280	163.3
Inventory	2,540*	3,290	129.5
Personal dwelling	980*	1,740	177.6
Fiscal investment	5,150	7,350	142.7

Note:—*The figures of these three items are not correct, because the total of them does not amount to 11,100.

Some important goods of export and import are treated in the Plan, but the related figures are omitted here.

The itemization of investment is shown in the last table. The total of private capital formation, which has already been mentioned in the Table II, is divided here into three items; namely equipment, inventory and personal dwelling, of which the equipment investment is expected to increase in a very great degree except the personal dwelling, which is of relatively little significance in the absolute amount. The increase rate of fiscal investment is a little higher than that of total expenditure. So much for the investment, but there is no data of more detailed nature about government accounts and credit policy in the Plan.

III. *The National Income Method to be Revised*

The formula of the Japanese Plan, as above mentioned, is based on the national income method, i.e. the method to maintain a balance between the national product on the one hand and national expenditure on the other. The method, it may be said, is widely in use in the contemporary theory of national income. The Japanese Plan adopts this method at the start, but it takes care of the industrial structure of production in latter part, as we have shown in the numerical tables of production-indices and foreign trade. In this connection, it may be argued that the estimation of national product or productivity on a global basis would be checked with "pile-up" data as to sectors of industry. Needless to say, the estimate for total and estimate for parts are both required and are to be checked with each other. But it is not correct to argue further that the one is more reliable than the other, or that the more detailed the better for economic planning. Such a misunderstanding seems to be held by the Plan. All this, however, is beside the main point. What we want to ask here is not the reliability of statistical data, but the way to modify the national income method by taking care of the industrial structure of production. For, if we assume that the future progress of productivity as a whole may be stable and steady, Colm's formula will do. But, if we have to establish the appropriate composition of sectoral productivities for the future progress, it will be required not only to divide national product into several sectors, but also to revise the notion of national product in connection with production in the proper sense. The Japanese Plan does not clearly recognize this matter.

We must distinguish each of these three terms from one other, namely net national product, gross national product and the amount of production. Let Y stand for net national product and D for depreciation of capital goods. Then Y+D is gross national product (G). Again, letting U

stand for producer's goods used inclusive of depreciation, Y+U is the amount of production (X). For example, the net national product in 1954 amounts to 6,132 billion yen, while the gross national product amounts to 7,359 billion yen. Further, according to the statistics of the manufactural, the amount of production or the total value of shipment is 6,057 billion yen, while the added value or the amount exclusive of producer's goods used up is 1,900 billion yen. Thus we have the notion of production (X), besides net national product (Y) and gross national product (G). The change of X can be indicated in the production-index and the connection between production and national product can be expressed in the formula X−U=Y.

Nevertheless, it might not be said that the notion of production, which is denoted by X in our symbol, was never treated previously in the literature on income theory. In fact, the "gross produce" in Marshall's *Principles* is nothing but Y+U, while his "net national income" is defined as X−U. Such a definition is however not widely in use in recent times and the notion of national product denoted by Y has been introduced with a somewhat ambiguous sense. Thus, when the formula

$$Y=C+S \quad (C=\text{consumption and } S=\text{saving})$$

is adopted, Y is usually defined as the income-getting against income-spend ing, and the income-getting Y is supposed to be a blend of income produced and income distributed. Therefore, the notion Y can be, if necessary, divided into two different aspects, one of which takes care of the production aspect to be represented by X−U, while the other is concerned with the distribution aspect to be represented by A+B, where A and B respectively stand for the labour income and property income. Taking into consideration all these aspects—production, distribution and expenditure—we obtain another formula of the following form:

$$X-U=A+B=C+S.$$

This formula may be contrasted with the above mentioned formula Y=C +S. If a steady secular of Y is assumed, the strategic factors may be found in the expenditure or C+S. This means the ordinary formula. In our formula, three aspects being related with each other, the structure of production is to be treated positively.

As is well-known, the inter-industry economics issom etimes better taken care of by the so-called input-outpt tables, which arrange the sales and purchases of industries with a view to showing the interconnectedness of the entire economy. But no use is made of such tables by the Japanese Plan and it is not without reason.[5] In author's opinion, the input-output technique requires too much refineness in statistitical materials and too much rigidity in theoretical formulation. It is rather hazardous to employ

[5] The computation of the input-output tables have been attempted in Japan concerning her economic situation of 1951.

it, when the accuracy of quantitative economic data is not much expected. Although the input-output technique would be of service within some restrictions, the more general, though somewhat rough, framework of industrial structure can be expressed by the national income accounting, if its aspect of production X—U is represented as the sum of its sectors such as $(X_1-U_1)+(X_2-U_2)+(X_3-U_3)$....., and within this framework the relevant factors of determinancy are to be looked for by all means.

Although our revised formula of national income is very simple, the numerial data given in the Japanese Plan are still too defective to be applied to the formula as it is. In fact, we can not get any information on the distribution aspect of national income. Especially, the sectoral classification of national product can only be approximately calculated, for there is no information about the relation between production-index and national product. We shall turn now to the more substantial problems.

IV. *The Objectives of the Plan——"Desirability"*

The Japanese Plan declares that the economic self-support and the improvement of employment situation are to be attained maintaining the key-note of stabilized economy. Thus the economic self-support in the sense of equilibrating the balance of payments is assumed in the projection of foreign trade in the above mentioned Table IV. The improvement of employment situation in the sense of providing abundant employment opportunities is also assumed in the estimation of the number of workers in the above mentioned Table I. With respect to the stabilization of economy, the Plan indicates that the economic growth rate must be set at such a level that the intended economic expansion be attained without causing inflation.

These assumptions of the Plan may be called the objectives or targets in their political meaning. Their adequacy should be for the most part discussed politically. From the economic standpoint, the objectives are to be the economic position or the economic pattern in future, expressed by the national income formula. We must now examine the objectives in this sense. The following table will show the compositions of the national income in the planning year and compare them with the figures in the selected past years, calculated from the data at our disposal.

However, the economic patterns as the objectives of the Plan are not clearly seen from these figures. For instance, the percentage of the secondary industry, i.e. 35.4%, may be too high and that of investment inclusive of both private and fiscal, i.e. 25.6%, also somewhat too high. But, if we wish to derive any definite conclusion, we have to inquire into the historical data in the longer period. Of course the extrapolations of

Table VI. The Compositions of National Product and National Expenditure

	1960	1954	difference	1950–4	difference
National product	100.0	100.0	...	100.0	...
Primary industory	19.4	21.5	−2.1	23.5	−4.1
Secondary industry	35.4	30.8	+4.6	31.8	+3.6
Tertiary industry	44.8	48.2	−3.4	45.0	−0.2
Others	0.4	△0.5	+0.9	△0.3	+0.7
Ratio of export to national product	12.3	9.9	+2.4	9.7	+2.6
National Expenditure	100.0	100.0	...	100.0	...
Personal consumption	62.2	63.8	−1.6	60.8	+1.4
Government consumption	12.0	11.5	+0.5	10.8	+1.2
Private capitalformation	18.0	15.3	+2.7	19.8	−1.8
Government investment	7.6	7.6	±0.0	7.2	+0.4
Others	0.2	1.8	−1.6	1.4	−1.2

Note: The figures for 1954 and preceding years are based upon "The National Income of 1954", prepared by the Economic Planning Board, where the national product is "net" and national expenditure is "gross". The composition of the national expenditure for 1960 is taken from the numerical table of the Five Year Economic Plan, while the composition of the national product for 1960 is computed by the author from the production-indices given in the Plan.

the past tendencies is not the only method we can depend upon in planning. In fact, we must assume something more than a mere extrapolation. But whatever kind of assumption we may set, it should in turn be based on the historical interpretation of the economic patterns, although we must at the same time take care of the inner conflict of antagonistic interests in the present economy. Now we will point out some problems in this connection.

Firstly there is the problem of the proportion of the secondary industry. The development of the secondary industry in Japan has been highly progressive. According to other statistical sources, the proportion of its income to the whole national income has successively past three stages, (1) less than 25% up to 1912, (2) from 25% to 30% during 1913 to 1932 and (3) 30%—35% from 1934 till now with the exception of several years. It may therefore be concluded that the overcoming of the last stage is one of the purposes of the Plan. But, at the same time we must pay due consideration to the effects of this industrialization on other industries. The relative distribution of workers in three sectors is respectively computed at 44,23 and 33 in 1954 and 40,24 and 36 in 1960. The ratios of relative income (the distribution of income divided by the distribution of workers) has changed from 0.489 to 0.485 in the primary industry,

from 1.33 to 1.47 in the secondary industry and from 1.46 to 1.24 in the tertiary industry. The pressure upon the tertiary industry may be problematical from the standpoint of employment policy.

Secondly, there is the problem of the proportion of export. The change of this proportion in Japan is characterized by a clear-cut contrast between the pre-War average of more than 15% (or 18% inclusive of export to the forfeited territory) and that of less than 10% in the post-War period. The level aimed at by the Plan is 12.3%. Here comes the problem of foods import, which the Plan intends to restrict not to exceed the absolute amount of import in 1954. Whether the import of foods will be advantageous or not is a difficult question, which is connected with not only economic but also political disputes.

Thirdly, the problem of the investment will be considered. The private investment seems to be so strongly affected by business-fluctuations, that no typical tendency can be found out, even in the data obtained in the pre-War period of considerable length. If more detailed data would be available of price index number for investment goods, the proportion might be shown more stable. Anyhow 18.0% seems to be somewhat too high as compared with growth-rate, which is 5%. In the post-War period, i.e. from 1950 to 1954, the proportion of investment was 19.8%, but the growth-rate was also as high as 10.4%. As regards the fiscal investment, the increasing tendency is recognized after the War as compared with that for the pre-War period (about 3% or more). A question is then raised as to the proportion of private investment, which is as high as 18% in the above table. The supply and demand of such a high investment should be dependent on the relation to investment policy adopted.

To sum up, in the figures of the Plan there are involved many questions. There are several alternative ways of putting stress, international trade or domestic self-sufficiency, rationalization or social security, and further private investment or fiscal investment. The answer should be a mixture of these alternatives and reflect the inner conflict of antagonistic interests in the entire economy. It should be noted that there is going on an inner conflict corresponding to a very rapid transition to democratic or rationalistic attitudes of social life, with which Japan is confronted. So what is needed for the planning is to develop each alternative to the very extreme for comparison with the other, before the definite answer is obtained.[6]

[6] Colm is right in taking care of several alternatives in them odel-building of income expenditure in his "American Economy in 1960".

V. *The Instruments of the Plan*——"*Attainability*"

To fill the gap between the aimed at situation and the present one, some kinds of instruments are required, without which the Plan would not be successful. Along the line of national income method, we must here inquire into the rates of change of each item in the national income. The increase or the decrease of change may be again dependent on the past tendencies, but the stress should be put on the political manipulations. In the following table is shown the annual rates of change intended in the Plan together with the tendencies in the past years, which are cited for comparison.

Table VII. The Annual Rates of Change in the Items of National Product and National Expenditure

	1954–60	1953–4	difference	1950–4	difference
National product	5.0	3.8	+1.2	10.6	−5.6
Primary industry	3.2	3.2	±0.0	5.9	−2.7
Secondary industry	7.0	2.2	+5.0	9.4	−2.4
Tertiary industry	4.3	5.7	−1.4	14.6	−10.3
National expenditure	5.0	3.1	+1.9	10.4	−5.4
Personal consumption	4.9	3.2	+1.7	9.9	−5.0
Government consumption	5.3	3.3	+2.0	9.8	−4.5
Private capital formation	5.9	2.5	+2.4	10.6	−4.7
Government investment	5.0	2.7	+2.3	10.8	−5.8

Note: The figures for 1954 and preceding years are derived from Economic Planning Board's national income statistics, where national product is "net" and national expenditure is "gross", so that both rate of increase in the totals are different.

The rates of change during the planning years are higher on the base of 1954 and lower on the base of 1950–4. In other words, the rate of increase were very high after the War, but it has recently been rather damped down, and consequently the Plan intends to raise the rates of increase somewhat higher than that for 1953–4, although not so high as in the preceding periods. The rate of increase of national income as a whole is assumed to be 5%, the rate of each item being more or less than 5%, as to alter the composition of national income. Of course the complete answer can not be derived only from the past tendencies. Moreover in the case of Japan the growth rates and the derived relations (such as propensity to consume, capital coefficient, etc.) undergo such a severe change that

it is not easy to find out stable tendencies.[7] After all, the question is raised as to what kinds of instruments employed in the Plan to alter the past tendencies to some extent.

According to the remarks to the Plan, the economic system is assumed to be working by the individual initiatives with some sort of regulations within a limit. This means the economic planning under the capitalist system. In general, there are different degrees in governmental planning according to its area of control. If the area is large a comprephensive plan may be made with the expectation of success. This is the "mobilization" planning. But if the area subject to control is small, the planning will be quite limited provided with more flexible nature in order to meet various uncontrollable alterations in the economic activities. Such a planning may be called "inducement," for the alterations in the economic activities are induced through some instruments of finance and credit. The question as to which planning is more appropriate to the Japanese economy may be open to theoretical discussion, but it is justifiable from the practical point of view to adopt inducement-planning in the present situation of Japan. However, this does not mean that in the Japanese Plan there is no ambiguity in this respect.

First of all, it seems strange that no detailed numerical data is given in the Plan indicating these instruments. The Plan only gives the data about the general account of the central government and the monetary fund of equipment investment. There is no information about tax-burden, social securities, credit policy, price policy, etc. Thus we can not correctly judge whether in the whole Plan the objectives and the instruments are in consistency or not. In order to grasp the whole Plan systematically, fuller explanation is required of several supplementary accounts, such as government a/c, capital formation a/c, balance of payment a/c, each being related with the basic formula of national product and national expenditure. Such an arrangement can not found in the Japanese Plan.

Without the detailed explanation of instruments, the Plan seems to be nothing but *ad hoc* policy or a mere "guide-post" as the Plan itself declares. But, judging from the objectives of the Plan, it seems to us, somewhat more powerful planning should be required. As above said, the alteration of the industrial structure is intended by the Plan by some measures, such as industrial rationalization, productivity improvement, strengthening of enterprise structure, effective allocation of monetary fund, etc. For the purpose, the invetment should be planned through organizing both finance and credit, if not through mobilization. But the Plan, being satisfied with the presentation of a mere "guide-post", does not seem so deeply

[7] The Plan sets the annual rate of growth at 5%, while the actual rate in 1955 is reported at 8 or 9%. The prosperity is due to the full harvest and the increasing export. This reflects the difficulty of projection.

interested in such an organization of investment. This characteristic of the Japanese Plan may be due to the political situation of the present government. Anyhow, there is no attempt in the Plan to form any fresh idea or new technique correspondent to what Japan requires at present, so far as investment planning is concerned.