

經濟研究

第 35 卷 第 4 号

Oct. 1984

Vol. 35 No. 4

A Survey of Economic Research in Japan, 1960-1983

Shigeto Tsuru

This survey has been written at the suggestion of some of my colleagues abroad who had read my earlier survey article, covering the period up to 1960, for the *American Economic Review* (June 1964). That is the reason why I have chosen to write this in English. Naturally, there are some overlappings; but the emphasis this time is to highlight those Japanese economists, mainly theoretical ones, who have been active during the last two decades and to evaluate their achievements in their respective field of endeavor. Thus the coverage is narrower than that of my earlier article—narrower for the additional reason that I placed upon myself a major constraint of confining my survey to those who are still alive today. Another minor constraint is to deal more fully with those economists who are not accustomed to publishing their works in one of the western languages — this again on the ground that this is being written for foreign consumption. In principle, I have spelled last names of Japanese in capital letters.

It is not for the reason of the so-called “characteristic Japanese diffidence” that I made no reference to my own works. As for myself, I contributed an autobiographical article to *Banca Nazionale del Lavoro Quarterly Review* (September 1982) under the title of “A Peripatetic Economist,” in which I gave a fairly detailed account of my endeavors as an economist and to which I should like to refer the readers who are interested.

I Introduction

Paul Samuelson made the following remarks in his “Foreword to Japanese Translation of *Economics From the Heart*” (1984):

“As an amateur observer of your country, bereft of the written and spoken Japanese language, I must still in all candor venture the view that scholars like me are even rarer in Japan than they are in the West. Europe has economists like Jan Tinbergen, Erik Lundberg, James Meade or Nicholas Kaldor whose views are worth hearing on America, Portugal, Australia, Mauritius or Japan. I know many brilliant mathematical

economists in Japan; I know, and know of, innumerable experts on the economics of Karl Marx. You have local experts who match for your country the studies made elsewhere on such topics as the permanent income hypothesis, Leontief's input-output measurements, the Kondratieff long-wave cycle, macro models for GNP forecasting, interactions of the multiplier and the accelerator..... Still, I suspect I can count on one hand the number of Japanese economists who walk sure-footedly through the controversial marshes of modern economics, conceding to the camps of monetarism, rational expectations, neo-supply-side economics and post-Keynesianism the merits they each have earned relevant to the present policy debates of our times."

He may well be right. Even if scientific works of most of the Japanese economists had been made available in one of the western languages, the verdict might still be essentially no different from that of Samuelson's. For surely in these years of facile transnational communication the outstanding achievements would have found their own way of crossing over the language barrier into the world scientific community. Still, an attempt will be made below to fill the *lacunae* in the information available to western scholars on what have been the endeavors of some outstanding economists in Japan during the past two decades or so.¹⁾

Before proceeding, however, some background information may be in order. First of all, one has to recognize that there is a big gulf between what might be called the "pre-war" economists and the "post-war" economists. The dividing line between the two is roughly whether one was born before or after the end of the First World War. Those who were born "before" were already active in the pre-Pearl-Harbor years, whereas those who were born "after" were mostly in their twenties or early thirties when Japan regained her independence in 1952. It is noteworthy that whereas the former group was oriented more towards the continental acculturation, the latter group, taking advantage of the U. S. GARRIOA and Fulbright Fund, flocked to the United States for post-doctorate academic training. The first of such trainees was Shin'ichi ICHIMURA (1925-) who went to the United States in 1950 as a GARRIOA fellow. Then, a new crop of able economists appeared on the horizon in the more recent years—those who were born after 1937 or so. In other words, it is convenient to classify Japanese economists by ages into three vintages: (1) the generation already active in the pre-war years, (2) the generation born between 1918 and 1937 and now in their prime, and (3) the younger generation who are at most in their forties now.

An exhaustive survey (in Japanese) of economic literature in Japan in the post-war period was published by the Union of the National Economic Associations in Japan with the cooperation of the member associations (numbering 31 now) of the Union, first in three volumes covering the period up to 1972 and then in an additional volume bringing the data up to 1980. Altogether they comprise 2,250 pages and are meticulously indexed.²⁾ Then, on the occasion of the Fifth World Congress of the International Economic Association in Tokyo

1) *Who's Who in Economics* (1983), edited by Mark Blaug and Paul Sturges, which selected the living economists for inclusion "on the grounds that they have had the greatest impact on their colleagues as revealed by the high frequency with which they are cited," lists only six Japanese economists who reside in Japan: Ken-ichi INADA, Ryūtarō KOMIYA, Takashi NEGISHI, Hirofumi SHIBATA, Shigeto TSURU and Hirofumi UZAWA. There are a few others listed in this biographical dictionary who are usually identified as Japanese economists but have apparently chosen to reside more or less permanently outside Japan, such as Michio MORISHIMA, Ryūzō SATO and Takeshi AMEMIYA.

2) *Keizaigaku no Dōkō*, Vol. 1, 1974, Vol. 2, 1975, Vol. 3, 1976, Tōyō Keizai Shimpō Sha, Tokyo, and *Keizaigaku no Dōkō, Dai 2shū*, 1982, Tōyō Keizai Shimpō Sha, Tokyo.

in 1977, the Union of the National Economic Associations brought out a much shorter bibliographical survey in a bilingual form, listing approximately 5,500 titles covering the thirty-year period from 1946 to 1975.³⁾ Again, the volume is conveniently indexed.

II The Old-Timers : Shibata and Yasui

Of the pre-war vintage there are not many who survived the war and kept on their professional works during the last two decades. It may be agreed that four names stand out in this regard: Kei SHIBATA (1902-), Hisao OTSUKA (1907-), Takuma YASUI (1909-), and Toshio FURUSHIMA (1912-). Of these, OTSUKA is an economic historian and FURUSHIMA is an agricultural economist while SHIBATA and YASUI are in the field of theoretical economics.⁴⁾

SHIBATA's name came to be known outside Japan⁵⁾ when Oscar Lange, in his article "Marxian Economics and Modern Economic Theory" (*The Review of Economic Studies*, June 1935),⁶⁾ referred to SHIBATA's article "Marx's Analysis of Capitalism and the General Equilibrium Theory of the Lausanne School" (*Kyoto Economic Review*, July 1933) as having stimulated him to write his paper, and cleared the deck by formulating the problem in terms of data and variables in economic theory, contending that Marx's success in long-run prognostications was due to his particular attention to the treatment of his data. Or, phrased otherwise, Lange's point was that Marx regarded as variables of his system that which was generally considered as "given" data by modern economists.

As a matter of fact, SHIBATA was in the process of completing his *opus* at the time, which went far beyond the article in *Kyoto Economic Review* and was brought out in a monumental two-volume work: *Riron Keizaigaku* (Theoretical Economics), 1935-36, which, it used to be said, no one had enough patience to read through. The methodology adopted by him in these volumes was to restate and simplify the Walrasian system of equations so as to make it apply them practically, especially with a view to analyzing dynamic trends of capitalism. A model he had in mind at the opposite end of Walras' was the Marx's two-department reproduction scheme, to which he made the following important modifications: (1) the dimension is to be in prices and not in values; (2) the average rate of profit rules rather than the rate of surplus value; and (3) five departments, rather than two, are postulated, namely: (a) the production of money, (b) the production of wage goods, (c) the production of producer's goods for (b) and for itself, (d) the production of goods consumed by capitalists only, and (e) the production of producer's goods for (d) and for itself. He justified this scheme by proving first that the price dimension was adequate enough in the analysis of economic events.

With this model as the basic tool of analysis, SHIBATA proceeded critically to examine

3) *Bibliography of Japanese Publications on Economics, 1946-1975*, 411pp., University of Tokyo Press, 1977.

4) One could mention the names of several others, such as Kōzō UNO (1897-1977), a most original Marxist economist; but as I said at the outset, I am confining my survey to living economists.

5) His name would have been known sooner abroad if he had published his critical essay on Gustav Cassel's "Der Mechanismus der Preisbildung" in a western language. SHIBATA's article on this subject appeared in Japanese in *Keizai Ronsō*, Vol. 30, No. 6, 1930 and pointed out a flaw in Cassel's system of equations—a flaw which was later confirmed by Stackelberg in his "Zwei Kritische Bemerkungen zur Preistheorie Gustav Cassels," *Zeitschrift für Nationalökonomie*, Bd. IV, 1933. Apparently, Stackelberg did not know that SHIBATA made the same point three years earlier.

6) Reprinted in *Marx and Modern Economics*, edited by David Horowitz, 1968, pp. 68-87.

practically the whole range of theorems advanced by theoretical economists starting from Ricardo and Marx onwards. One example of such critical analysis, which came to be widely discussed in Japan, was his "proof" that Marx was wrong in stating that the profit rate would decline as a result of a rise in the organic composition of capital.⁷⁾

As early as at the beginning of 1930's, in the midst of the Great Depression, SHIBATA was engrossed in another problem which he carried on into the post-war period. That was what might be called the "global Marshallian k ," or the ratio between the amount of existing monetary gold and the amount of total transactions (both in the non-Soviet world). He suspected that in the long run the value of k tended to be more or less constant and that although it might rise in the depression years it would necessarily fall when a critically high level was reached. He tested this hypothesis by making a most elaborate statistical analysis⁸⁾ and felt sufficiently assured with the result to proclaim what he called "the long-run law of constant velocity." On the basis of this law he not only predicted in 1932 that the world depression would come to an end within a year or two but also made a historical analysis of business cycles and made some policy recommendations.

SHIBATA spent a couple of years abroad during 1936-37, first at Harvard University and then in Europe. It was during this sojourn abroad that he encountered "the Keynesian Revolution," living in close association at Harvard with those young economists "under the age of 35" who, according to Paul Samuelson, were "caught with the unexpected virulence of a disease first attacking and decimating an isolated tribe of a south sea islanders." SHIBATA was then "under the age of 35," but was different from beginning. He harbored some grave doubts as regards the message of *The General Theory* and immediately wrote a few articles for publication in Japan and continued his critique of Keynes persistently until he finally produced a volume: *Beyond Keynesian Economics*, first in Japanese (in 1976) and then in English in a summarized form.⁹⁾

Thrust of SHIBATA's Keynes-critique was two-fold: (1) that Keynes erred, in his analysis of the mechanism determining effective demand, when he postulated a certain propensity among people in their saving behavior and also a declining trend in private investment; and (2) that he neglected, in his theory, the role played by the category of primary (or original) resources such as irreplaceable resources like oil and non-quantifiable resources like clean water and air. Because of these failures there were some by-products of the Keynesian policy, such as: (1) *stagflation* as a result of policy-reliance on aggregative demand stimulation through lowering of the threshold of tolerance on price rise, and (2) *squandering of primary resources* as a result of commendation of consumption in particular. Both of these by-products,

7) Cf. "On the law of decline in the rate of profit," *Kyoto University Economic Review*, July 1934. This article was revised in "On the general profit rate," *Kyoto University Economic Review*, January 1939, which subsequently was translated into Italian and included in *Accumulazione del Capitale e Progresso Technico*, edited by E. Screpanti and M. Zenezini, 1978.

8) A summary of this statistical study is given in SHIBATA, *A Contribution to the Theoretical Study of Monetary Inequilibrium and Economic Growth* (in English), 1962, pp. 112-119. He was making a special study on this subject for Japan during the war; but most unfortunately, the more-than-half-completed research material—the product of most painstaking statistical computations—was burned in the air raid fire and permanently lost.

9) Earlier in 1959, however, he published a volume in English entitled: *Dynamic and Dialectic Theories of World Capitalism* (Minerva Shobō, Ltd., Kyoto), in which he brought out, in a systematic form, major concepts and ideas of his up to that time, including his critique of Keynes and Marx as well as his own "dynamic theory of capitalism."

SHIBATA thought, stemmed from the overriding concern which Keynes had with the effective demand aspect of economic problems.¹⁰⁾

The second of the by-products was a starting point for SHIBATA in developing the concept of "the law of calamitous depletion." The idea came to his mind, according to his autobiographical account,¹¹⁾ during the time when he had to run through his inherited assets from his father in covering debts incurred in connection with his entrepreneurial interlude as a manufacturer of storage batteries.¹²⁾ In other words, his awareness of this problem of "calamitous depletion" (or that of global ecological limitation) dates back to the 1940's—that is, before, or at least independently of, either Boulding's "Spaceship Earth" idea or Geogescu-Roegen's "bioeconomics." His thought matured itself into a book form only in 1973;¹³⁾ but on this subject SHIBATA did not have an opportunity to spell out his ideas in English until he made a brief reference to it in *Beyond Keynesian Economics* in 1977.

One other important corollary for SHIBATA in this connection was the shifting of attention from the enjoyment of consumption to that of production, somewhat reminiscent of Irving Fisher's position. Here lies, however, an intricate problem of alienation which is one of his latest concerns as an economist although he wrote a lengthy article¹⁴⁾ way back in 1956 on the subject of "Human Emancipation of Labor" showing early awareness of the problem. Stated briefly, his thesis is that "the pursuit of happiness in *consumption* rather than in *productive labor* is an act of *animal* with human face, for man is a societal existence

10) Martin Bronfenbrenner, after perusing over SHIBATA's *Beyond Keynesian Economics*, wrote "A Statement on Shibata" in which, *inter alia*, the following remarks were made:

"In fact Shibata has, in re-examining Keynes and penning *Beyond Keynesian Economics*, juxtaposed the theory of the late 1930's with the facts of the late 1970's. This will doubtless seem a peculiar task, even a waste of time, for those who pride themselves on keeping up with the latest intellectual fashion. But I am not so sure. Shibata asks what is left of the *General Theory* if one assumes that workers through their unions bargain not only for real wages—Keynes' original heresy was to assume them afflicted with "money illusion" — but for *rising* real wages (and *rising* share of the national income!) in a welfare-state context which both "generates" high employment at whatever cost and subsidizes refusal to accept low-wage, "degrading" or "non-meaningful" employ work? Not much, concludes Shibata (with Schumpeterian overtones) but inflation, moral flabbiness, and a general reluctance to save and invest.

"But why, Shibata continues, did all this not become apparent much earlier than it was. Basically because, in his opinion (with overtones, this time, of Michal Kalecki's distribution theory) there were foreigners to be squeezed, namely the raw-material producers in the less-developed countries for the benefit of the labor aristocrats of the developed ones. When these victims too became organized as in OPEC particularly, the structure of theory and policy both collapsed. Lord Keynes now stands exposed as an evil genius or pied piper constructing what he planned as a general theory of income and employment on no firmer foundation than the Britain of 1925-35, following Winston Churchill's unfortunate efforts at gold deflation.

One need not agree with all of this or with the accompanying omission of other dominant strokes or Keynes-Kritik, and indeed I do have my serious doubts. But it is certainly a serious piece of serious analysis to be reckoned with. We should all join in a note of thanks to Professor Shibata, now in retirement, for straining both his intellectual power and his rusty English to bring it to the attention of the world economic community in his monograph, *Beyond Keynesian Economics*.

This "statement", dated 24 August 1977, was made public in SHIBATA's *Keizai no Hōsoku o Motomete* (In Search or Economic Laws), 1978, p. 179, in the original language.

11) *Keizai no Hōsoku o Motomete, op. cit.*, pp. 103-6.

12) SHIBATA was purged by the occupation authorities on account of his positive attempt to transform the Sino-Japanese War into what he thought to be a progressive cause, and spent some years (until August 1951) as an innovator-entrepreneur with a remarkable invention to his credit of light-weight storage batteries with less than half the weight for the generating capacity of older types. His products were welcomed and used by coal miners. But his enterprise failed when he tried to expand it to produce electric automobiles.

13) *Chikyū Hakai to Keizaigaku* (Destroying of the Globe and Economics), 1973.

14) 'Ningenteki Kaihō Ron' (On Human Emancipation of Labor), *Yamaguchi Keizaigaku Zasshi*, 1956.

and productive labor is a mode of action verifying this fact of societal existence through participation in cooperative endeavor in the production of material basis for man's societal subsistence."¹⁵) How to organize our society in such a way that engagement in productive labor becomes a source of one's enjoyment and worth, SHIBATA believes, is the ultimate mission of social scientists. A convenient summary of SHIBATA's life work as an economist is given in *Tenkanki no Keizaigaku* (Economics in Transition), 1978, which is the compendium of his last lecture course in economic theory at Aoyama Gakuin University.

When Ichirō NAKAYAMA (1898–1980), the first president of the Japanese Association of Theoretical Economics, went to Bonn to study under Schumpeter in 1927, the latter asked him which economic classics he had read. NAKAYAMA replied: "Gossen, Cournot and Walras." Schumpeter, visibly taken aback by this response, hastened to ask who the mentor was. It was under the guidance of Tokuzō FUKUDA (1874–1930) that young NAKAYAMA chose his area of concentration; and subsequently he became a leader of theoretical economics in Japan, encouraging his colleagues and students to make a thoroughgoing study, in particular, of Leon Walras' general equilibrium theory.

Takuma YASUI, who probably more than any other Japanese economist qualifies to be counted as one "who walks sure-footedly through the controversial marshes of modern economics" (Samuelson), made up his mind quite early after his graduation (1931) from Tokyo University to concentrate on Walras and visited NAKAYAMA in 1932, who then was teaching in Tokyo University of Commerce (now, Hitotsubashi University). YASUI has been wont of quoting a dictum of Archilochus to the effect that "the fox knows many things—the hedgehog one *big* one," and has never drifted away from "one big" road he planned for his academic pursuit. His profound interest in Wittgenstein and logical positivism is closely related to the type of theoretical economics of his concern. YASUI succeeded NAKAYAMA as president of the Japanese Association of Theoretical Economics,¹⁶) and in 1971 he was awarded an Order of Cultural Merits—the second economist given this honor after Shinzō KOIZUMI (1888–1966), the third being Michio MORISHIMA (1923–) in 1976. No one will dispute the fact that YASUI was a major source of inspiration for burgeoning theoretical economists of the post-war Japan (the vintage I referred to earlier—i. e. the generation born roughly between 1918 and 1937), ready to offer encouragement as well as criticism with unselfish zeal.

15) *Keizai no Hōsoku o Motomete, op. cit.*, p. 165.

16) His presidential address was entitled "Modern economics and logical positivism," included in his collection of essays: *Keizaigaku to sono Shūhen* (Economics and its Related Areas), 1979, pp. 105–137. YASUI's professional writings are collected in three-volume publications: *Yasui Takuma Chosakushū* (Collected Works of Takuma Yasui), 1970, 1971, Sōbunsha, Tokyo. There are 36 articles of his reprinted in these collections, of which the following seven are in English (with the years of publication or writing in brackets):

Self-excited Oscillations and the Business Cycle (1961)

Existence of Stationary Equilibrium in the Walras-Wicksellian Model of Production (1962)

On an Åkerman-Wicksellian Model of Capital Accumulation (1964)

A Note on Metzlerian Matrix (1964)

The CES Production Function: a Note (1965)

The Long-run Equilibrium in Kaldor's Growth Model (1965)

Revealed Preference and Utility Representation (1967)

There is another collection of his interview essays: *Kindai-Keizaigaku to Watakushi* (Modern Economics and Myself), 1980, which is quite revealing of his pilgrimage as an economist.

YASUI set upon himself the task of "re-appraising Walras in the light of post-Walrasian development of modern economics" and of "re-casting modern economics on the Walrasian foundation" and apparently drafted a plan of work in five instalments, namely:

- A. Pure economics and the theory of prices
- B. The theory of imputation and the marginal productivity theorem
- C. The element of time and the interest on capital
- D. Money and economic equilibrium
- E. Equilibrium analysis and process analysis

This was a grandiose plan; but he completed his works from (A) to (D) above by 1938, publishing the fruits of his endeavor one after another in the page of *Keizaigaku Ronshū*, an organ of Tokyo University Economics Department.¹⁷⁾ The last of the quintology was to be concerned with "la théorie du tâtonnement"; and he was hoping to bring out the whole thing in a book form when this instalment would have been completed. Meanwhile, Keynes' *General Theory* appeared in 1936 and attracted the zealous attention of economists in Japan also. But YASUI, while sparing his energy commensurably to the importance of Keynes' new book, did not swerve from his main road of completing the quintology. What arrested his pen in the midst of his work on "tâtonnement" theory was the appearance of Hicks' *Value and Capital* in 1939. He recalls that it was a shock for him to realize that his endeavors had been basically confined to static theory, whereas Hicks was unravelling "the laws of change" by making use of stability conditions both of subjective equilibrium and market equilibrium.¹⁸⁾ He wrestled with Hicks' book intensively for a while and finally completed the instalment (E) above in 1940,¹⁹⁾ but was not completely satisfied with it and gave up the idea, then, of publishing the quintology in a book form. He revised this 1940 article in 1958 for his own satisfaction in his contribution to *Festschrift* for Ichirō NAKAYAMA.²⁰⁾

After his encounter with Hicks' *Value and Capital*, YASUI was deeply impressed with the importance of E. Slutsky's work²¹⁾ and devoted his energy untiringly, during the war years, to the various problems raised by this Russian statistician-economist. Starting with "The law of demand" (1940), YASUI wrote four articles in this connection before the end of the war, one of which "A consideration on related goods" (1943) is still considered to be a path-breaking contribution. His preoccupation with such abstract theoretical matters was not conducive to his promotion at Tokyo University; and he moved over to Tōhoku University, Sendai, in 1944.

In Sendai, YASUI worked, quite undisturbed by the immediate post-war hubbub, mainly on the problems related to stability conditions. It was before he had a chance to read Samuelson's *Foundations of Economic Analysis* that he published a lengthy article: "The dynamic stability condition of economic equilibrium" (*Keizai Shichō*, September 1948), in which, quite independently either of M. Morishima or R. Goodwin, he applied the matrix theory of Fro-

17) They are included in *Yasui Takuma Chosakushū*, Volume One, 1970, and cover altogether 292 printed pages of that volume. The original years of publication are: 1933 for (A), 1934 for (B), 1936 for (C) and 1938 for (D).

18) Related in his interview with Tadashi Hayasaka in *Kindai Keizaigaku to Watakushi*, *op. cit.*, pp. 72-3.

19) Reproduced in *Yasui Takuma Chosakushū*, Volume One, pp. 353-472.

20) 'A reflection on the Walrasian System,' reproduced in *Yasui Takuma Chosakushū*, Volume Three, 1971, pp. 3-19.

21) Eugenio Slutsky, "Sulla teoria del bilancio del consumatore," *Giornale degli Economisti*, LI, 1915.

benius²²⁾ and further made an innovative discovery that the stability condition for the difference-equation type reduces itself mathematically to the conditions elucidated by J. Schur and A. Cohn.²³⁾ YASUI wrote a letter to Samuelson on this and received a reply from the latter which acknowledged YASUI's priority and suggested him to write on it for *Econometrica*. But YASUI would not do this, believing as he did that the question of priority in such matters—i. e. a rediscovery of a mathematical theorem for application in economic theory—was not very important in any case.²⁴⁾

YASUI took the same position when he "discovered" Liapounoff's "Problème général de la stabilité du mouvement"²⁵⁾ in 1949 as applicable to the solution of the stability for non-linear systems. He wrote a lengthy paper "A general theory of stability"²⁶⁾ in 1949, incorporating Liapounoff's theory of stability into the theoretical discussion of the stability in economics. But he never chose to have even a summary of it published in English. Thus it is generally conceded that priority in the "rediscovery" of Liapounoff's theory resided in an article by Arrow and Hurwitz in 1958.²⁷⁾ YASUI went on to develop his ideas and wrote articles in succession (in 1952 and 1953), both of which were related to the problem of self-excited oscillations. For this, he agreed to have a condensed English version made; and it is available as a Cowles Commission Discussion Paper: Economics No. 2065, 1953; and also it is included in his *Collected Works* in English with some revisions. Kaldor referred to this work in the introduction of his *Essays on Economic Growth and Stability*, 1960.

His Sendai years (1944-1965) were probably the most productive ones for him. He kept on extending his theoretical endeavors into the problem areas dealing with the Walras-Leontief system, Kaldor's growth model, an Åkerman-Wicksellian model of capital accumulation, etc., while concerning himself with the task of broadening the framework of economic theory to encompass those problems outside the price mechanism into the coherent theoretical structure of modern economics. He moved over to the Institute of Social and Economic Research, Osaka University, in 1965²⁸⁾ and maintained there an inspirational leadership among the younger generation of theoretical economists in Japan, notably Michio MORISHIMA, Hisao KUMAGAI, Ken'ichi INADA, Masahiro TATEMOTO, Shin'ichi ICHIMURA, Yōichi SHINKAI, Jinkichi TSUKUI and others.²⁹⁾

YASUI's interests widened in more recent years, as stated earlier, to the sphere of phi-

22) G. Frobenius, "Über Matrizen aus positiven Elementen," *Sitzungsberichte der Königlich Preussischen Akademie der Wissenschaften*, Jahrgang 1908, SS. 471-476.

23) Actually, YASUI owes this discovery to Dr. Matsusaburo FUJIWARA, a mathematician. Cf. J. Schur, "Über Potenzreihen, die im Innern des Einheitskreises beschränkt sind," *Journal für die reine und angewandte Mathematik*, Bd. 148, SS. 122-145 and A. Cohn, "Über die Anzahl der Wurzeln einer algebraischen Gleichung in einem Kreise," *Mathematische Zeitschrift*, Bd. 14, 1922, SS. 110-148.

24) He stated this position in his interview with Tadashi Hayasaka in *Kindai Keizaigaku to Watakushi*, *op. cit.*, p. 125.

25) *Annales de la faculté des sciences de l'Université de Toulouse*, 2e série, Tome IX, 1907, pp. 203-469. The original book-length article was written in Russian in 1892.

26) "Antei no ippan-riron," *Rikonkeizaigaku*, Vol. 1, January 1950.

27) K. Arrow and L. Hurwitz, "On the stability of the competitive equilibrium, I," *Econometrica*, XXVI-4, 1958.

28) YASUI had held a post of concurrent professorship at Osaka University for several years since 1948, but decided to leave Tōhoku University in 1965 in favor of Osaka on the most earnest request from MORISHIMA in particular.

29) YASUI's influence, of course, went beyond the place where he taught. Takashi NEGISHI of Tokyo University, in particular, has been a close disciple of YASUI in the theoretical field.

lology of science, in particular to logical positivism, and, apparently through this interest, to a historical study of "Fin-de-Siècle Vienna."³⁰⁾

III Theoretical Analyses Based on Empirical Research

It was quite symptomatic that in the latter part of 1960's a number of young Japanese economists, either on their return from abroad or while residing abroad, aired their dissatisfactions with the general state of economic research in Japan. Michio MORISHIMA (1923-) opened the salvo by sending a series of correspondence from Oxford in 1957,³¹⁾ criticizing sharply the prevalent propensity of Japanese economists to depend on derived authority of foreign scholars. This was followed, notably, by Ryūtarō KOMIYA (1928-), who, after three years' stay in the United States from 1956 to 1959, came back to Japan to read a paper³²⁾ in the annual meeting of the Japanese Association of Theoretical Economics, in which, *inter alia*, he particularly pointed out the importance of fact-finding studies as an integral part of theoretical research.

The clarion call sounded by KOMIYA was echoed by several others immediately and the decade of 1960's opened with refreshed awareness among Japanese economists to the need for developing their discipline in a number of directions on their own, in particular, with serious concern with empirical research. One of these was a group research project guided by Kazushi OHKAWA (1908-) of the Institute of Economic Research, Hitotsubashi University which led to the compiling of monumental historical economics statistics of Japan.³³⁾ While engaged in this time-consuming statistical work, OHKAWA made numerous contributions in the field of historical analysis of the process of economic development in Japan, and his name is a familiar one abroad as co-author with Henry Rosovsky in writing *Japanese Economic Growth*, Stanford University Press, 1973, as well as a number of articles in *Economic Development and Cultural Change*.³⁴⁾ But before these cooperative works with Rosovsky, OHKAWA had published in English *The Growth Rate of the Japanese Economy since 1878* in 1957,³⁵⁾ and Kuznets had found in him a promising collaborator in Japan. Thus, the time was ripe by 1966 for Kuznets and OHKAWA to plan an international conference in Tokyo on the subject of "Economic Growth—A Case Study of Japan's Experience," proceedings of which were published in English in 1968 under the editorship of Lawrence Klein and OHKAWA³⁶⁾

30) This side interest of his motivated him to translate into Japanese Carl E. Schorske's Pulitzer-Prize book: *Fin de siècle Vienna: Politics and Culture* (1980) and led him to visit Vienna twice in the last three years.

31) "Letters from Oxford," (in Japanese), *Keizai Hyōron*, July, August, September, November 1957.

32) Published in *Keizai Seminar*, January 1960 with a title of "On the economic research in Japan" (in Japanese).

33) *Chōki Keizai Tōkei—Suikei to Bunseki* (Estimates of Long-term Economic Statistics of Japan since 1868), edited by Kazushi OHKAWA, Miyohei SHINOHARA and Mataji UMEMURA, 14 volumes, 1965-1979, Tōyō Keizai Shimpō Sha, Tokyo. Many-sided analyses based on this statistical study were conducted again under OHKAWA's guidance and were published in a volume entitled: *Kindai Nihon no Keizai Hatten* (Economic Development of Modern Japan), edited by K. OHKAWA and Ryōshin MINAMI, Tōyō Keizai Shimpō Sha, 1975.

34) Such as "The role of agriculture in modern Japanese economic development" (October 1960) and "The indigenous components in the modern Japanese economy" (April 1961).

35) OHKAWA published another book in English in 1972 entitled: *Differential Structure and Agriculture: Essays on Dualistic Growth*, Hitotsubashi Economic Series, No. 13.

36) *Economic Growth—The Japanese Experience since the Meiji Era*, a publication of The Economic Growth Center, Yale University, 1968. Non-Japanese participants included (besides Kuznets and Klein) M. Abramovitz,

and made a significant impact in promoting and advancing the study of Japan's growth process.

One of the new trends which were becoming evident from the latter part of 1950's was the broadening of the base of economic research activities into governmental and semi-governmental agencies and private organizations; and the English term "economist" came to be applied to the experts working in these agencies and organization while the Japanese term "keizaigakusha" was reserved for academic economists—a unique distinction which may be found only in Japan. Again, however, OHKAWA played the role of a pioneer in marrying the two camps, so to speak, by accepting in 1958 the post of directorship in the Institute of Economic Research of Economic Planning Agency of Japanese government and by bringing able, young experts from the both camps onto the same table in stimulating interchange.

Closely associated with OHKAWA at Hitotsubashi University were Miyoei SHINOHARA (1919–) and Shōzaburō FUJINO (1927–), both of whom made significant contributions in the sphere of theoretical analyses based on empirical research. SHINOHARA, in particular, was one of the first, in the post-war period, to recognize the importance of fact-finding in economics and formulating refutable hypotheses in terms of empirical data. He followed the foot step of OHKAWA to become director of the Institute of Economic Research, Economic Planning Agency, in 1970; but before this time, he wrote a number of quite original articles on such subjects as "the dual structure of the Japanese economy," "the undervaluation of the yen exchange rate," "the medium-term cycle," etc. There are three books written in English by him; i. e., *Growth and Cycles in the Japanese Economy* (1962),³⁷⁾ and *Structural Changes in Japan's Economic Development* (1970), both of which were published in Economic Research Series of Hitotsubashi Institute of Economic Research, and the third one: *Industrial Growth, Trade, and Dynamic Patterns in the Japanese Economy*, University of Tokyo Press, 1982. Actually, no one can rival with him in the critical and broad grasp of manifold economic statistics of Japan; and he now heads, succeeding Ichiro NAKAYAMA, the Statistical Research Institute of Japan.

FUJINO is less well-known abroad because he has been in the habit of publishing most of his works in Japanese. His fame as a brilliant economist was first established in Japan immediately after he brought out his *opus*: *Nihon no Keiki Junkan* (Business Cycles in Japan) in 1965, which had, ambitiously enough but quite justifiably, a subtitle like that of Schumpeter's *Business Cycles*, namely: "Theoretical, Statistical and Historical Analysis." Empirical research, especially as regards inventory cycles, construction cycles and investment cycles in general, was largely the product of his own labor; and on the basis of these data, FUJINO developed a theoretical framework in which (1) the Keynesian multiplier theory was generalized with the inclusion of price effects, (2) the quantity of money hypothesis was synthesized with

M. Bronfenbrenner, R. W. Goldsmith, D. W. Jorgenson, R. C. O. Matthews, Hugh Patrick, K. N. Raj, G. Ranis, H. Rosovsky and several others, whereas among Japanese were many of the names mentioned in this survey in other connections, such as Shozaburō FUJINO, Shin'ichi ICHIMURA, Ryutaro KOMIYA, Miyoei SHINOHARA, Masahiro TATEMOTO and Tadao UCHIDA. Another international conference was held in Tokyo in 1972 on the same subject by more or less the same group and the proceedings of the meeting were published as *Patterns of Japanese Economic Development—A Quantitative Appraisal*, edited by K. OHKAWA and M. SHINOHARA, a publication of The Economic Growth Center, Yale University, 1979.

37) This is a revised version of his major work in Japanese: *Nihon Keizai no Seichō to Junkan*, 1961, Sōbunsha, Tokyo.

the Keynesian theory, introducing the concept of "money multiplier," and (3) technological innovation was highlighted in the analysis of investment cycles. The theoretical part of this book was somewhat streamlined nine years later and was published in English with the title of *A Neo-Keynesian Theory of Inflation and Economic Growth* (Springer-Verlag, 1974) and was developed further in another book in English: *A Neo-Keynesian Theory of Income, Prices and Economic Growth* (Hitotsubashi Economic Research Series, No. 15, 1975). Since then, however, FUJINO kept on producing, quite energetically numerous articles in Japanese in the field of monetary economics. By the end of February 1984 he has finished serving his term as director of the Institute of Economic Research Hitotsubashi University.

A contemporary of SHINOHARA, cited above, and another of the economists who have distinguished themselves in the work of theoretical analysis based on empirical research is Yoshikazu MIYAZAKI (1919-). Aside from his interest and contribution in the history of doctrines, both neo-classical and radicalist, he has continued, ever since the early 1950's, to make the theoretico-empirical analysis of Japanese capitalism, in particular, that of characteristic behavior patterns of big business in Japan after the dissolution of earlier *Zaibatsu* monopolies (the giant family trusts). The first in the series of his publications in this field was on "Logic and reality of 'excessive competition'—an elucidation of the systematized mechanism of control" (in Japanese) in 1962,³⁸⁾ which attempted to bare the secret of rapid growth of the economy led by private capital formation. He advanced a hypothesis called "one-set control policy" of giant corporations to explain the phenomenon of each spreading out its tentacles into all the major innovative industries, with thorough documentation and lucid exposition of the supporting mechanism for the success of such behavior. This was the beginning of MIYAZAKI's tireless labor in the analysis of the post-war Japanese capitalism, which yielded a series of books and research reports in succession (unfortunately all in Japanese).³⁹⁾ Of these, *Gendai no Nihon Kigyō o Kangaeru* (A Reflection on the Nature of Present-day Japanese Corporate Firms), 1974, was the most representative, in which he advanced, and empirically attempted to prove, a unique hypothesis to the effect that many of the corporate firms in Japan in the recent period, while borrowing a great deal from financial institutions, made use of their internal savings for profitable investment abroad and also for real estate in Japan and became the target of criticism especially by southeast Asian countries for their semi-colonialistic pattern of behavior. MIYAZAKI's painstaking analysis of Japan's corporate structure has been continued in the subsequent years mainly in the direction of examining the power structure of major interest groups in the Japanese capitalist society, extending his purview into Japan's multinational corporations. His publication in 1976 entitled *Sengo Nihon no Kigyō Shūdan* (Corporate Interest Groups in the Post-war Japan) is actually reminiscent of the TNEC Reports of 1930's in the United States in its scope and empirical thoroughness and gives a great deal of insight into the extent of "managerial revolution" which exists in Japan today. MIYAZAKI has continued his theoretico-empirical research along this line and produced a series of reports successively as KIER (Kyoto Institute of Economic Research) papers, the latest of which deals with the

38) Published in the 1962 autumn special number of *Ekonomisuto* and awarded the "Ekonomisuto Prize" of the year.

39) Except there are available two of his articles in English: "The Japanese-type structure of big business," Reprint series of Kyoto Institute of Economic Research, No. 101, 1975, and "A new price revolution," Reprint series of Kyoto Institute of Economic Research, No. 108, 1975.

"estimation of power relations among corporate interest groups in 1980." The inference drawn from this study is extremely interesting as regards the interlocking relations of "power-élites" quite reminiscent of the erstwhile ZAIBATSU structure. His treatment of multinational corporations as an important aspect of the present-day capitalism is given in *Gendai Shihon-shujgi to Takokusekikigyō* (Present-day Capitalism and Multinational Corporations), Iwanami, 1982, which remains unrivalled in Japan in its comprehensiveness and penetrating analysis.

The field closely related to that of MIYAZAKI is the problem of industrial organization. The decade of 1960's in Japan was still a cradle period, so to speak, in this field, the period during which Joe Bain's classical work (*Industrial Organization*, 1959) was being digested and discussed. But with the opening of the decade of 1970's, a number of young economists began tackling the problem in their original way and developed the field in manifold directions. Prominent among these were Ken'ichi IMAI (1931-), who published his *Gendai Sangyō Soshiki* (Contemporary Industrial Organization) in 1976, and Masu UEKUSA (1937-), who, after collaborating with Richard Caves in writing *Industrial Organization in Japan*, Brookings Institution, 1976, wrote his own book: *Sangyō Soshiki Ron* (A Treatise on Industrial Organization), 1982. IMAI's book, it is said, raised the level of Japanese research on the subject to the international standard of excellence by incorporating a method of analyzing the subject matter in a "dynamic" context, while broadening the vista to cover international cartels and natural resources problem. UEKUSA is much more orthodox in the tradition of Bain's work, but the unique feature of his work lies in his synthesizing the warp of historical analysis of Japan's industrial organization with the woof of international comparison.

Inevitably the flourishing days of econometric models came to Japan, what with the cropping up of a large number of young economists with adequate mathematical training and with the institutional backing for such studies which in fact were indispensable. Essential, of course, for such econometric studies was the development and refining of national income statistics in Japan, for which Yūzō YAMADA's contribution in 1951⁴⁰) served as a jumping board for many-sided attacks on the subject by both academic and governmental economists in the subsequent years. Thus the ground was prepared for the birth, simultaneously in the latter part of 1950's, of the first macro-model of some significance in Japan, developed by Tadao UCHIDA (1923-) and Tsunehiko WATANABE (1926-1976), and of the first input-output table for the Japanese economy compiled with the financial backing of the Ministry of International Trade and Industry. In this latter project, Isamu YAMADA (1909-) and Shin'ichi ICHIMURA (1925-)⁴¹) played a very important role. As for the macro-model referred to above, it had only five structural equations entailing five aggregative demand component, i. e., consumption, investment in plant and equipment, residential construction, inventory investment and imports. But this was the beginning of a rich harvest of model-building in the decade of 1960's, culminating in the construction in 1965 of the so-called "Middle-term Economic Planning Model," sponsored by the Economic Planning Agency of Japanese government with professional participation of UCHIDA, WATANABE and Masahiro TATEMOTO (1924-)⁴²) The unique characteristic of this model consisted in its

40) *Nihon Kokumin Shotoku Suikei Shiryō* (Data Book for the Estimation of Japan's National Income), edited by Yūzō YAMADA, 1951, Tōyō Keizai Shimpō Sha.

41) ICHIMURA's book: *Nihon Keizai no Kōzō—Sangyō Renkan Bunseki* (The Structure of the Japanese Economy—The Analysis of Interindustrial Relations), 1957, was a pioneering contribution in this field.

42) The model is described in detail in "A stabilization model for the postwar Japanese economy: 1954-1962," *International Economic Review*, February 1967.

attempt to incorporate a definite vision of rapid economic growth within the model by adopting (1) the Phillips-Lipsey hypothesis as regards the determination of wage rate and (2) the Robinson (Joan)-Kaldor hypothesis as regards the determination of profits as being dependent on the rate of investment.

Numerous models were constructed since that time, proliferating into specific-purpose models such as for (1) short-term forecasting, (2) long-term forecasting, (3) policy analysis, (4) regional economic planning, (5) financial market, (6) foreign trade, etc. Finally, Jinkichi TSUKUI (1926-), in particular, constructed a turnpike model based upon the input-output table⁴³⁾—an attempt which theoretically is quite promising but is not yet ready for practical application

IV Economic Theorists

Since this survey is intended to acquaint non-Japanese readers with the achievements of the Japanese economists in the recent decades whose normal practice is to publish their works mainly in Japanese, it becomes easier for the present writer to be brief in commenting on *theoretical* economists who seem generally to have ready access to the pages of western language journals. For this reason, it may be warned at the outset of this section that the brevity of account is no reflection on the relative distinction which is due to them.⁴⁴⁾

Among the theorists of the second vintage, referred to earlier, the most outstanding, it may be agreed, is Michio MORISHIMA (1923-) who has proved through his work, better than any others, that mathematics is *only* a tool for economists and not the other way around.⁴⁵⁾ As my earlier survey article⁴⁶⁾ made it clear already, he was actually the first Japanese economist to contribute an article to *Econometrica* (April 1952), and since then he kept on publishing most of his works in English either in the form of articles or books,⁴⁷⁾ especially after he moved over to England, first to University of Essex (1968-70) and then to the London School of Economics (1970-). Special fields in which he distinguished himself have been the multi-sectoral theory of growth, simultaneous optimization of population and capital, and, in particular, various aspects of the dynamic process of economic development.⁴⁸⁾ While engaged in these subjects, however, MORISHIMA became interested in the Marxian economics as early as the late 1950's; and applying his analytical

43) Cf. J. TSUKUI, "Application of a turnpike theorem to planning for efficient accumulation: an example for Japan," *Econometrica*, January 1968.

44) Furthermore, the economists chosen for comment in this section are still relatively young (those who were born in 1923 or later), and assuredly they will continue their active life as economists for a decade or two more.

45) He himself wrote that "there are two types of mathematical economists, one who applies existing mathematics to economic problems (the best example is Cournot) and the other who anticipates new mathematical problems within economics." ("Marx in the light of modern economic theory," *Econometrica*, July 1974, p. 611) It can be inferred that he aspires to be the latter.

46) "Survey of economic research in postwar Japan," *The American Economic Review*, June 1964, pp. 82-3.

47) Two major publications of his (in English) may be mentioned here: *Equilibrium, Stability and Growth*, 1964, and *The Theory of Economic Growth*, 1969. However, his first book-size publication was in Japanese: *Dōgakuteki Keizai Riron* (Dynamic Economic Theories), Kōbundō, 1950.

48) Such as: "Prices, interest and profits in a dynamic Leontief system," *Econometrica*, XXVI-3, 1958; "Economic expansion and the interest rate in generalized von Neumann models," *Econometrica*, XXVIII-2, 1960; "Refutation of the non-switching theorem," *Quarterly Journal of Economics*, LXXX-4, 1966; "Proof of a turnpike theorem: the 'no joint production' case," *Review of Economic Studies*, XXVIII-2, 1961 and many others.

power, he attempted to draw out from Marx what was relevant even in terms of modern economic theory. He brought together his earlier reflections in a book form in 1973 and wrote there that "it is no exaggeration to say that before Kalecki, Frisch and Tinbergen no economist except Marx had obtained a macro-dynamic model rigorously constructed in a scientific way."⁴⁹⁾ MORISHIMA kept on working on this theme and produced another book⁵⁰⁾ in 1978 in collaboration with G. Catephores, in which he wrote (as a preface to the Japanese translation) that "if we are to compare mathematical economics with Marxian economics, the former is like violin solo playing while the latter is like the orchestral performance.....thus far, I have been a soloist; but I hope, some day, that I may be able to compose an orchestral piece and to perform as a conductor."

Between these two books, there was a process of evolution in MORISHIMA's thinking on Marx, bridged by his Inaugural Lecture at the London School of Economics on 15 November 1973.⁵¹⁾ Probably the greatest contribution of MORISHIMA in this connection is the formulation of the generalized fundamental Marxian theorem, which rescues the Marxian theory of exploitation from the theoretical difficulties attendant on the cases when joint production and choice of techniques are admitted. His earlier pessimism as regards the viability of the Marxian labor theory of value was reversed in the second book through the refining of the concept of "optimum values" by means of the von Neuman approach.

More recently, MORISHIMA made public in Japanese his lecture notes of "Economics B" for the London School of Economics in a systematic text-book form,⁵²⁾ which clearly represents a unique innovation in the text-book writing.

The International Economic Association was founded in 1950 at the instigation of the Social Sciences Department of UNESCO, and now 34 years have elapsed since then, during which time seven international congresses and upwards of seventy or more specialist conference have been held under its auspices. Most of the front-running economists of the world have participated in them; and yet, it is rather puzzling to be told that so few Japanese have been active there during all these years. One of the few is Ryūtarō KOMIYA (1928—) who served on the program committee of the 1974 congress which took up the subject of "Economic Integration: Worldwide, Regional, Sectoral." His name was mentioned earlier in this survey as having sounded the clarion call for the importance of fact-finding studies in economics on his return from his studies abroad in 1959. But essentially he is a theorist, bent always, with his sure-footed grasp of theoretical intricacies, to tackle the policy-oriented issues with a view to ascertaining the effectiveness of price mechanism.⁵³⁾ Practically no issues in the economic policy field have escaped his poignant, and yet balanced, critical scrutiny, ranging from monetary and fiscal policies, industrial organization, income distribution, the dual structure of the economy to the flexible exchange rate, multi-national corporations and environmental problems. In particular, his article on "'Monopoly capital' and the policy of income redistribution" (*Sekai*, March 1961) initiated a heated controversy in Japan at the time

49) *Marx's Economics—A Dual Theory of Value and Growth*, Cambridge University Press, 1973, p. 3.

50) *Value, Exploitation and Growth*, McGraw-Hill Book Co., 1978. The Japanese translation was published in 1980.

51) Published as "Marx in the light of modern economic theory," *Econometrica*, July 1974.

52) *Mushigenkoku no Keizaigaku* (Economics of Resource-Deficient Countries), Iwanami, 1984.

53) A systematic treatment of economic policy issues from this standpoint was developed by him in *Keizai Seisaku no Riron* (Theory of Economic Policy), co-authored with Ryūichirō TACHI, Keisō Shobō, Tokyo, 1964. This book is acknowledged to be a pioneering work in this field.

on the question of whether the profit rate earned by giant corporations was generally higher than that of small and middle size firms. It is typical of KOMIYA to deal with this type of problem with meticulous empirical scrutiny combined with open-minded search for theoretical implications.

The breadth of his work can be seen from the two collections of his articles, both published in 1975,⁵⁴⁾ one in the field of the analysis of various policy problems confronting the Japanese economy and the other in the field of international economy. Further, he was a member of "the United Nations Group of Eminent Persons to study the role of multinational corporations on development and on international problems," and his personal account, included in the latter book above, is quite revealing of his theoretical bent. The most recent of KOMIYA's work is a two-volume treatise on the contemporary international finance (written with the cooperation of Ms. Miyako Suda) published in 1983.⁵⁵⁾ The first volume of the treatise, deals with theories and the second with policies and historical survey; and with its thorough treatment of major problems in the field, it is counted as a major contribution in the postwar economic literature in Japan.

In the case of Hirofumi UZAWA (1928-), another one of the few Japanese economists who have participated actively in the conferences organized by the International Economic Association, academic activities began in the United States where he spent more than ten years (until 1969) in different capacities including professorship at University of Chicago. Thus his earlier theoretical writings were all in English, the first one of which was "A Note on the Stability of Equilibrium," *Technical Report*, XLIV, Stanford University, June 1957. Numerous articles he wrote subsequently while in the United States were concerned, in particular, with the analysis of the processes of economic growth in a competitive market economy, emphasis being placed upon the allocation of scarce resources between the production of consumption goods and investment goods.⁵⁶⁾ But since his publications during 1957 to 1969 were mostly in the pages of internationally circulating academic journals, the present survey, with the constraint referred to at the outset, may be excused from detailing his contributions in the field.

UZAWA is a graduate of the mathematics department of Tokyo University and was employed for a while in a life insurance company before he went to the United States for study. Thus he was quite at ease with the mathematical treatment of modern economic theory and applied his talent fully in this field. But after he came back to Japan, he apparently became convinced that neo-classical economic theory was unable to cope with the present-day socio-economic problems of advanced countries and moved gradually away from abstract theory field into the policy questions. His critique of neoclassical economic theory was developed fully in his book published in 1977,⁵⁷⁾ although he began publishing individual essays with the same intent soon after he returned to Japan in 1969. In particular, he broadened his theoretical frame work to incorporate into it the concept of "social overhead capital" and also attempted to take account of usually non-quantifiable values in the cost-

54) *Gendai Nihon Keizai Kenkyū* (Studies on the Present-day Japanese Economy), Tokyo Daigaku Shuppankai, 1975, and *Kokusai Keizaigaku Kenkyū* (Studies on International Economics), Iwanami, 1975.

55) *Gendai Kokusai Kin'yū Ron* (Treatise on the Contemporary International Finance), two volumes, Nihon Keizai Shimbunsha, 1983.

56) See, for example, "On a two-sector model of economic growth," *Review of Economic Studies*, XXIX-1, 1961, and XXX, 1963.

57) *Kindai Keizaigaku no Saikentō* (Re-examining Modern Economic Theory), Iwanami, 1977.

benefit analysis of developmental projects. His book on the social cost of automobiles⁵⁸⁾ is a perceptive application of this methodology. The fields in which he is lately concerned include the environmental problems and the economics of medical care.

Besides UZAWA, a rich crop of economic theorists with mathematical sophistication appeared on the horizon in the post-war period in Japan, most of whom were under the able guidance of Takuma YASUI at one time or another. They usually published their works in English and thus are well known in the academia of the world. Several of them may be mentioned here as especially outstanding. Fukukane NIKAIDO(1923-) with his publication in English of *Convex Structures and Economic Theory* (Academia Press, 1968), Ken'ichi INADA (1925-) with his articles in the field of welfare economics and also of turnpike theorem, and Takashi NEGISHI(1933-) whose contribution shines in particular in the field of applications of general equilibrium theory to international economics—these people, of course, are likely to be contributing further in our discipline in the years to come.

V The Camp of Political Economists

As I wrote in my earlier survey article,⁵⁹⁾ close to one-half of the economists in Japan today are of Marxist orientation. Thanks to Tomohiko SEKINE's painstaking translation of one of Kōzō UNO's major works,⁶⁰⁾ some of the non-Japanese scholars may have had a taste of the unique character of UNO's work. But since most of the Marxist economists do not publish their works in western languages, they have not been much appreciated abroad. One of UNO's disciples and one who is rapidly becoming a leading figure in the Marxist camp is Tsutomu OUCHI(1918-), who is now in the process of publishing a seven-volume work on "The System of Political Economy," three of which have come out by the spring of 1984. He is often likened to be probably the last of renaissance type of all-round social scientist whose professional interest covers the areas from methodology and general principles of economics to such practical problems as imperialism, the state monopoly capital, agricultural economics, fiscal policies and current economic situations in Japan and the world. For one person to be able to cover all these fields with a systematic methodology of his own is rare indeed in these days of academic compartmentalization.

Among the outstanding Marxist economists of theoretical bent, whose names may be mentioned in this survey, are Kiyooki HIRATA(1922-) and Nobuo OKISHIO(1927-). HIRATA is known abroad because he gave a series of lectures at the University of Paris in 1973-74 on the subject of "Marxism and the Japanese society"; but his professional works started much earlier in the 1960's in the field of doctrinal analysis of Quesnay's *tableau économique* as related to Marx's posthumous *Grundrisse der Kritik der politische Ökonomie*.⁶¹⁾ His originality as a Marxologist was established when he published *Shimin Shakai to Shakaishugi* (Civil Society and Socialism), Iwanami, 1969, in which he re-examined three basic concepts in Marx, i. e., *Eigentum*, *Verkehr* and *Bürgerliche Gesellschaft* and gave a new light

58) *Jidōsha no Shakaiteki Hiyō*, Iwanami, 1974.

59) "Survey of economic research in postwar Japan," *The American Economic Review*, June 1964, p. 79.

60) Kōzō UNO, *Principles of Political Economy—Theory of a Purely Capitalist Society*, translated by Tomohiko SEKINE, Harvester Press, Sussex and Humanities Press, New Jersey, 1980. A lengthy interpretive essay by SEKINE is appended to this volume. For a briefer exposition on the UNO school, see Makoto ITO's *Value and Crisis*, Pluto Press, London, 1980, pp. 37-45.

61) Published as *Keizai Kagaku no Sōzō—"Keizaihyō" to Furansu Kakumei* (Creation of Economic Science—"Tableau Economique" and French Revolution), Iwanami, 1965.

to Marx's definition of socialism given in the very first chapter of *Capital*, Volume One, which reads "a community of free individuals carrying on their work with the means of production in common, in which the labor-power of all the different individuals is consciously applied as the combined labor-power of the community."

Since then, HIRATA published, in addition to a four-volume commentary of Marx's *Capital*, a number of books (in Japanese) on a wide range of subjects. But his major contribution in the recent years has been an attempt to reconstruct Marxian economics as a system of critical analysis of "fetishistic" society, as expatiated, in particular, in *Keizaigaku to Rekishi Ninshiki* (Economics and Historical Perception), Iwanami, 1971, and *Keizaigaku Hihan no Hōhō Josetsu* (Methodological Introduction to the Critique of Economics), Iwanami, 1982.

It was before MORISHIMA attempted to solve some of the Marxian theorem mathematically that Nobuo OKISHIO, as a Marxist economist, applied mathematical technique to the task of straightening out many of the problems on which Marx's exposition was not clear-cut or did not appear to be consistent. Actually, he was a pioneer in this field in Japan, having started to publish his work in the middle of 1950's on such problems as the relation of value and price and the rate of profit.⁶²⁾ But his first major work was *Saiseisan no Riron* (Theory of Reproduction), Sōbunsha, 1957, in which he (1) made clear that for any society reproduction is an essential condition for its continued existence, and then (2) discussed general conditions for reproduction regardless of particular social system, and further (3) specified the particular manner in which those conditions are satisfied in a particular social system like capitalism. The neat use of mathematics in this type of analysis has been a unique feature of OKISHIO's contribution. Then on, he wrote numerous books⁶³⁾ and articles, in all of which one was made aware of the powerfulness of mathematical technique even, if we may say so, in the exposition of orthodox Marxian position. However, in the latest of his book-size publication: *Gendai Shihonshugi no Kadai* (What are Required in the Analysis of Present-day Capitalism), Iwanami, 1980, OKISHIO chose to be more of a literary economist and at the same time to broaden his professional concern into current practical problems, such as stagflation and the limits to growth.

Among the economists with Marxist orientation, the last person in this survey to be mentioned is Ken'ichi MIYAMOTO (1930-), a radical empiricist, who combines his analytical power as a Marxist economist with his deeply-felt humanistic concern over urban and environmental problems. He started out as a specialist in the field of public finance, and already at the age of 23 he cut a conspicuous figure in the 1953 annual meeting of the Japanese Fiscal Science Association. Since then, his professional interest has been glued, in particular, to the grass-root problems in various localities; thus, not only the fiscal and welfare aspects of local governments but also the impact of developmental policies on environment became special areas of his concern. Numerous articles were written by him in this connection, always

62) His article on "Monopoly and the rates of profit" appeared in English in *Kobe University Economic Review* in 1955.

63) In particular, the following books may be mentioned: *Shihonse Keizai no Kiso-riron* (Basic Theory of Capitalistic Economy), Sōbunsha, 1965; *Chikuseki Ron* (On Accumulation), Chikuma, 1967 (Revised edition in 1976); *Marukusu Keizaigaku—Kachi to Kakaku no Riron* (Marxian Economics—Theory of Value and Price), Chikuma, 1977; and *Gendai Keizaigaku* (Modern Economics), Chikuma, 1977. This last item, which is a collection of critical essays in the field of modern economics, was awarded the "Annual Prize for Economic Literature" of Nihon Keizai Shimbun in 1977—a distinction which had seldom been given to a Marxist economist. OUCHI had received one in 1964 for his two-volume work on the analysis of Japanese economy (*Nihon Keizai Ron*, Tokyo University Press, 1964).

with a view to making his analysis serve for the practical improvement of existing conditions. Noteworthy, for example, was his effort in the decade of 1960's, in cooperation with a number of his colleagues, to bring the question of environmental disruption into a major social issue, always basing his arguments on on-the-spot investigation of his own. A number of books⁶⁴⁾ were published as a result; and they made a great impact on administrative and judicial branches of Japanese government. The OECD review of environmental policies in Japan, made public in 1977, commented that "Japan has won many pollution abatement battles," but it should be realized that in the back of these battles the day-to-day grass-roots activities had been accumulating under the tireless leadership of a man like MIYAMOTO.

Aside from these semi-political activities, MIYAMOTO has written a number of systematic treatises, of which *Shakai Shihon Ron* (Treatise on Social Capital)⁶⁵⁾ is considered to be a classic treatment of non-market activities of central and local governments in relation to citizens' welfare and capitalistic enterprises. Galbraithian concept of social imbalance is further enriched with concrete problems and analytical scrutiny. More recently, he has made public another book of major size dealing with the role of the state in the present-day capitalism,⁶⁶⁾ which is essentially non-ideological and yet brings into sharp focus the peculiar biases which the modern capitalist state has in its conduct in the name of "public service." Modern economists, with all the paraphernalia of sophisticated analytical techniques, may find it difficult to match the bold strokes with which significant issues are highlighted in this book.

(Asahi Shimbun Publishing Company)

64) It may not be necessary to list all of them here. Before his writings took a book-size form, MIYAMOTO began his pamphleteering work by contributing an article to a monthly magazine *Sekai* in 1962 ("Shinobiyoru Kōgai"—"Creeping Environmental Disruption") which was an eye-opener for those Japanese who were complacently basked in the sun of the rapid-rate growth period.

65) The first edition was published in 1967 by Yūhikaku and a revised one in 1976 by the same publisher.

66) *Gendai Shihonshugi to Kokka* (The Present-day Capitalism and the State), Iwanami, 1981.