The profession of economists has long suffered, willingly or unwillingly, from the dichotomy between theory and empirical data and practice. It has plagued us throughout the history of our profession very much like influenza, recurring in a multitude of forms and shapes, sometimes tolerable and sometimes deadly. Those who did away with the dichotomy have certainly been a minority, but a very precious minority indeed. Professor Mitsuo Ezaki is, without a doubt, one of them.

It was with delight therefore that I learned of the publication of his doctoral dissertation (Harvard University) in Japan. The objective of this book is to quantify, model, and analyze the pattern of aggregate Japanese economic growth during the historical period 1952-1971 and the forecasting period 1972-1980. The task is accomplished through two methodologies, each complementing the other, namely, (1) the total factor productivity analysis, and (2) a macroeconometric growth model. And underlying these two different theoretical frameworks is the author's careful treatment of the social accounting system. Chapter 1 examines the structure of national accounts, Chapter 2 measures the total factor productivity change, Chapter 3 develops a complete system of private accounts, and Chapter 4 presents econometric model and simulation analysis. Finally, the Appendix is a self-contained piece on the Two-Gap analysis of foreign aid.

The delight of this book begins immediately in Chapter 1. Here, the author takes the then-existing Japanese national accounts, and lays out the general equilibrium theoretic interpretation of the accounting system. True, the interpretation is obvious. True, the interpretation is not the author's invention by any means. But it is also true that the interpretation is too often and too casually taken for granted, erroneously simplistic, or not well-understood, particularly among young students of economics. Almost every macroeconomic textbook, for example, begins with some general equilibrium presentation of a national accounting system. Seldom do we see, however, the job so clearly executed and well done as in this book.

By building up a relevant set of identities, fundamental relationships among key macroeconomic variables are clarified, and pave the way naturally towards Chapters 2 and 4. The author also points out ambiguities and resulting inconsistencies in the Japanese accounts with respect to the treatment of the general government sector. He also shows that the existing accounts are not complete without a consistent system of flow and stock accounts. These carve out the task for Chapter 3. The appendix to this first chapter on the new U.N. System of National Accounts is the best presentation of the subject I have yet seen.
Chapter 2 studies the sources of aggregate economic growth in Japan during the period 1952-1971. The objective is to separate growth in factor inputs from growth in total factor productivity in accounting for growth in output. The methodology for measuring output, factor inputs, and total factor productivity is based on the economic theory of production, the point of departure being a production function giving output as a function of inputs and time. Production is considered under constant returns to scale; and the production function is combined with necessary conditions for producer equilibrium, so that the equalities between the output elasticity of each input and the share of each input in the value of output are established. The rate of total factor productivity change is defined as the rate of growth of output holding all inputs constant. The necessary conditions for producer equilibrium are combined with growth rates of input and output to provide an index of the rate of productivity change that depends only on the prices and quantities of input and output.

The main empirical finding of this chapter is that approximately one-third of output growth can be attributed to productivity change over the period 1952-1971. This estimate is substantially less than preceding growth accounting studies on Japan; and the author finds the difference between his estimate and others to be largely explained by the measured change in quality of capital input. This is a plausible result in view of the now well-established findings by other related studies that the contribution made by capital input was a significant source of Japanese economic growth, particularly in the 1960's to early 1970's. The treatment of capital input is done with great care in this study. Capital input is measured by sector and by asset types taking into account the tax structure that affects each productive asset. This in turn permits the measurement of quality change as the aggregation bias in capital input. The treatment of labor input, on the other hand, is not quite on a par with that of capital. This can be justified, however, on the ground that the change in labor input is usually dominated by the change in employment.

In this chapter the author also explores the theoretical problem of sectoral aggregation associated with the explicit recognition of intermediate input in the sectoral production function, and offers an alternative definition of aggregate productivity change. Theoretical developments since the author's efforts have shown that his result does not hold given the net production possibility frontier at the aggregate level. It is not important, nor is it appropriate, to expand on this theoretical issue here. Rather, it is far more important to recognize the very fact that his ideas and work were the pioneering effort that led to the subsequent theoretical developments in this area regardless of the dates of any publication. The author has not received the deserved recognition and credit, which shall be corrected here.

In Chapter 3, a complete system of social accounts of private sector is developed for the first time for Japan. The system consists of the following four accounts: (1) a production account, (2) an income and expenditure account, (3) an accumula-
tion account, and (4) a wealth account. The production account includes data on factor input and output, and generates the identity between value of factor outlay and value of output. The income and expenditure account includes data on saving, and gives the identity between factor incomes and expenditures plus savings. The accumulation account includes capital formation, and establishes the saving-investment identity. The wealth account includes capital stock as a component of wealth: the flow out of this stock account is linked directly to the accumulation account and through it to the production and income-expenditure accounts. Given the data constraint faced by the author, this is indeed a noble accomplishment.

Finally, Chapter 4 gives life, as it were, to the set of general equilibrium identities thus established. The framework of Solow-Swan growth models is extended, and a macroeconometric growth model for Japan is constructed. The model is a homogeneous system of thirty equations and determines relative prices and real levels of macro variables endogenously for the private sector. The government and foreign sectors are exogenous. Four stochastic equations are estimated: two producer equilibrium conditions given by the underlying translog production function, a consumption function, and an equation for capital augmenting technical change. Distinction is made between investment goods and consumption goods output. It does not specify an investment demand function, and permits the level of investment demand to be determined by the level of saving. Labor supply is exogenously given.

The model is unmistakably simple. Yet its explanatory and forecasting power is astonishing. Having experienced another severe recession, we now stand in 1978. With this benefit of hindsight, we can throw away all of the alternative simulation exercises except one: the case of 2% decline in the rate of capital-augmenting technical progress, where the model forecasts approximately 4% decline in the average annual growth rate of real GNP for the period 1972–1980. Since 1972, the Japanese economy has been subjected to a substantial structural change. The historical values of most of the model’s exogenous variables deviated significantly away from the extrapolated values assigned in the simulation, particularly those in the foreign sector. And certain features of the model may now require a structural overhaul. Yet the model seems to have survived what is perhaps one of the most extreme and severe tests of history, and foretold the fundamental story: that in the case when the favorable environment for capital accumulation of the 60’s deteriorates, Japan’s growth performance would at its best be characterized as “moderate” in the long run.

One should look forward to the author’s re-evaluation of the model in light of the new historical developments. One would expect to find for example, a gradual change in the consumption and labor supply behavior of the Japanese household sector, so that the leisure time can no longer be ignored. The consumption function needs to be respecified then, and the supply of labor must be endogenized to depend on wealth and available time. One would also expect to observe more
drastic changes in the determinants of investment demand, so that an explicit introduction of investment demand function is called for. This is particularly important considering the changes that have begun to take place in the Japanese financial markets.

All in all, this book is a delightful addition to our store of knowledge; and it is hoped that many young students of economics benefit from Professor Ezaki’s tireless efforts.

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