

Preface for the 2nd edition

1. Why 2nd edition so soon after the 1st edition?

The 1st edition (Earth Endogenous System, here after the *EES*) was luckily published on 15 May 2013 as my monograph. Soon after the publication, I could not press down new ideas, aspects, and methods. All of these are completely consistent with the 1st edition or the *EES*, simpler, deeper, and wider. I call these ‘new discoveries.’ New discoveries are always within the range of scientific approach, using two-dimensions. I call the idea of two-dimension ‘two-dimension plane hyperbola (2DPH).’

The *EES* is based on endogenous equations with no assumption and under perfect competition. These equations are each reduced to a hyperbola function to the ratio of net investment to national disposable net investment, $i = I/Y$, or the rate of change in population, $n_E = n$, where full employment is guaranteed.

To attract new discoveries, I divide a concept of aspects into two; measure-oriented organic aspects in the *EES* (see Notations) and nature-aspects in new discoveries. Nature-aspects are composed of six neutralities (for six nature-aspects, see Essence of Earth Endogenous System): (1) Money-neutral, (2) Consumption-neutral, (3) Relative share of capital-neutral, (4) Deficit-neutral and $RRR=0$, (5) Politics-neutral, and (6) Spirituality- neutral.

Organic aspects are measure-oriented while nature-aspects are essence-oriented; inseparable and connected each other. Nature-aspects ultimately produce three Axioms, which is much robust than hypotheses, theoretically and empirically in topology. When readers are at a loss which way to choose, please read Essence of Earth Endogenous System as a lighthouse in the sea.

2. Consistency with the 1st edition

The contents of the 1st edition have been deepened by the 2nd edition with no discrepancy. Preface of the 1st edition remains vividly alive as it is. The 1st Preface (Pp. lvii-lxvii) has the following items:

1. Why ‘purely endogenous’?
2. Technology and preferences under globalization
3. Scientific discoveries and philosophy and, natural, social, and behavior sciences
4. Hyperbola as a specific tool that reinforces endogenous equations
5. How to read 16 chapters along with Neo-classical and Keynesian, Harcourt
6. Particulars to my life
7. Wonderful connections with Samuelson, Sato, and Solow
8. To answer Krugman’s anxiety towards the EU countries
9. Essence of system and model: A message to economics and econometrics
10. Explanation to the first appearance to Monograph

11. For patent to forecasting economic growth

12. Acknowledgements

I do not intend to repeat the above statements but further I want to record the above statements for the future generations. Acknowledgements of the 2nd edition will be stated at the end, after thankfully understanding the 1st Acknowledgements.

3. From the past to the future

The *EES* does not change in its stance and remains within actual data and scientific world. This policy was stated in Chapter 1, comparing it with natural science, social science, and behavior science. The 2nd edition obeys and respects this policy like Father.

However, Son grows spiritually in order. Here conclusively I sum up developing circumstances behind the family. The *EES* has three poles everlastingly. These were in the Earth in the 1st edition and now these have stood above the lands. These poles are historically based on geometry and topology. I believe, readers will accept these poles geometrically. My geometry apparently differs from geometry as pure mathematics and swallows pure geometry. Fact is that my geometry integrates geometry into universe geometry and harmonizes any sort of geometry. The following three topological poles exist in my two-dimension plane (2DPH):

Pole 1: One circle and one hyperbola with one equilateral triangle of 1, 1, and the square root of 2. As a result, I could express the essence of hyperbola for the first time. This is the starting pole and called Pole 1. Pole 1 clarifies the essence of the silver ratio. Incidentally, the silver ratio has been the core of Japanese civilization and agriculture race culture at lease for the last thousand years in Japan Islands. Note that geometry in math has naturally spread combinations of various sorts of circles, triangles and polygonal, and ellipses/ovals.

The uniqueness of Pole 1 is proved by a fact that one hyperbola each is a reduced form of fundamental endogenous equations with no assumption.

Pole 2: Proof of an identical area/size/square measure of the Silver ratio to the Golden ratio. This proof would never be born without the birth of Pole 1. Poles 1 and 2 were presented to Clay Mathematics Institute, Cambridge, 14 Sep 2013, to leave two discoveries for next generations, with Shizuko Ishida (Iyonoishi, in Japan). Here I stay in scientific and two-dimension world so that for Iyonoishi, see Chapter 10 in the 2nd edition.

Pole 3: Pole 3 is related to the unity of Euclid and non-Euclid geometry. Why does the *EES* in two-dimensions necessitate Pole 3? Pole 3 reinforces everlasting philosophy of hyperbola endowed with negative and positive asymptotes (vertical and horizontal). One hyperbola produces the essence of the *EES* and KWET, with three Axioms and six Nature-aspects. It is impossible for one to strictly approach the origin of the x and y axes in a plane. An asymptote expresses negative or positive but it is again impossible

to approach. The asymptote has a power to convert negative to positive and vice versa. This philosophy corresponds with oriental philosophy in Confucianism. Why is philosophy of hyperbola required for the *EES* and KEWT?

Actual statistics data are always within a certain range of endogenous data, as proved in KEWT. Leaders and policy-makers seriously decide economic policies everyday while the same results never happen, by country, by sector, and year and over years. When the worst appears one becomes shocked but it is the beginning of turn-over. Endogenously, turn-over has been proved by country if economic policies decrease real causes continuously. Therefore, hyperbola philosophy is alive with theoretical background.

Finally, how is the relationship between Euclid and non-Euclid geometry¹ solved? This relationship is only solved when six-dimension real world is united with five-dimension imaginary world. One per cent is out of this world. Five-dimension imaginary world is true and must be approved as scientific. I call enlarged world New-scientific. I stress here that Shizuko Ishida (Iyonoishi) has proved this fact, family-like proved in physics, element chemistry, and word culture, as her life-work.

4. Brief summary of KEWT database series

I had used as original data in world databases such as the UN, OECD, Eurostat, ILO, IMF, and the World Bank, in the 1980s and 1990s. By various reasons, I decided to use statistics data solely from *International Financial Statistics Yearbook*, IMF. Since then, I have published KEWT (Kamiryo Endogenous World Table) database series by year and over years, gradually increasing the number of countries.

For readers' convenience, I state here the transition of the records:

KEWT 1.07, the number of countries is 9 countries; 2.08, 32 countries; 3.09, 61 countries; 4.10, 63 countries; 5.11, 63 countries; 6.12, 81 countries; and now 7.13, 86 countries. Today, I have tested dozen countries without adding these countries into formal database series. I set Axiom 2 of window dressing of accounting is impossible (for three Axioms, see Essence of Earth Endogenous System). Once database is fixed, this is absolutely true. However, many African countries do not supply true data to *IFSY* particularly when countries are newly established. When data are arranged artificially or with help of statisticians who use statistics tools broadly, it takes many hours for me to find endogenous data accurately. For this reason, I observe these country data separately from official data.

¹ Earlier historically, Roberto Bonola (authorized English translation with additional appendices by H. S. Carslaw; with an introduction by Federigo Enriques) published *Non-Euclidean Geometry: a Critical and Historical Study of its Development*.(1912, Austin, Texas: Open Court). The first appearances to non-Euclid were Lobatschewsky, N. I. (1856), Nicolaus Lobatschewsky. (1887), and Nicholaus Lobatschewsky (1897) (see Essence of Earth Endogenous System).

5. Readers with the 2nd edition

The 2nd edition was, of course, presented to readers, after revising. I must convey my mind for revising to readers here. This is not my excuse but my sincere anxiety. After the 1st edition, I got several new ideas and discoveries. These discoveries (clear but, from my spirit of moderation, 'finding' I prefer to discoveries) are consistent with the 1st edition. There is no change in the contents. Rather, even in the 2nd edition, I realized that the 1st edition must be preserved longer, as my fortunate publication.

Then, what are the differences between the 1st and 2nd editions? Also what are new findings in the 2nd edition? In a word, new findings hold, shorter and simpler, using geometric topology in two-dimension plane, where a hyperbola is formulated as the reduced function of corresponding endogenous equation in the 1st edition.

For example, suppose that the nominal growth rate of output (i.e., national disposable net income, Y) is equal to the rate of inflation/deflation, as a concrete expression of new finding. A concrete expression may be a result in the *EES* but, this result equals its cause simultaneously. So that in the *EES*, results=causes prevail everywhere.

Thus, new findings present the essence of the *EES* and, composed of six nature-neutrals: Money-neutral, consumption-neutral to technology, the relative share of capital-neutral to macro-inequality, deficit-neutral, politics-neutral, and spirituality-neutral. Concrete expressions present the results=causes of the essence and, are composed of the real rate of return=0 ($RRR=0$), the nominal growth rate of output=the rate of inflation/deflation, a Phelps coefficient, a Phillips line, and the valuation ratio.

Concrete expressions are measured two ways in the *EES*: (1) Accurately by measuring endogenous equation and (2) measuring by using hyperbola function in the two-dimensions. In the case of new findings, the author adds (3) 'simply by indicating the corresponding ratio' in the same two-dimensions to the above (1) and (2). The corresponding ratio in (3) at once indicates the cross-point of hyperbolic curve and its horizontal asymptote.

Therefore, the differences between the 1st and 2nd editions are attributed to the existence of the above (3). The existence of the above (3), however, is united with topological philosophy or the negative and positive philosophy, where the origin indicates moderation and vertical and horizontal asymptotes is related to optimum critical position. Two dimensions are naturally connected with six dimensions or the real world we live in. Further, six dimensions are connected with five dimensions in another world. However, the 2nd edition stays at the same two-dimension and, the author finds and proves new findings and concrete expressions much more simply than in the 1st edition. As a result, the author inserted the above (3) into related chapters, shortly and simply, and avoiding small confusions.

The author is fortunate to be able to open and publish the truth and essence of the *EES*, always helped by readers, teachers, benefactors, colleagues, and staff, internationally. As a result, the author has repeatedly met invaluable opportunities to confirm the first appearances for the author's topological new findings.

6. Acknowledgements

I have learned a lot at eight universities, as shown by my memorial drawings below. Chances in Japan, America, Canada, New Zealand, Australia, England, Sweden, and Netherlands, have come to me, negatively and positively, just like our human life. Also, several academic societies/associations have supported me, short and long years. My motto is learning by doing, and confirming by eyes, ears, hands, and legs, walking and running. I have learned; most important is communications, from individuals, families, societies, district, mountains, fields, and seas.

It is honestly few years for me to show my real thankfulness to my family. I am ashamed of the sacrifice of my family. We have each role in our life. We have peaceful mind commonly. My role is to convey a robust container to economic policies.

One of my fortunes is that the above container is next to the market principles. Yes, the market principles never are controlled by human mind arbitrarily. The market principles are next to God. I perceive this fact day and night, together with all of you; teachers, friends, readers, researchers, people, companies, and the literature accumulated historically. We are connected with each other spiritually

My trip to the US in Oct 2013 had two targets: one is to confirm facts that my new findings are the first appearance in the literature and, the other is to read through the original and the first appearance books and papers and, get parts of these originals, focusing on graphs and equations and, following the copy-right law. These originals have been usually stored in separated and specified places and in some cases, allowed to look at within four hours. Among others, I thank university libraries of U of Penn, Georgetown, CUA, and U of Hawaii, with excitement and delightedness. Two weeks in April 2014, I could attend *IAE* Conference, Madrid, and *RES* Annual Meeting, Univ. of Manchester, where I was fortunate to find some papers using hyperbolic topology but the method remains within the framework of the literature. In this way, I have pursuing ‘the first appearances,’ together with ‘purely endogenous,’ throughout my life-work.

Lastly, let me convey the pith of the endogenous-equilibrium under the market principles, although I may repeat some of the following three paragraphs.

I found two everlasting facts when I up-dated KEWT database series just before publishing the 2nd edition: (1) For the period between the initial (1990) and current (2012) years; if we could easily measure a constant capital-output ratio each by sector, the endogenous equilibrium is most robust, where $K=K_G+K_{PRI}$. (2) Values of net investment by sector must be always plus and as much as smaller. Really some countries are each easily attain the above results while others not easily and taking many hours; results are reversed suddenly, sharply, and repeatedly. Readers are, however, able to confirm the reproducibility and duplicability in any country; scientific mathematically and geometrically (in the two dimensions).

How can policy-makers by country effectively and efficiently get out of unstable taking-time measurements as if ant lion?' Most important: Real-assets policies should be politics-neutral and spirituality-neutral. Through learning by doing, I understand that policy-makers' efforts of unstable countries is beyond description day and night. In fact, any country has passed the same maze processes promptly to cope with endogenous-shocks. We are fortunate to realize that even the current instance any country attains whole equilibrium purely endogenously. This is the hyperbola principle which numerically expresses endogenous philosophy. For example, minus apparent results such as deflation globally balances plus unbelievable results for people such as consumer good prices. A system of national accounts expresses by year but, the same as individuals. The wage rate decreases but CPI decreases in parallel. More important is how to minimize net investment and raise the rate of technological progress. Anyone should not claim or blame but accept a natural fact that the market principles are always much more pure to God than human greedy behavior and decision-making.

The endogenous-equilibrium by country is expressed directly by the speed years for convergence and indirectly by key parameters and variables. However, endogenous situation holds regardless of the levels of these values. In other words, seven endogenous parameters as a clue of the *EES* remain always unchanged even some of these value up and down unstably. And, seven endogenous parameters remains always unchanged under actual statistics data, under endogenous data, and under external data. When combinations of seven endogenous parameters are unbalanced, actual situation reflects unbalanced combinations. The market principles are vertical by goods and services so that the *EES* integrates and reinforces the indispensable weak points wholly.

The speed years for convergence are tested by KEWT databases and its transitional path using recursive programming. Up-dated database 8.14, 1960/90-2012 by sector, is much simpler and much more generalized than the previous 7.13. Despite, the results of seven endogenous parameters remain unchanged, by the above decisive reason. The 2nd edition wholly uses up-dated tables for chapters 4, 5, 6, 8, 11, 12, and 16, including some figures. Chapters 7, 13, 14, and 15, however, use the same data as before, based on the above decisive reason.

Last but not least important, let me show my sincere thanks to Prof. Robert Solow. The rate of technological progress in Solow R. (1956, 1957), is a magnetic key that I could luckily obtain to disentangle the knotted threads in economics.

What is more, one copy of *EES* (1st Ed) was mailed to Prof. Solow when the book was printed and bound in April in advance. In late May of 2013, I was ecstatic to get a card full of inspiring words from Prof. Solow. Prof. Solow also says "As alike as peas in a pod" on the cover of the card. His card is one of my most precious gifts in this recent decade, I believe.

May 15

Dear Professor Kamiryo,

I want to Thank you for sending me a copy of your book, and also for the delightful gray and yellow flower painting. I certainly remember our meeting so many years ago at MIT. (I gave up that office a year or two ago, thinking that a younger person should have it. I am of course completely retired.)

I have been reading your book and looking at the painting, with

Pleasure in both!

The way you combine data from KEWT with theoretical reasoning is very impressive, though not easy to follow. (The painting is more abstract!)

I hope your health is good and the future bright.

Sincerely yours

Robert S. Latta



7. Three axioms vs. necessary and sufficient conditions

Finally, and right before the *EES* 2nd Ed. is turned over to the printing shop, I fortunately read an article published by Royal Economic Society on the *Newsletter* 165 (14-15 April 2014) as a new arrival to my home address. The article “Can economics be evidence-based?” by Michael Joffe stimulated my fresh idea related to three axioms in the *EES* vs. their necessary and sufficient conditions.

1. Different from the literature, the *EES* has causes=results scientifically under the two dimensional plane (and, beyond space and time).
2. As a result, necessary conditions=sufficient conditions. This is completely justified by a severe fact such that no assumption as a surrogate exists among thousand equations.
3. The essence of the *EES* is firstly expressed by **Axiom 1** solving problems lying in the capital-output ratio.
4. Accordingly, Axiom 1 is most strong among three Axioms. And, **Axioms 2** and **3** are relatively weaker than Axiom 1 in each level. Of course, three are united systematically.
5. In short, the *EES* shows a theory having no defect in logic. The KEWT database series shows a practice. Therefore, evidences are perfectly proved and tested in the *EES* and the KEWT database series.



Towards

