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GROWTH THEORY AND JAPAN'S GDP GROWTH RATES¹

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Abstract

The Trinity Growth Theory, which consists of the EGOIN Theory, the Triple C Theory and the S Curve Theory, is an elegant composite theory to explain (1) why growth levels differ among nations, (2) why growth rates also differ among nations, (3) why growth levels and growth rates differ among provinces and cities within the same nation, and (4) why growth levels and growth rates differ inter-temporally as well. Using the Trinity Growth Theory, Professor Lim Chong Yah explains the transformation of the Japanese economy following the Meiji Restoration in 1868, the rapid and impressive rebuilding of the shattered Japanese economy after the War World II, and the slowing down of the Japanese GDP growth rates after late 1980s. Professor Lim then uses the Trinity Growth Theory to attempt to predict the future of the Japanese economy.

Keywords: Growth theory; Japan

JEL Classification: O40, O53

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This lecture is dedicated to my old Japanese friends and academic colleagues (random order):

- * *Dr Daisaku IKEDA*
- * *The late Dr Saburo OKITA*
- * *Professor Shinichi ICHIMURA*
- * *Professor Miyohe SHINOHARA*
- * *Mr Yuichiro NAGATOMI*
- * *The late Professor Yoshinobu TAKAHASHI*
- * *Professor Masami KITA*
- * *Professor Kunio YOSHIHARA*
- * *The late Professor Yoshiyuki Hagiwara*
- * *Professor Miyohei Shinohara*
- * *Mr Akira Joko*
- * *Professor LIM Hua Sing (Waseda University)*

TRINITY GROWTH THEORY

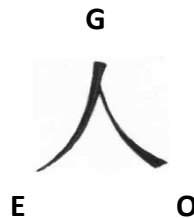
What is Trinity Growth Theory? The theory has three parts, namely, the EGOIN Theory, the Triple C Theory and the S Curve Theory. Each can exist on its own, but taken together, they are more effective in explaining (1) why growth levels differ among nations, (2) why growth rates also differ among nations, (3) why growth levels and growth rates differ among provinces and cities within the same nation, and (4) why growth levels and growth rates differ inter-temporally in each economic entity.

The EGOIN Theory

The EGOIN is a composite or compound of E (entrepreneurship), G (government), O (ordinary labour), I (investment) and N (natural resource). E, G and O are all human variables. E and G are special human labour and O ordinary human labour. Together and in part, they form the human input. They are the active agents in wealth creation. The inactive or passive but also important wealth creating agents are I and N. I may be referred to as physical capital, N as natural capital and O human capital. EGO together becomes social capital or social capability of an economic entity.

E and O thrive best in a market-oriented environment. Other than being a peacekeeper and a referee, the all-important G is also the maker, the provider and the regulator of this environment, that is, the quantity and quality of the market-orientation or economic freedom. The environment here includes the monetary environment, the fiscal environment and the transaction or exchange environment. The investment climate is a good partial synonym for EGOIN. EGO may also be presented with a Chinese word for man, 人.

Diagram 1: EGO and Man



As shown in Diagram 1, G is the omnipotent head, and E and O the essential ambulatory parts. All three are vital in wealth creation. The skill and the orientation of each of the three factors determine the level and speed of growth of an economy.

The EGOIN Theory is an organic theory and it is also multi-causal. EGOIN represents the input side of the growth equation. The output side is GDP growth level and growth rates. The multi-causality means analysis of growth can be traced to each or more of the five variables as the

main causative factor or factors, say, whether O , the supply of ordinary labour, can be attributed to the sustainable progress or decline of an economy, *ceteris paribus*.

The Triple C Theory (The TC Factor)

The Triple C Theory has its origin in the circular cumulative causation principle. It is a momentum or contagion theory. The momentum could be spatial, that is, from city to city or from country to country, or inter-temporal, that is, from one time period to another time period.

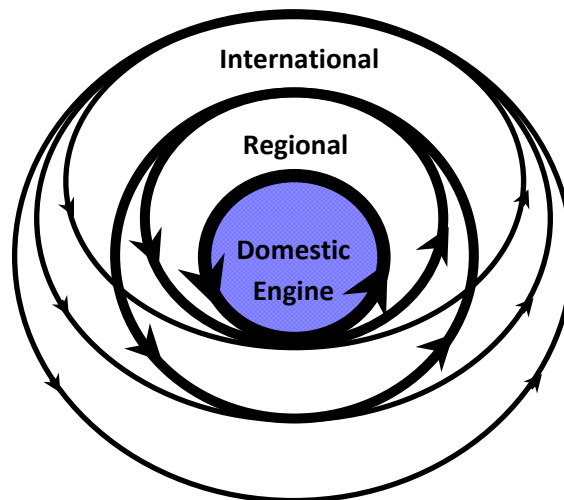
Three forms, reflecting the TC factor, of the circular cumulative momentum would be identified here: (1) the flow of goods and services, (2) the flow of factors: labour, capital and entrepreneurship, and (3) the flow of knowledge, particularly technological and institutional knowledge.

As Diagram 2 shows, three distinctive engines of growth, also reflective of the TC factor, can also be identified: the domestic engine, which in fact is the domestic EGOIN, the regional engine and the global engine. A national economy would function well if the regional engine and the global engine also function well, adding momentum to the domestic engine. A faulty domestic engine may easily be by-passed by a booming regional or global engine, resulting in domestic stagnation or domestic anaemic growth. A malfunctioning regional or a malfunctioning global engine can also bring the domestic engine to a halt. However, the malfunctioning of an important domestic engine may grind the regional engine and in turn the global engine to a halt. The momentum or contagion itself may also be conceptualized as the interaction of the multiplier and the accelerator. I , physical capital investment, may be used as a proxy or starting point for EGOIN as a whole. I is likely to move in the same direction of the other variables, EGON.

When one speaks of EGOIN as a whole, one may refer to the existing level of growth, not to the changes in the level. To differentiate between the two concepts, we will use the term Σ to mean

the sum of and Δ the change. Thus, we have Σ EGOIN differentiated from Δ EGOIN, and Σ TC differentiated from Δ TC.

Diagram 2: Triple C Theory



For abbreviation, the TC factor may be used to mean the connectivity factor between one economic entity and other connected entities. Generally speaking, the higher the connectivity factor, the higher is the rate and level of economic advance. It follows, however, that should there be an economic downturn, the economy with the highest TC factor will exhibit the biggest downturn. Indeed, the often-used term “opening up” is synonymous with opening the floodgate for the TC factor.

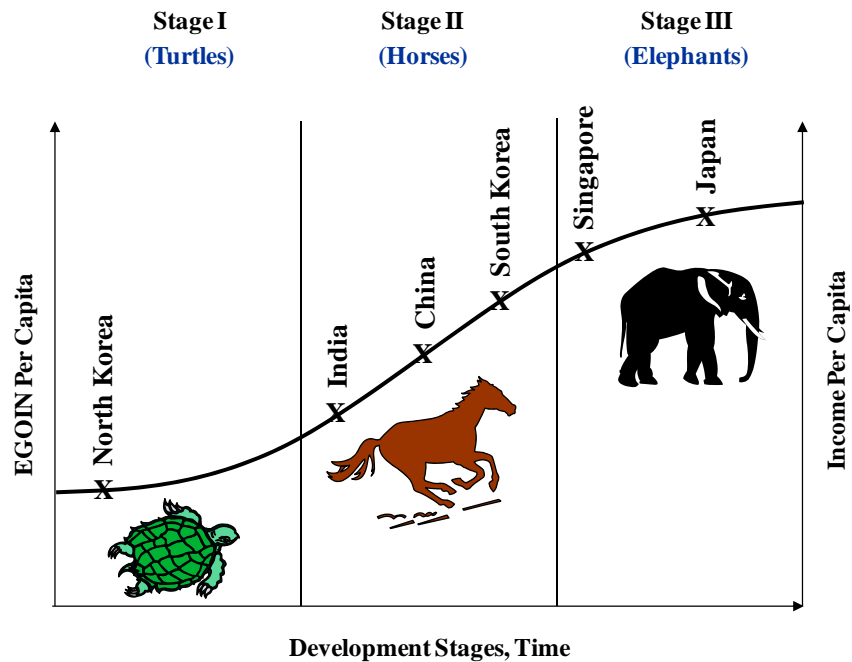
According to the TC theory, to speed up economic growth, an economy will have to link up with and benefit from the regional and global growth engines through trade, investment and knowledge transfer. This approach is more to follow the best practices in other economic entities rather than to copy every facet of a model entity, as economic entities tend to differ in history, in culture, in resource endowment, and in EGOIN. An economic entity can be strong in one area and weak in another area. Adaptive innovations are the key words in the Triple C Theory (the TC factor).

The S Curve Theory (The SC Factor)

The S Curve Theory divides the global economy, for ease of analysis, into 3 broad types, the turtle economy, the horse economy and the elephant economy, corresponding to low-income and low-growth economy, middle-income and high-growth economy, and high-income and low-growth economy. As shown in Diagram 3 below, Japan is now in the elephant stage of growth: high income and slow growth. It moved into the elephant zone some two decades ago. The tripping point was the burst of the property bubble in Japan at the end of 1980s.

The horse stage displays high or superlative growth rates. The elephant stage shows declining growth rates, but not negative rates, which are usually associated with recessions or depressions, which if cyclical, are of a short-term nature.

Diagram 3: S Curve Theory and Japan



Certain common attributes among the turtles, horses and elephants (the SC factor) can be identified. They are summarized in Table 1 below.

Table 1: Attributes of Turtle, Horse and Elephant Economies

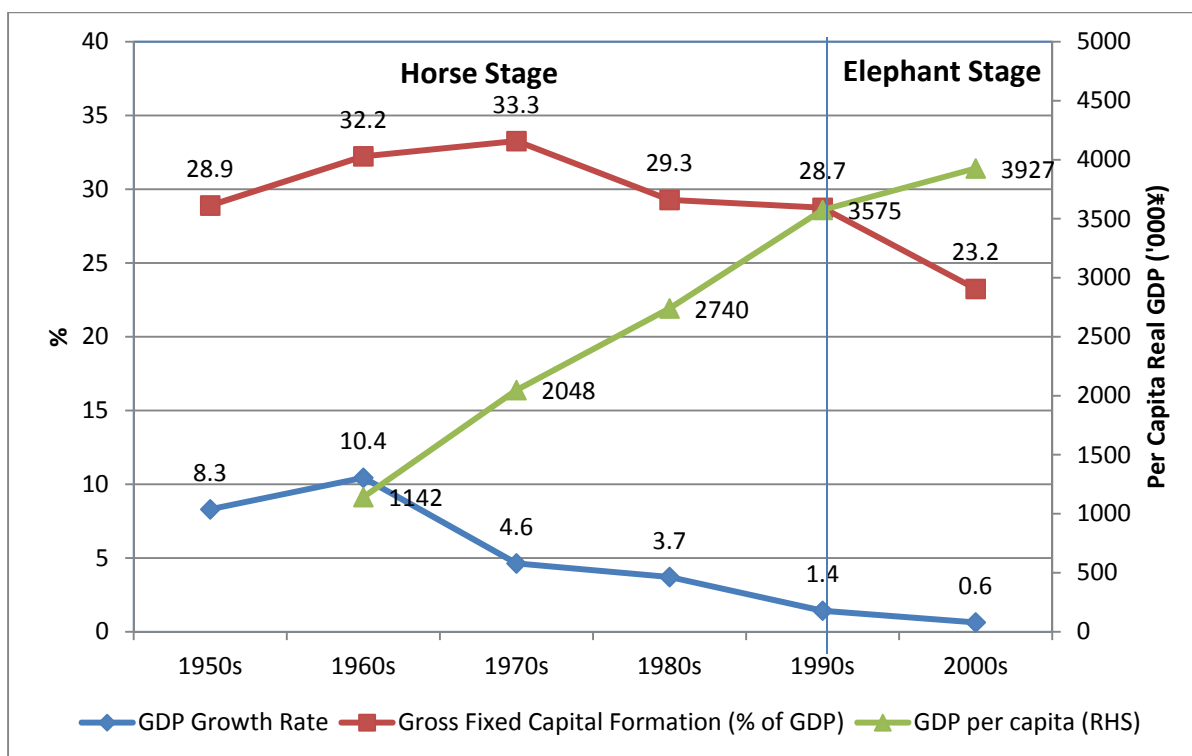
Turtles	Horses	Elephants
Low growth rates	High growth rates	Low growth rates
Low consumption society	Medium consumption society	High consumption society
High population growth rate	Transition population growth rate	Low population growth rate
Low savings and investment rates	High savings and investment rates	Low savings and investment rates
PRE-INDUSTRIAL	INDUSTRIALISING	POST-INDUSTRIAL
Low knowledge-based economy	Advancing knowledge-based economy	High knowledge-based economy
Low Σ EGOIN	Medium Σ EGOIN	High Σ EGOIN
Low Δ EGOIN	High Δ EGOIN	Low Δ EGOIN
Low Σ TC	Medium Σ TC	High Σ TC
Low Δ TC	High Δ TC	Low Δ TC

As shown in Table 1, one of the common attributes is that both turtles and elephants display low growth rates (Δ EGOIN) but enormous difference or distance in growth levels (Σ EGOIN), besides the commonality of having low Δ TC factor. Two is that turtles are pre-industrial economies and elephants are post-industrial societies. Horses, however, are in the midst of industrialization and infrastructural building. They display high or even superlative growth rates. Population-wise, however, elephants show low population growth rates but turtles, in contrast, high population growth rates. Horses too have very high capital formation rates (Δ I in EGOIN), elephants and turtles both have low capital formation rates, as to be expected. In other words, at the elephant stage, the SC factor has declined, or the Δ EGOIN and Δ TC have declined.

JAPAN'S GDP GROWTH RATES

Diagram 4 below gives some interesting macro-economic data on Japan, from the 1950s to 2000s.

Diagram 4: Japan's Macro-economic Data, 1950s to 2000s



Sources: World Bank, World dataBank. Retrieved on 16 May 2012.

Data for 1950s are from "The World Bank Spence Commission Report and the Trinity Growth Theory", Singapore Economic Review, Vol. 55, No 1, March 2010, p 53.

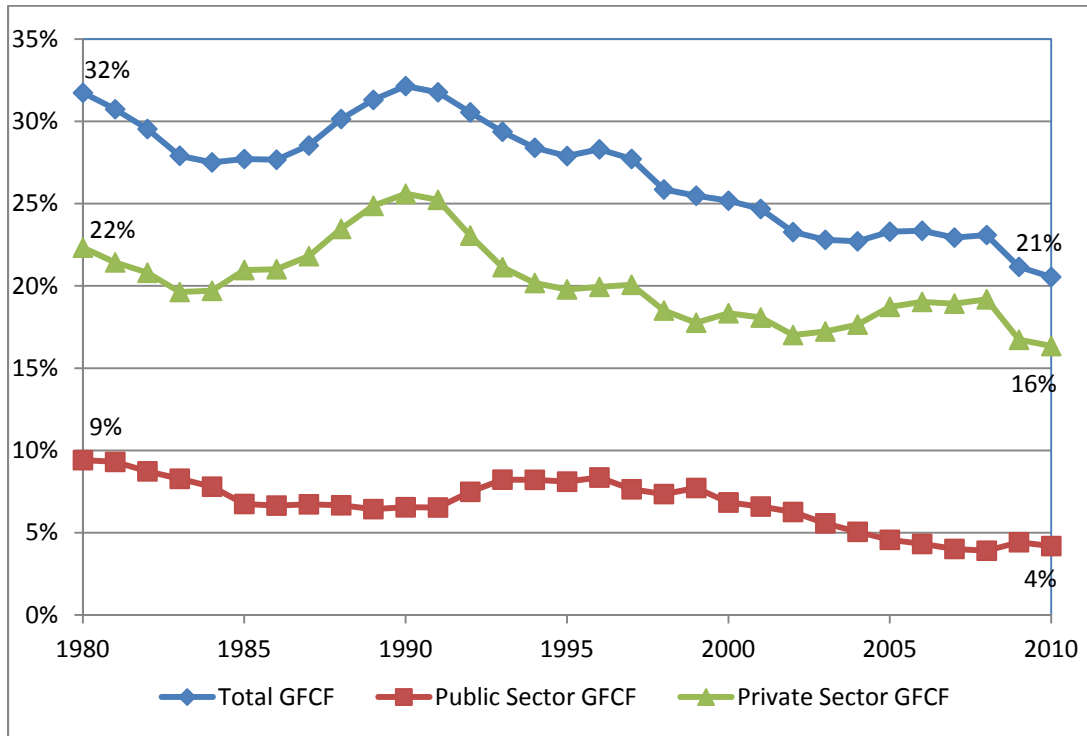
Note: Per capita real GDP refers to the years 1965, 1975, 1985, 1995 and 2005.

Diagram 4 shows that Japan progressively and gradually moved from very high growth rates in the 1950s and 1960s to slower growth rates in the 1970s and 1980s as a horse economy, and then to an elephant economy in the 1990s and 2000s. Capital formation too declined correspondingly.

Diagram 5 shows that the decline in gross fixed capital formation (I) is found not just in the private sector but also in the public sector. In other words, a decline in the rate of capital

formation in the public sector is not necessarily accompanied by a corresponding increase in the rate of capital formation in the private sector.

Diagram 5: Japan's Gross Fixed Capital Formation (1980-2010)



Source: CEIC Database. Retrieved on 25 June 2012.

JAPAN'S GDP GROWTH RATES AND TRINITY GROWTH THEORY

Now, I am going to deal with some other important aspects of Japan's economic growth rates.

Japan was the first Asian, nay, the first non-Western, non-European nation that has metamorphosed from Third World to First. According to the Trinity Growth Theory, this is because Japan's EGOIN and the TC factor have been transformed from Third World to First. In other words, the transformation of Japan's EGOIN and the transformation of Japan's TC factor explain the metamorphosis of the Japan economy with an initial low per capita income to one with one of the highest per capita incomes in the world. The upliftment of Japan's EGOIN and

the enlargement of Japan's TC factor have enabled Japan to transform from the former turtle economy to the high-speed horse economy and then to the present elephant economy.

Following Meiji Restoration

Japan was the only non-European nation that became industrialized before War World II. Why was it so? Three reasons in connection with the Trinity Growth Theory will be advanced for the explanation.

One is the upgrading of public governance following the Meiji Restoration in 1868. The emerged modern Japanese Government took the lead in the economic, social and educational development of Japan, the G factor in our EGOIN Theory. In other words, without the Meiji Restoration and the emergence of a modernizing government, Japan could not become a horse economy then, long before WWII.

Two, with the emergence of a forward-looking achievement-oriented government, a facet of which was not just massive investment in physical infrastructure (I in our growth theory) but also most conspicuously the equally impressive investment in human capital, O in our EGOIN Theory. In my study which I wrote some 20 odd years ago on Japanese rapid transformation, and published as Chapter 9 in my book *Development and Underdevelopment* (1991), I noted (page 140) that by 1940, Japan's education levels in primary, secondary and higher education had surpassed those in Western societies, including Great Britain and the United States.

Three, Japan adopted a forward-looking export-oriented economic policy, expanding the scope and depth of its exports and enabling the rapid industrializing of her economy. Of course, export-orientation is never sustainable without massive imports, in the case of Japan, of raw materials, food and energy from the outside world, then dominated by the Europeans. In other words, Japan rapidly upgraded and expanded the TC factor in our Trinity Growth Theory. Had Japan followed a closed door autarkic policy, an isolationist approach, she would not have succeeded in her great industrialization achievement.

Japanese Economy after WWII

After World War II, how did the destroyed modern Japanese economy get re-built and without the help of the Marshall Plan as in Europe? True, Tokyo was bombed to ashes. But it was quickly and impressively re-built. War had destroyed the physical infrastructure (I) but not the EGO, particularly E, the enterprising spirit of the Japanese people, and O, the skills and achievement-orientation of her population. So, the Japanese re-built their destroyed cities and their destroyed economy, because they had the ability and the will to do so. Indeed, this reminds me of an old Chinese proverb, which says that if one keeps the forest green, there is no fear that one will have no firewood (留得青山在，不怕没柴烧).

Japan's Economic Future

Looking into the future, further increase in per capita income in Japan will be handicapped by a progressive decline in the labour force (the O factor) consequent on a corresponding decline in the fertility rate. The I factor decline has been given in Diagram 5. This together with the expected decline in the O factor quantitatively, a further decline in per capita growth rates appears probable, unless these negative factors are more than off-set by increases in productivity of E, G, N and O itself, making $\Sigma EGOIN$ as a whole still moving upward. However, the further slowing down in per capita income growth rates or growth in total GDP may not be as disturbing as feared, if yen continues to appreciate somewhat in US dollar terms, as it has come to pass for decades. In 1970, for instance, the yen per US dollar rate was 360.00, but today (02 July 2012), it is 76.45.

Attempts by Japan to increase and upgrade the TC factor are particularly laudable. Today, Japan's investment income from abroad and compensation of employees came to 68% of the balance of current account, a special noteworthy achievement. Japan and China, the two neighbors with strong balance of payments position, have led the world in agreeing to cut down the cost of trade transactions between them by accepting each other's currency, instead of the traditional practice of using the intermediary of US dollar. Japan too plays an important role in the proposed formation of a Northeast Asia Free Trade Area, comprising three of Asia's four

largest economies – China, Japan and South Korea. The trio is much stronger than its parts as a trading bloc. Hopefully this FTA will be a prelude to the wider Trans-Pacific Partnership Agreement, which is led by the USA and which already has countries like Singapore as members. On the TC factor, perhaps I should conclude by quoting from Nichiren Daishonin's writing, in 1260, thus,

“A blue fly, if it clings to the tail of a thoroughbred horse, can travel ten thousand miles, and the green ivy that twines around the tall pine can grow to a thousand feet.”

Added to this positive note, I would end with the words of Alexander Pope from his “An Essay on Man”, “*Hope springs eternal in the human breast*”.

Recommended readings by author

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The End