**HOW TO EVOLVE ECONOMICS AT SECOND STEP: MODIFYING AXIOMS**

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**Abstract**

Although modern economics has developed for a quarter millennium, it has become far from the usefulness in the economic lives of people because one of the most fundamental troubles has not been resolved yet; its unrealistic preconditions such as scarce resources, rational behavior, perfect competition and prompt balance. In other words, the axioms of economics should be modified at first for economics to evolve further in order to be useful for the economic lives of people and the managements of company and national economy as follows; resources are scarce while their scarcity is relative and changes, economic subjects try to rationally behave, and the economy tends to balance into equilibrium. This modification of economics’ axioms induces a new term of dynamic equilibrium which is operated by the interaction between the convergence power and the departure power just as both action and reaction work in physics. These new axioms and the term of dynamic equilibrium would result in revolutionary changes of economics. For instance, it is newly discovered by the authors that there is another principle to determine price, that is, the principle of price decision, which would enable for economists to predict even the trend of stock market while the interaction between demand and supply does not determine it, but the fluctuation of price. And this paper clarifies the reason why Keynesian policy used to fail to recover the economy in recession, causing stagflation and hyperinflation at last, which enables to establish a new income theory composed of the principles of decision, fluctuation and chaos.

**Key words**: axiom, dynamic, evolution, modification, paradigm, usefulness.

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**1. Introduction**

There must be a remarkable reason why contemporary economics has maintained its theoretical validity despite myriads of criticisms that it scarcely meets the real economy, rarely explains economic phenomena as they are and has little practical usefulness in the real economy. Indeed, contemporary economics has seldom evolved to be useful for the economic lives of people even nowadays after a quarter millennium has passed from the establishment of modern economics. It is real that almost all the theories of contemporary economics hardly explain their corresponding phenomena as they are in the economy, not to mention correctly diagnosing and accurately predicting them which are essential for the practical lives of economic people, as discussed in earnest at our other paper titled “How to Evolve Economics at First Step: Dismantling Ideologies” (Choe and You, 2023b).

Furthermore, there is no Economic Pathology in contemporary economics even though its theoretical system is similar to that of physiology and the functions of the economy are far inferior to those of humankind, while the pathology for humankind is widely and deeply developed for a long and long time. So, the issue of economics’ crisis has often emerged every time when the economy confronts a severe crisis such as the Great Depression, dollar crisis in 1971, and Nasdaq crash in 2000. Especially, the petition of French students to professors in June 2000 was so sharp and poignant that any economist could not properly contradict the fact that contemporary economics was autistic, immersed in the imaginary world that mathematics of rarely useful has dominated. As seen above, even though the issue of economics’ crisis has been so sharply and frequently raised, contemporary economics is still utterly incompetent to properly explain, correctly diagnose and accurately foretell the economic phenomena such as the fluctuations of price, income, money amount, international payment balance, exchange rate and business cycle in the economy, not to mention the economic crisis.

Why contemporary economics has not been discarded or disorganized by economists until now despite of its little usefulness in the real economy? One of its major reasons might be that there does not appear yet any alternative, that explains economic phenomena more generally and more broadly than contemporary economics, to replace its whole paradigm. The other reason might be that it seems for contemporary economics to have realistic usefulness when something troublesome is slightly modified and thereby it evolves a bit. To do this, at first, contemporary economics should sincerely accept the fact that it is rarely useful for the economic lives of people and the managements of company and national economy. And then economists would try hard to find a fundamental way to evolve it.

Why have prominent economists in history barely evolved economics to be useful for the economic lives of people until now even though they have had the will to evolve it, as seen in the history of economics? Why have they allowed contemporary economics to remain in metaphysics, not in social science, by not breaking free from the shackle of ideologies of capitalism and socialism which have caused it to be metaphysics, as discussed at the above paper? At all, what is the reason why practical and useful theories are not developed in contemporary economics yet? It would be one of the most crucial reasons that contemporary economics is based on unrealistic axioms such as ‘resources are absolutely scarce’, ‘economic entities rationally behave’ and ‘the economy promptly balances into equilibrium’ which are far from the economic reality. Mainstream economists has considered these axioms to be indispensable preconditions of contemporary economics. Accordingly, its theoretical validity has persistently remained till now despite numeral critiques of some economists against them, especially seriously for the axiom of rational behavior (Simon, 1972; Kahneman and Tversky, 1979; Grossman and Stiglitz, 1980; Milgrom and Stokey, 1982; Akerlof and Shiller, 2009) and less seriously for that of equilibrium (Chamberlain, 1933; Keynes, 1936; Hall and Hitch, 1939). So, the more economics develops, the more distant from the reality. The economics academia has regarded these metaphysical and empty developments as its advancement, but rather it resulted in becoming further away from the real economy. Indeed, economics has become increasingly far apart from the reality for decades, without modifying its most fundamental trouble, unrealistic axioms.

Of course, in the history of economics, some outstanding economists have suggested various theorems which are contrary to the preconditions of perfect competition and general equilibrium in contemporary economics such as the Differential Rent and Comparative Advantage (Ricardo, 1817), Industry Economics, Surpluses of Consumer and Producer, and Economies of Scale (Marshall, 1890), Monopolistic Competition (Chamberlain, 1933), Cobweb Model (Kaldor, 1934), Effective Demand (Keynes, 1936), Full Cost Principle (Hall and Hitch, 1939), Nash Equilibrium (Nash, 1950), Bandwagon Effect (Leibenstein, 1950), Rational Expectations Hypothesis (Grunberg and Modigliani, 1954), Bounded Rationality (Simon, 1957), Philips Curve (Phillips, 1958), Rational Expectations (Muth, 1961; Lucas, 1972), Prospect Theory (Kahneman and Tversky, 1979), Imperfect Information (Grossman and Stiglitz, 1980), Information (Milgrom and Stokey, 1982) and so on, besides the marketing of business management which is not necessary in the perfect competition and general equilibrium. Unfortunately, however, these theorems exert the inoculation effect against the claims to evolve economics. They should have reached to the paradigm revolution of economics by modifying the whole axioms to meet the reality.

To conclude in advance, these axioms should be modified at first to meet the reality and for economics to be useful in the economic lives of people, as follows; ‘resources are scarce while their scarcity is relative and changes,’ ‘economic subjects try to rationally behave,’ and ‘the economy tends to promptly balance into equilibrium’. All theories of economics should be re-established according to these modified axioms. And then economics would evolve to explain more properly, to diagnose more correctly economic phenomena, and to predict more accurately their trends in near future than ever.

Accordingly, this paper is organized as follows; first section introduces the issue of axiom modification in order to evolve economics, as seen above; second section deals with the meanings of three axioms in contemporary economics and their limitations in the reality; third section examines a harmful consequence of those axioms by clarifying the reason why Keynesian economic policy used to fail, causing stagflation and hyperinflation at last; fourth section investigates the economic meanings of new axioms which would enable economics to closely meet the real economy and to evolve further for the practical usefulness of people’s economic lives; fifth section inquires the new term of dynamic equilibrium in which the convergence power and the departure power interact as both action and reaction work in physics; and last section concludes the discussions of this paper, summarizing its main achievements and proposing further studies.

For the sake of logical development forward, it is convenient to call the preconditions as first axiom for the scarce resource, second axiom for the rational behavior and third axiom for the economic balance. Among them, second axiom is widely known as the rational behavior hypothesis, and third axiom as the efficient market hypothesis. On the other hand, first axiom has almost been ignored since mainstream economists have believed that the perfect competition and general equilibrium well work in the economy. However, they can hardly be realized since resources are scarce and suppliers are accordingly limited, of which issue will be reviewed in detail shortly.

**2. Meanings of Three Axioms in Economics and their Limitations**

Can economics be established as a social science if the above preconditions were not accepted as the axioms of economics? No, it cannot. To liken, it was possible to establish the principle of fall motion in physics since there was a precondition of vacuum state. This precondition of physics provides the basis for scientific explanation about the falling motion although the vacuum state does not accord with the reality. This is the reason why the achievements of contemporary economics should not be abandoned although the economic reality does not meet the axioms and contemporary economics can hardly explain the economic phenomena as they are in the economy. Economics has become a social science by accepting the above axioms, which enables to establish numerous theories such as those of price, income, and so on. These theories provide the basis to scientifically explicate economic phenomena although it is based on unrealistic conditions. If the perfect competition was not accepted, it would raise so many difficulties that would destroy almost all the theories of contemporary economics as John R. Hicks noted early. However, this has fundamentally blocked the evolution of economics nowadays. And the more economics develops, the farther it is away from the reality.

As seen, the theoretical system of contemporary economics is based on the prerequisites that economic subjects rationally behave and the economy is always in balance. Even when economic subjects are temporarily out of rational behavior and the economy are temporarily deviated from equilibrium, it is believed in contemporary economics that they are promptly restored. This logic, however, needs the precondition that the perfect information should be quickly and inexpensively available so that economic subjects can rationally behave. But the reality simply rejects this logic of contemporary economics. In fact, there are some remarkable research cases about this issue in the academia (Grossman and Stiglitz, 1980; Milgrom and Stokey, 1982). Regretfully, these achievements are merely difficult clarifications for an easy and simple issue. Rather, the following reality is far more convincing than any professional article.

If the perfect information were given in the stock market, a typical phenomenon that some people buy stocks while others sell does not happen. In the real economy, either the buyers or the sellers gain profits while the others suffer losses in the market, which simply denies the hypothesis of perfect information. If everyone quickly gets the perfect information, it cannot happen that some people gain profits by buying stocks while the others lose money by selling them. However, it is the reality that stocks are bought and sold every time in the market. This means that the complete and rapid acquisition of perfect information is not performed even in a competitive market, the stock market.

Above all, the theoretical framework based on the perfect competition and general equilibrium has a crucial trouble that it cannot accommodate economic growth and various fluctuations into economics. To overcome this trouble, the academia of economics has tried several ways. The rises of Keynesian, Austrian and monetarist schools would be regarded as such attempts even though they are subordinate to the neoclassical economics, and they have not replaced the contemporary paradigm of economics. In addition, institutional and historical schools have also emerged to overcome the trouble of neoclassical economics, but they failed to replace the paradigm of contemporary economics. In the early 1980s, the supply-side economics also appeared, but its theoretical basis was fragile and buried in oblivion nowadays. And, in recent years, behavioral economics, chaos economics, evolutionary economics and the like have attracted attentions of economists, but they are practical for side issues while they are little effective for basic issues, as will be seen shortly.

**3. Realistic Abuses of General Equilibrium Theorem**

It is easy to see what economics should pursue when one of the most serious problems of static balance theory is examined. Such a prime example is the realistic abuse of Keynesian economics. It teaches that the expansion of fiscal spending or the fiscal deficit generates a multiplier effect and save the economy from recession; fiscal deficit increases consumption, increased consumption increases production, increased production increases employment and investment, increased employment and investment increase income and consumption, and they lead to a recurring cycle of the economy by operating the multiplier of fiscal spending.

However, it is difficult to find a historical example that fiscal deficit saved the economy from recession. Though the policy of New Deal during the Great Depression (1930-1940) was known as successful, however, it was only politically successful. The Great Depression would not have lasted for 10 years if it were economically successful. Of course, until the late 1960s after World War II, many countries enjoyed a long-lasting boom of so-called the ‘golden years of capitalism,’ which seemed successful owing to the Keynesian economics. But it was not owing to the Keynesian policy. The International Monetary Fund (IMF) and the General Agreement on Tariffs and Trade (GATT) made the international economic order stable, leading to the activation of production and international trade. Especially the expansion of international trade played a key role in driving the world economy to prosper during those years. In the reality, USA and UK which had been more enthusiastic to enact the Keynesian policy than their competitors gradually lost the international competitiveness and growth potential of national economy, and they lagged Japan and Germany during the 1970s and the 1980s. What is the reason? It is because Keynesian economics is wrong. Why is the Keynesian economics so wrong, and why does its policy fail in the real economy? The reason for this is that it follows the proposition of neoclassical economics that ‘the general equilibrium is swiftly accomplished’ at any time.

As the economy is believed to swiftly balance into equilibrium, it is not necessary for Keynesian economics to consider the time passing for its balancing procedure. Accordingly, it often overlooks the fact that the fiscal deficit is not sustainable for a long time. However, it cannot indefinitely increase since it cannot exceed the Gross Domestic Product (GDP). How is it sustainable? Absolutely it isn’t. The increase rate of fiscal expenditure should be lowered someday by the government, which will decrease the economic growth of national economy by the multiplier of fiscal spending.

Furthermore, Keynesian economics believes that it is enough to examine either the side of supply or the side of demand just like the neoclassical economics although the former places emphasis on the demand side while the latter focuses on the supply side. However, in the real economy, it is difficult to see that supply and demand are always statically balanced. For instance, the inventory of goods is increasing and decreasing, the prices are rising and falling, and the unemployment rate is increasing and decreasing at times. So, fiscal expenditure should be considered from both the viewpoint of supply side and that of demand side since they are not always statically balanced.

In the real economy, the effect of fiscal spending is double-faced. It plays a role to increase the growth rate of national economy at the perspective of demand, while it plays a role to decrease the growth rate at the perspective of supply. At the perspective of demand, it is not necessary to explain in detail that fiscal expenditure increases the growth rate because it is included in the aggregate demand of national account by which the growth rate is counted. On the contrary, at the perspective of supply, the fiscal expenditure decreases the growth rate, as follows. The fiscal expenditure is usually put into the fields where private companies neglect because of low profitability and low productivity, which means that it decreases the average productivity of national economy since limited national resources are invested into low-productivity fields. So, it plays a role to decrease the national income and its growth rate. Moreover, the law of diminishing returns works in the demand side while the law of increasing returns works in the supply side, of which issue is discussed in earnest at our other paper titled “Kinetic Theory of Income: A Part of K-Economics” (Choe and You, 2023c).

Keynesian economics has been born from the perspective of demand. Though it criticizes that neoclassical economics maintains the supply perspective, it also neglects the supply perspective which is inevitable for the balance of the economy. Its viewpoint comes from the precondition of neoclassical economics that demand and supply are always balanced. It is not needed for Keynesian economics to look further at the perspective of supply when the economy is already looked at the perspective of demand since demand and supply are believed to be always in balance. However, the phenomenon that demand and supply are always in balance is hardly found in the real economy, as already mentioned. Of course, Keynesian economic policy is a good medicine against an economic disease such as financial crisis, panics and crashes even though it is not a restorative for the fitness and health of national economy, of which issue is discussed in full swing at another paper of lead author titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021).

As seen above, the axioms of contemporary economics have caused harmful consequences in the real economy as is proved by the evil result of Keynesian economic policy. It would be the same in the future if the axioms are not modified to meet the real economy. Now, it becomes certain what is needed in economics. In other words, it is essential and urgent to revise the axioms that would not abandon the economic theories which have been achieved by numerous prominent economists in history. To analogize, in physics, the motions of real world can be correctly explained when vacuum condition is relieved somewhat to accept air resistance and lift force. This way would evolve contemporary economics to explain and diagnose economic phenomena more properly and more correctly than ever.

In short, the axioms of contemporary economics should be modified somewhat such as resources are relatively scarce, economic entities try to rationally behave and the economy tends to balance into equilibrium, which should be the starting point of economics evolution. This modification of axioms might seem trifle and worthless at first blush. However, it would lead to revolutionary consequences in economics evolution just as a tiny change of direction from the starting point makes the destination entirely different. From now on, it is examined at this paper what this modification of axioms means and how it contributes to the evolution of economics. Before it, there is one problem that should be solved at first, as follows.

Is it possible that economics maintains itself as a science after the original axioms are modified as seen above? Yes, it is possible. Scientific principles also can be found and established in the tendencies such as ‘try’ and ‘tend’ since the mathematical terms of inequality and probability are also prime methods of scientific approach as well as the identical equation. However, all the economic phenomena should be explained in a form of inequality or that of probability since the tendency and the trial do not match with the identical equation. In the reality, economic phenomena are too complicated and difficult to be elucidated by an equational identity. Rather, the formulas of probability and inequality are much more realistic to approach the real economy.

**4. Economic Meanings of New Axioms Modified**

What kind of evolution would happen in contemporary economics when its axioms are modified such as ‘resources are scarce while their scarcity is relative and changes,’ ‘economic subjects try to rationally behave’ and ‘the economy tends to balance into dynamic equilibrium’? Let us inquire the answers one by one, as follows. And then a way to evolve further the contemporary economics will be found out. And economics will evolve enough to meet the real economy and to be useful for the economic lives of people and the managements of company and national economy. Furthermore, the new axioms and their meanings would solve almost all the troubles and problems of mainstream economics that many economists including Marxists have raised so far, as will be seen as below.

**4-1. First new axiom:** **resources are scarce while their scarcity is relative and changes**

What theoretical implications are given when the first axiom is modified as resources are scarce while their scarcity is relative and changes? This axiom is the starting point of economics, and it is one of the most basics in its theories since the purpose of economic activity is to acquire scarce resources, and economics is based on this activity. It is so important that all the theories of economics should be modified when this axiom is revised as above. By the way, this axiom reveals contradiction by itself in the theoretical system of contemporary economics as below.

The means to produce goods should be scarce if resources were absolutely scarce, and then the theorems of perfect competition and general equilibrium cannot be established. In detail, the numbers of producers are limited when production means are scarce owing to the scarce resources, and the perfect competition cannot work, and general equilibrium cannot be achieved. Thus, the logic of contemporary economics that resources are scarce while the economy is in the perfect competition at the same time is a contradiction by itself, which destroys the general equilibrium. Of course, contemporary economics implicitly assumes that the scarcity is settled by production, but it is not realistic since all the produced goods are also scarce in the real economy. So, the first axiom should be modified as above to meet the reality.

When it is modified as resources are scarce while their scarcity is relative and changes, following meanings are newly given in economics. First, there are differences of scarcity among various resources. Second, all the economic activities are in a process to resolve the scarcity of resource. Third, the scarcity of resource varies with time passing. These meanings are so self-evident that they do not need to be discussed in detail anymore. However, these simple meanings would revolutionize economics, as will be examined soon in the modification of other axioms. Above all, as seen from the above meanings, this new first axiom has the dynamic characteristic and plays the role of step-stone to evolve economics from statics to dynamics. To repeat, the starting point of economics evolution from statics to dynamics is the modification of first axiom. Economics would evolve enough to meet the real economy and to be useful for the economic lives of people when this modified axiom is adopted into all the theories and the whole paradigm of contemporary economics. And then economics will be able to properly explain, to correctly diagnose, and even to accurately predict the economy.

**4-2. Second new axiom: economic subjects try to rationally behave**

What result would happen when second axiom is modified as economic subjects try to rationally behave? This modification has three main meanings as follows; it takes time for an economic entity to reach the rational behavior, there are individual differences among economic entities in the degree of rationalization, and there is a room for exogenous variables to intervene into the rationalizing process. As these meanings are particularly important for the evolution of contemporary economics, it is necessary to examine them in detail, as follows.

First, it is naturally accepted in economics that it takes time for an economic subject to reach the rational behavior when the second axiom is modified as above, which is a logical conclusion. For reference, Alfred Marshall introduced the term of time into economics (Marshall, pp. 207-216, 1890). The terms of long- and short-term cost curves are his great achievements. However, regretfully, he did not apply the dimension of time into the economics paradigm. And he acknowledged this problem as he declared that the trouble of economics was that it took time for the process to lead to the result.

To rationally behave, the economic subject should always get the perfect information, but this is not realistic. It takes a considerable amount of time and cost to get even an imperfect information, with the opportunity cost spending. For example, a buyer might go to a traditional market or a department store, snoop on the street stores or surfing internet shopping malls when he or she wants to buy a suit. Most of economic entities, either consumers or producers, often make trials and errors in the process of rationalizing behavior. This fact means that economic subjects are always out of rational behaviors. However, a law can be derived in their behaviors by discovering the regularity when economic subjects show even the tendency to rationalize.

Second, individual difference is accepted when this axiom is revised as economic entities try to rationally behave. This individual difference should be accepted in economics because it is the starting point of economics to respect their free wills. There is no doubt about it due to the differences in the birth environment, cultural influence of their aging process, and so on. In the reality, there appear always the differences of choice and decision among economic subjects. This individual difference appears not only in current behavior, but also in time passing. Some subjects approach rational behaviors in a relatively short time while others take a long time, which provides a way to evolve economics apart from statics to dynamics. This issue will be examined shortly dealing with the general equilibrium.

Third, exogenous variables get their rooms to interfere into the rationalization of economic entity as its process takes time, causing conflicts with endogenous variables and distorting their functions. Meanwhile, all the theories of contemporary economics describe endogenous variables at first and adds the role of exogenous variables afterward. Thus, the role of exogenous variables is often neglected or dealt exceptional by contemporary economics. However, when an exogenous variable disturbs the function of an endogenous variable, there is no way to go forward in contemporary economics. On the other hand, the new second axiom makes it easy to grasp the phenomena as they are. This issue can be settled by incorporating the exogenous variables of static equilibrium into the endogenous variables of dynamic equilibrium, as will be seen at fifth section of this paper.

Of course, there are some theoretical achievements about the rationality of economic behavior such as Bounded Rationality (Simon, 1957), Prospect Theory (Kahneman and Tversky, 1979) and others of behavioral economics such as Nudge Theory (Thaler and Sunstein, 2008), but they have not reached the modification of axiom which will result in the evolution of economics paradigm. Furthermore, they are not general in the real economy, as follows. First, the theorem of ‘Bounded Rationality’ has the precondition that a variable, which causes the cognition bias, intervenes into the economic behavior. But the absence of cognition bias is much more common in the real economy. For example, it is a general view in the pharmaceutical industry that 40,000 medicines are developed until a successful one is produced. If the ‘Bounded Rationality’ works in general and the cognitive bias generally intervenes into it, the development of a successful medicine cannot be achieved at all because it is very risky so far. Any economic entity tries to rationally behave while he or she recklessly behaves sometimes, regardless of the cognitive bias. So, there appear some inventions and innovations in the economy.

Second, the theorem of ‘Prospect Theory’ requires the precondition of cognitive dissonance, but its absence is also much more general although it is important in the psychology of economic entity. Why does the economic entity prospect the future? It is because of the cognitive dissonance between his or her expectation and the economic reality. And the cognitive dissonance between the goal of economic policy and its negative result ex post plays a key role for the economic entity to prospect the future. Although this theorem effectively indicates the limitation of Keynesian policy, it neglects a fundamental fact that fiscal spending is invested into the field of low profitability and low productivity, which decreases the average productivity of national economy, resulting in a low growth rate along with a high price inflation, that is, stagflation, as discussed already.

Third, the behavioral economics which is based on the above two theorems show its theoretical significance only for special issues among economic phenomena, not for general issues. For instance, the behavioral economics emphasize the importance of DIY (Do It Yourself) as IKEA is successful in its business, but it ignores the unique feature of furniture industry; the transportation cost of this industry is awfully expensive due to the huge bulk of furniture. So, the profitability of firm increases much more when a furniture disassembled by parts is transported. If the DIY is so important and general in the real economy, all the goods such as car, mobile phone, TV set and the like should have been sold in parts, not a complete product. In short, Bounded Rationality, Prospect Theory and behavioral economics should have reached the level to modify the second axiom.

**4-3. Third new axiom: the economy tends to balance into dynamic equilibrium**

What would happen to contemporary economics when third axiom is revised as the economy tends to balance into dynamic equilibrium? From the conclusion in advance, the modification of this axiom is so important that it changes the whole theoretical system of contemporary economics because all the theories are based on this balance logic. Even the scarcity of resources and rational behavior of economic subjects are explained by the balance logic; the price function balances the scarcity among goods, the balance of demand and supply decides price, and so on. As this balance logic governs contemporary economics as whole, this modification is especially important and has a variety of meanings as follows; the static imbalance between demand and supply is natural, imperfect competition is accepted as general, surplus profit is natural and general, the volume of surplus profit is determined by monopoly power, and all the balances do not happen instantaneously and simultaneously. Let us examine these meanings in turn, as follows.

**4-3-1. Static imbalance between demand and supply is natural**

What indicates the meaning that the static imbalance between demand and supply is natural? Contemporary economics holds the view that each of demand, supply and distribution is determined by a different variable: demand by marginal utility, supply by marginal cost, and distribution by marginal productivity of production factor. As each of them is respectively determined by one of these variables, a balancing medium is needed to assume their balances, and contemporary economics regards it as the price function. In contemporary economics, any imbalance may arise, but the function of price drives it to be promptly balanced. In the real economy, however, this price function does not work so quickly and perfectly as contemporary economics assumes. The process to reach the balance needs a considerable amount of time as seen in the new second axiom, and the sensitivity and speed of response to the signal of price are different among economic entities since there is no evidence for the response equality among them. For example, the change of demand usually leads to the fluctuation of price at first since the consumer’s response to the price is usually ahead the producer’s response. In this case, the price is far from the marginal cost, which results in an excess profit or a loss for the producer.

In general, the speed of supplier’s response is faster than that of consumer’s response while the latter is more sensitive in response than the former. And the response sensitiveness and its speed depend on the type of goods, competition type and economic situation, which means that the structure of price function differs according to the kinds of industry and goods, to the type of producer, and to the business cycle of national economy. In the case of a daily good, its demand usually increases before its supply increases when the economy upturns to increase income, so that its market price is determined at a higher level than the equilibrium price, and the producer enjoys an excess profit even for a while. Likewise, the demand for the goods supplied by a monopoly also tends to be ahead of the supply, so the supplier enjoys a larger profit than the normal profit when the economy is strong. On the other hand, when the economy is retreating, demand decreases first ahead supply, the market price is determined at a lower level than the equilibrium price, and then inventory increases. In addition, the goods produced by a competitive firm respond more quickly to demand than that of monopoly. Thus, the profit of a competitive firm increases faster than that of monopoly in the short term when the economy upturns, while its loss becomes relatively large when the economy declines.

In the real economy, the price fluctuation of competitive goods happens too often to say that supply and demand are balanced. And the inventory of monopolistic goods fluctuates before the price fluctuates. Therefore, demand and supply are often unbalanced both logically and realistically, and the fluctuation of price is also common regardless marginal utility and marginal cost, which means that the economic reality rejects the balance logic of contemporary economics. Price is not determined by the balance between demand and supply, but it is always in the process to be balanced by the interaction of demand and supply. Rather, demand and supply are in a static imbalance, so the balancing power of price function works. When it is taken that the imbalance between supply and demand is natural, it is possible to assign the existence of unemployment, inventory and idle facility which are typical phenomena of static imbalance in the real economy.

And the differences in the response sensitivity and its speed are also found between investment and savings which are important variables in macroeconomics. Savings is more sensitive to the income fluctuation while its response speed is slower than that of investment. On the other hand, investment is less sensitive while its response speed is faster than that of savings. Recognizing these disparities between savings and investment provides a definitive clue to the principle of business cycle. Let us briefly examine it at this point, as follows.

Taking the disparity between aggregate demand and aggregate supply as a result of the differences in the response sensitivity and its speed between investment and savings, we can assume that aggregate demand exceeds aggregate supply. In this case, the economy upturns during the continuous expansion of aggregate supply. However, when aggregate supply surpasses aggregate demand caused by the feature that the response speed of supply is faster than that of demand, there appears an oversupply, leading to the downturn of national economy. Though this logic is overly simple, and it is insufficient to properly explain the business cycle that takes place in the economy, it certainly provides a theoretical basis for understanding the principle of business cycle. Regretfully, it is not proper to discuss this issue further since it does not directly meet the theme of this paper, of which issue is examined in full swing at our other paper titled “Kinetic Theory of Income: A Part of K-Economics” (Choe and You, 2023c).

In short, there is a time lag between demand and supply, and there are differences in response sensitivity and its speed among all the factors that tend to make the general equilibrium. Indeed, the demand and the supply of production factors are relatively inelastic to the price change. For example, when the prices declines and an oversupply happens in the economy due to the shortage of demand, the demand for production factors should decrease and their prices should decline in theory, but labor is the most inelastic to its price change among production factors. So, unemployment often appears, and facilities become idle rather than falling in wage and price when the economy fast slows down. As a result, the demand and the supply of production factors are distorted, which in return affects the supply and the demand of goods. These phenomena will be settled in the long run due to the disparities of response sensitivity and its speed among variables concerned, but they distort several economic variables during the process. These distortions would occasionally lead to a continuous recession of the national economy if left undone. At last, a depression or an economic crisis may happen, of which issue is discussed in earnest at another paper of lead author titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021).

**4-3-2. Surplus profit is natural**

What means the words of ‘to accept the existence of surplus profit as a natural state’? Contemporary economics has almost ignored the surplus profit, especially that of producer. One of major reasons why it neglects the surplus profit and its meaning in theory is that its theoretical system is based on the perfect competition. As there is no room for the surplus profit to exist in the perfect competition, contemporary economics has deliberately ignored it to avoid anti-rational logic. Indeed, this surplus profit of producer cannot appear in the perfect competition. When this surplus profit is allowed in contemporary economics, the basic propositions of perfect competition and general equilibrium are broken down in economics. Thus, contemporary economics has ignored the surplus profit that certainly exists in the real economy. Of course, it does not deny the normal profit of producer, but this is just a pun. In the real economy, most suppliers make too big profits to claim them as normal ones when the economy is brisk, while they suffer losses when the economy fast slows down. On the other hand, the new third axiom accepts this imbalance as a matter of course. Let us look at it further as below since it is so important in kinetic theories of economics.

Each point on the curves of demand and supply represents what a certain consumer consumes and what a certain producer supplies, respectively. Therefore, when a balanced price is given, all the consumers and producers enjoy excess surpluses except the specific consumer who consumes at the price and the producer who supplies at the price. This is a logical consequence when individual differences are recognized and accepted. It is an obvious double logic that contemporary economics falls into the trap of perfect competition, rejecting their surplus profits, while claiming that the motivations of supply and demand are their surpluses. How can the driver of supply work and how can the capital be accumulated if there were no surplus profit? It cannot.

On the other hand, the new third axiom grants the surplus profit of supplier that exists in the real economy. This surplus profit of supplier is accumulating into the form of capital, which makes the reproduction possible in the economy. This new axiom provides a theoretical ought for the existence of capital as above. And the consumer surplus also has an important meaning by this modified axiom. In terms of perfect competition and general equilibrium, consumer’s behavior has to be rational and balanced always. And then it is difficult to find a driver for any additional consumption in the static balance. Accordingly, the utility of consumer has to be met already, and no new demand can arise. However, on the viewpoint of dynamic equilibrium, the incentive to consume is constantly given by the consumer’s surplus, and it enables the additional consumption. In short, consumer surplus sustains the increase of demand and the growth of national economy.

**4-3-3. Imperfect competition is general**

What does it mean that imperfect competition is accepted as a general phenomenon and surplus profit is natural? There is no perfect competition in the real economy although contemporary economics regard imperfect competition as an exception. In the reality, the numbers of producers and consumers are limited since resources are scarce, and everyone enjoys a certain degree of monopolistic profit although there are differences of profit amount among economic subjects. As imperfect competition is general in the real economy, the theoretical framework of economics should be built on this imperfect competition. If it is argued by any economists that there exits the perfect competition, this is a logical antinomy because the first axiom of ‘resources are scarce’ denies the perfect competition. As resources are scarce, the means of production are scarce, and the perfect competition cannot exist.

In addition, the logic of contemporary economics in which consumer maximizes utility, producer maximizes profit, and demand and supply are balanced by price is also denied by the perfect competition. If the competition immediately takes place to be perfect, the differences among individual producers lead to the competitive gap among them, and then only one producer which is the most competitive survives at last. In other words, the perfect competition effectuates to cause the perfect monopoly when it is admitted that there are individual differences. The revised third axiom resolves this contradiction at once by accepting the existence of surplus profit and by granting the fact that balancing process takes time. Of course, there is an excellent achievement about the imperfect competition in the economics academia (Chamberlain, 1933), but it is not applied into the economics paradigm even though its theoretical value is notable and realistic till now as proved already by some outstanding books in business management (Porter, 1980; 1985; 1990). In the real economy, monopolistic profit exists in general since imperfect competition is common, as seen above.

**4-3-4. The size of surplus profit is determined by monopoly power**

What does it mean in economics that the size of surplus profit is determined by monopoly power when both demand and supply are stable? In the real economy, most suppliers have various kinds of monopolistic power because they cannot survive without it. A big company is maintained owing to the monopoly power mainly built up by the powers of human resource, organization, capital, information and so on. A small company competes with a big one by quickly adapting to the changes of economic situation and environment mainly relying on the advantage of its organizational resilience and elasticity. A corner shop survives mainly depending on its geographical advantage. A high-tech company maintains its monopoly power mainly relying on its technology, while a traditional company maintains it relying on the public trust and its trademark. An existing company gets the monopoly power of organization, human resource and sales capability compared to a new entrant. And the industry of agriculture gets the monopoly power of land productivity along with the farmer’s competitiveness.

These monopoly powers give producers the surplus profit that exceed the production cost. In other words, the surplus profit of a company is created by its monopolistic position, and its scale is decided by the strength of its monopoly power. This power is given not only to a producer which leads to the producer surplus but also to a consumer which leads to the consumer surplus. The greater the monopoly power, the larger the consumer surplus and the producer surplus are given. And the production participants earn excessive incomes equivalent to their monopoly status.

Now, what is needed to consider further is the concept of monopoly power. As this monopoly power is an important driver that causes economic activities and a factor that creates the surplus profit and determines its scale, it is necessary and essential to clarify its concept. This implies an important meaning in establishing a new paradigm of economics. And there is a growing need to redefine the concept of monopoly power since the volume of surplus profit varies among producers depending on both the quality and the type of goods produced. In short, this is a critical issue that should be settled since the size of surplus profit is determined by the monopoly power. When a monopoly often faces the possibility that a new company enters the market, its monopoly power cannot be said to be large enough to correspond to its monopoly position. Therefore, the power to prevent from the entrance of new company is one of the most important variables to determine the monopoly power. The larger the exclusive power, the more surplus profit the producer can gain. It is common in the economy that even a monopoly accepts less profit than the extreme profit of monopoly in order to block new entrants when its exclusive power is relatively small.

This monopoly power, of course, is not of nature that can be expressed in quantity. It tends to be adjusted afterward by the price function in the market. Indeed, no firm measures its monopoly power in advance to determine the price of its product. As is well known, most companies decide their prices based on the normal profit (Hall and Hitch, 1939), and their prices are adjusted afterward by the interaction of demand and supply in the market. Why has contemporary economics dismissed these facts? It is the reason that they are contrary to the theorem of profit maximization which is one of basic propositions of contemporary economics. In the economy, however, the greater the monopoly power, the greater surplus profit a company enjoys by the natural rise of price when the demand increases. On the contrary, the profit is lowered by a new entrant or by its threat when the monopoly power is weak. Therefore, whether it is possible or not to measure the monopoly power does not determine the suitability as a scientific term because it can be estimated by the volume of post-realized profit. At least, it can be judged ex post whether the monopoly power of a company is greater or smaller than others.

Meanwhile, the term of monopoly power means the competitive power when it is interpreted in reverse. The term of competitive power is more realistic and positive than that of monopoly power. In people’s language habit, it is easy to understand that the scale of profit is determined by the competitive power rather than by the monopoly power. The terms of competitiveness of company and international competitiveness of national economy are naturally and frequently used in the real world.

The concept of competitive power or monopoly power applies not only to production and consumption but also to distribution. One more important implication comes to the front as follows when it is applied to distribution. Although the contemporary theory of distribution based on the marginal productivity has been convinced as a theorem that determines the value of each production factor, it has a crucial weakness that there is no mention about the distribution share among production participants. It especially becomes powerless when the profit is increasing owing to an economic boom of national economy. So, this theorem is inevitable to be revised and complemented because it does not clarify what determines the distribution ratio among production participants.

The clue of its revision is found in the competitive power. It is right that the total volume of distribution is determined by the marginal productivity of production factors. In the real economy, however, the surplus is distributed by the bargaining power based on the monopoly power of each production participant. In short, the concept of bargaining power of each participant based on its competitive power should be introduced into economics in order to compensate the incompleteness of the theorem of marginal productivity. In this case, economics can properly explain the reality. For reference, the term of bargaining power has already been introduced into the business management by Michael Porter (Porter, pp. 4-7, 1985) even though economics neglects this achievement till now.

The application of competitive power into the theory of international trade provides one more implication. The theory based on the comparative advantage theorem has made an academic contribution in terms of the overall benefit of international trade among countries (Ricardo, pp. 41-52, 1817), but this still has limitations that it cannot explain the protective trade policy in the real world, the income gap among countries, and the problem of economic subordination of underdeveloped countries to developed countries. These weaknesses would be settled by complementing the comparative advantage with the competitive power. To say, the total surplus of international trade is created by the comparative advantage, and it is shared by the bargaining power of each trade partner based on its competitiveness. So, it is essential to complement the comparative advantage with the bargaining power. When this complement is done, it is easy to identify the cause of income gap among countries, as follows.

The country with a bigger bargaining power gets more the trade surplus than others. This enables to find the reason why the economic growth rates of the developing countries which have built export industries have been faster than the others. By this viewpoint, the term of international competitiveness which is often employed in the real world has come to be accepted into economics. And the rationale that underdeveloped countries should promote the import substitution industry for the economic development (Prebisch, 1959) can be found by this logic although its result used to be disappointing.

In the reality, the international competitiveness of national economy is improved by the industry which has a relatively big bargaining power. So, the policy of trade protectionism is occasionally implemented by the government to promote an infant industry which will have a big competitiveness and a big bargaining power in the future. However, the result has been rather bad in historical experience. For example, China has executed a strong protection policy in its automobile industry, while it has enacted a relatively open policy in the electronics industry. In its electronics industry, there has been a dramatic development as some global companies have come into the world. However, in its automobile industry, most Chinese companies have produced automobiles attached foreign trademarks except electric vehicles. The evil of protectionism is not only that. It would lead to an economic collapse as seen in the Great Depression when it calls for retaliatory countermeasures in other countries against the protectionism. The issue of Great Depression is discussed in full swing at another paper of lead author titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021).

**4-3-5. General equilibrium does not instantly occur**

What does the logic, that the equilibrium of the economy does not instantly occur, mean? The economic significance of this logic becomes evident when it is advanced to assume that the equilibrium happens instantaneously. If it is assumed, the full assurance of competition implies the complete destruction of competition because the competitiveness and condition of all competitors are not completely equal among them, and the outcome of competition should be shown in a moment as contemporary economics assumes; only one company survives to be a monopoly. Considering this fact, it is a blessing that the equilibrium does not immediately take place but takes a considerable amount of time to reach it. A company with a poor competitiveness can survive when it compensates its competitiveness and receives the second benefit from the change of economic situation since the process of balancing takes a considerable amount of time, while the most competitive company can lose its competitiveness by the shifts of demand and supply curves or by the changes of their shapes and slopes when it does not properly adapt to the changes.

The assumption of contemporary economics that perfect competition is always efficient is not true from a dynamic perspective because it means the complete monopoly unless the condition of competitiveness is supposed to be perfectly equal among economic entities, as seen above. Indeed, the perfect equality of competitive condition cannot be found anywhere in the real world. As the economy is not always in the perfect competition while it tends to be competitive, it is imperative to revise the third axiom as the process of equilibrium takes a considerable amount of time. This logic developed around supply can be applied to demand and distribution, too. Detailed descriptions thereof are omitted to avoid the repetition of same logic.

**5. Dynamic Equilibrium versus Static Disequilibrium**

This paper stresses explicitly and implicitly how significant role the new axioms will play in the evolution of economics by examining their various meanings, as seen above. However, there remains one problem that should be solved to accommodate the new axioms into economics without self-negation. It is a matter of logical consecutiveness. Even if the new axioms enable the scientific reasoning of economic principles by showing consistent trend and tendency, it does not make sense unless the trend and tendency appear stably and repeatedly in the economy. In other words, the new axioms should be constantly maintained over the time passing in order to have theoretical significance and consistency, which is a matter of dynamic equilibrium. This issue has to be settled since the modifications of axioms are the starting point of dynamic economics. Any theory without logical consistency is just a fiction, not a science. Therefore, the above new axioms should retain the dynamic equilibrium at any case in order to maintain their stability in the course of time passing. Even if an equilibrium moves with time passing, the logical stability has to be maintained in the new equilibrium so that the principle of dynamic equilibrium can have a scientific significance. The clue to settle this issue of dynamic equilibrium can be found in the logical antinomy of the new axioms, as follows.

All the new axioms mean that all of them are always in imbalance states. The terms of ‘change’, ‘try’ and ‘tend’ mean that there are powers to pursue the balance in the activities of economic entities and in the economic phenomena. However, this logic is an obvious antinomy from the perspective of time passing dimension. As the balancing procedure is proceeding by their intrinsic motives to pursue the balance, the perfect balance and general equilibrium should already have been reached. And as the economic history of humankind has already passed for thousands of years, the economy should have reached the perfect balance now, which is a logically natural consequence. On the other hand, the new axioms always assume their static imbalances, which are logical contradictions by themselves. It does not make sense at all to say that the economy has not reached the balanced state despite running to the balance for thousands of years in history.

How can this oddball be settled? There is only one way that the opposite power has to be assumed to establish a consistent logic for the situation that the economy does not reach its balance and is always in imbalance state despite the power to achieve the balance always working. It is the same as there are action and reaction for the law of motion in physics. In any case, the new axioms cannot be viable unless both the power to depart from the balance and the power to converge into the balance are assumed altogether in economics. The new axioms can always logically come into existence when the balance power and the imbalance power simultaneously work altogether. In other words, all the forces to maintain the scarcity, to cause the unreasonable behavior and to sustain the imbalance has to be premised along with the opposite forces. Therefore, in the theoretical framework of dynamics, it is essential to assume the departure from the static balance along with the convergence into it. For reference, contemporary economics implicitly assumes that the scarcity is settled by production, but it is not realistic, as seen already.

It would be needless to mention in detail about the convergence power which causes the static balance of the economy because it is well known by the theories of price and income in contemporary economics. It is the departure power to be reliably clarified from now on. What is the departure power to cause its static imbalance, and what role does it play in the economy? The theoretical ground for this departure power is provided by which contemporary economics has regarded as exogenous variables; the variables which cause the shifts of demand and supply curves and generate the changes of their shapes and slopes. With the departure power, these exogenous variables come into the theoretical system of economics and make themselves as endogenous variables in the dynamic equilibrium although contemporary economics has overlooked their theoretical significance by treating them exceptional or case by case. And the departure power assigns an essential mission for contemporary economics to evolve further as below. Indeed, contemporary economics would evolve from statics to dynamics by establishing the principle that the convergence power and the departure power interact with each other to achieve the dynamic equilibrium by taking endogenous variables in the static balance theory as the convergence power of dynamic equilibrium while by taking exogenous variables in the static balance theory as the departure power of dynamic equilibrium. It is almost impossible to theorize any economic phenomenon as it is without introducing this concept of dynamic equilibrium even if its principle might seem strange right now.

It is the other reason to establish the dynamic equilibrium that economics academia has constantly raised the issue to evolve contemporary economics from statics to dynamics so far but has not achieved any clear and significant result till now. In addition, contemporary economics has failed to predict economic crises and abnormal economic phenomena, besides to prepare adequate policies in advance against them, because it is based on statics which disturbs to properly explain and to correctly diagnose the economic phenomena as they are. Foremost, there is no economic pathology in contemporary economics even though it regards the economy as an organism while pathology is developed in full swing for the organism of humankind, one of the most excellent organisms, of which issue is investigated in earnest at another paper of lead author titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021). In fact, the crisis of economics has been seriously propounded and earnestly discussed by some economists several times but resulted in vain until now, as seen at our other paper titled “How to Evolve Economics at First Step: Dismantling Economics” (Choe and You, 2023b).

The various and several fluctuations of real economy can be accommodated into a consistent theoretical system of economics when it is approached from the viewpoint of dynamic equilibrium. Without applying this dynamic equilibrium and embracing the departure from static balance, economics cannot accommodate any economic fluctuation, economic growth, systemic change of the economy and the illness of the economy into the theoretical framework of economics. It is logical from the dynamic viewpoint that all the economic phenomena which seem to be departed from the static balance are rather dynamically balanced. When the interaction between the convergence power and the departure power is considered to maintain the dynamic equilibrium, it is natural to see that all the imbalances in the classical sense are dynamically balanced. In other words, economics has to approach economic behaviors and phenomena based on this dynamic equilibrium since they are dynamically balanced when they are stable.

According to the dynamic equilibrium theorem, all the price phenomena in the real economy can be regarded as equilibrium ones even if they are unbalanced from the viewpoint of statics. Equally, all the income phenomena in the real economy can be regarded as equilibrium ones in the dynamics. By this dynamic viewpoint, economics prepares a room to build a theoretical system which meets the economic phenomena as they are. Thereby it will be possible to develop principles and theories for the real phenomena as they are in the economy. If the dynamic equilibrium is not assumed, all the economic phenomena have to be regarded as stopped and all the economic fluctuations cannot be accommodated into the theoretical system of economics since it is difficult for economics to evolve from statics to dynamics without the interaction between the convergence power and the departure power. Eventually, business cycle, economic growth and developing steps of national economy which are not allowed until now in the paradigm of contemporary economics can be scientifically understood in the new theoretical system of economics which is based on the new axioms and the dynamic equilibrium.

Now, a room has been set to deal with the new paradigm of economics since the axioms have been modified and the dynamic equilibrium has been established, as seen above. In the reality, the new terms of dynamic equilibrium and the new modified axioms have rarely a realistic meaning in their individual dimensions. Indeed, there is little practical usefulness only with them. However, when the new axioms and the dynamic equilibrium is applied into the whole theories of economics, it has not only the practical usefulness but also important academic meanings. It would be the next work of economists.

In addition, the economy occasionally deviates even from the dynamic balance and occasionally confronts a crisis of its breakdown or a pathological phenomenon. To speak figuratively, as even a humankind, one of most excellent organisms, occasionally gets sick, the economy, an organism, also occasionally gets an economic disease, which requires the establishment of economic pathology in economics. Accordingly, the imperativeness of economic pathology to be established is thereby given. In other words, the establishment of economic pathology is essential and urgent in economics, of which theme is investigated in full swing at another paper of lead author titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021), as mentioned several times.

**6. Conclusion and Further Studies**

The modification of axioms should be the starting point of the economics evolution, as seen at this paper. On the other hand, contemporary economists seem to lose the way to go ahead since it has developed for hundreds of years without the modification of axioms to closely meet the real economy. So, contemporary economics has become far away from the reality even though it progresses for nearly a quarter millennium from its establishment. In short, even from now on, these axioms should be modified to meet the reality as follows; ‘resources are scarce while their scarcity is relative and changes,’ ‘economic subjects try to rationally behave’ and ‘the economy tends to balance into dynamic equilibrium’. This modification of axioms would evolve contemporary economics from statics to dynamics, and they would create a new paradigm of economics when the term of dynamic equilibrium is introduced into it. Namely, the modification of axioms and the introduction of dynamic equilibrium into economics are the starting point of its evolution.

All the theories of economics will have a practical usefulness so that they will be able to explain and diagnose economic phenomena as they are in the real economy when this paper contribute to their advances, creating a new paradigm of economics. In other words, the task to apply the research results of this paper into all the economic theories is waiting for economists. In fact, some papers of the authors are ready to be published, including the papers of “Kinetic Theory of Price: A Part of K-Economics” (Choe and You, 2023f), “Kinetic Theory of Income: A Part of K-Economics” (Choe and You, 2023d), “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2023e), “Kinetic Theories of International Trade and Exchange Rate: A Part of K-Economics” (Choe and You, 2023c), “Kinetic Theory of System: A Part of K-Economics” (Choe, 2023a), “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021), and “How to Diagnose and Predict the Economy by Utilizing K-Economics” (Choe and You, 2023a), establishing a new paradigm of economics as seen in the book, Predicting Economics: K-Economics (Choe, 2023b).

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