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*Original Paper*

## How to Evolve Economics at Third Step: A New Approach to the Economy

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### Abstract

In the economy, there usually happen the intersections between the rise and fall of price and between the increase and decrease of income. These inflections cannot happen when one principle works. They appear when two more principles operate to generate two more vectors which collide each other to synthesize. In fact, there are three principles of decision, fluctuation and chaos for each phenomenon of price and income. These principles generate three vectors to collide synthesizing each phenomenon and create those inflections. And all economic phenomena are synthesized by the primary phenomena of price, income and system, of which fact is the same as the colors in the nature being a composite of the primary colors of red, yellow and blue. Relying on the above discoveries, this paper investigates a new way to evolve all theories and lays the foundation to establish a new paradigm, after dismantling the ideologies of capitalism and socialism which hinder the evolution of economics and modifying the axioms which are distant from the reality as discussed at our other two papers. The new theories thereby evolved would be much competent in explaining, diagnosing and predicting economic phenomena because they nearly meet the reality.

**Keywords:** chaos-principle, decision-principle, fluctuation-principle, kinetic-energy, primary-phenomenon, synthesis, system

**JEL Code:** A10

### 1. Introduction

It is essential for contemporary economics to evolve further because its theories are rarely useful for the real lives of economic people, as discussed at our other papers titled “How to Evolve Economics at First Step: Dismantling Ideologies” (Choe and You, 2024b) and “How to Evolve Economics at Second Step: Modifying Axioms” (Choe and You, 2024c). For the evolution of contemporary economics, it is necessary and essential to dismantle both the ideologies of socialism and capitalism that have fundamentally blocked the evolution of economics, and to modify the axioms such as rational behavior, general equilibrium and absolutely scarce resource that rarely meet the reality, as discussed at the above papers, respectively. At the first step, the theorem of ‘relative value’ is developed by dismantling both the ideologies of socialism and capitalism to fundamentally evolve contemporary economics. And at the second step, the theorem of ‘dynamic equilibrium’ is developed by modifying the axioms of contemporary economics to establish kinetic theories of economics which are useful for the economic lives of people and even the managements of company and national economy.

At the above two steps, the authors of this paper confirm that contemporary economics has many advantages although it has some problems as seen at the above papers. Indeed, contemporary economics not only provides a perspective to scientifically approach the economy but also has a great advantage in understanding overall economic phenomena by easily grasping the core among various complex ones. So, contemporary economics still retains its theoretical vitality and persuasive power despite harsh criticisms against it raised by critical economists for more than 150 years since the establishment of neoclassical economics. However, it is also true that contemporary economics has obvious limitations in explaining and diagnosing the economy, as already mentioned in brief. This shortcoming of economics is not improved so much yet in explaining and diagnosing economic

phenomena although the authors of this paper have established a new kinetic value theorem by dismantling both the ideologies of capitalism and socialism at the first step and the dynamic equilibrium theorem by modifying the axioms of contemporary economics at the second step. Why?

Most of all, the authors have newly confirmed the fact that contemporary economics simplifies too much the economy for its scientific chastity, neglecting its practical usefulness in the real economy. For example, contemporary economics regards all the economic phenomena as simple ones generated by one principle. But the authors have newly discovered the fact that all of them are synthetic ones generated by plural principles. It takes for more than four decades for them to establish the principles that generate the inflections of price trend and income trend. And it is not appropriate for contemporary economics to explain the economy by utilizing the closure model first, the complex model next, and then the open model at last, in turn, as will be seen at fifth section of this paper. In short, those two steps discussed at the above papers are not enough to entirely evolve the contemporary economics. So, the third step is waiting for discussions at this paper to evolve economics further and to establish its new kinetic theories of price, income, money and banking, international trade and exchange rate, and system, thereby establishing a new paradigm, as follows, which would enable economists to properly explain economic phenomena as they are in the economy, to correctly diagnose them, and even to accurately predict their trends in neat future.

First, the economy should be approached with a new way based on a new viewpoint, completely different from that of contemporary economics, as below. Indeed, contemporary economics regards each of the primary phenomena such as price and income as a simple one that one principle generates. For example, it teaches that price is determined by the balance of demand and supply, and that income is determined by the balance of savings and investment. But there usually happens the intersection of price rise and price fall in the real economy, and the same goes for the business cycle which refers to the fluctuation of income. These inflections of price trend and income trend cannot appear if there are one principle of price and one principle of income in the economy. Any inflection can appear when two more vectors collide to synthesize, which means that two more principles operate in either price phenomenon or income phenomenon. So, this paper considers that each of the primary phenomena such as price, income and system is synthesized by the sub-phenomena which are respectively generated by the principles of decision, fluctuation and chaos, and that all the economic phenomena in the economy are synthesized by the primary ones of price, income and system, as will be seen at second and third sections of this paper, respectively.

Next, to evolve economics furthermore, the economy should be approached from the viewpoint of kinetic energy, not from that of absolute value, and the opened complex model should be adopted at the outset of economic study, neither the closure model nor the complex model, as will be seen at fifth section. And then a new theoretical framework of economics, i.e., a new paradigm of economics, would be established, which will be more practical and useful for the economic lives of people and the managements of company and national economy than that of contemporary economics.

Accordingly, this paper is organized as follows; first section introduces the issue of new approach into economics, as seen above; second section investigates the reasons why each of primary phenomena such as price, income and system is synthesized by the sub-phenomena which are respectively generated by the three principles of decision, fluctuation and chaos, and why all economic phenomena in the economy are synthesized by the primary ones of price, income and system; third section investigates the three primary colors of the economy, i.e., price, income and system; fourth section deals with the term of kinetic energy, not that of weight, to evolve economics from statics to dynamics; fifth section covers the issue that the study of economics should start with the opened complex model, neither the closure model nor the complex model; sixth section examines a way to reconstruct a new paradigm of economics; and the last section concludes the discussions of this paper, summarizing its main achievements and proposing future studies.

## **2. All Economic Phenomena is Synthesized**

Contemporary economics has many advantages although it has some problems as already mentioned in brief. It provides a perspective to scientifically approach the economy and also has a great advantage in understanding overall economic phenomena by easily grasping the core among various complex ones.

So, contemporary economics still retains its theoretical validity and persuasiveness despite harsh criticisms against it raised by critical economists for more than 150 years after the establishment of neoclassical economics. However, it is also true that contemporary economics has obvious limitations in explaining, diagnosing and predicting the economy, as discussed at our above papers. There must be a crucial reason why contemporary economics is almost useless for the economic lives of people and the managements of national economy and company even though it has developed for nearly 250 years after the establishment of modern economics. What is the reason? Let us solve this question, as follows.

In the real economy, the price of a good often rises but often turns downward before long while it sometimes declines but turn upward before long. The intersection of price rise and price fall is a common phenomenon in the economy. The same goes for income. Income usually increases while it occasionally decreases. The business cycle, which refers to the fluctuation of income, usually ascends but shortly descends before long, vice versa. In the real economy, income often alternates between its increase and its decrease as above. What do these phenomena mean? The fact that either the rise and fall of price or the increase and decrease of income often intersects means that some inflections have usually occurred in both the trend of price and that of income. These inflections appear when two more vectors collide to synthesize. And the appearance of two more vectors means that two more kinetic principles are at work, whether for price or for income. In other words, inflections can appear when two more kinetic principles operate, whether for price or for income.

The reason why either the current price theory in contemporary economics hardly explains and diagnoses the inflection of price fluctuation or the current income theory hardly explains and diagnoses the inflection of income fluctuation, besides predicting, is because either the theoretical structure of price or that of income consists of only one principle in contemporary economics. In fact, contemporary economics teaches that the economic phenomenon of either price or income is governed by a single principle. For example, its price theory teaches that the price of a good is determined by the interaction of supply and demand, and its income theory teaches that the interaction of investment and savings determines the income of national economy. If only one principle works in the economy like this, neither the intersection of price rise and fall nor that of income increase and decrease can happen. As one principle generates only one vector, it is almost impossible for the current theory, whether price one or income one, to explain and diagnose the inflection of either the fluctuating progress of price or that of income. In the real economy, however, there often appear inflections in the fluctuating trends of price and income. And any inflection of them appears when two more vectors collide with each other to synthesize, and two more vectors are generated by operating two more kinetic principles.

From the time when N. Copernicus (1473~1543) declared in the book, [De Revolutionibus Orbium Coelestium] published in 1543, that 'the earth turns around the sun', science has systematically and earnestly developed. The fact that the earth revolves around the sun has made it possible to separate the rotational motion from the orbital motion. Thus, some important principles have been discovered such as the intersecting of night and day, changing of their lengths, and alternating four seasons. The heliocentric theory also enabled I. Newton (1642~1727) to discover the Law of Universal Gravitation and to understand why things did not fall into the space from the round globe. And it conduced to the Theory of Relativity of A. Einstein (1879~1955) which provided a room to identify the principle of universe motion. Above all, the heliocentric theory has allowed peoples to live in the world of science nowadays by freeing them from the world of superstition. Even when an eclipse or a lunar eclipse happens, peoples are no longer guilty of sinning in the Heaven. And they are not afraid that there will happen an unfortunate event such as war and drought when a comet comes into sight or Mars becomes reddish. In economics, it is nothing less than Copernicus' idea to know the fact that each of all economic phenomena in the economy is synthesized by the primary phenomena of price, income and system produced by two more principles. This context is a key that will bring a breakthrough to economics. Let us examine this issue in earnest from now on.

In the economy, there often appear inflections such as the intersection of rise and fall of price and that of increase and decrease of income, as seen already. What does this fact mean? The appearance of inflection means that two more vectors collide with each other to synthesize. And this means that two more principles work to generate two more vectors. In other words, each theory of price, income and system is respectively governed by two more economic principles. To conclude in advance, the

combination of each sub-phenomenon, which is respectively generated by each principle of decision, fluctuation and chaos, is synthesized to produce each primary phenomenon of price, income and system, especially each fluctuation of them. Let us see an analogy to easily understand this theme.

How can we know how much seawater is coming up at the seacoast? We need to know what variables determine the height of seawater; there are three main variables that determine it. First, the most significant variable that determines the height of seawater is the temperature of Earth as its height lowers during ice ages while it rises during warm ages. We, the authors of this paper, name it as the decision principle. Second, tide and ebb also fluctuate the height of seawater as the attraction power of Moon works. We name it as the fluctuation principle. Third, the size of waves also affects the height of seawater. However, the magnitude of wave is influenced by various variables such as wind, earthquake, and the like. So, we name it as the chaos principle.

Simply put, all the primary phenomena of price, income and system are subject to the dominance of chaos principle, fluctuation principle and decision principle altogether, of which issue will minutely be examined at our papers titled “Kinetic Theory of Price: A Part of K-Economics” (Choe and You, 2024g), “Kinetic Theory of Income: A Part of K-Economics” (Choe and You, 2024e) and “Kinetic Theory of System: A Part of K-Economics” (Choe, 2024a), respectively. It is the primary phenomena of price, income and system that the above multifaceted principles generate. In each primary phenomenon of price, income and system, the above three principles produce three vectors, which collide with each another and interact to create their inflections in the economy.

Furthermore, the other one of the most crucial reasons why contemporary economics is rarely useful for the economic lives of people is because it does not acknowledge yet that all the economic phenomena in the economy are synthesized by the primary phenomena of price, income and system. Indeed, there is not any simple phenomenon in the economy, of which fact would be strange and unfamiliar to economists and people who have learned and studied contemporary economics. So, another analogy would be useful for them to easily understand this fact, as follows.

The color of an object we see in the real world is not a primary one. Our eyes see a composite color of three primary colors of red, blue and yellow along with white for dye while red, blue and green along with black for light. When we separate the primary colors from the natural ones, we can apprehend how various colors appear, and then the colors we favor can be obtained by properly combining the primary ones. The same is true of the economic phenomenon. It is not wrong to say that there is not any simple phenomenon in the economy. All economic phenomena are synthesized by the primary ones. And the primary phenomena of price, income and system is synthesized by the sub-phenomena generated respectively by the principles of decision, fluctuation and chaos. To clarify this fact is the starting point of a new paradigm of economics, K-Economics, which is quite different from that of contemporary economics. This unique multi-faceted and multi-dimensional structure of theoretical system in K-Economics would enable economists to properly explain and correctly diagnose and accurately predict some inflections of the economy, of which theme is discussed in full swing in the book of lead author titled ‘K-Economics: Predicting Economics, ready to be published.

In short, just as there are three primary colors such as red, yellow and blue along with white in the nature, economic phenomena are also composed of three primary phenomena such as price, income and system along with two quasi-primary phenomena such as monetary finance and international trade. These three primary phenomena and two quasi-primary phenomena blend altogether to generate the economic phenomena we see and experience in the real world. For reference, each of the quasi-primary phenomena is a kind of income phenomenon or price one, of which issue is discussed in full swing at our other paper titled “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f) and “Kinetic Theories of International Trade and Exchange Rate: A Part of K-Economics” (Choe and You, 2024d), respectively. If so, what is price phenomenon, income phenomenon and system phenomenon, respectively? Before answering this question, let us examine first whether all economic phenomena are syntheses of three primary and two quasi-primary ones or not.

There is one more matter we should know beforehand. It is the fact that all economic phenomena always variate while all colors do not significantly change. In the matter of color, it is enough to know what a color comes out according to the combination of primary ones, while this is not enough in the

matter of economic phenomenon. We should know the kinetic principle that causes variations in the economy. And then we can explain and diagnose what a synthesis of primary economic phenomena is generated. Let us take this issue to be gradually come into view later and get back to the point.

Here is a pair of sneakers sold for \$100. Is this price a result caused only by the price principle that supply and demand interact with each other? No, it is not. This price is a composite phenomenon which is influenced by the phenomena caused by the principles of income, money and banking, international trade and exchange rate, and system. Let us easily talk about it. When income changes, the demand for sneakers variates, and this variation of demand naturally affects its price. The principle of income affects price like this. The price theory of contemporary economics explains this issue with the shift of demand curve and all the shifting variables of demand curve are regarded as exogenous, which makes it difficult to elucidate the scientific principle of price.

Not only is that. When money increases, price is affected by it, and money has a close relationship with income. In other words, money increases as income increases and affects price in return, of which issue will be discussed in detail at our other paper titled “The Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f). Price is affected not only by income but also by both export and import, directly or indirectly. And system has a secondary effect on price by affecting income. Depending on how effective and stable the system of national economy is, income increases or decreases, and this variation of income affects price. These issues are discussed in detail at our other papers titled “The Kinetic Theories of International Trade and Exchange Rate: A Part of K-Economics” (Choe and You, 2024d) and “The Kinetic Theory of System: A Part of K-Economics” (Choe, 2024a), respectively. As the price phenomenon is not a simple one that is solely determined by the price principle, the same is true of the phenomena of income and system. Indeed, such a multi-faceted and multi-dimensional system of theory is a characteristics of K-Economics, which enables us to grasp and forecast the inflection points of price, income and system, as mentioned already.

From a theoretical perspective, why is it important that all economic phenomena are synthesized? It is the reason that contemporary economics does not recognize it yet. At least, it does not recognize its significance yet, so the above fact is important. Indeed, contemporary economics has only one principle in which price is determined by the balance between demand and supply, and all the other variables that affect price are treated as exogenous ones. And it teaches that income is determined by the balance between investment and saving. Above all, there is no theoretical approach to system in the paradigm of contemporary economics till now. By analogy, contemporary economics does not know yet that the motion of Earth is a compound one of rotation and revolution. It is staying at the level of the Heavenly Plan. If economics does not go beyond this level, it is hard to expect its breakthrough. As this issue is very important for economics to evolve, let us examine this issue in full swing, as follows.

### **3. Three Primary Colors of the Economy: Price, Income and System**

Numerous variables interact with each another to cause an economic phenomenon in the economy. Particularly, science, technology, culture, art, education, social circumstances, and the like also have direct or indirect effects on all the phenomena in the economy. What is the reason why price, income and system are the primary phenomena of the economy? From the conclusion in advance, it is because the production that generates income, the transaction that is made up by price and the system where economic activities occur are fundamental phenomena that have emerged with the beginning of humankind’s economic life. On the other hand, science, technology, culture, art, education, social circumstances, and the like are derivative phenomena emerging in the developing procedure of economic life. Accordingly, price, income and system should be defined as the roots of the economy, and they are the most important for the economic lives of people and even for the managements of a company and national economy. Let us take a closer look at what have happened in the human history.

There are two questions to be solved before that. The one is the question what the system means, which is important to prevent unnecessary misunderstandings in advance. Simply put, the system is easy to be understood when it is taken as a national economy. What is the reason why the vague term of system is used instead of the clear and easy term of national economy? It is because there are economic entities such as Hong Kong and Macao which have not reached the national level, while they have economic boundaries and exist as independent ones. For reference, this term of system comes from the book, The

Social System (Parsons, 1951).

The other question is why science and technology are not included in the primary phenomena of the economy despite the fact that they have been closely related to the economic development in history. Especially, the development of tools has had a direct effect on production, and its history has brought about the changes of system by greatly influencing the economic development; the human history is divided into stone ages, bronze ages, iron ages and semiconductor ages. So, the development of tools along with that of science and technology is seemed to be as important as the three primary phenomena. However, closely looking at the economic history, it is hard to see that science and technology are developed ahead the economic development. Rather it is common that their development has become active after the economy has fast grown enough, which is proved by the fact that the British economy activated the Industrial Revolution through the commercial revolution. In the reality, science and technology have lagged the economic growth. They can grow the economy after their investments are made. And the investment of science and technology is made by companies which usually invest when the economy grows fast enough to be brisk. No matter how excellent a technology or a science is, any company rarely invests when it is not believed that its profit would be realized in near future. As the investment into science and technology would lead to losses and bankruptcies at last when the economy fast downturns or it is sluggish for a long time, companies are mostly willing to invest when the economy continues to be robust, and when profits are believed to come true by them. Therefore, it is reasonable to consider that science and technology are dependent variables on the primary phenomena of price, income, and system.

In history, human civilization has started to develop in earnest with the beginning of agriculture. However, it is ordinarily said that the physique of mankind was larger during hunting ages than during the agriculture ages, which means that the nutritional status of humankind was better in hunting ages than in agricultural ages. Why did humankind start farming? It was because hunting was not stable. In hunting ages, people might suffer many hunger days and often starve to death in the winter since animals went into hibernation or moved to warm places and plants dried up or came to naught. As population grew and grew, the crisis of hunger to death might increase because hunting required a large area. On the other hand, agriculture enabled more production on a small area than hunting. Above all, farmed grains were able to be stored and greatly reduced the likelihood of starvation in the winter.

At the beginning of most history textbooks, there are photographs of raw, comb-like or colored earthenware. Why do pottery photographs decorate the beginning of most history textbooks? It means that the history of civilization began with the earthenware. Indeed, the pottery is a container for storing grains. The storage of grains led to escape from the winter hunger, and then civilization began to develop in earnest. Agriculture also brought about another especially important change; the production of more food on a smaller area enabled the settlement of humankind, which ensured the sustainability of civilization development. This might be the moment when civilization earnestly developed. In the meantime, the nomadic remained constant along with the agricultural, and the open nature of grasslands contributed to the exchange and development of human civilization by acquiring and propagating new science and technology. The nomadic occasionally conquered and pillaged the agricultural by using the new technology and weapon acquired early.

Is production the only core of the economy as agriculture gives the momentum of civilization development in history? No, it is not. Agriculture has provided only foods to human being. Essential to the maintenance of life is one more, except for free air and water. It is salt. Any human being cannot sustain the life unless he or she continues to intake salt which constitutes 0.7% of his or her body because it is constantly discharged through urine and sweat. Human being has to daily consume salt as well as foods. Meanwhile, salt is rarely produced in agricultural areas. Conversely, farming is not good in the place where salt is produced.

How did humankind get salt in agricultural areas? Of course, it had to come from far away. The trade began with the agriculture like this. Merchants might also be born at that time as the productivity was much higher when there was someone specialized in trading salt and food, rather than going to a farm to sell salt or going to a salt pond to buy salt. Moreover, in the old days, the price of salt was so high that it was replaced by gold, which might make the trade more active. Trade and merchant might be

born with the launch of human civilization as above. It was also the beginning of the Neolithic period that the transaction of food and salt developed into long-distance trade. In the reality, prehistoric sites in the Middle East are often found with tools made of rocks thousand kilometers away from their homes.

The system might be born in earnest with the beginning of agriculture, too. Perhaps the primitive regime might already be born at the hunting ages because organizational behaviors were much more effective in hunting. But the regime might be family-centered or a group of close relatives at that time. It might be after the agrarian era that a full-fledged political system was born. In this era, plundering might be common since the stored grains might be a temptation that could not be dispelled by the hungry. As the plundering was effective when it was organized, a primitive system might be created for this. Likewise, an organized response might be needed to prevent from plundering. This is somewhat different from the viewpoint of Adam Smith that surplus production established and afforded the system. However, in ancient ruins of Middle East, traces of watchtower built around settlements are often found, which proves the fact that the prevention of plunder was a critical task of the regime at that time. So, it is reasonable to assume that the political system was born like this. In fact, the acquisition of wealth by trade was regarded as inferior to the acquisition of wealth by plundering and war not only in ancient Greece and Rome but also in the Middle Ages, which proves the close relationship between system and plundering.

Of course, it is a scholarly consensus that a political system was needed to rule a big river since all the ancient civilizations such as the Nile, Mesopotamia, India, and Yellow River were born around large rivers, but the terraced rice fields in Philippine and Chinese Yunnan had few connections with it. And the ruins of Mesopotamia proved that small irrigation was done first regardless of political system. As there are such opposite cases, the above common theory is not right. Rather it is reasonable to say that the system was born to prevent the plunder. In history, the human history developed in the constant confrontation and struggle between farmers and nomads; the nomadic occasionally invaded the agrarian for foods, especially when they lost a lot of livestock due to harsh weather.

The system phenomenon is fundamental one in the economy as seen above although contemporary economics ignores almost completely the principle of system. However, most economic phenomena cannot be properly explained and correctly diagnosed when the principles of system are not adequately understood. In the real world, the system plays the role to design, construct and regulate the economy and market. The principles of system are important so that. In the reality, the economy used to grow when the system was progressive, while it used to decline when the system was regressive.

Most importantly, it is a real fact that these primary phenomena of price, income and system are closely related with each another, and they have stronger influences on the economy than any other variables. Price affects income and system, income affects price and system, and system affects income and price, of which facts can be easily found in the real economy. First, the stagflation that appeared in the 1970s in United States and United Kingdom is a prime example that price influences income and system. As the fiscal expenditure expanded for a long time and the oil price went up overall, income was significantly affected by them, and the economies of USA and UK fell into the swamp of stagflation with their international competitiveness and growth potential dampened. At last, their economies were overtaken by Japan and Germany for years.

Next, a typical case in which income affects price is the mid- or long-term price trend of stock market. When income increases fast, the savings required for stock investment increases a lot, and the stock market is likely to rise in the mid- or long-term as the stock demand increases. And in the long term, increasing income usually prosper the system while decreasing income often leads to the change of system. In history, income has been decisive for the system to develop from clan society to tribal society, to dynasty society, and to democratic society. In addition, the increase of income has changed the composition of demand, which has led to the continuous growth of the economy.

Finally, the phenomenon in which system affects income and price can also be easily found in historical cases. Income has increased more rapidly when the system has been development-oriented, and price has stabilized when the productivity has accordingly increased. Conversely, the productivity has stagnated at first and decreased at last when the system has declined, and price has become unstable due to the decrease of productivity, of which issue is discussed in earnest at another paper titled

“Kinetic Theory of System: A Part of K-Economics” (Choe, 2024a)

#### 4. Kinetic Energy and Economic Circulation

It is correct to assume that all the goods are moving since the economy is a system of circulating and growing motions. The same is true of production factors and money. In the reality, various goods create the circulation of the economy by their traveling to economic entities and markets. The economy grows in these processes. Therefore, all the goods in the economy cannot be evaluated with any static value. All the goods which circulate in the economy should be recognized that they have their own kinetic energies, and the goods which are temporarily out of circulation have their potential energies. In this case, economic phenomena can be properly explained and correctly diagnosed, and then economics can fundamentally evolve from statics to dynamics. Let's see an analogy to easily understand the kinetic energy and potential energy, as follows.

Non-moving objects can be compared to each other by their weights, while moving objects cannot be compared by their weights alone. Even if the weight of an object is same with others, its influence is different from others when its moving speed is different from them. Even a small object has a great power at a high speed while even a big object has little influence without speed. Likewise, even if there are enormous resources in the economy, they can play little role when they do not come into the economic circulation for a long time. And they hardly exert any remarkable influence on the economy when their speeds are very slow or none. In the world, there are a lot of poor countries with abundant resources because their resources do not enter the economic cycle for a long time. This is the reason why moving objects should be evaluated by the kinetic energy.

How can the kinetic energy of goods be measured in the economy? Physics calculates the kinetic energy of an object by the product to multiply mass and velocity. It is the same in the economy. The kinetic energy of a good in the circulating process of the economy should be calculated by the product to multiply its mass and its moving speed. As the economy circulates, the moving speeds of goods and resources including labor, capital, technology and money in the circulating process become so important to determine their values.

When the values of goods are recognized with this kinetic energy, the way to explain and diagnose the economy becomes fundamentally different from that of contemporary economics. For instance, it is regarded as a truth in mainstream economics that price rises when money increases, and it is recognized as a principle with the exchange equation. To speak, the equation  $PQ = MV$  (P, price; M, money; V, velocity; Q, production quantity) explains that price increases when money increases. According to this equation, the inflation rate of price declines even when money increases if its velocity decreases faster than it. However, this quantity theory of money has faced away from the key role of money velocity, treating it as an exogenous variable. But it is essential to explain both the inflation and deflation of price how the money velocity correlates with income and how the correlation between price and money changes because the money velocity is important enough to be included in the exchange equation. However, the quantity theory of money often overlooks this point because the money velocity is regarded as an exogenous variable.

In contrast, the term of kinetic energy makes a simple and clear interpretation for the price inflation as follows. The currency newly issued by the central bank has no kinetic energy, and it intervenes into the economic circulation to slow down the moving speeds of other goods. Thus, the kinetic energy of other goods declines as the money newly issued by the central bank gains its kinetic energy from other goods. This decline in kinetic energy of other goods means the decline in their values, that is, the price inflation. How easy and logical this interpretation is! Such a phenomenon is easily found in the nature. For example, when we throw an object into the flowing water, the flowing speed of water slows down as the object gains its kinetic energy from the flowing water. This logic applies to the economy. Of course, it is not appropriate to unilaterally highlight the negative effects of the price rising since the increase of money amount enhances income by promoting economic activities such as transaction and production. So, it should be judged how positive or negative these two effects shows in the reality.

Foremost, the kinetic energy reveals the reason why the price inflation is inevitable for the growth of national economy, as follows. As the economy grows and its transaction amount increases in usual, the



central bank should issue more currency than ever according to the increase of transaction amount. The currency thereby newly issued deprives of the kinetic energies of other goods for itself to circulate in the economy because it has not any kinetic energy. So, the price inflation is inevitable for the economy to keep on growing, of which issue is discussed in full swing at our other paper titled “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f).

The reason why the concept of kinetic energy is important can be easily found in the real world, too. Let us look at a typical example. A country that maintains a leading position in the global economy usually has a lower growth rate than a country that is chasing it, and the growth rate of a developing country is generally higher than that of a developed country. What is the reason? Does it happen because imitation is easier than creation? Of course, it is a reason for that, but approaching with the concept of kinetic energy can grasp more important fact than ever. In other words, there is a gap between a country of high income and that of low income, and the gap generates a potential energy. The country with a low income can change the potential energy into the kinetic energy, increasing its economic growth rate.

### **5. Composition of the Economy: Four Subjects and Three Markets**

The theoretical starting point of contemporary economics is the simplified closure model in which exists only three factors of production, distribution and consumption. After that, it shifts to the complex model that government expenditure and tax revenue work along with them, and eventually moves to the open model in which foreign trade works, at last. This way of theoretical approach has the advantage to make the access to economic phenomena be easy, but it often causes a fundamental trouble in understanding the economy as whole. To analogize, in mathematics, students can hardly comprehend the meanings of numbers and arithmetic when the numbers of 1, 2, 3, 4, 5 are taught first, separately the numbers of 6, 7, 8 next, and additionally the numbers of 9 and 10 at last. No matter how complicated and difficult it is to teach from 1 to 10, all the numbers should be taught at once for students to correctly understand the decimal system, and then they can easily learn addition, subtraction, multiplication, and division. It is also desirable for economics to cover all the essential factors of the economy from the beginning. Just as an organ should be recognized with all of its head, trunk and limb in biology, the economic body should be recognized as a complete system from the outset, including government and overseas sectors into the triangle model of production, distribution and consumption in order to properly comprehend and correctly diagnose the economy.

Economics is established by considering the economy as a kind of organism. Indeed, economics is a kind of physiology. So, it is essential for economics to approach both the main organs of the economy and their functions from the beginning in order to properly comprehend its physiological phenomena. In physiology, all the respiratory organ, digestive organ, blood vessel organ, nervous organ, immune organ, and motion organ are considered as one system in order to properly understand its activity, fitness and health. These main organs interact with each another, and their interactions generate not only physiological phenomena but also pathological phenomena, of which issue is discussed in earnest at another paper titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021). So, the paradigm of economics should perceive the economy as a perfect cycling system.

In this new paradigm of economics, the economic body should be divided into company, household, government, international trade, and three markets of general goods, production factors and financial goods, as well known. And economics should regard all the economic phenomena as happening in a ‘three-dimensional world with time passing,’ of which issue is minutely discussed in our other paper titled “How to Evolve Economics at Second Step: Modifying Axioms (Choe and You, 2024c)”. By this way, the economy can be explained and diagnosed as it is. Let us briefly review them one by one though they are well known, which is necessary to establish a new paradigm of economics.

#### *5.1 Four Economic Entities*

As seen above, the economy consists of four entities and three markets. Four entities are the company which is responsible for the supply function, the household which is responsible for the demand function, the government and the international trade which have both the functions of supply and demand. And three markets are consisted of goods market, production-factor market, and financial

market. Among them, the four entities cause supply, demand and distribution which are basic functions of the economy, and the three markets function to stabilize the circulation and growth of the economy by leading the activities of economic entities into the dynamic balance, of which issue is discussed in detail at our other paper titled “How to Evolve Economics at Second Step: Modifying Axioms (Choe and You, 2024c)”. As these four entities and three markets play key roles as the constituents of the economic body, let’s take a close look at them in turn.

First, household is known to function as consumer in contemporary economics, while it also contributes to the financial market by saving money. Contemporary economics often refers to the ‘paradox of savings’ which means that it is personally virtue but nationally vicious as claimed by Keynes. So, it does not sufficiently embrace the function, that household is funding the financial market with its savings, into its theory. However, it is essential to exactly understand how the household savings functions in the economic cycle since this function also plays a key role in the economy.

When it was overlooked that the household savings plays a role to supply the liquidity in financial market, it often leads to a serious failure in diagnosing economic phenomena and in implementing the economic policy of government. For example, the Roh government in Korea, launched in 2003, caused a severe economic slump for a long time by ignoring the savings of household. It enacted the policy to control and reduce household debts, disregarding household savings. And then the Korean economy fast declined due to the decrease of money supply, as discussed in full swing at our other paper titled “How to Diagnose and Predict the Economy by Utilizing K-Economics” (Choe and You, 2024a).

Next, it is a traditional thought that company performs the production function. However, it also consumes to produce, which is often referred to investment. It consumes general goods too which is also a kind of investment. This investment has a significant effect on the business fluctuation such as the expansion and contraction of the economy by activating its acceleration principle as well known in contemporary economics. In addition, company saves money, too. It is the internal reservation which plays a role to provide financial resource to the financial market along with the savings of household. Therefore, to exactly know how the debt of a company is risky and to correctly grasp the situation of financial market, it is essential to examine the change in financial and real assets of company, including its internal reservation.

Third, the government has two functions as well known: tax revenue and fiscal expenditure which provide both demand and supply for the economic circulation. This feature is well known and relatively simple, so it is not needed to mention anymore. But the issues that how fast the expenditure and the revenue of government increase, how much its fiscal balance deteriorates or improves, how much the national debt increases or decrease, and how much market interest rates are affected by them are particularly important in diagnosing the economy. Though the significance of fiscal policy is well known by Keynesian economics, it has an important limitation to independently consider the fiscal policy by taking the government sector apart from the economic circulation, as follows.

When the fiscal sector expands, the tax revenue and the issuance of government bond increase, which shrink the private sector. In this case, the growth potential and international competitiveness of national economy is gradually diminishing because the average productivity of government expenditure is usually smaller than that of private investment, of which issue is discussed in earnest at our other paper titled “How to Evolve Economics at First Step: Dismantling Ideologies” (Choe and You, 2024b). Furthermore, Keynesian economics has a decisive weakness that it neglects the effect of the reverse multiplier when the reduction of fiscal spending or the fiscal surplus is inevitable due to the increasing national debt and to the long-run economic stagflation, while it focuses only on the effect of fiscal deficit and the multiplier of fiscal expansion, of which issue is minutely discussed at the above paper.

Most of all, the government as the policymaker has a direct influence on the economic cycle. It establishes and enforces several policies on price, money, interest rate, exchange rate, business cycle, industry, financial market and financial crisis, and enacts various regulations and supports in order to promote the fair trade, growth and stabilization of national economy. These policies are utilized as the measure to pursue various political goals of the government such as stabilizing the prices and the economy, creating jobs, improving the international payment balance, maintaining a proper amount of

foreign exchange reserve, stabilizing financial market and overcoming economic crisis for the national economy to stably grow and for the people to enjoy economic prosperity.

Fourth, the international trade of which export forms a part of aggregate demand while import forms a part of aggregate supply also plays a vital role in the circulation and growth of the economy. Therefore, when diagnosing and forecasting the economy, it is desirable to keep the followings in mind; how fast export and import grow, which one of them grows faster than the other, whether the balance of current account in international payment improves or deteriorates, how foreign exchange reserves and external debts change, and how much the exchange rate of currency fluctuates. Overlooking these points often leads for economists concerned to misjudge the situation of national economy, especially when establishing and enforcing the policy of government.

For instance, when the domestic economy is boosted by the increase of fiscal spending, this leads to the increase of overseas import due to the excessive demand, which occasionally calls for a currency crisis due to the deterioration of international payment balance that decreases the foreign exchange reserve and raises rapidly and suddenly the exchange rate of currency. Unfortunately, contemporary economics often overlooks these points causing a severe currency crisis at last because it applies the closed model at the starting point of its theory. In fact, regretfully, Korean government tried to aggressively stimulate its economy by expanding its fiscal expenditure in the mid-1990s, and then it brought on a severe currency crisis by increasing the deficit of international payment like a snowball, as discussed in full swing at another the paper titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021).

### *5.2 Three Markets*

As the four economic entities have been examined as above, it is the time to look at the three markets that also make up the economy. The goods market sparks production and consumption through transaction, the production-factor market generates income, and the financial market serves to supply and demand money for transaction and investment in the economy. These three markets function to cause the dynamic equilibrium among supply, demand and distribution in the economy. And they serve to balance price, money and income into the dynamic equilibrium which works just like a trio-stars system in the universe. In other words, these three markets make price, money and income interact with each another, balancing themselves into the dynamic equilibrium. Meanwhile, contemporary economics often fails to properly explain and to correctly diagnose the economic phenomena as they are since it neglects to sufficiently include the financial market and the production-factor market into its theoretical framework, that is, the paradigm of economics. In other words, these markets should be involved in the theoretical system of economics since they are basic components of the economy. In fact, these two markets operate in the economy as well as the goods market does. This issue about three markets needs to be examined further as follows because any unnecessary misunderstanding should be avoided.

First, the goods market plays the role to supply goods needed for the consumption of household, the investment of company, the expenditure of government and the national export as well as the role to demand the goods provided by the production of company, the tax-revenue of government and the national import. These demand and supply for general goods take place in the goods market, resulting in dynamic equilibrium to stabilize and to grow the economy. This market for general goods is easy to understand, so there is no need to mention anymore.

Next, the financial market supplies capital to the production-factor market and provides the trading means to the goods market. In other words, the money supplied by the financial market serves as a means of trading in the goods market as well as a means of value storing in the production-factor market. This fact provides the theoretical validity to the two basic functions of money: the means of trading and that of value storing. It is also the function of financial market to divide all the goods into two broad categories; general goods of which value is consumed and other goods of which value is often increasing, of which issue is discussed in full swing at our other paper titled “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f).

Among them, the latter is a good means of value storing by its nature. Increasing value is a good

temptation for economic entities to store the value, and this property gives the monetary function to some goods such as corporate stock and real estate. These real estate and corporate stock given the monetary function play crucial roles for the growth and fluctuation of national economy, causing occasionally an economic crisis, that is, economic disease, of which issues are discussed in full swing at another paper titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021).

The financial market which has such essential functions includes not only the monetary authority led by the central bank but also financial institutions such as banks and other financial companies. Among them, the central bank does not only issue currency bill but also establishes and enforces various monetary policies, thereby maintaining the value of currency and stabilizing the financial market and the national economy. For example, it is the central bank that controls the amount of money in the economy through the open market operation and that adjusts the market interest rate by changing its base interest rate. In recent years, this role of monetary authority to stabilize the financial market and the national economy has become increasingly important, comparing to that of fiscal authority, of which issue is discussed in full swing at our other paper titled “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f).

Financial institutions other than the central bank have essential functions too. Especially, these financial institutions create credits by repeating deposit, loan and investment, which increase the supply of money with enough kinetic energy to meet the economic growth without seriously causing the price instability. And they lead capitals to be intermediated and invested, settling the market interest rate. On the other hand, financial institutions often cause the credit destruction, which is the reverse process of credit creation, of which issue is discussed in earnest at the above paper.

In addition, the international financial market should be included in the financial market of the economic body because the capital traded in the international market has the property that it crosses frequently and relatively freely the national border, comparing to general goods. And this international market has a close and quick effect on the domestic financial market. Above all, it is a crucial reason to include the international market into the financial market that any financial policy is likely to fail when the monetary authority neglects it.

Finally, the production-factor market is also a component of the economic body. The income generated from the production-factor market is divided into that for consumption and that for savings; consumption flows into the goods market to demand general goods, and savings flows into the financial market to supply capital. The fact that the production-factor market plays the role of distribution as above is well known in mainstream economics too. So, any more mention about it might not be needed.

To summarize, it is essential to see the economy as it exists in the real world in order to properly explain and correctly diagnose economic phenomena. To do this, it is desirable to consider all the essential sectors of the economy from the outset of studying economics. It is the same as students can well learn mathematics when they are taught all the numbers from 1 to 10 at once. In other words, the economy should be recognized as it is, which is an effective way to avoid any serious mistake in explaining and diagnosing all the economic phenomena and in enacting various policies of the government. Foremost, this evolves contemporary economics further to meet the real economy, which will contribute to the establishment of a new paradigm of economics, enabling economists to correctly diagnose and to accurately forecast the economy, as discussed in the book, *K-Economics: Predicting Economics* (Choe, 2024b).

## **6. Theoretical Framework of New Paradigm: K-Economics**

As seen above, all the economic phenomena happened in the economy are synthesized by each of the primary phenomena such as price, income and system. And each phenomenon of price, income and system is also synthesized by each of the sub-phenomena respectively generated by the chaos principle, fluctuation principle and decision principle. So, the theoretical framework of economics should be reconstructed in accordance with this logic. In other words, the theoretical framework of economics should be constructed by classifying three primary categories; theories of price, income and system, of which each theory is consisted of chaos principle, fluctuation principle and decision principle. In

addition, economics should accept the economy as whole which includes four subjects and three markets form its outset. Foremost, each theory of economics avoids any mutual conflict with the others both theoretically and politically, and then a complete system of new economics would be established.

Meanwhile, mainstream economics is consisted of microeconomics and macroeconomics to respectively explain price and income phenomena, but each theory of them has not any correlation with the other. Rather, they conflict with each other almost always both theoretically and politically. For example, microeconomics which is based on the general equilibrium maintains the viewpoint that the market function should be respected, while macroeconomics based on Keynesian economics maintains the viewpoint that the economy should be managed by the government. Thus, they conflict with each other both theoretically and politically, which is crucial evidence that mainstream economics has not yet understood the fact that all economic phenomena are synthesized. The other economics such as that of Austrian schools and that of monetarism schools are not different from them, needless to mention that of Marxian school. On this account, it is almost impossible for contemporary economists to scientifically explain the economic phenomena which are happening in the real economy. To figuratively speak, if a physicist does not comprehend the fact that the earth's motion is consisted of revolution and rotation, it is hardly possible for him or her to explain various phenomena which happen in the Earth such as the change of four seasons and the exchange of day and night.

Moreover, mainstream economics does not make any mention about the phenomenon of system. It has only emphasized implicitly and explicitly that market has well solved most economic problems, and that the market-based system is superior to any other economic system which has ever existed. Mainstream economics maintains this insistence based on the perfect competition and general equilibrium that never exist in the reality, of which issue is discussed in earnest at our other paper titled "How to Evolve Economics at Second Step: Modifying Axioms" (Choe and You, 2024c). Of course, institutional, historical, and Marxian economics are interested in the system, but each system theory of them is merely an independent one, not a part of economics paradigm.

In contrast, a new economics, which is the basis of this paper, that is, K-Economics, embraces most academic achievements of various schools by integrating all their theories into a paradigm. It forms a unified theoretical framework so that all the theories of price, income and system do not conflict with each another both theoretically and politically. And all the schools of economics are unified by scientifically dismantling the ideologies of capitalism and socialism and by evolving the contemporary paradigm of economics further, of which issues are discussed in detail at our other papers titled "How to Evolve Economics at Second Step: Modifying Axioms" (Choe and You, 2024c) and "How to Evolve Economics at First Step: Dismantling Ideologies" (Choe and You, 2024b) respectively. From now on, let us examine the theoretical framework of this new economics, K-Economics.

As shown in the diagram below, K-Economics has a multi-layered and complex structure composed of a three-stories building, and each story is divided into three rooms. There is the price theory on the first story, the income theory on the second story, and the system theory on the third story. And each story is divided into three rooms: decision principle, fluctuation principle and chaos principle. Furthermore, the room of price decision principle on the first story and the room of income fluctuation principle on the second story are opened to make up one room and share one theoretical system with each other. And the income decision principle on the second story and the system fluctuation principle on the third story are also made up one room and share one theoretical system with each other. In other words, the income decision principle and the system fluctuation principle as well as the price decision principle and the income fluctuation principle have one theoretical system. This new economics, K-Economics, has such a unique theoretical structure that the price theory, the income theory and the system theory coexist without any conflict and omission.

&lt;Figure&gt; Theoretical Structure of New Economics: K-Economics

System Chaos Principle	System Fluctuation Principle	System Decision Principle
Income Chaos Principle	Income Fluctuation Principle	Income Decision Principle
Price Chaos Principle	Price Fluctuation Principle	Price Decision Principle

For reference, there are some theories which need a special consideration although the theoretical framework of K-Economics is basically composed of three stories and three rooms in each story as above. They are the theory of money and banking and the theories of international trade and exchange rate which should be separately considered. Theoretically speaking, it is correct to include both the theory of money and banking and that of international trade into the theory of income, and to include the theories of interest rate and exchange rate into the theory of price, but it is necessary to separately examine them because each of them has an independent characteristic, and each of them has a direct and big effect both on income and price. These issues are minutely discussed at our other papers titled “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f) and “Kinetic Theories of International Trade and Exchange Rate: A Part of K-Economics” (Choe and You, 2024d).

As all the theories of price, income and system are composited of three principles such as that of decision, that of fluctuation and that of chaos in K-Economics, this theoretical structure enables the economists concerned to forecast inflection points in the flows of price, income, and system phenomena. Indeed, three principles generate three vectors which come into collision and merge with each another, making an inflection of each flow in price, income and system phenomena because the direction of each vector is different from the others, synthesizing with each another. These inflections are particularly important for any economic people in the reality, needless to mention the reason.

On the contrary, contemporary economics is consisted of monistic theories. For instance, price is solely decided by the interaction between demand and supply, and income is solely decided by the interaction of savings and investment in mainstream economics. Either the price theory or the income theory has only one principle, which means monistic. So, it is hardly possible for the economists obsessed with contemporary economics to catch even an inflection point since most economic functions are expressed in an equation in mainstream economics. One principle makes one movement track, that is, one vector, of which moving direction and speed are always constant. Accordingly, most economists who are absorbed in contemporary economics used to issue useless forecasts. Let us review some examples in recent history as follows.

When the stock market kept bullish in 1999, some economists expected that the Dow would reach 30,000 (Glassman and Kevin, 1999) and even 40,000 points (Alias, 1999). And when the prices of real estate continuously rose in 2006, some economists forecasted that this trend would go further for the time being. However, when the markets of corporate stock and real estate turned bearish in late 2008, it was general for the economists concerned to predict that their prices would fall to one-third and even to one-sixth. Moreover, in 2009, some economists foretold the collapse of dollar value when it kept on declining, which were disproved shortly by the reality that the dollar value rather much increased soon.

The most useless predictions of the economists and economic institutes obsessed with contemporary economics are on the business fluctuation. When the business cycle is up, most economists used to anticipate that it would continue to be up for the time being, and vice versa. Unfortunately, most of their anticipations have been proved incorrect by the reality. Even when it is correct, it has rarely a big meaning. What does it mean to foretell that it will be also good in near future when the economy is good? What has an important meaning in economic life is to forecast the inflection points of various trends in the economy. For instance, it is useful to predict whether the current business cycle will be changed up or down. And it is needed to forecast when the turning point appears when a price keeps on rising or falling. Simply speaking, contemporary economics based on monism rarely issues useful outlooks because almost all the inflections are made by two more vectors which are produced by plural principles. On the contrary, some significant inflections of business cycle can be foretold by the K-Economics, which is proved by some examples examined at our other paper titled “How to Diagnose

and Predict the Economy by Utilizing K-Economics” (Choe and You, 2024a).

## 7. Conclusion and Further Studies

It is urgent for contemporary economics to evolve further because even the price theory which is the base of its paradigm is rarely useful in the real economy as any investor rarely utilizes it even in the stock market which meets most closely its preconditions of perfect competition, full information and strict balance. And the policy of government relying on its income theory used to fail to revive the economy, rather causing stagflation in the long term as seen in the cases of USA and UK during the 1970s. If so, what is the way to evolve contemporary economics?

First, it should be recognized that all the economic phenomena are combined by each primary phenomenon of price, income and system, and each phenomenon of them is synthesized by each sub-phenomenon which is respectively generated by the principles of decision, fluctuation and chaos. Second, all the economic objects should be evaluated by the kinetic energy, not by the weight, since all of them are moving to circulate in the economy. Third, as mathematics teaches students the whole numbers from 1 to 10 at once, the economy should be acknowledged as whole at the beginning of its study, not divided by the closed model, the complex model and the open model. Fourth, the theoretical framework of economics should be restructured in accordance with the above logics, and all the theories should not conflict with each another. Finally, the economic pathology should be established in economics as pathology is developed widely and deep in human biology, of which issue is investigated in earnest at another paper titled “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021). And then economics evolves enough for economists to properly explain, to correctly diagnose the economy as it is. In this case, it will be possible for economists to forecast even the inflections of price, income, and other phenomena when they are interested and studied hard.

Now there remains the task to develop specific theories of price, income, money and banking, international trade and exchange rate, system, and economic pathology according to the above logics, which would lead to establish a new paradigm of economics at last. And then this new paradigm of economics would be practical and useful for the economic lives of people, for the management of company, and for the policies of government. In fact, some papers are ready to be published such as “Kinetic Theory of Price: A Part of K-Economics” (Choe and You, 2024g), “Kinetic Theory of Income: A Part of K-Economics” (Choe and You, 2024e), “Kinetic Theory of Money and Banking: A Part of K-Economics” (Choe and You, 2024f), “Kinetic Theories of International Trade and Exchange Rate: A Part of K-Economics” (Choe and You, 2024d), “Kinetic Theory of System: A Part of K-Economics” (Choe, 2024a) and “Economic Pathology; A Research into its General Principle and Clinical Cases” (Choe, 2021). The authors of this paper expect them to be published by any economic journal as soon as possible. Fortunately, the book, K-Economics: Predicting Economics, that consists of all the above theories are under publishing in 2024 in South Korea.

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