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Modern explanation of the virtual value of natural resources --- based on Marxism economic viewpoint

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Abstract: this passage points out that although natural resources don't contain the common connotation of labor value, but contain the connotation of virtual value. This economic category of natural resources can not only discover the value basis of the price of natural resources, but can also provide a basis for natural resources and exchange of other commodities with virtual value. This passage continues to indicate that this realization mainly stems from Marxism economy itself, besides, it can also provide a theoretic basis for reasonable and effective use of natural resources during economic and sustainable development.

key words : natural resource virtual value

I. Natural resources are resources added to natural power

According to Marx's viewpoint, natural resources are supposed to be added to natural resources. In his economics, productivity and labor capacity (productivity) belong to the same economic category¹, but an abstraction of the same economic activity from different

¹ On this matter, most academic experts in theory hold that productivity and labor productivity are of the same concept. They usually quote the words in Marx's "On Capital", productivity is sure to be useful, concrete labor productivity, in fact, it only determines the efficiency of productive activities on

aspects. Domestic theories often define productivity as human ability of conquering, using and improving the nature to produce materials. But they define labor capacity as efficiency of labor production. It may have two forms: quantity of commodities produced within unit time, or necessary labor time for producing unit products. But Marx holds that productivity is sure to be useful, concrete labor productivity². That is to say, away from labor and concrete labor process of producing products, the basis for productivity is lost. Therefore, Marx usually regards productivity as labor productivity. But surely, both of them have certain difference too, for example, although productivity is firstly the productive ability of labor, it usually stresses the integral productivity of labor's uses implements of labor upon subjects of labor. While labor capacity (productivity) often indicates actual labor ability or its actual effect.¹

Marx has explained firstly in "On Capital" the factors determining labor productivity, he points, labor productivity is determined by many conditions, including worker's average skill of labor, development of science, and its apply in skill, social integration of production, scale and efficiency of implements of labor, and natural conditions². Obviously, Marx has divides elements influencing labor capacity into these categories:

purpose within specific time. ("On Capital" first volume, page 59).

2 "On Capital" first volume, page 59.

1 Professor Hu Jun thinks that productivity and labor productivity are two different concepts, and former textbooks, books and dictionaries have mistaken them together, due to the translation problem in domestic theories. He points out, productivity or material productivity, together with social productivity, is a collective noun, indicating the group of laborer, implements of labor. But labor productivity indicates the laborer's actual ability, including laborer's social productivity and his natural productivity. (Hu Jun, "Productivity and Labor Productivity", "Modern Economic Research", second issue in 2001)

2 "On Capital", Marx, first volume, page 53.

Laborer (labor's subjective conditions), including two aspects: first, individual labor ability ("worker's average skill of labor"), second, combination of labor productivity and social labor productivity ("social combination of production")

Capital ability (labor's objective conditions: "scale and efficiency of implements of labor"), here Marx indicates scale and efficiency of productive implements such as implements of labor, subjects of labor.

Natural power (natural conditions), original power of the nature.
Scientific ability ("development of science and its apply in skills"), Marx thinks that science and technology are productivities.

According to this theory of Marx, resources added to laborer are human resources, and resources added to capital ability are resources for production, resources added to science are technological resources. Therefore, resources added to scientific and informative power are informative resources, then, resources added to natural power are natural resources.

II. Natural resources are virtual social value of real use-value

Marx in his "On Capital" has considered natural resources from the aspects of use-value and value.

First, Marx holds that natural resources, as a kind of natural possessions (natural use-value), plays an important role in social production, and can create more possessions. He points, "specific development of labor productivity is based on natural richness of natural sources(land and water) of possessions, which vary in different nations"¹. He stresses that "away from the nature, the perceptual outer world, workers can make nothing. It is the material in which workers realize their labor, make products or make their own

¹ "On Capital", Marx, fourth volume, page 496.

products by it”.² He also points, “the efficiency of agro-work is connected with natural conditions, and following different productive efficiency of natural resources, same labor would acquire more or less products or use-value”.³ for example, “land is his original granary, as well as his original implements’ store of labor.”⁴ “We can also say, industrial work efficiency first depends on materials and their property.”⁵

Next, during Marx’s analysis of natural resources from the aspect of value, he points, natural resources, as productive elements, don’t enter production in the way of commodities. They themselves don’t have values, transfer values or form new values. For example, Marx had said, “an object can be use-value not value, under the circumstance that it isn’t useful for humans because of labor. Such as air, virgin land, natural lawn, wild forest etc.”⁶ While “various free natural powers, as elements too, enter production with more or less efficiency.”⁷ He also points, “large scale production---large scale corporation of applied machines---has first put natural power, that is, wind, water, steam and electricity directly into production, in order to change it into element of social work---due to the lack of value of these natural elements, so they can only enter labor process, not the process of forming value. They give labor higher productive power, but don’t increase its value, as well as commodities’ value.”¹ obviously, the natural resources which Marx has analyzed are mainly natural powers. Meanwhile, he has also seen the products of natural power(such as virgin land, primitive forest and mine etc), sometimes may enter production in the way of the

2 “The Corpora of Marx and Engels” forty-second volume, page 92.

3 “On Capital”, Marx, third volume, page 922.

4 “On Capital”, Marx, first volume, page 203.

5 “On Capital”, Marx, fourth volume(II), page 82.

6 “On Capital”, Marx, first volume, page 54.

7 “On Capital”, Marx, second volume, page 394.

1 “The Corpora of Marx and Engels”, forty-seventh volume, page 569.

productive elements of commodities. In this time, although these natural resources don't have values, yet they indeed have some features of value during exchanges. In "On Capital", Marx has actually defined this sort of value as virtual (artificial value).

For example, Marx in the first volume of "On Capital" has put forward the concept of virtual price form, by the example of using the natural resource of land. Here, he points, "things without values can have prices too, which are as virtual as some quantities in maths. On the other hand, virtual price form----such as price of wild land, this kind of land doesn't have value, for it doesn't contain human work in it---can also conceal real value relations or their descendent relations."² although Marx doesn't refer to the concept of virtual value, yet he has referred to the concept of virtual price form. The author thinks, according to this logic of Marx, the concept of virtual value is reasonable too, because the basis of virtual price form can be virtual value. On this, Marx's explanation of virtual capital and land price in latter part can prove.

Marx in the third volume of "On Capital" analyzes a lot virtual capital. He holds, the creation of virtual capital is based on moneyed capital, that is "moneyed capital has resulted in this: every assured and regulated profit in the form of capital, is expressed as interest of capital, no matter whether this profit stems from capital.

Capital profit is first transferred into interest, then acquires capital which makes this profit."¹ while these certificates which can bring certain profit are virtual capital. Therefore, Marx thinks those imagined capital in the form of stocks can only be regarded as imagined and virtual value. Obviously, Marx has first regarded virtual capital as a kind of virtual value.

He continues to point, "this imagined wealth, according to its original value of each part with certain nominal value, can also increase during the production development of

2 "On Capital", Marx, the first volume, page 123.

1 "On Capital", Marx, the third volume, page 526.

capitalism.”² therefore, on the basis of the proposal of concept of virtual capital, Marx made a research on the value of these natural resources such as land etc.

He had carried out this research first by analysis of land tax. In his opinion, in capitalism society, land owners, by his ownership of the land, can not only get tax by renting lands, but can also get high land price by selling lands. Wild land is itself natural object, not working product, so it doesn't have value. But under the condition of common commodities, everything is commercialized, land can also be sold and bought. At this time land gets price. He thinks this price isn't the capital of its value, for it doesn't have value itself, actually is the land tax's capitalization. Marx says, “ purchasing price of land is calculated as the times of yearly profit, this is just another way of expressing land tax's capitalization. In fact, this purchasing price isn't land's purchasing price, but price of land tax which land has provided, which is in the form of common interest rate.”³ That is to say, land price is based on original land tax and is calculated according to interest rate. Concretely speaking, land price equals to this capital value: if it is put into bank, yearly interest profit equals to the land tax of this land.

It can seen from Marx's elaboration of land price, that if the future land tax the land acquires is regarded as due profit, then the determination of land price and the fix of price of virtual capital are the same, both are capitalization of due earnings. So it can be said that, the land price based on the sales of it, according to its ownership, reflects virtual characteristics. Because land has taken the price fix method of future profit, its realized price represents equal quantity of virtual capital, and this quantity else represents natural objects without values-----the land's “value”, then this “value” is obviously virtual value.

From the above indirect elaboration on virtual value of Marx, we can realize this: people can endow any objective subject without value, under certain relationships of

2 “ On Capital”, Marx, the third volume, page 540.

3 “ On Capital”, Marx, the third volume, page 703.

commercial economy, with certain value that isn't real value but virtual value. By the parity of same reasoning of the above, although natural resources don't have values, they can have prices under condition of commercial economy. And these prices are virtual ones, only this virtual value is endowed later by people.

Besides, in the thirty-ninth chapter of the third volume of "On Capital", Marx directly proposed a concept of "virtual social value", which is also the straight basis for the author proposing virtual value of natural resource.

Marx has pointed straight in the third volume of "On Capital", "differential rent is usually determined as the integral price which market value exceeds the products' quantity----this determination creates a virtual social value."¹

Marx holds that capitalism management monopoly exists within agriculture, due to finitude of land resources. Capital can't be transferred freely, so the market value of agro-products isn't determined by moderate productive conditions, but by poor conditions. So integral social value of agro-products exceeds their individual integral value, forming "virtual social value".

Virtual value of natural resources have the same features with this: they include natural power and resources added to it. As soon as they enter commodity exchange, they will have virtual values which are shown through prices. At this time these natural resources enter production and their virtual values are added to commodities. This commodity's value exceeds their real value, that is, value composition of commodity contains a virtual value. It is shown not only by price, but realized by price too. For example, commodity manufacturer applied natural resource as productive element to production. If this natural resource is commercialized productive element, then manufacturer must get this part of expense back when selling commodity.

¹ "On Capital", Marx, the third volume, page 774-745.

Virtual value of natural resources isn't just what Marx has said "artificial social value", but it is similar to the nominal value which Marx has explained in the third volume of "On Capital", when he is elaborating commercial circulation fee. That is, added part of commodity when sold. Although this added part is necessary for realization of commodity's value, it can't increase commodity's real value, as the socially necessary labor time necessary for the commodity itself. Therefore, it can only be realized by the way of increasing the price.

IV. The price-fix model of virtual value of natural resources and the present significance

V.

In modern society, natural resources are becoming more and more commercialized, not just including the products of natural power such as virgin land, primitive forest, mine etc, but also include the nature's own power such as wind, water, electricity, atomic power etc.

The price-fix of virtual value of natural resources should also obey Marx's principle of land price, which isn't a real price, but just a price in theory. If it is shown by virtual value it will fit its inner connotation more.

Therefore, the author also obeys Marx's theory of the price-fix of virtual value of natural resources.

First, the author thinks the formula of price-fix of virtual value of natural resources is:

$$P = \sum_{i=1}^{\infty} \frac{D_i}{(1+r)^i} = \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \dots$$

In it, P represents the virtual value of natural resources, D_i represents profits of natural resources in future years, r represents discount rate, which is usually replaced by market interest rate. If profits of natural resources in future years were the same, D, the above formula can be simplified as: $\frac{D}{r}$.

This formula is for the price-fix of virtual value of natural resources which have no time limit. For the price-fix of those which have time limit, it is determined by the following formula:

$$V = \sum_{i=1}^n \frac{R \times F}{(1+i)^i} + \frac{F}{(1+i)^n}$$

V represents natural resources with time limit, R is profit rate, F represents price of natural resource, i represents discount rate, n represents time limit of natural resources.

It can be seen that virtual value of natural resources is a price in theory. In modern economic activities, the virtual value of natural resources ought to be shown by price. But the price of natural resources, after being reflected by currency in the form of virtual value

of natural resources, vary with virtual value of natural resources, because virtual value and price counteract with each other in several steps, forming some deviations.

The economic category of virtual value of natural resources is significant theoretically and temporarily for us effectively using natural resources.

Our theory has been restricted by Marx's labor value theory for a long time, and has regarded natural resources as free natural resources which can be used, therefore, in practice the reasonable use and improved distribution of natural resources are influenced.

Ever since the reform and open-up, our nation has begun to emphasize the harmony of human and nature, together with sustainability of economic development. However, this the matter of the value basis of natural resources hasn't been solved, there isn't enough theory and quantitative standard for the use and distribution of natural resources, fines upon damage to natural resources, as well as the supplement to natural resources.

If we calculate and evaluate natural resources according to theory of virtual value of natural resources, the matter becomes clearer.

First, it provides value basis for exchange of natural resources, such as a piece of primitive forest, the basis of its value of exchange is :

$$P_a = \sum_{i=1}^{\infty} \frac{D_i}{(1+r)^i} = \frac{D_1}{(1+r)} + \frac{D_2}{(1+r)^2} + \dots$$

$$\text{or } \frac{D_a}{r}$$

P_a is virtual value of primitive forest, D_a is yearly profit of this forest after it enters the production as productive element in future years, r is market interest rate. Therefore it provides a basis for the exchange price of natural resources.

Next, this theory can mainly provide theoretical basis for the evaluation of human pollution of natural environment and damage to natural conditions.

According to the formula above, the cost of human damage to a piece of primitive forest is the capitalization of the profit human acquire through the entering of this forest into production.

If this forest can provide profits of 2 million RMB, after it enters production, its interest rate is 5%, therefore the cost of the value of this forest is:

$$P_a = \frac{D_a}{r} = \frac{200}{5\%} = 40 \text{ million RMB}$$