

A THEOREM FOR THE PRICE OF RELIABILITY

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Abstract

In the article is defined a theorem for the price of reliability concern production/ consumption. There is examined a relativistic correlation information between the price of commodity and interest in it from a user within a point of view supply/ demand and the law of value of goods, acting as a regulator of financial and economic relations and relatives in free and regulated market.

Keywords: *reliability of information, price (value) of goods, cybernetic system, relativistic correlation information, techno-economic system, information management*

1. Introduction

In the history and theory of Political Economy is well known the fundamental definition about the price of Karl Marx that „Gross Value-expression of a product in gold (X commodity A = Y commodity money) is its monetary form, i.e. its price”. [1] Exploring the process of exchange of labor and goods, Karl Marx formulated the law of value as follows: „People do not exchange any products, and always strive for equivalence. This means that labor in one form is exchanged for the same amount of labor in another form.” [1-4]

It is known, however, that market and economic life of the prices of individual goods differ significantly from their values. That is the law of value acts as a regulator it is through spontaneous prices that determine supply and demand, as well as how the model or mechanism of connections and relationships between them. Commodity production is examined and studied as far as possible from economic thought more than two centuries. For our study, an answer to a similar question about the significant deviation from the value of the goods is especially important as the consideration of social production and dynamic self-organizing information system that has a fundamental meaning and perspective. And it increasingly strategic determines not only the rate of economic growth, but also the quality of life.

Addressing the question of the reliability of production and consumption is realized by adopting the following hypothesis (axiom): Cost of reliability in the production of

a product (service) is determined by the assessment of the price of the goods, seen as relative relational information connection (link) between producer and consumer, producer, and evaluation of reliability (financial index) free (regulated) market.

In fact, why the price of a product departs from its hundred-ynost? Why the price of a product does not match its value, as it is a form of manifestation of the value? Why are you always such phenomena that are mediated more or less, correct or complete information?

The reason for this should be sought in any additional reasons and factors that are both associated and mediate the contingencies and objects (entities) the examination and analysis.

2. Price of goods and reliability of information

The determination of price of goods is a complex information navigation cognitive process of forming its value with bandages-payment of individual labor socially necessary labor realized in the techno-economic system (TES). Assuming that the formation of the value is in cash, the deviation of individual monetary costs of the average public expenditure needed is not a deviation from the value. This is a variation of the value of the case of the arithmetical mean value of the lytic case. This question is not within the tolerances of the individual prices of the market. We are interested in: Why are there variations in the prices of goods in the real value (measured in gold or some other equally important universal equivalent of exchange)? Could the information that describes the status and movement of a product (service) as a subject and the subject's interaction directly affect such deviations of the price?

To address the issue, the authors adopted the following ow-sioma for the price in theoretical and consideration: „Total price of the goods is equal to the total value of the entire stock market.”

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To facilitate meditation and analysis, such deviations are considered within the value homeostasis for a TES, market, economy of a country or union of countries. The deviation from the value of the goods is due to the impact of the flow of information outlet for the production and

use-value of the goods on the formation of the price of the goods.

Assuming that the product has two sides or two factors that define it – use-value and real value, then the deviation of price from its nominal value, has a role as one factor and the other. In some cases, the deviation from the value of a commodity is determined by its use-value, and in other cases – the formation of use-value of a product is influenced by its actual value. For example, such a case is when the quality material is replaced by another, less expensive and poor quality. Often the use-value of the goods is made worse by striving for it to be cheaper and more accessible to the client (user). The role of information is hidden in the final result of the evaluation of the factors that form the price. This requires analysis of the model and method of disclosure of the information or creating cognitive units as critical substantive elements of the TES.

In this rise in the price of goods is reduced and demand from consumers. Thus, under the laws of the market value recovers within limits correlation between production and consumption. Therefore, the law is a regulator and disproportion of existing production in an economy (state). Of course, it is if its capitalism (capital economic relations) is not speculative and respected the most common market principles. The latter is relevant for the coordination of modern societies and farms. Therefore, the law of value acts as a regulator of violent proportions between production and Consumer-population and the proportions in the division of labor between sectors and depending on the dynamics of information that reflects the work of the law, the regulations of markets may be more effective liquidity for economic purposes.

The primary means by which act law of value, the price of the goods produced (with its tangible and intangible forms of value). Here in intangible goods given results and products of intellectual labor – information, knowledge, books, articles, reports, scientific and artistic works (literature, art), music, culture and more. For commodity understand themselves money (or other funds and assets viva financial system of the economy), deposited in a bank, for example in the form of deposits and loans. Increase in the value of such goods for the time interval is compensation for the risk that exists to fail bank or reduce the liquidity of money. In this future value of money is determined by the amount is increasing the interest for the term of the deposit. There is commonly used compound interest or simple interest, according to the bank's policy, state and international financial regulations.

From the formulas for compound interest or simple interest [5], that stand-munity (price) of capital remuneration is its financial information signal to the

market dynamics. As it comes to in-formation, it is necessary to present a formula for the amount of reliability information I_{RI} of TES for management that has n-number of outputs and each output is likely to occur (realiza-tion) p_i by the condition $0 \leq p_i \leq 1$

$$I_{RI} = -\sum_{i=1}^n p_i \log_2 p_i P_{NFW}(\Delta t) \quad (1)$$

In (1) probability for non failure work $P_{NFW}(\Delta t)$ for reliable operation of the TES in the interval of observation $\Delta t = t_2 - t_1$ is defined from the basic Law of Reliability in stationary and ordinary flow failures (violations) and absence of consequences (effects), according to the equation

$$P_{NFW}(t_1, t_2) = e^{-\int_{t_1}^{t_2} \omega(t) dt} = \exp \left[-\int_{t_1}^{t_2} \omega(t) dt \right] \quad (2)$$

where $\omega(t)$ is the intensity of failures (disturbances) in the TES observed time interval (NFW – none failure work) [6].

Based on the determination of the probability of reliable operation of TES study by (2), then the inclusion in the formula (1) the amount of reliable information we can determine more accurately the cost of reliability in production.

3. Price as an information signal to the market

The price is a data signal that manufacturers of goods received from the market (free or regulated) [3, 4]. By this signal commodity producers receive information about the realization of his labor, i.e. public recognition of their individual (private or collective) labor. Therefore, the price of the goods function is as a feedback information connection (link) between producers and consumers, between the actual value of the product and its use-value. This cyber interaction between the people (society, Sociality), commodity price and market system is shown by the authors in the Fig. 1.

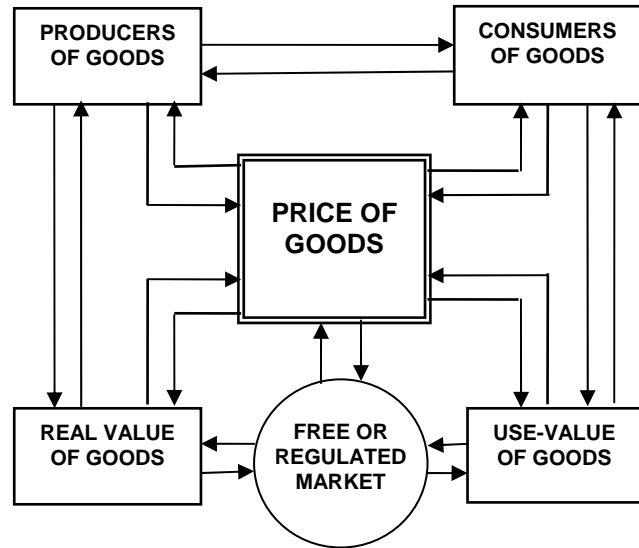


Fig. 1 Model of cyber interaction between people (society, Sociality), commodity price and market

If in the Model on Fig. 1 information connection (link) to commodity prices with producer and consumer goods are considered positive, the reverse data link to commodity prices and the real use-values it is negative. Therefore, the price of goods is generally (sense) relativistic correlation data connection that, on the one hand, serves to align production-user, consumer values to search with payment options (opportunities), on the other hand, serves as a correction of the quantitative limit necessary consumer-user, values that are produced in average society and economy conditions (in a statistical sense). It must balance the potential risk real losses that have occurred or will occur.

On the basis of the question and its consideration for a solution in the management of the systems as cyber liaison (Fig. 1) is as follows:

Theorem commodity price as a factor for reliability of production in a given TES: The price of a product plays a role of relativistic correlation information in relation management (cybernetic) system released by producers and consumers. A producer who creates quality and demanded by those goods for a time which is less than the average time necessary for that, it receives a price which is higher than the actual value. There are economically and financially unsuccessful outcome of those producers who are not able to respond to market conditions and produce goods for more than the average time needed.

4. Production, price and income

The examination and analysis of the theorem for the price of a product and its reliability suggest some reflections, as market income and social needs of the population. In this case the price of the product is taken that role played a priori and the amount of use-values as relativistic correlation information link between the need of the subjects and the amount of labor. This price is a winner of a regulatory mechanism under the use-value, but it also became the winner of the regulatory mechanism in line with its objective value axis information later.

Production and economic relations are governed by the deviations of the price around value. Adjust the proportions in the distribution of material and immaterial labor demand and the economic and social needs. Schematic flow of information about the price is shown in Fig. 2 [3].

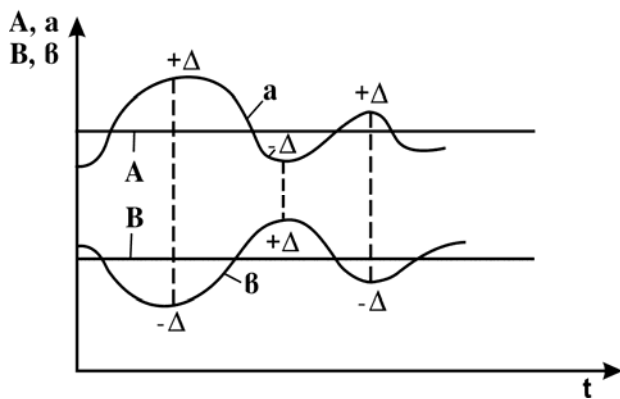


Fig. 2 Price as a regulatory mechanism of use-value and actual value (A – Value of the goods at an average socially necessary production time, a – Price of the goods; B – Market demand, expressed as a solvent demand; b – Quantity of use-values)

Between the two lines (ie between the amount of goods and the deviation from the value) is marked with a dashed back negative connection, which is unique. It has unambiguous and one-way and two-way role and meaning. Connecting a plus (+) and minus (-), so that the dynamics leads to reverse bias: plus (+) is a tendency toward a minus (-), and vice versa, minus (-) tends to plus (+). The absolute magnitude of the deviations gives an idea of entropy in production. Deviations always be balanced and provide homeostasis system.

Thus, by relativistic correlation data connection and unbalanced traffic are carried proportions in the market economy. Such a link and imbalanced behavior show continuous variations in the homeostasis of the system

corresponding to the objective processes of changes in the market, which is determined by the fact that the total market price is equal to the sum of producer prices, respectively, the values of prices. The same applies to situations of line "B", since the relevant production facilities and workforce exists an ideal opportunity to produce what exactly is the real value required.

It is assumed that only the absolute value of the plus (+), respectively, minus (-) loss for the economy and society. It manifests itself as a loss in valuable quantities of the substance-energetic interaction and wealth. This means that the higher the entropy, the greater the losses to society, measured in its production value and use-value. In this context information and its reliability is a key to revealing the unity of opposites in terms of their origin. Labor productivity is higher, more dynamic and broad in scope, the smaller is the entropy production, i.e. more information involved in it and society [6].

This opportunity to study the role of the law of value as spontaneous regulator appears with consideration of information mechanism by which self-organization is carried out of production, production and consumption, which allows for more precise observation, research, response and coordination. This is done using a direct negative feedback of information connection (link) between the movement of valuable signals from the production of goods (services), and the signals for their consumer value.

When the amount of goods on the market is less than demand, then the market price rises above the value. There has been driven mechanism of self-regulation through the implementation of more profit than the average. Then the signal enters in function for the rate of profit and boosting the manufacturer to increase production. At the moment the bulk goods exceeds market demand starts falling producer's profitability below the average for the period. This data signal from free market forces the manufacturer to reduce costs of production (for example, to downsize) to increase the quality of production or to transfer capital in other production, that is, to do something economically and financially rational.

It is known that the capitalist flair businessmen is most sensitive to the signal gain. Thus the Law of value regulates the movement of consumer values, i.e. physically-energetic proportions in the economy.

Possibly reverse effect is on the line of use-value. In this case there are new needs whose satisfaction from the standpoint of the manufacturer means more profit. Then perform naturally increase the intensity of production, respectively create new jobs and increase income levels.

But we need to note some important points in the process of self-production. These are the following three points:

First, self-regulation of the production does not tolerate large deviations, i.e. It does not tolerate entropy. This means that even spontaneously, independently of mind and business plans, markets and society as a whole, the operation of the law of value stimulates the growth of social wealth. Reduction of entropy or increasing the amount of reliable information (see formula (1)) of production leads to an increase in its organization, quality information management, expanding base of knowledge, experience and technology.

Second, individual producers (businessman, capitalist) can be rich or fail while individual worker (employee) is only just possible or may not work (salary). Therefore the limit of its wealth (respectively reduction) is only within the salary.

Third, manufacturing process has a specific form and specific information signals corresponding model (mechanism) of self-regulation. Production in a regulated market retains only some basic features of this process. The content and form of information signals change, which changes information links, i.e. model (mechanism) of self-regulation of production and consumption is subject to the tendency for balance and reliability for existence.

5. Conclusions

As a result information-economic analysis of the price (cost) of goods and production and customer relations outline the following conclusions:

1. Correlation exists between the regulatory mechanisms in two lines of the value of goods (service) – on use-value and actual value of the goods. In this breach of homeostasis in one line restores homeostasis in the other line. It has been shown by the authors using a cybernetic model (Fig. 2) that the two lines of the value of the goods (the line of consumer value and line of actual value) the existence of negative feedback connections and dependence made and information expressed in the price of the commodity to balance the extremes (opposites) to a position of establishing mutual balance due to the interaction changes (Fig. 2).
2. Each entropy, which is related to the cost of production and consumption, is a kind of loss of economic and social life. Therefore, it should not be allowed a large range of variations of prices and wages.
3. Regulatory mechanism value is built hierarchically, as a system of government. Hierarchy valuable mechanism is

explained by the fact that the magnitude of the objective value of the commodity can be formed at different levels of tangible and intangible production and consumption. Furthermore, the magnitude of the value when formed at different levels, and the value of each higher level cognitive information and limit criterion for measuring and verified, provision of value of goods of the lower levels.

4. The value positioner maintains and restores homeostasis provides the TES and the economic system, we manage by providing equivalence in price relations and relationships. Any violation of the equivalence price leads to an increase in entropy. Although the price system in any variations in the plus and minus balance each other. Imbalance in real single individual connections and relationships leads to violation of the basic ratio between effective demand and the value of the goods being offered for sale.

5. Value recovery and self-growing of the individual elements of the product is important for the practice and management of economic and financial processes. Elements of production recover physically, energetically only within the market and society. Moreover, the control mechanism of the stock price forced the relative balance in the general range (scale), as well as each individual item.

6. Production is an open system management. Moreover, every moment of creating a use-value is also a moment of consumption of another use-value. This means that the substance-energetic recovery of any use-value, must go through the entire row of the open circuit – nature, manufacturing process, advertising, supply of goods and final consumption goods from the subject.

In a market economy the risk is an essential part of the role of the entrepreneur. Without any information everyone system (TES) is at risk in the economy and society. Formal processes and procedures for data processing increase the likelihood of correct decisions and actions, but it does not remove and preclude the occurrence of the risk. Solutions on investments and assets of the financial markets can be understood based assessment and the opportunities of its information management. The risk information or reliability is the key to modern economic theory, mathematical models of risk systems reliability and risk information management.

Relativistic correlation data connection is a measure of risk (risk assessment) and risk management needed to be observed not only in the economy of society because information is generally good. It is necessary not only for the indication in statistical variations in norms and standards, but a standard probabilistic and statistical deviations, for example, investment alternatives,

evaluation methods and crises management (risk management) perspective.

Asset markets investors usually prefer high-probable or high expectation cost and low risk (risk assessment). But this is not always possible. In this sense research high-probable price and its standard deviation in the theory of reliability risk management and risk assessment are critical place for the application of knowledge. It is also crucial in practice.

Relativistic correlation data connection facilitates the identification, detection and assessment of risk and crisis connections and relationships associated with variations in the price of goods and operation of the Law of Value in the analysis of products, services and markets that are innovative and highly sought after character and in determining the potential of innovation, business problems, identifying existing and hidden needs, entrepreneurship development and understanding of their role and value in the economy and society.

The required information strategic business and financial community that a more objective, faster and more effectively respond to deviations that bring deep and broad crisis nature of markets, social and economic life, despite the existence of standards. The expansion and growth of the information society and markets is accelerated by creation and emergence of new approaches and ways of information, advertising, creation and presentation of business information products and services, and the development of information, computer, communication and navigation systems, networks and technologies .

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