

THE LOGICAL FRAMEWORK OF ECONOMICS

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Preface

This work was suggested by the program of the Reform Science Center based on my research in exact sciences which has recently initiated the reform of modern physics. There have been made numerous notifications concerning that program, and I expected enthusiastic responses from philosophers and economists, in particular, but no serious response has been received yet. There have been perhaps strong doubts concerning the very possibility of generating the science of economics as a logical and systematic body of knowledge. So, seeing no response from professionals and understanding the social importance of the true science of economics, I have decided to try and create a short account of such a science on my own, given the drafts made in the late 80s, my above experience in physics and a recent small article on politics. As a result, there has appeared the work stated below. I would be grateful to its readers for any remarks concerning its subject matter.

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Introduction

Economics, in the scientific sense of the word, is the science studying the social system of goods production for their consumption in society. At present, however, economics is often considered an agglomeration of all the methods, models and theories dealing with various aspects of economy that can hardly be covered by a science deserving its name. This work is devoted to studying economics in the above strict sense of the word. Such a study is known to have been initiated in the 19th century by Karl Marx [1], but it was not and could not be completed because of an underdeveloped state of science, in general, and the lack of systematic approach to science at that time, in particular. The systematic approach to science was first developed, although in quite an abstract form, in philosophy by Hegel [2], and it was Karl Marx who showed how it worked in application to a concrete modern science. Now that such an approach has been understood, developed to a sufficient degree and successfully applied in exact sciences [3] and humanities [4], it is quite natural that we have endeavored to apply it to such a socially important science as economics. In the course of this work, there have been introduced new concepts and received new results. This work is a short account of the logical structure of economics and it should be enlarged by relevant examples, comments and discussions.

Chapter 1. Market production

Economics is the branch of science studying the laws of production and exchange of goods in society. The element of any production process is *the individual labor*. Thus we should start the research with the study of the individual labor.

1.1. The individual labor

A. The individual labor is first of all a *specific labor* aimed at producing specific things for a specific consumption by human society. Therefore the individual labor is at the same time a social labor, *the labor in general*. Thus the nature of the individual labor is dual: it is a *specific-general* labor. The labor in itself is abstract, nonexistent; it becomes real only when applied to some material things, *the means of production*.

B. Means of production include *tools of production* and *raw materials* or *semi-products*. Similar to labor, means of production are of a dual nature. On the one hand, they are the means supplied for a specific work; on the other hand, they are tools and materials in general. Thus means of production are of a *general-specific* nature. In themselves, means of production are abstract, non-existent: they become real only when acted upon by a labor in *a process of production*.

C. The labor and means of production are realized in the process of production; the latter is the unity of its above both sides in which they transit to each other, become inseparable, disappearing elements of that unity. The process of production is *real*, which manifests itself by *the real value of the goods produced*.

Comments:

There may be some objections as to the unreality of the means of production in themselves, because they usually appear to be some real useful things, for example, pens, computers, tractors for agriculture, etc. However, in putting such objection, one would overlook the fact that such things are not yet means of production; to become ones they must prove their ability for production in a real process of production, because otherwise they may prove unfit for it.

1.2. The production

A. Taken directly, the production is some technological process, *the production proper*. It is characterized by the average amount of labor and means of production spent for the production of goods, *the cost of production*. To re-stock the labor and means of production spent in the production of goods, the latter must be exchanged for other goods produced by other producers, which is the second side of the production, *the trade*.

B. During the trade, the product is assessed against the background of the whole production capacity of society; it is conditioned by the average conditions of society and thus acquires its social value, *the price*. The trade resumes the process of production, which thus becomes *a real production*.

C. The real production is mediated by society and becomes a social production, *a shop*, characterized by its *social status*, a composite value of its product, its *cost-price value*.

1.3. The shop

A. One shop presupposes the existence of an indefinite multitude of shops. The specific character of every shop *separates* it from other shops.

B. Shops exchange their goods to resume production and therefore should *unite*.

C. These two contradictory sides of the shop, the trends for separation and unification, fall into unity giving birth to the society of private producers, *a simple market production*. The simple market production is an indefinite multitude of shops producing goods for exchange or sale in the market. As a unifying society, the market introduces a unified equivalent of goods – *money*.

1.4. The simple market production

A. The simple market society is a multitude of shops *identical* to each other because they all produce cost-price values. Therefore the simple market society is a *homogeneous society*. On the other hand, the market is a *discrete* multitude of isolated shops identified by their *trade marks*.

B. An isolated shop is also both discrete and homogeneous. It is discrete as one shop and homogeneous as identical to other shops producing the same goods.

C. Thus the shop proves to be similar to the market society because, in some respect, they are both homogeneous and discrete. Because of this similarity, the contradiction between the market and the isolated shop finds its solution in *the production branch* which is both a society of producers and a discrete producer of specific goods. The branch settles the contradiction between the market and the individual producer. As an individual producer, the branch has its representative, *a chief producer*; as a particular production society, it has a code of rules, *a charter*.

1.5. The branch

A. The branch is characterized first by the equivalent number of its producers, its *productivity*.

B. Any shop of the branch is to some extent different from its chief producer and may originate its own branch. Therefore any branch overlaps other branches and therefore has its *boundary* within itself, that

is characterized by some kind of *elasticity*.

C. The branch with a limited productivity and a definite elasticity is a *definite branch*. It is characterized by a composite value, *productivity-elasticity*. The definite branch is a unified and united producer of specific goods and is able to establish the *standards* of production.

1.6. The definite branch

A. The definite branch ensures regularity in production of its goods in constant conditions and, due to its elasticity, can adapt to changing trade conditions in the market.

B. In the market, the trade conditions are determined by the supply and demand relation which fluctuates about some average pattern and, therefore, is regular on average.

C. The market production in which the regularity of the branch production is combined with the average regularity of trade follows some stable pattern, a *standard market pattern* (SMP), characterized by a relatively stable correlation of prices of different commodities.

Comments:

The stability of the market is the result of the play of its internal law, “an invisible hand”, called *the law of value*, which regulates the correlation of different branches of production thus maintaining a relatively stable correlation of prices. The law of value adjusts the relation between the productivity of different branches through the spontaneous fluctuation of prices about the cost due to changes in demand and supply. Under the law of value, the goods are traded according to the cost of social labor necessary for their production. The law of value is *the essence* of market production; along with the SMP concept, it is the most fundamental concept of economics.

The logic of the theory stated in this chapter is outlined in Table 1, its cells containing the codes for the respective concepts according to the reform science classification standard [5].

Table 1. Market production

A Thesis	B Antithesis	C Synthesis	Q Quality
EC-1A1 Individual labor	EC-1B1 Means of production	EC-1C1 Production	EC-1Q1 Value of goods
EC-1A2 Production proper Cost of production	EC-1B2 Trade Price of goods	EC-1C2 Shop Status of production	EC-1Q2 Cost-price value
EC-1A3 Multitude of producers Isolation	EC-1B3 Exchange of goods Cohesion	EC-1C3 Market production Regulation	EC-1Q3 Unity of exchange Money
EC-1A4 Society of producers Homogeneity and discreteness of shops	EC-1B4 Individual producer Homogeneity and discreteness of goods	EC-1C4 Branch of production Chief producer	EC-1Q4 Charter Authority

EC-1A5 Volume of branch Productivity	EC-1B5 Inter-branch boundary Elasticity	EC-1C5 Definite branch Productivity-elasticity	C-1Q5 Legal status Standards of production
EC-1A6 Regularity and adaptiv- ity of definite branch	EC-1B6 Average regularity of supply-demand relations	EC-1C6 Average regularity of market. Standard Market Pattern (SMP)	EC-1Q6 Law of value. Social self-identity of market

Chapter 2. Capitalist production

In Chapter 1 we investigated the general properties of market production and arrived at the conclusion of its self-identity expressed in the formation of the Standard Market Pattern. However that pattern has not been expressed explicitly, and we should proceed with its further investigation to achieve clarity in this respect.

2.1. The standard market pattern

A. The standard market pattern is regulated by the law of value according to which goods are produced and traded in proportion to the social labor necessary for their production. The law of value determines the proportion of goods supplied to market, sets definite relations between different branches, regulates the distribution of labor and means of production. Owing to that regulation, production in society is *self-consistent*. Thus the law of value is the law of market self-consistency.

B. The regulation function of the law of value operates via the spontaneous fluctuations of prices about the cost due to changes in supply and demand. To be on the safe side, every producer works to accumulate certain amount of spare money. As a result, some producers manage to collect a sufficiently large sum of money, invest it into production and get *profit*. In doing so, they turn money into *capital*. Capital is the foundation of *the capitalist way of production*.

C. The origin of capital means the private property for the means of production, the existence of free workers for hiring and a production based on *hired labor*. The most primitive way of capitalist production is *a handicrafts production*. In such production an owner supplies the workers with tools and raw material and demands the production of goods for a definite payment.

2.2. The handicrafts production

A. The handicrafts production is the production of *identical* commodities made by individual isolated workers and collected by the owner who supplies the goods to market *in parties*.

B. The organized collection of market commodities produced by isolated workers suggests necessity for *an organized collection of workers* themselves.

C. The handicraft production where workers are collected and organized in parties to perform the same production operations is *a cooperation*, a primitive organization of mass production.

2.3. The cooperation

A. The cooperation is based on a number of *identical* works. At the same time, any production has some *technological structure*, a *diversity* of different operations.

B. The diversity of operations suggests necessity for *the division of labor* to match the structure of the goods produced.

C. The cooperation modified by the division of labor turns into *a manufacture*.

2.4. The manufacture

A. The manufacture is based on a diversity of simple *mechanical* operations.

B. The use of simple mechanical operations suggests the possibility of using *machines* operated by *trained* workers.

C. The manufacture equipped with machines operated by trained workers is *a factory*.

2.5. The factory

A. The factory is characterized by the use of a number of machines, *a cooperation of machines*, with the workers *automatically* operating the machines.

B. The automatic character of labor at the factory presupposes the possibility of introducing *automatons* to perform automatic operations and the use of *qualified* workers to operate them.

C. The factory where the machines are substituted by a number of specialized automatons operated by qualified workers is *an industrial factory*.

2.6. The industrial factory

A. The industrial factory is the best solution for the technological side of production. The commodities produced must be *marketed*.

B. To market its product, the industrial factory organizes *an automatized collection* of its product, *delivering* it to the market, *selling* it to customers and *collecting the return*.

C. The industrial factory modified by an organized and automatized supply of its product turns into *an industrial supplier*. The industrial supplier acquires an exclusive legal right, *a monopoly*, to produce its kind of goods, which gives rise to the *monopolistic* way of production.

The logic of the theory stated in this chapter is outlined in Table 2, its cells containing the codes for the respective concepts.

Table 2. Capitalist production

A Thesis	B Antithesis	C Synthesis	Q Quality
EC-2A1 Self-consistency of market	EC-2B1 Spontaneity of supply and demand	EC-2C1 Spontaneous accumulation of capital Handicrafts production	EC-2Q1 Foundation of capitalist production
EC-2A2 Collection of identical products	EC-2B2 Collection of identical workers	EC-2C2 Cooperation	EC-2Q2 Primitive organization
EC-2A3 Diversity of technological operations	EC-2B3 Diversity of specialized workers	EC-2C3 Manufacture	EC-2Q3 Primitive systematic organization
EC-2A4 Mechanic labor	EC-2B4 Machines	EC-2C4 Factory	EC-2Q4 Primitive liberation of labor
EC-2A5 Automatic labor	EC-2B5 Automatons	EC-2C5 Industrial factory	EC-2Q5 Advanced production and liberation of labor
EC-2A6 Advanced organization of production	EC-2B6 Advanced organization of trade	EC-2C6 Industrial supplier	EC-2Q6 Ideal realization of SMP, its project

Chapter 3. Monopolistic production

In Chapter 2 we investigated the development of the capitalist way of production and arrived at its highest form – the industrial supplier. The latter produces goods and supplies them to market. The industrial supplier has the best organization of both stages, producing and marketing goods, and the best *ideal* realization of the Standard Market Pattern. However, the structure of the industrial supplier is not articulated; for that reason, the industrial supplier is not a practical solution of the SMP but rather its *project*. So we should proceed with further investigation to see how that ideal SMP model turns practical.

3.1. The industrial factory and supplier

The industrial factory and industrial supplier both *alternatively* produce and market goods. The difference is that, while the industrial factory has the marketing stage incorporated *implicitly*, in the industrial supplier it is incorporated *explicitly*. These two forms of production can turn into one another and present the dual images of one another, which suggests the existence of their unity, a *self-financing* entity, a *firm*. In the firm, in contrast to its constituents, the processes of production and marketing are uninterrupted. The firm has its distinguishing trade mark, an advanced position among competitors and a certain *market power*.

3.2. The firm

The firm is able to produce goods and supply them to market. Each of its two major parts, industrial and commercial, performs two functions of its own: the industrial part is responsible both for the production of goods and the modernization of equipment, while the commercial part is responsible both for marketing the goods and financing their production. To ensure an efficient and smooth functioning, all these parts need permanent attention which the firm is unable to provide. Indeed, when, for example, it is engaged in modernizing equipment, it should stop or cut the production. Thus the firm cannot work efficiently on its own and seeks to double its structure or merge with another firm; when achieving that, the firm turns into *a center*. The latter ensures a permanent production of goods and their supply to market; it becomes *a leading producer* of the branch, acquiring a significant market power and *a local governing authority*. The center needs a distribution of management involving some employees and, therefore, presents an initial form of *self-management*, the principal criterion of the *socialist* way of production.

3.3. The center

The center is a *commercial* enterprise supplying its products to customers, which is its *social* function; so the whole function of the center is dual, *commercial-social*. That duality suggests necessity for enterprises with a dual function, a *social-commercial* one, and therefore two kinds of economy in general: one with the commercial-social (CS) orientation of interest, another with the social-commercial (SC) one. Their difference is that the CS-economy is more active and extravert, while the SC-economy is more passive and introvert. So every branch of economy may ideally contain, at least, two leading centers with the dual orientations of interest, a CS-center and a SC-center. The rise of the dual monopolistic centers marks the end of the monopolistic economy and the beginning of the *socialist economy*. Thus, achieving its extreme development in the industrial supplier, the capitalist economy transforms to its opposite – the socialist economy.

The centers grow by making associations with firms of other branches with various orientations of interest. There are *solidarity* firms that *inherently* have certain orientations of interest, *preference* firms that *prefer* certain orientations, and *neutrality* firms that have no certain orientation of interest. So, there are five kinds of firms of various branches to make agreements with, and therefore six kinds of association for each center. The evolution of the center is actually the evolution of its three interdependent subsystems responsible for the production of goods (the Specific), for its financing (the General) and the trade (the Unity), every two of which suggesting the third.

3.4. Evolution of the center

Striving to increase their market power, the original 1-centers make associations with the solidarity and preference firms of their own orientation of interest and with whatever possible neutrality firms, absorbing weak corporations on that way and rising successively to 2-centers, 3-centers and 4-centers, respectively. Then, in the same manner, the 4-centers contract whatever possible agreements with the preference and solidarity firms of the opposite orientation of interest, thus rising to 5-centers and 6-centers, respectively. Finally, the two remaining centers, the CS6-center and the SC6-center, make agreements with each other, thus rising to the global centers with different orientations of interest, the CS7-center and the SC7-center, respectively. To withstand competition, the centers streamline their organization, keeping the prices at the lowest possible level and increasingly involving the working personal into the management, thus gradually making the whole economy *self-managing*. The global centers acquire *political* power and become global political centers as well.

3.5. The self-managing economy

With the formation of the global centers, the socialist economy achieves its highest possible development becoming thoroughly self-managing: the global centers become the societies of producers that work for the whole community. At this stage, the dual purpose of economy is fully realized, with the private interests becoming social and the social interests private; the economy presents now the best possible realization of the SMP project. The socialist economy now turns into *a communal economy* where production is performed not for the sake of profit but for the sake of production itself, for the sake of useful labor which has become free, containing the law of value as a moral necessity.

The logic of this chapter is outlined in Table 3, where the first column shows the evolution of the CS-center, from the CS1-level to the CS7-level; the firms involved in associations are indicated in columns A-G, while the quality of the respective centers is shown in column Q; the cells of the table contain the codes for the respective lists of associated firms. The quality of the center corresponds to the quality of its association, except for the 5-center and 6-center whose qualities are called tentatively 'Expansion-5' and 'Expansion-6', respectively.

Table 3. Monopolistic production

Firms → Centers ↓	A CS-center proper	B Solidarity CS-firms	C Preference CS-firms	D Neutral firms	E Preference SC-firms	F Solidarity SC-firms	G SC-center proper	Q Quality of centers
EC-3-1 CS1-center	EC-3A1							EC-3Q1 Dual economy
EC-3-2 CS2-center	EC-3A2	EC-3B2						EC-3Q2 Solidarity
EC-3-3 CS3-center	EC-3A3	EC-3B3	EC-3C3					EC-3Q3 Preference
EC-3-4 CS4-center	EC-3A4	EC-3B4	EC-3C4	EC-3D4				EC-3Q4 Neutrality
EC-3-5 CS5-center	EC-3A5	EC-3B5	EC-3C5	EC-3D5	EC-3E5			EC-3Q5 Expansion-5
EC-3-6 CS6-center	EC-3A6	EC-3B6	EC-3C6	EC-3D6	EC-3E6	EC-3F6		EC-3Q6 Expansion-6
EC-3-7 CS7-center	EC-3A7	EC-3B7	EC-3C7	EC-3D7	EC-3E7	EC-3F7	EC-3G7	EC-3Q7 Global power

The scheme of the global management of economy at its highest stage of development, following the bottom row of Table 3, is shown in Fig.1. The centers CS7 and SC7 compete for global markets thus adapting to each other and thereby managing the global economy in the best possible way. When one of the center becomes dominant and increases its market power by supplying goods, for example, at lower prices than its counterpart, some of its associated firms, seeing injustice and worsening conditions of their staff, may change sides making association with the counterpart center thus restoring the balance of global power. That example suggests, in particular, that maintaining the dual character of economy is the best possible way of solving global economic crises.

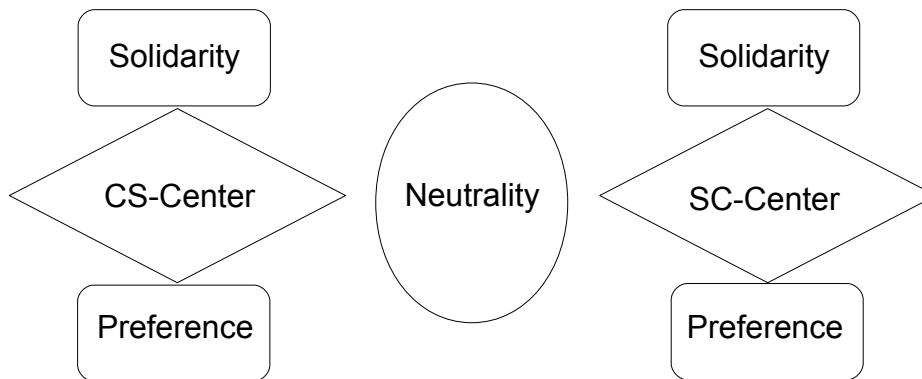


Fig. 1 Global management of economy

Conclusion

The above work completes in the rough the development of the logical structure of economics started in the 19th century by Karl Marx. It shows the way the world economy will most likely follow and suggests measures to remove possible obstacles on that way. The main result is that the monopolistic economy transforms naturally, without any revolutions, through the growth and competition of dual centers, first into the socialist economy and then into its highest stage – the communal economy.

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