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Some observations regarding the demythification of the comparative advantage's principle within Manoilescu generalized scheme*

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Abstract

The validity in time of the comparative advantage's principle, also of its application's denial, can generate certain misunderstandings in the good exchange's observation for an outsider (common sense), including the expert from other economics' areas. The resolution for these cases can be made through checking requires' discharging of the analytical economicity's principle. In these conditions it can be noticed if the schemes, deduced in the analytical decomposition's basis of the standard actions, can be used in the more precise and easier measurement than through empirical calculations in order to determine the comparative advantage's size, of the gains from trade and the productivity effect. Manoilescu generalized scheme has, from this perspective the two main characteristics: its building has started from the empirical reality's study of the exchange phenomena and the observation has been made only inside the economics' borders. This way the scheme sustains the unitary explanations' approaches of some different angles of understanding the comparative advantage on basis of some analytical efforts of other researchers. The suggested scheme separates the strictly economic analysis from the one inside the politic area (commercial politics), also of the productivity effect from more exact connections, decomposing the measurement in two steps. The identification through dialectical judgements, made as a continuation of the analytical ones, of the concordance between the built analytical reality and the empirical one, assures the check of the analytical economy's principle. This step contributes to the permanent validity's grounding of the comparative advantage's principle in the exchange connections within the competitive economies. Meanwhile, the demythification of its full and permanent usage is also supported, in the way of its maximum potential's capitalization in the manufactured and exchanged goods' choice. The comparative advantage's principle is nothing but an application of the minimum effort's principle – the last one having a wider area of action – and will probably remain in the economies based on the social, competitive, monetary or natural relations

Key words: *comparative advantage; Manoilescu generalized scheme; measurement; analytical economy principle; minimum effort; total factor productivity; epistemology*
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In some recent articles it has been argued the general validity of the comparative advantage principle. The analysis' perspective was that this principle is an application – valid in the choice' processes in the exchange – of the minimum effort's principle (Deardorff, 2005; Dogaru, 2005a; 2005b). It will be considered the main possibility of practical usage in the identification of the advantageous exchange's cases, inside which the gains from trade (comparative advantage) can be increased, usually, in comparison with a previous situation in time and space. If the validity of the rationality principle is accepted, an opposite case in the exchange actions – in which an individual isn't interested in the gains from trade' maximization – will not be possible for reasoning. Some algorithms – which explain certain simplified standard cases – once built give the possibility of a more rapid deduction of some advantageous situations for both partners. According to the (limited) human mind's rationality, the individual interest's principle shows us that the case in which one of the partners loses or, at least, doesn't gain, can not be accepted. In a general exchange case, from basis of the interest's principle from the monetary competitive economies, the profits and/or incomes' maximization through the comparative advantages' achievement is the top priority.

In this article we will extend the analysis perspective. Now we will analyse the issue from an observer's point of view, whom regards the development of the empirical exchange actions and we will check if, inside their area of action, Manoilescu generalized scheme (MGS) is used and the possible results are maximized according to the deducted scheme in each possible case. This way we will try to observe the analytical suppositions' limitations and, simultaneously, some un consequences in the human mind's judgement in his choice. Moreover, once with the time's passage, new standard cases are permanently occurring which are necessary to be taken into consideration in the reconstitution of MGS, which explain the exchange's development through the comparative advantage's measurement.

We are therefore planning the analytical premises' appropriation from the empirical reality and, in forward, to demonstrate that even in the discovery of certain generally valid principles' concern, which could lead to maximum results in the economic area – like the comparative advantage's principle – their usage is not entirely possible. Practically, the requires' usage of the comparative advantage will be observed, in the exchange actions' development towards the best theoretical version (the comparative advantages' maximum).

We will try to ground through direct or indirect explanations some standard cases **set back** this sort of (maximum) effects' achievement.

For the achievement of this objective we plan to approach three main directions:

- Some explanations regarding a algorithm usage which assure a better understanding of a exchange cases;
- The summarized presentation of the usage's pattern regarding Manoilescu generalized scheme concerning the comparative advantage's identification – having as a reference point the main standard cases' observation which can occur in the empirical exchange actions;
- The study of the Manoilescu generalized scheme's usage in the exchange's mechanism according to the comparative advantage principle;
- Some remarks regarding the area's delimitation of economics' objective connected to the extension of the trade action's observation beyond this science's borders.

1. The summarized presentation of the usage's pattern regarding Manoilescu generalized scheme

The usage of the comparative advantage's principle is based on the general validity of the minimum effort principle in the analytical explanation of the human activities. Except for some extreme situations, usually called stress cases and which are explained according to Yerkes-Dodson law (Palgrave, tome IV, 1987, *X-efficiency*; Cosmovici, 1999, chapter XI), the other standard empirical cases, observed from an analytical point of view, can be considered to have respected the rationality principle. The validity usage of the comparative advantage's principle, as a case of the minimum effort principle, regards also the simplistic standard case: the identification of some exchange connections possible only through the four gold/magical numbers' usage, entitled by John Stuart Mill and Alan Samuelson and, in forward, of the two international prices. In this case, the existence and size of the gains from trade are observed in a static situation, reduced in the analytical space at a moment.¹ If this situation can be checked, then a relation of the relative sizes of

¹ The condition of time stop in the analytical space is necessary in order to make Aristotle judgements, and the moment is considered without a length (Georgescu-Roegen, 1971). In order to comprehend a simple exchange action, here from the measurement's perspective of the comparative advantage as gains from trade, is necessary

the internal and international prices from different moments of the same products and economic areas can be achieved.

With a minimum analytical effort the possible gains from trade' measurement on basis of the comparative advantage principle can be followed simultaneously in time and space. A remarkable application of the comparative advantage principle in a weak way is the relative prices' study under the shape of the purchasing power parity or of the unit value ratio (Dogaru, 2003a). Comparing the two price parities in time – a form less aggregated of the purchasing power parity and relatively recent established as a title – allows evolution establishment of the term of the total gains from trade' sizes from the possible exchange of the two (categories) of goods. Following the actual international prices' trend of the two goods – the identity between the types of the products' origin countries being guaranteed in forward, for example, on the basis of hedonic price theory – the modification of the gains' sizes of each of the two countries, can be identified.² At an aggregate level, at the same structure of the internal prices and terms of trade, the total comparative advantage's change can be identified simultaneously with the partial ones.³

because can observe such an action with the time's passage at a certain point, especially for the reality's study in a unitary way. In this analytical moment is supposed that the internal prices' change does not take place, except for the international ones through their negotiation. This premise allows us to suppose that the internal prices are considered a consequence of all the previous influences of the real empirical processes can be explained better through the dialectical logic. Therefore, the introduction of autarchy condition is not necessary, from this point of view, because it is actually analysed as a relation between empirical fact and a possible better future one, probably with the comparative advantage's achievement.

² Comparison through the purchasing power parity (OECD, 2002) suppose that other prices' influence (terms) is included in the two countries prices. This judgement allows us the observation of the comparative advantage usage in the successive exchange with multiple products (the chain of comparative advantage).

³ The trend study of the external trade balance only thorough the external terms of trade' index is inadequate. In the subject suggested for observation it is a kind of reverse (deviation from) of the ceteris paribus clause. If we follow the commercial balance through the value's volume of the exchanges, from the gains from trade' perspective, it can be remarked that the goods' value is determined by the quantities of internal prices and of the exchange rate. According to the interest principle the equality from each trade action and, in consequence, at a national level is supposed through the equivalents' exchange once with the negotiated international price's acceptance by each of the two parts. Moreover, once negotiated also inside the same transaction the international prices can be considered to be fix even for a longer period – according to Godley's hypothesis (K. J. Coutts, Average Cost Pricing, in PAL I, p. 158). The exportations' equality with the importations can't be more than a general reference point in the comparative advantage's measurement.

In the present study we will observe the usage in space of the comparative advantage's principle. If the prices are compared from the efforts' perspective, the exchange, including the negotiation, can be considered as a necessary part of a complex and unique creation economic process of valuing a good. The observation of a monetary surplus, identified here under the gains from trade or, in general, of an increment called profit assures the check of the minimum effort's requires in the competitive monetary economies.⁴

The usage's extension in usual terms of the scheme's measurement regarding the comparative advantage's principle is the check of these gains under a dual shape through productivity. The connection of the two types of sizes of the comparative advantage, from gains from trade and the productivity effect, isn't strictly in opposite (reversed proportioned). The sizes and relations used at the measurement in time in comparison with the two concepts – the gains from trade and the productivity – have led to the conclusion that they partially interfere as they either appear as gap or as overpositions.⁵ Under these circumstances adequate explanations are required. A more detailed presentation of this issue will be made in the second stage of the Manoilescu generalized scheme, briefly presented in forward.

⁴ The underlining of the unique consumption of the resources in producing a good is necessary in order to show the general validity of the comparative advantage's principle as an appendix of the minimum effort's principle. This way, the reduction's necessity of the resource consumption appears more obvious, through the maintenance on the market of some goods produced more efficiently after the comparative advantages' identification, including through the reduction in time of the production factors' mobility which contributes at the transactional costs' decrease and which guarantees this way a relative economy of resources. It is indirectly supported the attenuation, over a level considered necessary, of the ample and biased oscillations of these factors' prices, while the price's effect obtained through negotiation can be minimized, but remaining the productivity effect (see 2nd stage of the Manoilescu generalized scheme). In these terms the price will include the profit obtained mainly as an effect of the production's efficiency and, in a certain reduced measure, of some part obtained from the negotiation process, because of some relative high concordance of the demand with the offer which reduces the factors' mobility. The cases that doesn't support the self-adjustment in a real period, which should be necessary to be found on a „free” market, regard the absence on the market of the product offer's balance in comparison with the demand, the monopoly's presence and of other extra-economic (social, political, including the good's unique rate) factors which lead us to deviated negotiated prices reported to those considered to express the normal tendency from a market. These cases tend to become a rule nowadays because of the increase of the products' number, of the economic entities and consumers' number, but also of some inadequate institutional adjustments. In these terms the market stops the self-adjustment in small economic areas (local markets) in a real time, including the aggregated ones, and the losses caused by the absence of this self-adjustment, but also by some inadequate interferences, tend to increase producing a relatively high consumption of resources.

⁵ A detailed analysis was made in our study from 2006.

The debate between the advocates of the different explanation schemes concerning the gains from trade, including those who are using a relatively different concept, the production possibilities frontier requires the establishment of a fundamental reference point in any science, and therefore in economics: the observation beginning with the empirical reality, followed in its simplified standard cases. The summary of this type of cases and then their analytical connection assures a coherence in the unitary comprehension of the processes, but also in passing from the analytical judgements to the dialectical ones, in order to be able to take the most efficient decisions in time in the empirical reality to which we must be able to return (from necessity). Through this procedure the analytical economy's principle can be found in the remarks which will follow in its fundamental terms of necessity and sufficiency. The measure in which the unification of the algorithms of the scheme – in this principle's basis – will sustain a development of economics, here from the comprehension's perspective of this usage regarding the minimum effort's principle.⁶

The initial study of a barter exchange with two products is based on removing the currency, used as an instrument, from the initial deal's understanding. This action's comprehension in its primitive shape is not necessary to be based on other suppositions as the previous exchange absence (autarchy) or the exchange's balance.⁷ Any goods exchange, the

⁶ Manoilescu generalized scheme has in its present form multiple connected algorithms as to assure a cover for all the main standard cases (Dogaru, 2006). It supports the term's achievement of necessity and, mainly, of the self-sufficiency one in the analysis of any exchange situation with material goods, generally, with efforts. It is expect to be refined in the future in the other economic researches.

⁷ The initial measurement of the comparative advantage in a simple barter action will eliminate the drawbacks connected to the transitivity's absence between the exchange rates of different currencies. The previous absence of the exchange (the autarchy term) strays us from the empirical reality and isn't necessary to be sustained because the analytical economic term requires the previous usage of the scheme, especially for the comprehension of this type of empirical case. The supposition or its absence of the previous trade actions' existence doesn't change the scheme's usage rules of the comparative advantage's measurement. In a similar way, it has been proved that the equality's supposition in the good exchange between the entities under a value quantitative equivalent, and, through aggregation, at a national level, is a permanently checked condition by each of the individuals. The fact that each implicated person considers that he gained more than the other (Mises, 1949) leads us to the exchange's essence in the comparative advantage. Each gains in comparison with a previous situation, but not necessarily more or in the detriment of the other, because it is supposed that the exchange is made in independent terms as the international prices are mutually accepted – in the barter case, through the ratios' establishment between the two products' prices. The exportations and importations' achievement determined by the absence production goods o the internal markets, but also by a bigger price of the internal products towards the other countries' ones. According to the selfish interest principle the strict balance's

property of individual or economic entity, developed in its simplistic terms, regards the selling of a product which belongs to him or is the result of some previous internal/international exchanges. The good is characterised mainly through quantity, price and use value (utility). This good is not useful for the owner (or is a surplus) from the consumption's perspective, the owner intending to buy another good which is useful to him for consumption or a possible exchange – in the case when he is a merchant. According to the individual's domination tendency, in order to achieve the exchange, this requires to achieve a surplus according to the minimum effort's principle, which is observed and measured from a maximization profit perspective. Being given such a general case of barter type, summarized in Table 1, the general situation's comprehension of such an exchange is guaranteed.

The E economic entity has an exchangeable quantity of merchandise available for exportation, q_{el} , at a value of $q_{el}p_{el}$ in internal currency. Either he has produced the merchandise for exportation in order to be initially sold on the internal market at p_{el} price – matter that is detailed separately in the comparative advantage's study from the internal exchanges (Dogaru, 2003b) – or it has been bought at p_{el} price from a producer, the issue is irrelevant for the general analysis. E entity wants that through the merchandise's exportation, $Pr1$ product, and also through the importation of another merchandise $Pr2$ product – requested internally and which could be sold in terms that we will identify in forward – to assure himself a comparative advantage.

absence of the two implicated persons' gains, caused by some various cases, and also the bigger request (offer), the delayed payment terms, the cashed currency's deposit outside the country – which directly influences the payment balance – is more than a problem for each economic entity at a microeconomic level. The states follow the national exportations and importations' balance, and also a general balance of the value's volume of the payments between the economic international actions on long term. The exception of the USA's commercial balance from the last three decades confirm the statements from above. The following of the productivity's effect, which will be measured separately and explained in the second stage of Manoilescu generalized scheme, justifies, next to the national observation of commercial balance and the payment one. All these institutional interference can be justified from the balance and economic development of the national economic system's perspective.

Table 1 The internal and international prices and the quantities of the two economic entities in a simple barter

Entity/Product	Quantities	Internal prices	International prices
E entity			
Product 1, $Pr1$	q_{e1}	p_{e1}	P_1
Product 2, $Pr2$	q_{e2}	p_{e2}	P_2
I entity			
Product 1, $Pr1$	q_{i1}	p_{i1}	P_1
Product 2, $Pr2$	q_{i2}	p_{i2}	P_2

The value at which could be exported this merchandise is $q_{e1}P_1$, the international price P_1 being expressed in a currency which would not raise converting problems towards another currency, in order to buy $Pr2$ merchandise from I country. In the absence of the convertibility, the explanations could prolong but not modify the deducted scheme's essence (see currency's algorithm; Dogaru 2006). The I economic entity from the importing country needs $Pr1$ merchandise because the international price at which is bought allows the achievement of such a comparative advantage by exporting $Pr2$ product/merchandise.

E entity sells $Pr1$ merchandise at $q_{e1}P_1$ value and buys $Pr2$ product at the same monetary value. Selling in the internal area the imported merchandise he will obtain a $q_{e2}p_{e2}$ value. In order to be interested in this exchange this value is required to be bigger than the internal value of the first merchandise, $Pr1$. So, in order to achieve a gain, E entity, which exports $Pr1$ product and imports $Pr2$ product from I country, will observe the inequality's respect (1).

$$q_{e2}p_{e2} > q_{e1}p_{e1} \quad (1)$$

In other terms, E economic entity's interest disappears because it can be supposed that there is no comparative advantage (gains from trade). The same judgements, made in similar circumstances, are valid and for I economic entity.

We are considering that the individual (economic entity) with whom he makes the exchange is preoccupied in a first instance, identically as his partner, only for the main

necessities' achievement. Therefore, this intends to obtain a bigger gain in time, also towards his partner, and not only in a spatial advantage but also without the achievement of this gain.⁸ In these terms the gains from trade is bigger than a previous case in which he was producing or exchanging both goods on the internal market. Each trader was internally selling both internal goods, without specializing in trade actions with the internal identified good as being the most advantageous from the gains from trade' perspective in the external exchange.

The inequality relation between the export volume and the import volume do not guarantees the achievement's comprehension of the comparative advantages and correspondingly explains the little cross-border traffic. This relation allows the first example's study, systematically presented and which has led to the grounding of the comparative advantage principle. This is the famous case of the wine and cloth exchange between England and Portugal. The case presentation has been made by David Ricardo (1817) in relatively hermetic way (Manoilescu, 1937) which has led to some subsequent confusions. Far from solving the situation, Ricardo did not achieve the gains from trade' measurement from the exchange process. Firstly, the introduction in the international prices' scheme missed. The simultaneous oscillation of the four gold numbers has created enough problems in next period for the take in consideration of the two international prices and, in consequence, few researchers had been interested in the comparative advantage's measurement in a strong way, by equations.⁹

In this international exchange the little cross-border trafficker leaves the national area and makes efforts for the effects' achievement bigger than the previous ones. The bigger gain (comparative advantage), entirely taken by an individual, justifies this solitary activity. The

⁸ After discovering these necessities, the economic connecting relation moves from the cooperative forms mainly to the comparative advantage's achievement. The cooperation action or significant parts from this can be replaced with different types of domination (Florian, 1983), finally reflected in the exchange actions through the unequal division of the total comparative advantage, including the relative loss of national value (measured by the productivity effect) by one or even both implicated persons' parts. In these circumstances, the human being definition as a social being, in cooperation with other human beings, can be necessary checked and comprehended from an economic perspective.

⁹ The usage's absence of the international prices has made that at least the economists to subsequently study the comparative advantage and to suppose, in Ricardo's example, the equality between the two gains (Viener, 1937), a strictly hypothetical case. Yet not even for this case a strict analytical measurement was assured, based on a formula, and moreover it was referring to a entire equal case between the individuals/entities, which would contradict the permanent dual qualitative leaps from the economic processes, identified according to the opposite individual interests.

border trade's limitation has been achieved step by step because initially the gains weren't taxed and registered, usually, in the importing country. In time, including in the little cross-border traffic, it has come to a labour's division, partially because of the different cultural matrix (language, custom, etc.) that the little merchant will choose a partner from the other country. The main volume of the exchanges over the border will transform from actions without a commercial characteristic, in a strict way of the actual term, to commercial actions, developed by the economic entities, having as this objective. In the comparative advantage phenomenon the spatial specialization of the exchange has supported the increasing tendency of the exchanges' volume, simultaneously with the little cross-border traffic's reduction. The comparative advantage's observation can similarly extend also in the internal exchanges, in case in which the national border is replaced with the economic entity's one.¹⁰

In the attempt of a simple exchange's approach towards the empirical reality some economists have supposed that the domestic prices from the partner country are on turn international prices from the analysed country's perspective. The resulted situation is important because it requires to be comprehended: besides the equality's paradox of the gains from trade of the two partners – they are using the same prices, no matter that the partner who calculates the gain, because only the point is reversed – there is also a second paradox. On the one hand, the total advantage (see formulae, Dogaru, 2005a) is taken on turn by each of the parts and therefore we are dealing with a smuggled surplus, as Georgescu-Roegen was showing in some specialists' suggestion in using the unbounded (free) energy according to the entropy's law. On the other hand, if this matter, regarding the measurement of the comparative advantages achieved in the international exchanges, would be true then there are few matters left to solve in economics because the gains from trade from both sides would be permanently equal.

Most economists have separated the (total) comparative advantage's analysis from the one through the terms of trade. The analysis of the four prices has been separated from the two international one, the last being used for the commercial balance's study through these prices' index. While the first ones have been and still are used mainly in the analytical studies of the basic exchanging processes of an economic entity, the last ones have been used only at an aggregate level. The global analysis, the simultaneous and unitary connection of the two

¹⁰ An explanation of the full usage's limits of the exchange possibilities, in the comparative advantage phenomenon, is actually based on the comprehension regarding the internal exchanges algorithm, through the elimination of the exchange rates' usage (Dogaru, 2006).

types of sizes in the comparative advantages' exact measurement of the prices above mentioned with an analytical scheme, is relatively inexistent. Besides the fact that the two types of sizes of the prices above mentioned have different levels of aggregation, an analytical decomposing through a scheme of the empirical negotiating action between the two merchants isn't pursued here.¹¹ This is the reason why the empirical and ideal-analytical reality's comprehension is required at a basic level in order to measure the comparative advantage from the exchange mechanism. A subsequent aggregation of the simple exchanging cases, adequately using the six prices' aggregation through the correspondent quantities and respecting requires of the double and multiple aggregation, can satisfyingly solve this case.

Another type of researchers of the comparative advantage combines the two types of relative sizes of the internal and international prices but they maintain the ordinal measurement as inequalities. In this case finding out the absolute size of the total gains from trade and, in forward, the comparison of each of the two unequal parts from this total comparative advantage of the two merchants are impossible. On the other hand, according to the principle of the profit maximization, if we get closer to the judgement's essence of the individuals whom are interested in the economic entities' gains from the competitive markets, which interests us, these gains are actually its absolute value and not the relative one. The fact that some sizes can be deducted from others, after some scheme's establishment does not justify the necessity's absence of the simultaneous calculation of the total and partial comparative advantage under an absolute form (Dogaru, 2000).

It is obvious that if we follow in forward the little border traffic with two partners, each of them has the tendency to gaining as much as possible, according to a scheme unlimited for now, a par as big as possible. The dual nature and the oscillation of these parts from the perspective of each side is based on the relatively opposite individual interests, but yet cooperative in essence. In the cooperation absence, in a strict way, the exchange would never take place.¹²

¹¹ We do not omit the fact that also the aggregating structure is different: at the entity's level the structure would exist in a single product's case while at an aggregating level the specific quantities' structure of all goods is regarded. In forward the difference between the medium international price – calculated after a certain structure of the exportation and/or importation – used as a reference point in the beginning of the prices' negotiation and the actual international price – used in an actual exchange and resulted from this negotiation – is required.

¹² Therefore, the competition law's positioning, justified through the request and offer law and of the interest's principle, will be made on a third place in comparison with the entropy and cooperation laws. According to the entropy's law, which situates the resources' irreversible consumption and also their exhaustion in time in an

In forward, for the comparative advantage's measurement we will pass from the inequalities to equations for the exact determination of the gains from trade. This way, in order to bring a q_{i2} quantity from I country, E entity sells *PrI* product at P_1 international price and buys this quantity from the obtained value at P_2 price. We are planning to eliminate the quantities from the partial comparative advantage's deducted formulas because these are experimented in different unit measures, fact that would complicate the decoding, the comprehension of these formulas' practical usage in simplified terms. Because to the fact that the two quantities of merchandise have equal international values the following equality is resulting (2):

$$q_{e2} = \frac{q_{e1} P_1}{P_2} \quad (2)$$

Substituting q_{e2} quantity from (2) formula in (1) inequality (3) formula can result through basic transformations:

$$\frac{p_{e2}}{p_{e1}} > \frac{P_2}{P_1} \quad (3)$$

The relative advantage's calculation for the E entity is deducted according to (4) formula as a report of two simple spatial indexes.

$$A_{vrE} = \frac{p_{e2}}{p_{e1}} \cdot \frac{P_2}{P_1} \quad (4)$$

The monetary advantage of E entity, A_{vaE} , is determined, according to (5) formula, through the multiplication of the relative advantage's efficiency with the internal exported value:

economic system where the man can act – and in his absence in a slower relative growth -, another priority occurs in a social system where it is supposed that rational (normal, in Kant's meaning, 1781, p. 42) actions are made: the relative reduction of the consumption's resources. This necessity can be achieved in a certain measure and on the basis of the comparative advantage's principle. This kind of saving actions have as a starting condition the cooperation's acceptance and, as it will be demonstrated in forward, the awareness as necessity of this effect.

$$A_{vaE} = q_{e1}p_{e1}*(A_{vrE}-I) \quad (5)$$

The relative advantage of I economic entity is measured according to (7) formula:

$$A_{vaI} = q_{i2}p_{i2}*(A_{vrI}-I) \quad (7)$$

The total relative advantage in the simple barter exchange is determined with a new index, multiplying the relative advantages of the two measured entities, also as indexes.

$$Avrt = AvrE * AvrI = \frac{p_{e2}}{p_{e1}} \cdot \frac{P_2}{P_1} * \frac{p_{i1}}{p_{i2}} \cdot \frac{P_1}{P_2}$$

Simplifying the two reports of the international prices the total relative advantage's formula of the two economic entities can be deduced (8):

$$Avrt = \frac{p_{e2}}{p_{e1}} \cdot \frac{p_{i2}}{p_{i1}} \quad (8)$$

The summarized presentation of this algorithm, mainly through the deduced relations, assures the comprehension and measurement of the comparative advantage, including the support of the other algorithms' deduction of the scheme.

The algorithm based on the currency

In the current trade actions the good exchange, using currency has replaced the barter. The currency, considered only as an instrument, assures some merchandise's acquisition, independent from some other merchandise's existence in the possession of the buyer.¹³ The selling condition of some merchandise by another merchandise acquisition, which is not necessary for the partner's consumption, but available for exchange, has led to this new instrument's appearance. This obstacle has been overcome through the currency's usage also

¹³ We will not discuss here the currencies' usage as new merchandise, position that tends to be occupied by this instrument. Starting to Schumpeter's premise from (1954), the stock auction, the evolution usually independent of its price from the real economic processes, causes in time a separation of the real economy from the nominal one.

increasing the exchange's expeditiousness. The absence of the merchandises' divisibility, required for the achievement of the equivalents' exchange, is the second most important condition of the currency's usage as an instrument in the good exchange. In this case the establishment of the value's volume of a sold merchandise in the monetary prices' basis is an easy operation because of the two conditions' elimination.

We will remain in the international exchange's case, now the partner's merchandise from the barter exchange being changed with the new *transit merchandise* called currency. In this case we are deviating from the previously described simple exchange but yet we are in a real exchange case from the present international markets, which are achieved through the negotiation of a merchandise in opposition with the currency.

In the selling case of exported merchandise we will use the relations between the relative prices from the barter algorithm deducted in (4) formula but reordered. The p_{e1}/P_1 ratio is a relative price at which the national currency is changed toward the international one. Through a basic transformation of E entity's relative advantage from (4) formula can be rewritten in (4') formula:

$$A_{vrE} = \frac{P_{e2}}{P_2} : \frac{P_{e1}}{P_1} \quad (4')$$

The ratio between the internal price of *Pr2* product, from *E* country from the initial case, p_{e2} , and the international price of this product *becomes* the exchange rate between the national currency and the international one. According to the new formula the relative advantage of an exporting economic entity, A_{vrE} , is determined (9):

$$A_{vrE} = Rsc_1 : \frac{P_{e1}}{P_1} \quad (9)$$

where:

Rsc_1 – the exchange rate (national currency/convertible currency) from the exporting country.

The currency is considered here an instrument-merchandise and the ratio of the two prices, the internal and the international one, of the imported good from the partner represents now the analytical scheme, the national currency's price in connection with the international

currency accepted in exchange. We will suppose that the other country has the foreign currency and accepts the international negotiated price.

From *I* country perspective, this entity will pursue the good's importation as the ratio between the internal price and the international one to assure a comparative advantage toward the exchange ratio between the currencies. In these terms, the relative advantage of an importing economic entity, A_{vrl} , is determined in *PrI* product's importation. The relative advantage for *I* importing economic entity will be checked from the dual case of the same product's importation by *E* economic entity, according to the formula (10):

$$A_{vrl} = \frac{P_{i1}}{P_1} : R_{sc2} \quad (10)$$

where:

R_{sc2} – the exchange rate (national currency/convertible currency) from the importing country.

Note: In the real-empirical economy it can be deducted that the two exchange rates from the two countries, regarding the two national currencies, doesn't respect the transitivity condition because the courses are independently oscillating and, in a strict way, are unconnected.

Once the exporting entity has capitalized the merchandise it is necessary that the production (exchange) process to be restarted. It will be necessary to exchange the international currency into the national one in order to buy production factors or a lot (another) merchandise which will be exported. The judgement is valid also for the importing entity which uses the merchandise in its own production or only in a trade action. It is necessary that the exchange of the national currency into an international currency to be accepted by the partner. The initial basic algorithm of Manoilescu generalized scheme has allowed the explanation of this passing and the deduction of the exchange algorithm with the currency. The strict transitivity's absence between the two currencies makes us to go permanently back to the simple barter exchange, established as a reference point.

The trade costs algorithm

Exchanges require trade costs which are generated by the merchandises' shipping in space and inside a certain period, also by the deposit and assurance (safety) of their integrity. Moreover, the national territory's leaving suppose the occurrence of the alien, of some other laws and legal procedures which, also, require new costs or at least additional risks in

comparison with the internal exchange. The two custom points' existence at a common border's pass, different from the exit and entrance from/in each of the two countries, causes the trade costs' raise with the taxes for the entrance and/or exit of the national territory.¹⁴

From the perspective of an analytical pattern's building based on certain formulas – having the simple barter's algorithm as a starting point – a series of issues occur where and how should the costs be distributed.¹⁵ In the algorithm's most general case these trade costs can affect any price. Totally changed relative advantage, A_{vrmt} , formed from the two changed relative advantages of E and I entities, will be measured according to (11) formula:

$$A_{vrmt} = \frac{P_{me2}}{P_{me1}} \cdot \frac{P_{mi2}}{P_{mi1}} \quad (11)$$

The prices' size of the imported products is necessary to be compared with the internal ones (in the same quality terms). In order to make the exchange, towards the case of the internal trade between the two goods – which can be analytically remarked through the chain of the comparative advantage – is necessary that the changed prices of the imported products in equivalent terms of the products' utilities to be smaller than the internal products. The inequality condition which expresses this require is (12) formula:

$$P_{me2(I)} \leq P_{e2(E)} \quad ; \quad P_{mi1(E)} \leq P_{i1(I)} \quad (12)$$

Note: the created prices are calculated in quality equivalents as the merchandise are supposed to be identical. The letters between the parentheses, E and I, from the above inequalities indicates us the product's origin country and the small letters their market.

This oscillation of the modified prices, through the trade costs' addition in a superior limit – established by the initial prices –, will generate a decrease of the initial comparative advantage (supposed without costs).

¹⁴ A general analysis, similarly with Evariste Galois' mathematical standard, makes the passing possible from the two previous algorithms, a simple barter and a monetary exchange, to another algorithm summarizes a real-empirical case in which the trade costs occur. In its general form, these trade costs' position inside the scheme is what matters and not their content. We will use this occasion to show that although the actual effects are apparently different the general effect is the same due to its size: the comparative advantage is reduced.

¹⁵ A more detailed explanation has been made in the scheme's general presentation (Dogaru, 2006).

In order to use the trade costs' algorithm, combined with the currency's one, we will distribute these trade costs at an internal price of the exported product and, separately, at the imported one. In the case of modified partial relative advantage of E entity, A_{vrmE} , will be calculated after (13) formula:

$$A_{vrmE} = Rsc_1 : \frac{P_{me1}}{P_1} \quad (13)$$

The increase in time of the trade costs, especially through the modification of the transportation's cost will lead us to a decrease of the possible exchange cases' number in comparison with the initial ones, supposed without costs.

In the importation's case the situation is similar. The importing entity will pay the costs of the product's importation, according to the contract's clauses, of the existing tariffless and non-tariffless measures according to the legal terms and also of those generated by the transportation in time and space of this product. The measurement of modified partial relative advantage, A_{vrmI} , of I entity will be made according to (14) formula:

$$A_{vrmI} = \frac{P_{mi1}}{P_1} : Rsc_2 \quad (14)$$

The additional term which occurs at the importation is also connected by respect of the (12) formula's requires as the imported product's price wouldn't overcome the similar internal products' prices. This term requires to be respected because the equivalent of the usage's value on monetary unit of the imported merchandise is equal with the similar size of the internal product. At exportation the requires are similarly except these are checked by the importing entity in the other country, once with the international price's negotiation.

The comparative advantage's algorithm of the internal exchanges

The validity's extension of the comparative advantage's principle is sustained by Mises (1949). The exchange's observation is indirectly made also as the currency exchange's case, tool becomes a reference point, from which also the requirement of a relative balance of its size as a tool. The existence of invisible chain of the comparative advantage, supported by the competitive forces' pressure, will stimulate the products' elimination having a smaller

comparative advantage.¹⁶ Some characteristics of this algorithm's usage have been made in detail (Dogaru, 2003b) and will be presented in forward in the explanation of the usage's limits of the comparative advantage's principle.

2nd stage. The comparative advantage's measurement in connection with the (total) productivity

A case which can occur in the international exchanges is the product exportation one with achievement of comparative advantages, products at which the efficiency of the resources' usage – including the factors' one – isn't the best, the best possible in comparison with other goods. The case can be also found in the internal exchanges, in case in which the basis of its formulated criteria isn't followed and/or checked. In the internal exchanges the case is less probable to be found because the possibility to check the usage's efficiency and to adequately decide is raised through the existence of some information which can be more easily compared. If in the internal exchanges the self-balance effects can more easily eliminate this kind of unfavourable situations of the relative losses' reduction of total productivity – because the cohesion of each market and the internal markets' assemblage is relatively high – in the external exchanges it can be supposed that this case's occurrence can be more frequently found.

From the commercial exchanges' perspective the State or other institutions with similar functions are necessary to sustain, in case when the self-balance effect doesn't work in a real time, the *disappearance* from the market of the less efficient products. According to the production's efficiency, at the exportation it is also necessary that the products to have assured a hierarchy in order to eliminate the loss of national value (Dogaru, 2000; 2006). The initial basic term in the exchanges' development in the empirical economy, which would respect this kind of conditions, is the information about the external markets regarding the identical or similar products and, in extension, other products considered important. In order to support a direction of this kind it is supposed that the internal production's stimulation of some products more efficient through the self-balance mechanism or, in the absence of the efficient working of this mechanism, through a support at an institutional level.

¹⁶ The respect observation of the customer's individual interest will be followed here only in an indirectly way. This issue is directly connected to requires' usage of the comparative advantage's principle in terms of resource saving. Also, it can be an opposite situation, exceptional on a normal market, in which the total efficiency of the resources' usage increases but yet the negotiated prices are maintaining or also increasing.

From this wider and more complete perspective, in order to understand the creation's necessity of a wider analysis frame of the commercial exchanges, it is necessary that we first clear up the difference between the comparative advantage, identified through the profit and the one strictly obtained due to the efficiency, and also the connection between the sizes of these two concepts. Generally, the connection is locked as a reversed one: the comparative advantage's size or, at least, the identification of its development meaning towards the development of the efficiency's size, is made after the same scheme but in a reversed relation.

Mainly, the remark is correct, the price – productivity connection being reversed, but not perfectly proportional and linear. Moreover, this reverse is delayed in time because of the interest of whom has the good with a bigger productivity in maintainability of the old price's size in order to collect a bigger total profit on a period of time as long as it can be. The main reason is the prices' change in a different moment and subsequent towards the one of the productivity effect's achievement.

A permanent and constant delay between the moments when the two effects of comparative advantage are taking place – the efficiency's occurrence and the price's correspondent reduction one – makes a separate but simultaneous with the two types of phenomena analysis to be required. The interest in maintenance of the increased price on a longer period after the total productivity's increase respects the principle's basic requirement of the total profit's maximization, which is an application of the minimum effort's principle.

The idea of a continuous and permanent oscillation of the prices once with the efficiency's change isn't proved (PAL I, 1987, Godley hypothesis). The capitalist market has proved its virtues, but its limits are starting to be more obvious because of the big number of the products and of the markets. The markets cannot balance themselves in a real time anymore as the efficiency/productivity effect would be dominated as a size included in the gains from trade' volume and the negotiating one to be collateral and secondary.

The idea of supporting the presence of some large firms on the market once with increasing of the best technological levels is based on a necessity. The absence of the self-balance requires a controlled temporary intervention with a precise objective: the goods' exportation from an economic system is necessary to be made as there won't be any national value lost in relativity (relative efforts of the factors). The sustained argument is based on the fact that the exportation of a good with random prices, even increased because of a good negotiation, should be made with certain losses of efforts because of a reduced possible efficiency of the production factors which have participated at this good's production, in

comparison with the ones used more efficiently for another product which could be exported as a substitute.¹⁷

The relative increasing absence of the resources (raw materials, stocks), including the tangible production factors, makes this analysis to be a timely one also from another perspective. The resources' relative saving can be achieved if the exported goods have a permanent connection according to the two criteria: trade gains and production's efficiency. In this case the transaction's costs (Coase, 1937) are reduced due to some lower mobility of the factors. Despite this it is yet necessary that we still consider the productivity effect is permanently included in the gains from trade as the profit.¹⁸ In conclusion, in the second stage of Manoilescu generalized scheme this case is analysed from the perspective of a literally pattern and through the ordinal measurement of the concordance between the productivity's size and the trade gains' one for the exported/imported goods.

2. The usage's limits of the requires regarding the comparative advantage's principle in the exchange actions

The extension of Manoilescu generalized scheme for the internal exchanges allows a more clear and precise comprehension of the comparative advantage's limit. The more precise understanding of the comparative advantage's requires in its usage, regarding the actual exchanges, can be entirely achieved only once with the detailed remark of the internal exchange relations, because in these terms any action is nude, most different blocking types of the exchanges – found as the various duties/non-duties measures and also through the international currencies' usage (other currencies) – being removed. We have shown that from the measurement perspective this shape which generate efforts are usually found in gains from trade.

The scheme's usage could assure the achievement of the maximum comparative advantages and the results' measurement from the empirical reality according to the scheme.

¹⁷ In a real case, to be considered and quantified in more detailed analyses, can be stated that a comparative advantage's loss in connection with the total productivity, achieved through an exportation of a less efficient produced good, to be compensated by the obtained gains only through the exported goods' negotiation, but where the efficiency is relatively smaller.

¹⁸ Because of the higher general level of the remarks we will not consider here the external costs and, in the dual opposite case, the external gains. According to the law of the large numbers, we consider that the two effects are compensating themselves on a longer period.

It can be remarked, relatively easy, a limitation inside the development terms of the exchanges, in connection with the decisions' efficiency found in the triangle main analytical framework – database – taking decisions (Baumol, 2000). The comparative advantage's principle is obvious for anyone and doesn't necessarily require to be demonstrated – this being the essence of Samuelson's answer for the mathematician Stanislav Ulam in the 70's – as in consequence it is clear that any individual is mainly interested in obtaining maximum gains from trade. In this case the minimum effort's principle takes place in a dual shape of the effects. The demonstration of the comparative advantage's principle as a rigorously mathematical shape through Manoilescu generalized scheme is an additional argument of this validity.

In a general preview it appears that on the market are permanently presented goods with similar utility parts properties and prices. This situation can be checked more exactly from an analytical point of view through the measurement's connection between price and utility on the hypothesis' basis of the hedonic price. As it has been previously shown, except the cases classified according to Yerkes-Dodson law, on the basis of the minimum effort's principle from an analytical point of view any other exchange cases can be explained from the comparative advantage perspective.

In consequence, a first observation refers to the fact that in the good exchanges it can be remarked that a constant coexistence of similar products in the same market (in a restricted way). It seems that the variety need, in strict opposition with the perspective of the good's uniqueness – requirement introduced here because of the usage and validity's necessity of the comparative advantage principle, can be an initial general justification of this coexistence of multiple similar products.

The minimum effort principle has been rigorously respected in deducting various algorithms using the comparative advantage principle. In a strict way, the usage of this principle supposes the *elimination* of any similar products and the maintaining of certain *unique* products, having the maximum of comparative advantage. According to the hedonic hypothesis, the similar products can be identified through equivalence, for example, and taken off the market according to the requirements of the comparative advantage's principle. Yet it remains to be explained in a more rigorous way and from other perspectives, besides the need for diversity of the human been, the maintaining of this multiple presence of some products having similar ratios of the price/utility.

The possible causes of this variety can be:

- A relatively reduced level of the comparative advantage at the similar goods, situated under a certain sized quota of the gains from trade, case in which the implicated parts' interest in exchange disappears;
- The lack of information in a real time, and the absence of the fast shipping of the merchandise from a production place to another. According to the hedonic price's hypothesis this tendency is sustained by the incapacity of rational calculating the ratio between the utility parts and the parts of the price. Here we consider also the time relatively reduced by the choice towards the multiple connections which have to be measured and classified on a cardinal scale, existent between all the prices – parts from the total price and the utilities parts from the total utility.
- Actions of maintaining of indigenous goods sustain the demand in the case of the import stop of the similar goods (the safety principle). The augmentation of the safety for similar goods is compensated by the occurrence of other new similar goods. This direction reflects the dual characteristics of the human beings, supported by the necessity of diversity (in opposition with the uniqueness).
- Other causes not previously revealed

It has been shown that internal exchanges between the partners doesn't develop through mutual relations with two products, after the same pattern explained through the barter algorithm in the international trade. In the internal relations the validity of the comparative advantage's requirements is checked after another analytical procedure, the exchange develops freely among merchants – supposedly in a formal manner between merchandises as well –, apparently without any connection between them. A general observation of these successive exchanges in the international relations, through the use of currency, reveals us a similar situation. Under these conditions the possibility of proving the validity's existence of the comparative advantage's principle is attenuated.¹⁹

¹⁹ The fundamental discovery of Francois Quesnay regarding the connections between the economic sectors shows us the interdependency between merchandises in the general relation consumption – production from the simultaneous perspective of the quantities, qualities (utilities) and prices. Marx, and in forward, Leontiev, next to other economists have analysed the multiple connections which are established between the products and/or sectors. The analytical explanation of the economic behaviour of the economic entities in these connections has had an important inflexion point, around 30's of the past century, when it has passed from the sector's analysis to the product-sector. This „disintegration” allows the explain of the empirical reality through observing the main economic processes, followed by a summary (and simultaneously the quantitative aggregation) as laws, principles and tendencies. A kind of reverse situation for economics doesn't respect the analytical economy's

According to the comparative advantage's principle, establishing the internal prices as a reference point, it has been shown that the possible gains from trade are found in any case except for the proportionality of these prices (Dogaru, 2005a). In order to identify the way in of this exchange the scheme used in the simple barter case is necessary to be adequately applied. *The fact that the comparative advantages' size was not significant (over a certain level) in such an exchange hasn't been analysed because it wasn't relevant from the perspective of the algorithms' deduction in Manoilescu generalized scheme. Yet, this is now important for the checking of the starting terms of the negotiation procedure and, in forward, for making an exchange.*

In our opinion, a situation of this kind explains the absence of the negotiations' start in most cases of the possible exchange actions and partially supports the simultaneous maintaining on the market of the similar goods, relatively identical. In comparison with the abstract reality built with the generalized scheme, the actual situations are much different and there are determined by connections much more complex. From the perspective of the comparative advantage's principle it is yet necessary to be observed the fact that a maximum volume's achievement of the gains from trade is possible even aggregating all the small advantages in an economic system, which not interesting are infinitely decimal from a economic point of view. This is the multiple exchange case.

Simultaneously it can be identified a paradox in connection with the second *identical* product's existence (the ontological paradox). The identification, in an exchange case, of the comparative advantage's existence supposes the usage of the simple comparisons for relatively similar products or the usage of a more advanced comparing procedure for relatively different products but with similar use. The identity (equivalence) of the compared products is necessary because these, not even the same product's samples, are never identical. Breads, with different weights but with the same receipt, are considered relatively *similar* in a certain way. When determining the similar products' equivalence the information's quality is also a factor, next to its processing capacity. Therefore, in order to remark the comparative

principle. The issue is identified through the "importance's" increase of the versus empirical reality by sometimes excessively usage of the Mathematical instrument in the analytical modelling of the reality, without constantly identifying an economic meaning. Regarding some instruments it has even come to an extreme situation which is opposite and which can change, for example, the currency's role as an instrument towards the merchandise. The change's speed of the currency's value is relatively instant in comparison with the periodical and discrete change of the merchandises' prices and, in consequence, it is not entirely connected with the real economy.

advantage's occurrence the two *identical* produced goods' existence, usually with different costs, is necessary.

Yet, the comparative advantage's principle sustains the simultaneous disappearance's necessity (in forward) from the market of this reference point, of the second identical product. If we consider the international exchanges in the barter system, one of the two products from each national market is required to disappear (to be replaced).²⁰ Although on the internal market the application of the comparative advantage's principle is proved, it is not "visible", it is difficult to be identified because of the comparative advantage's application through a chain of internal comparative advantages. As it has been previously shown, the practical usage, in a strict way, cannot be grounded because of the simultaneously maintaining in the exchange process of some similar goods. On the opposite, the "extreme" analytical term of use of the comparative advantage's principle – obtaining maximum gains – would generate reference point's disappearance, the product being less efficient and in consequence we would enter the ontological paradox of the comparative advantage. In forward, we will observe other possible explanations and, therefore, other consequences.

The main issue in identifying the comparative advantage from the internal exchanges, which posses the weight of the total exchanges at the level of the national and world's economies, is the observation procedure towards the initial supposed one in the analytical scheme. This way the individuals who produce identical goods or at least similar, equivalent in price – unity connection, although meet on the market, doesn't pursue a mutual exchange identified like the one in the analytical scheme for the external barter exchange. Moreover, from this perspective, a relative relaxation exists in the internal relations, a weak eliminating connection from both sides, consequently a strong living together because of the difference (including the formal one) between the goods. These matters allow this possibility of duplication or multiplication of the similar goods found on the market.

The main reasons of the usage regarding the comparative advantage's principle in a weak way can also be different than these. In the actual exchange the producers and partially

²⁰ In our opinion, the duality principle in the quality processes, including the economic ones, is situated on an importance scale after the life's biological evolution law, yet before the (economic) laws and the entropy, cooperation and offer and demand's laws. Therefore, the comparative advantage's principle contains in its structure and denial, the disappearance of the similar and identical products, as in this case, its requirements cannot be checked. Once again we notice the variety and the qualitative leaps offer us support in creating our analytical instruments, yet sometimes in a strict way and sustain the usage limit of these instrument for making decisions.

the merchants cannot instantly abandon (anymore), in an actual given case, without a relative loss towards their own good's production less efficiently. Once abandoning the production technology, the entire production capacity or the correspondent organizing system a relative loss of production factors (resources) will occur, which will be underlined by the costs. On the long term its (partial or total) recovery is possible, which is yet a probable action and is therefore "opposable" from the effects' perspective of this actual loss.²¹

In the case of the exchange noticed only on the comparative advantage's basis, in the maximum option of the full specialization the old technology production should be given up. Here it is considered that the new technology assures through a single capacity or through the smaller installed capacities' multiplying the entire request from the previous produced good by the two economic entities, with two different technologies and, usually, by different sizes of the capacity.²²

Only a higher competition and a successive exchange on the same (restricted) local market would oblige the one with the less competitive product to abandon the less efficient technology and use the advanced one. *Now it appears more clearly that on the empirical market the economic behaviour is strictly nothing but a reflex of permanent adjustment and not the result of a strict application of the comparative advantage's rational requirements which refers to the full specialization.* The existence of multiple different production capacities of a single good explains the partial application case, by the simultaneous usage of two or more technologies, usually, without the strict specialization. Therefore, in the usage of the comparative advantage's principle it can be found a case of *maximum resistance*. The less competitive product, simultaneously made on the internal market only in certain extreme cases, is abandoned. Possible explanations refer also to the consumer's tastes regarding to these products.

²¹ Regarding the change of the technology production and the organization methods in connection with the comparative advantage appears the necessity of recalculating the recovery term of the new investments also depending on the loss by renouncing at the old technology production.

²² Here we remind a real situation – kind of paradox from an analytical point of view – the costs' difference case, using the same technology and initial organization: the case of the two Ford factories from 80's in England and Germany (PAL, vol IV, *X-efficiency*). Economics' arithmomorphical border, specific for the mechanical analogue, can be overcome through the qualitative leaps' acceptance, case which would explain the situation in a satisfactory way. Here we remind also the fact that the decreasing efficiencies can be easily infirmed by multiplying smaller quantities instead of a new bigger capacity (but with a decreased efficiency) (Dogaru, 2006).

The lack of information regarding these products, next to the habit and the reduced capacity of permanently calculate the comparative advantage report between the two similar products is another argument of the simultaneous maintaining on the market of multiple similar products – analytically identical. The (self)manipulation of the buyer – because of the lack of information –, characteristics’ distortional presentation and/or incomplete of the producer/merchant reported to the price lead us to a deviation from the choice through the identification of the option considered normal as a reference point, according to the comparative advantage’s requirements.

Human mind’s limitation in simultaneously processing the required detailing level, a big volume of information regarding the price-quality ratio towards multiple products – simultaneously displayed and connected in their essential parts as the price and utility’s perspective – sometimes makes the choice to be also intuitive in a certain part from this perspective, qualified as relatively *irrational* from the perspective of the minimum efforts’ requirements. In all these cases it will be measured a relatively reduced volume of gains from trade in comparison with the best case possible, identified according to the requirements of the comparative advantage.

The usage’s result of this analytical scheme of the comparative advantage in internal exchanges is necessary to be rigorously analysed in a national system. In terms of usual market the buyer can choose the best products, with the most efficient price/quality ratio from his perspective. In this case the quantity from the least competitive products, considering this price-quality ratio and without taking here into consideration the negotiation capacity, would tend to decrease until disappearance. In real-empirical economy it hasn’t been constantly proved yet. That is why, the suggestion of some additional measures of this tendency’s support, in extension of the market’s self-balance effect through prices, quantities and qualities, appears as necessary. The relatively increased speed of the present economic processes makes this approach to be necessary.²³

The institutional interference for the infant industries’ support appears as a solution, being this way identified from an analytical perspectives an *opposite* case of the usage of the

²³ Although this increasing speed stimulates the consumption, the respect of the comparative advantage’s requirements can yet lead to a relative saving of products, but not to the achievement of a Pareto optimum in a strong way, in its type of measurement through savings. In a certain measure entropy law is respected, which uses exosomatic ways (Georgescu-Roegen, 1971) – permanently in conflict for their possession – and which is necessary to assure in time a constant reserve of saved resources for the future generations. See also the remarks from 20th note regarding the speed of development of the economic processes.

comparative advantage's requirements. In any national economic system it can be observed a continuous replacement of products with new ones, yet in a strict way it can't be proved that this replacement entirely respects the requirements of the comparative advantage. The existence of multiple products has also advantages. Next to the variety need of the human being – kept up in the exchange process by a continuous duality between the rational choice actions and the intuitive ones – the assurance of life's continuity in a product's disappearance case from different reasons, is a main argument and proof that human action has also other superior criteria of choice in comparison with those strictly rational, supported here on the basis of the comparative advantage's principle.

Good uniqueness case having a single usage can be considered, in a strict way, as a tendency towards the monopoly/domination of a single product. Multiple producers' existence, yet of a single product, can lead us to an extreme situation. The chance of replacing it in a national economy in some cases, when this cannot be produced, will lead to a possible chained collapse and to a production of other goods found on the use chain of this as a raw material. The safety principle would't be respected in these terms, but the necessity of the stimulation's renunciation of the products less efficient in a national economic system appears permanently. If the idea of the simultaneous presence on the market of some relatively similar products is accepted, case in which is also proved the existence of some gains from trade, the case in which a permanent duality of the opposite interests, of mutual elimination from the market of the same goods' production is present, cannot be denied.

Other cases in which the requirements of the comparative advantage aren't (constantly) entirely used regard the absence of trade action's launch because of the shipping risk beyond the national territory in order to reach other markets (the alien issue). The multiple terms which occur in external trade, in comparison with those from the internal trade, significantly reduces the possibility of such an exchange's achievement. The ratio between the external trade volume and the internal one is an important proof of this tendency.

A frequently occurred case regards products' trade at different levels of the individual or entity's income. Goods considered efficient in the price/utility ratio are sold, but also the less efficient ones having similar characteristics and relatively inferior of these reduced prices, the last ones because of a (absolute) smaller price, yet which have a bigger access for the individuals/entities with reduced levels of incomes. Another case refers to a "conditioned" sale, a less advantageous product's maintaining on the market, which is yet complementary in a strict way for a product with superior qualities. Also, combinations from the above mentioned cases are possible. All these cases can be separately theorized, through general's

detailing, as we won't find ourselves in the case of the misplaced concreteness (Georgescu-Roegen, 1971).

A general preview over these constantly occurred cases, of requirements' incomplete usage of the comparative advantage, which would meet the premises of the analytical economy principle from economics can be achieved through the constant use of entropy law's requirements. The comparative advantage's principle contains in its structure resources' saving premise, yet only an awareness of this requirement and its promotion to a compulsory economic norm can lead to its (more) complete usage in the real-empirical economy.²⁴

The self-balance in real time of the economic processes would lead to a full and simultaneous usage of the three above mentioned economic laws' requirements,²⁵ without the interference of some legal terms, which yet must be permanently grounded on the basis of the resources' saving premise. Cooperation law, observed in economy under its minimum mutual acceptance shape of good exchange, is operable on the basis of the simultaneous requirements' respect of the interest and minimum effort's principle. Therefore, the usage of the comparative advantage would be achieved in a bigger way, if cooperative law's requirements add to competition and entropy's laws. In consequence, in connection with these identified cases, the issue regarding the fact that if the individuals use the comparative advantage in the cooperation processes, otherwise it would be permanently checked the possible consequences.

These cases are summarized in a standard one which can be called the second best case of the comparative costs, in which the optimum choice is not the one achieves as a level (is unoperable). Human mind's limitation in simultaneously collecting and processing information – and in addition in making strictly rational decisions, but also the respect's impossibility in the empirical reality of the requirements of the comparative advantage according to this scheme makes possible the situation of gaining at a maximum level to be operable in few cases in comparison with all the possible exchanges, except those of the four numbers/gold prices' proportionality. In the most cases, gains from trade (as margin profit)

²⁴ In order that the economic norm to be more operable and efficient in practice, it is necessary that self-controllable relations of interference to be made and also to stop if their object stopped being valid. In an opposite case, paradoxically, the institutional interference, as it has been proved in multiple case from the empirical reality – the case of the command economies being an extreme situation – can generate reversed effects, of general decrease of the observed economic system.

²⁵ See also the remarks from footnote number 13.

and also their volume are reduced as none of the two parts are interested in making the exchange.

3. The borders of economics' object from the perspective of the exchanges' study on the basis of the comparative advantage's principle

It is obvious that through formulating some regularities, laws and principles in economics, of which border is necessarily to be rigorously established, the purpose of this science can be reached. Identifying some tendencies of development for the social and economic processes, followed by a projection which requires to be subsequently confirmed by facts – on the basis of the hysteresis phenomenon through the supposition of some past tendencies' maintaining, eventually modified through some corrections according to the possessed information about the phenomena's possible subsequent development which must be correspondently processed – is considered to be a significant analytical achievement for the economist researcher and a recognition of economics' development (Georgescu-Roegen, 1971). Some economists have shown the negative consequences occurred through the division of political economy's object of the two new sciences: economics and politics (Buchanan, 1975, chapter 10, note 4). Other economists have underlined the positive role of human action's analysis observed as a unit (Mises, 1949).

Some of the economists tend to not be able to avoid the error in extending without legitimacy the borders of economics' object, which meets, for example, the politics' one. The observation perspective is important because the “positive” analysis in politics shows us that politicians' interests are entirely divergent sometimes from those of the consumer individual, shareholder or associate's ones of an economic entity. According to some expressed expert opinions the politician is interested in a strict way by the votes number of which he might be able to obtain: “If economists want to be understood they should use much simple words...[and] to address fewer to politicians and more to the others. Politicians are interested in what the electors think – especially the groups which bring them a big number of votes – and doesn't take into consideration the economists' opinion. Talking to politicians about economy is therefore a waste of time. The only way to impose the governors is as they would have a minimum of knowledge in economics is that to confront them with the electors which themselves have this knowledge” (The Economist, in Epping, 2001, motto).

The fact that only sometimes, except some extreme cases or at least different from the most significant ones, it overposes in their decisions over the interest and therefore over an

individual's behaviour from a normal situation in his economic actions creates multiple problems of confusion for the economist, preoccupied by the more exact measurement of the economic processes, in understanding the various "politics". The individual considers that he acts "freely" in appearance – in reality yet more and more constrained institutionally with legal acts sometimes inefficient from the economic process' perspective – between two extremes: the (free) self-balancing market and the (institutional) interference of the politician through legal norms, which usually don't take into consideration the *essence* of the economic norms and principles. The legal economic norms must be adopted, from a strictly material perspective, mainly regards the necessity of the analytical economy's principle from economics, of using knowledge in supporting some more efficient decision making in the choice actions in more possible variants of the usual individuals.

In these terms the analysis perspective of an exchange by an economist is *different* by a politics expert's one. According to the comparative advantage's principle choosing the best situation will be made by taking into consideration the deducted algorithms, in the analysed case, in Manoilescu generalized scheme. In essence, these algorithms are considered in the demonstrated formulas – the incomes (price) and also the prices, considered here as another level of the price from a previous stage. From sciences' perspective economist's task has finished once with these analytical procedures' availability for the maker of decisions: in firm owners, intermediaries of these, consultants, politicians etc.²⁶

This trap of the spheres' (object's) overposing of the two sciences, at least where there are mutual dialectical areas of shadows (commercial politics for example) tricked many economists including Manoilescu. In our opinion, his error was when passing beyond economics' object bordered in a strict way, grounding the perspective of the decision made in regarding human action.²⁷ Manoilescu also tried to support through dialectical judgements some development tendencies which could occur according to some demonstrated solutions

²⁶ The fact that in decision action can participate, and this thing is wanted, also economists doesn't contribute to the enlargement off economics' object, these *acting* beyond a science's area and (analytical) qualifications. In opposition, some law's usage, principles beyond economics' borders for the calculation of some results regarding some tendencies doesn't change, for example, the deducted algorithms' content of the comparative advantage, at the most can infirm some previous suppositions, and contribute to the refining of the measurement through formulas of the comparative advantage. The limits' analysis of usage of the comparative advantage's principle in real empirical economy, the subject of the present study, is an example.

²⁷ Terms like governmental decisions or institutional interferences catch the borders of economics' object from politics' one in a strong way, not being necessary to use full concepts as commercial politic.

through his analytical scheme. These tendencies, in a strict way, can always be infirmed in different points from the time line and in different spatial cases, because of the occurrence of some circumstances which have on a certain period of time an opposite trend towards the suggested one.²⁸

The presence's explanation of these kinds of dual situations are based on the opposite interests' existence of the individuals in their permanent fight for the exosomatic means' achievement. These means are part of the material resources and are limited, regarded from a more general perspective. Therefore, this competition in the action of achieving exosomatic means will be permanent in the human societies (Georgescu-Roegen, 1971) mainly based on competitive principles, usually in the damage of the cooperative ones including the more rational usage processes of the resources.²⁹

That is why, the analysis of Manoilescu's work regarding some forecasts on gains from trade and other tendencies supposed by him to be achieved require to be separated from the validity's check of his analytical scheme. Moreover, the comprehension and check of his analytical scheme's validity is required to be made according to the last variant published in January 1940 in *Weltwirtschaftliches Archiv* (The World Economy) in Kiel. Even though it has some lacks for any inherent research, his analytical efforts of the comparative advantage's study through using the total productivity (quality coefficient), a new instrument at least for Europe, Manoilescu can be considered, in our opinion – probably next to Charles Cobb and Paul Douglas (1928) of whose article he haven't read – a forerunner of total factor productivity's concept. From this strictly analytical point of view his achievements have been remarkable. Although he included in the same formula the price and productivity (quantity) though a direct unitary relation he signaled a fundamental issue: the measurement's fluctuation of gains from trade, resulted from negotiations, doesn't guarantee the **sufficiency condition** in identifying some stable and prevalent tendency in the validity's sustaining of the

²⁸ Although the ultimo/last purpose of the social sciences, including economics, is the tendencies' identification (Georgescu-Roegen, 1971) which sort of passes the actual border, the gravity point's change of the analysis beyond these borders can cause confusions, including through interferences with other science's object (here politics).

²⁹ The opposite individual interests' existence is an additional motive for sustaining the achievement's observation of the national interest in achieving a social and economic balance of the national economic system. This dispute is partially and temporarily found on animals, although exosomatic means are almost inexistent even on the "social" groups of animals: ants, bees and rats.

comparative advantage's principle, at least at a national level³⁰. The issues occur because of the biased distribution of the comparative advantage by the economic entities and the individual owners, based on the development in qualitative leaps of the patrimony, profit and market power. That is the reason why the comparative advantage obtained through negotiation must be followed by an economist next to its size's evolution according of the productivity effect.

Regarding to resources' increasing rarity, even their disappearance, products' hierarchy, according to the (total) productivity, is necessary for them to become an instrument (procedure) of the comparative advantage's measurement. It seems that Manoilescu's work appeared too soon for their assimilation by the scientific economic research from the international trade from the next period of their publication.

In these terms the analytical study's separation of the choice processes, on the basis of the comparative advantage's principle, from the actual choice from the empirical reality of a direction or other actual action is a necessity in the economic research. Only in these terms the deducted schemes can become arguments, which would be a basis for the future decisions, independent from the quality and interest which appear in taking these decisions. These arguments will be grounded on the basis of the economic norms and laws, directly applicable, through market's self-balancing effect or through the juridical norm – it is institutional interference.

The separation of a science's object could justify this way the reality's distribution from multiple's sciences perspective. Each of these sciences bring new supportive elements in empirical reality's comprehension, but yet without *interfering* in these process of decision making which is a complex one, sometimes intuitive, which overcomes from a certain complexity level the rational choice, and consequently including the measurement's usage. The issue of some subsequent seam between politics and economic is a delicate one after the achievement of these sciences' repartition. It seems that inside political economy the developing process hasn't been made yet (Georgescu-Roegen, 1971) in order to sustain the

³⁰ Every time we refer to this limit we are obliged to show that without studying his article from 1940, not translated in German, we keep a certain limitation in retrieving these statements, in the case in which Manoilescu would have returned to these suppositions of his in the book from 1937 "The national productive forces and the external trade" (The theory of protectionism and of international exchange, issued in 1929, revised with some small changes). In his Romanian edition, he especially makes this remark – taken probably from a manuscript of the revised book after 1940 – in not accepting a dispute until the study of his last theoretical scheme published from 1940, statement found at the subchapter The Theoretical Scheme.

unification's achievement of the two sciences so the decisions would be based on scientific arguments, much easier to be identified as a social and economic significance because of the decreasing unity of the abstract reality, which this way gets closer to the empirical one. Only an urgent need or maybe the grounding of some superior minds like von Mises and Georgescu-Roegen would support in the future the necessity's recognition of the social and economic knowledge's unification from human action's perspective. On the other hand, the approach's support of analytical reunification requires to be accepted by the experts from these two sciences.

Individuals' interests, which possess the majority of the exosomatic means are relatively opposite to most of the individuals which possess a small volume from these resources. Therefore, also most groups of individuals, from the perspective of population's volume, which presently have a majority from these resources (exosomatic means) have an interest in using more efficiently these resources. The comparative advantage guarantees this possibility, without any of the implicated parts to lose in the exchange, including through the algorithm which regards total productivity's size.

The urgent social and natural need of saving material resources, which will *come* upon us (Georgescu-Roegen, 1971), grounds the entropy law. Some pollutant effects of the environment and of the development rhythm's slowing down, including because of resources' absence (Chinese economy case recently) will oblige human kind, probably the deciding groups, to take into consideration this perspective. The comparative advantage principle, even through its initial application, under the usage's matter of resources' saving capacity is a basic analytical argument in sustaining such a direction of unitary action, as to achieve relative savings. Resource saving represents basically the essence of the comparative advantage and it can be grounded as a main argument in sustaining in the future the necessity of another required phenomenon which occurs: decrease (Georgescu-Roegen, 1979). The empirical reality might determine us to admit a closer (earlier) perspective. The null increase was only an intermediate step which has changed the perspective towards another negative phenomenon: the society of consumption.

Manoilescu's analytical scheme hasn't been analysed yet with the means and present scientific instruments being more than just an historical and influential perspective for some decisions, including for some national economies' level. Some concerns connected to the protectionism which Manoilescu sustained only from the grounding's perspective of some qualitative leaps' necessity for the economy at a state–nation level, where the group interest – a qualitative aggregation of the individual ones – has had also a high consistency, is necessary

to be patiently analysed towards some statements of his made on the basis of the processed information of that time. Some economists, whom have systematically studied infant industries' concept (phenomenon), state – on the necessity's basis of the economic qualitative leap, although in a strict way they don't strictly suppose this leap – a developing direction of this kind, this is not Manoilescu's main scientific contribution for the international trade theory. This contribution requires to be analysed in connection with his analytical scheme's validity. The objects' reunion of the twin sciences – economics and politics – could support the sustaining of the two directions simultaneously analysed by this economist: the measurement through gains from trade scheme and the identification of some historical tendencies relatively established.

4. Findings and openings

General validity's grounding of the comparative advantage's principle, deduced through Manoilescu generalized scheme, requires to be followed by the usage capacity's check of the scheme in real cases. Between the existent similar products there is a chain of the comparative advantage. Although apparently products switch between them in different terms, minimum effort's principle determines the implicit and permanent application, yet partial, of the comparative advantage. This way the buyer takes a price/quality ratio as a reference point, of course, according to the subsequent usage and chooses, according to his belief. He chooses the product for which this ratio has the most reduced level. We do not consider (here) the issue of multiple possible usages' existence of the same good. In a strictly analytical way the simultaneous existence of some similar goods from the price/utility perspective makes difficult the selection capacity of the individual consumer. In extension, for the economic entity, having as a reference point the comparative advantage's existence and, in extension, of the minimum effort's principle the situation is similarly.

This chain of the multiple exchanges is based on the technological and managerial connections inside an economic system where production, exchange, distribution and consumption processes are simultaneously found. Yet the fact that there is a permanent tendency, in a relatively weak form sometimes, of the most efficient products from the perspective of the price/quality ratio to remain on the market cannot be denied. A term of existence of this tendency in an established form is that of a complete report and of a relative neutrality (objectivity) towards connections' analysis between the technical characteristics and the economic ones (price and quality, especially). From this perspective information

process capacity is required to be sustained, even through institutional forms, including through the temporary manipulation through commercials.

Simultaneously, the introduction's stimulation of the advanced technologies through institutional mechanisms of self-controlled interference on the juridical norms' basis is necessary, next to the classic solution of the actual self-balancing mechanism of the market. The necessity of the infant industries' introduction, which helps the qualitative leap in time through the resources' relative saving, supports the validity's premises of the advantage's usage in the empirical economy. Manoilescu argument (Addisson, 1992), seen from an analytical point of view, has a serious grounding, if the economic process is not seen as a mechanical one, without qualitative leaps.

The absence of some strong connections between the national systems requires the maintaining of a minimum cohesion structure of each national economy – a minimum number of products, technologies (and managerial methods for them) and supports the introduction of some advanced products and sectors, at least where the connections between the branches have a high importance. A smaller initial productivity, because of the lack of experience of the labour force, of the management level in the new sectors can be increase in time. The situation is dual towards the loses achievement's one through the elimination of a technology-product not so advanced, identified on the basis of the comparative advantage's principle. *It is possible that in time losses' size measured in relativity to be recovered n both cases by the stimulation of the processes introduction based on bigger comparative advantage.*

The globalization process of the good exchange is only a bowl of the application of the comparative advantage. The mixture of the empirical relations with the analytical ones – the first ones more complex than the last ones – imposed by the requirements of the application of the comparative advantage's principle, influenced by some interests which pass to the two types of relations, give us a resultant sometimes difficult to forecast. The existence of multiple products with the same usage, nationally and, also internationally, increase the maintenance's safety of a national economic system in some extreme cases of the extreme connections' break or, on the opposite, of their fall (renunciation) to some national production capacities. The general validity of the comparative advantage's principle, as also of its relatively limited application, are two issues of the same unitary reality, relevant on the basis of the duality principle and which can be entirely comprehended using the dialectical analysis.

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