

THE EXCHANGE ACTIVITY AND QUANTIC ECONOMICS

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Abstract:

The work defines the concept of “exchange activity” as a constant equivalent of human activity and gives a brief insight in a possible social-economic system the single purpose of which is to enhance the quality of man forcing him to redefine himself - not by wealth but through the quality of his work. In this macroeconomic system work is no longer an option but the only way to ensure a living. The social level is given by the intelligence applied to work. Notions such as currency, usage value, profit, etc. disappear them being impossible subjective variables in a quantum based system which should verify at all times the wavy nature of the system they are part of. The work proposes a way to annul the discrimination of the work force.

Keywords: *macroeconomics, currency, profit, business ethics, exchange activity, labour discrimination*

JEL: *E420, E500, J710, P500.*

1. Introduction. The notion of Quantum Economics

By understanding the principles of quantum mechanics as laws of the nature, the specialists in sociology and the economists wished to apply them to the principles of economy. But the rigid principles of mechanics cannot be modified as would wish certain groups of humans trying to serve their own interests. Therefore, the economists have replaced certain constants of quantum mechanics in the Quantum Economics with variables adopting the idea that “it is assumed that equations of motion derived for physical systems in the physical space are quite a good initial approximation for equations of motion of modelled economic systems in some price space” (Kondratenko, A., 2005).

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”By analogy with quantum mechanics of physical systems we consider that the wave function of economy does not only describe the behaviour of economy at a given point in time t_0 but also determines its behaviour or evolution in all future moments in time. It means that along with some other assumptions that are not considered in this paper, equations of motion for economy can be written in the form of so called wave equation:

$$i\alpha \frac{\partial \Psi}{\partial t} = \hat{H}\Psi \quad (1)$$

In (1) H is a certain linear Hermitian operator that is called Hamilton operator or a hamiltonian in quantum mechanics. If this hamiltonian is known, then the wave equation (1) determines the wave functions of economy at any point in time. Generally speaking, a Hamilton operator is unknown for economic systems, this problem being for future consideration. In (1) i is a usual, complex variable, and α is a certain constant which is also unknown. If in quantum mechanics this is a universal or Plank constant, in quantum economics this is just a parameter which may be different for various economies, and its economic sense will be determined some day”. (Kondratenko, A., 2005).

We consider that these adaptations led to a hybrid, unethical economic system still based on profit a notion that has nothing in common with the wavy evolution of nature and society in which any emitted quantum/particle fit in and match the properties of the reference historical moment. Therefore, ”in view of the recent meltdown of the economy that gave rise to the great recession, it is pretty obvious that the current economic systems are not working” (Goswami, A., 2015)

The origins of quantum economics can be traced back to the works of prominent economists of the past. The theory of Quantum Economics refer to Adam Smith’s distinction between *money* and *money’s worth* and later taken up by David Ricardo and Karl Marx: ”When, by any particular sum of money, we mean not only to express the amount of the metal pieces of which it is composed, but to include in its signification some obscure reference to the goods which can be had in exchange for them, the wealth or revenue which it in this case denotes is equal only to one of the two values which are thus

intimated somewhat ambiguously by the same word, and to the latter more properly than to the former, to money's worth more properly than to the money" (Smith, A., 1978, first published 1776).

In another passage Adam Smith emphasizes that money is not a product, but a simple means of circulation whose value does not add up to that of national output. Karl Marx dwelled further on this subject and suggested that money is but the social form of value: *"In the form of money, all properties of the commodity as exchange value appear as an object distinct from it, as a form of social existence separated from the natural existence of the commodity"* (Marx, K., 1973).

Quantum economists refer also to David Ricardo's idea that commodities cannot measure value because their value fluctuates:

The only qualities necessary to make a measure of value a perfect one are, that it should itself have value, and that that value should be itself invariable, in the same manner as in a perfect measure of length the measure should have length and that length should be neither liable to be increased or diminished; or in a measure of weight that it should have weight and that such weight should be constant. (Ricardo, D., 1817).

Léon Walras's view of money as a purely numerical, adimensional object (*„Le mot franc est le nom d'une chose qui n'existe pas"*) (Walras, L., 1952) is another intuition exposed by quantum economists.

As long as "production is an instantaneous event that quantizes time, ...the payment of wages is (...) the instantaneous event that defines production, through which money acquires a real content and is replaced by a positive amount of income".

As result, monetary pathologies occurs:

- i) Inflation is the situation where global demand numerically exceeds global supply, or a specific phenomenon of the periods of economic crisis, consisting of depreciation of paper money in circulation due to issue of a mass movement of money over the actual needs, and either reducing production volume and movement of goods, leading to reduced purchasing power of money; this situation is at odds with the logical quantum identity between demand and supply – inflation is pathological. To have inflation there must be some money devoid of purchasing power, which quantum economists call empty money, that increases or inflates global demand only numerically without altering the

substantial identity between global demand and global supply. According to quantum economists, the origin of inflation is closely connected with capital accumulation (Schmitt, B., 1984 and Cencini, A., 2005);

- ii) ii) Involuntary unemployment is a macroeconomic pathology, a disorder independent of people's behavior, an inflation cause;
- iii) iii) Sovereign or external debt crisis which cannot be limited to what is known as public debt, but must include both that part of public and private debt a country incurs abroad (Schmitt, B., 1984).

In 2011, 27 authors signed a manifesto concerning the development and dissemination of quantum macroeconomics (Schmitt, B. and more authors, 2011), where they have pointed out, between others, the following:

- everybody acknowledges that contemporary economic systems are essentially monetary
- there is increasingly widespread scepticism concerning the solutions proposed by economists
- the only laws specific to current economies are those deriving from the nature and presence of money
- being a creation of humankind, the economic system does not lie beyond our powers of comprehension
- monetary analysis shows that a nation is coextensive with the *set* of its residents and, has thus an existence *sui generis*. This conceptual, logical point must be recognized and never forgotten, if we are to avoid the deep structural imbalances currently affecting international payments
- For decades, economists have been pursuing the pipe dream of using a fixed exchange rate system, largely considered as the best tool in encouraging growth in international transactions. However, repeated attempts to set up such a system (the *gold standard*, the Bretton Woods agreements, the European Monetary System) have never been successful
- the analysis of this problem has always been based on decisions made by the agents who originated the request for credit and must now repay the debt.
- The economic-financial crisis that is at present the subject of intense debate in a range of countries, from the least to the most developed, can be overcome only if its structural causes have been determined, where by

structural causes we mean those that have their origin in the systems of national and international payments.

- This (...) is indeed the goal of quantum macroeconomics which, besides explaining the underlying mechanisms of the crisis, proposes structural remedies, i.e. reforms of the systems of national and international payments

In its present form and mathematical justification, actually by-passing the elements of social ethics, offering currency instability – in itself a transacted asset, the principles of the new Quantum Economics no longer correspond to the fundamentals of Quantum Economics as envisaged at the beginning of the 20th century moving away from the fundamentals of the Quantum Mechanics which they originated from in the first place. Quantum Economics is no longer an application of Quantum Mechanics: paradoxically where Quantum Mechanics states that a measured quantum does not preserve its unalienable qualities, Quantum Economics can measure the macro-economic data but modifies the theory so as to match it with reality.

Jokingly or not, there is where lies the difference between economics and engineering.

2. Theoretical case studies

2.1. EU evaluation of the personal quality based on criteria that do not belong to the human resource system

Fiction:

Radu and Thomas are each in a bathtub containing 100 liters of water. Each one of them have a cup of different, unknown capacity.

At every 10 words uttered by Radu, Thomas takes a cup of water from his bathtub and pours it in Radu's bathtub and vice-versa.

After two hours, Radu has only 20 liters of water in his bathtub while Thomas has 80 liters in his.

Question: Is Thomas more intelligent than Radu?

Actual facts:

Radu is 35 years old and a highly qualified engineer with the prestigious car manufacturer Ford in Romania.

Thomas is the same age as Radu, has the same qualification but work for Ford Germany.

Both work the same number of hours.

Their products sell for the same price/unit on the international market.

Radu earns 2,000 Ron/month.

Thomas earns 2,000 Euro/month.

Radu is transferred for three months to the Ford Company in Germany where he earns 1,500 Euro/month.

In the same period of time Thomas is transferred to the Ford company in Romania where he is paid the same salary, i.e. 2,000 Euros/month.

Question: Is Thomas more intelligent than Radu?

2.2. Two identical apples in EU

Hypotheses: i) EU is a defined system; ii) The system is governed by laws (directives), which every EU citizen or member state must abide by; iii) EU is not a monetary union yet although the stated intention is to become one.

This case study highlights the situation of different prices given to an identical product originating from different countries based on the exchange rate RON/EURO which has nothing to do with the size and the quality of the product but has everything to do with artificial and subjective criteria.

Obviously, the size and quality of the product derive from elements pertaining to the undulatory zone of the production system: soil grade, climatic conditions, the care put in the monitoring and development of the product.

Notwithstanding, the price difference at a given moment, the quantum definition of the product is subjective; it has a speculative character and is grounded on nothing of the wavy specific characterized by inertia in time.

It so happens that in the European Union we, Romanians, are free to sell cheap and buy expensive:

Thus:

The Romanian EU parliamentarian Radu enjoys a coffee break. He has in his pocket a huge, beautiful, yellow Golden apple which he bought with one RON two days ago, at Obor Market before leaving Bucharest. Somewhere, on its side, the apple is labelled "Made in Romania".

He takes out the apple from his pocket on the table, waiting to be served with a nice coffee. At the same table, an EU parliamentarian (let us say) from Germany, Thomas, is asking permission to sit down. He puts his huge, beautiful, yellow Golden apple, identical to Radu's apple, which he bought one day before with one EURO in Berlin. His apple has no label.

Radu drinks his coffee and prepares to leave. By hazard, Radu takes Thomas's apple from the table, greets and leaves the coffee shop. Eventually, when Thomas decides to eat the Golden apple on the table he sees the label on the side of the apple. Intrigued, he calls the police who later locate the Romanian and because Radu has already eaten the apple, they ask Radu to pay the difference of 1 Euro - 1 Ron to Thomas. 1 Euro = 4.50 Ron.

Reason: Radu prejudiced Thomas with 1 Euro - 1 Ron. In other words, Radu got richer with 1 Euro - 1 Ron, and Thomas was prejudiced of the same value by the Romanian.

Thomas remained with Radu's big, huge Golden apple labelled "Made in Romania" and with the difference of 1 Euro - 1 Ron in his pocket.

In the plenary session of UE Parliament, Thomas brought up the situation and highlighted Radu's misdoing suggesting that this is a habit specific of all Romanians.

Although the stories are pure fiction, they are a perfect description of the way EU countries operate at macro-economic level. In fact, this is the pattern of the entire world economy but the EU example concentrates all the disfunctionalities.

Furthermore, outside the EU – viewed as a economic and customs union where money issuing is controlled by a unique body according to very strict rules, another international currency, the US dollar, deviates from the rule. In the EU, USD is used based on an artificially controlled parity which is not the case in the rest of the world.

Where would the American economy be if, for instance, each and every state would be forced to withdraw its national currency from the market? The economists would refer to such a situation calling it „superinflation”. In fact, this is the economic and financial reality, discretely published, but which the entire world knows and accepts.

Based on this reality and of many others, a currency controlled world economy emerged, meaning an economy governed by the economic structures

controlling the currency. It is already open for all to know that these are the banks and the big corporations.

3. The notion of "Exchange Activity". Mode of operation

When defining the notion of „Exchange Activity” i) the aim was to find a concept that remains stable irrespective of culture, economic level, geographical region, etc., and ii) to find a state with a stable and developed economy capable to show an image of integrated economics.

Therefore, the notion of „Exchange Activity” is defined as the smallest virtual measuring unit for the human activity, equivalent of the smallest real monetary unit of the chosen state.

Mandatorily, at national level each manufactured product and service rendered is coded. Initially the commercial activity is not coded.

It is assumed that the net virtual salary is identical with the actual net salary.

The codes are applied at international level. The new products which are not coded shall receive codes in every state.

The non-codified product or service does not receive an equivalent of a virtual price.

Therefore the non-codified product or service cannot sell and is only traded/exchanged in kind or given away as a gift.

On the same market the same product manufactured by different manufacturers on the home market is differentiated only by quality.

The price of a transported product will also include the cost of the transport.

The virtual equivalent of work is transmitted into a virtual account of a card or into a secured memory.

Following the implementation of this system at global level drug trafficking will disappear (consumption will still be around since it represents a personal choice).

Guns without codes will not sell.

The Banks will disappear because a virtual value cannot be borrowed.

The value of companies, depending on their *exchange activity* (Ea) will be given essentially by its intangible “personal intelligence” asset and less

or even not at all, by marks (for instance) which will no longer potentate profits but only quality.

$$ValFirma_{Ea} = f\left(\sum_i ValActNec_i\right) \quad (2)$$

Left for evaluation remains the product, agricultural/horticultural or otherwise, private and not intensively cropped. What will the difference be between the price of kilogram of farm apples and one of yard apples, given the fact that they both are of identical quality? Are they, indeed? What merit, big or little, assessed as “Exchange Activities” would an apple orchard owner have as compared to a horticulture cultivating apples who has numbers of employees and equipment?

Of course, these are mere questions but they prefigure a stable, wavy economic system in which any quantum could explain the system at any moment.

4. Predictions of the „Exchange Activity”

Recently, there have been unsuccessful attempts with various instruments that foreshadow an economy without currency. Constantly, however, the respective instruments have been corrupted and integrated in the present monetary system:

i) *The bank card*. Even if a credit card, a debit card (Schneider, G., 2010), or a cash card, we talk about a bank instrument and method of payment of a virtual amount of money from one person’s bank account into another bank account of another person. The real money is not transferred at the moment of the transaction. It allows the cardholder to pay for goods and services based on the holder's promise to pay (O’Sullivan, A. and Steven M. S., 2003). The concept of using a card for purchases was described in 1887 by Edward Bellamy in his utopian novel *Looking Backward*. Bellamy used the term *credit card* eleven times in this novel, although this referred to a card for spending citizen's dividends from the government, rather than borrowing.

ii) *Bitcoin*. This is an invention brought to the knowledge of the public in 10 2008, a digital asset (Brito, J. and Castillo, A., 2013) and a payment system invented by Satoshi Nakamoto, who released it as open-source software in 2009. The system works without a central repository or

single administrator, which has led the U.S. Treasury to categorize bitcoin as a decentralized virtual currency (FINCEN, 2013). Bitcoin is often called the first cryptocurrency, although prior systems existed. Bitcoin is more correctly described as the first decentralized digital currency (Brito, J. and Castillo, A., 2013). Bitcoins are created as a reward for payment processing work in which users offer their computing power to verify and record payments into a public ledger. This activity is called *mining* and miners are rewarded with transaction fees and newly created bitcoins. (<https://en.wikipedia.org/wiki/Bitcoin>). Microsoft has quietly stopped supporting bitcoin payments just over one year after it added support for the crypto currency within the Windows Store. But recently, Microsoft told "TechCrunch it will continue to support bitcoin. The company said "inaccurate information" had been posted online causing the confusion" (Russell, J., 2016).

iii) *Paperless money*. Also, electronic money, or e-money, is the money balance recorded electronically on a stored-value card. These cards have microprocessors embedded which can be loaded with a monetary value. Another form of electronic money is network money, software that allows the transfer of value on computer networks, particularly the internet. Electronic money is a floating claim on a private bank or other financial institution that is not linked to any particular account (Al-Laham, Al-Tarawneh, Abdallat, 2009). Examples of electronic money are bank deposits, electronic funds transfer, direct deposit, payment processors, and digital currencies (https://en.wikipedia.org/wiki/Electronic_money).

5. Conclusions

Recent works (Vukotić, V., 2011) show that national governments have limited possibilities to solve the problems of their economic systems and of their society when global economic crisis strikes; this crisis has been the warning that we need to be more creative, and less practical. We need time in order to shape the theory of economic quantum in the complete quantum economic theory.

Such a theory is dealt with in this work in as much as the measure of a company's value will be given by the assessment of the elements that are related to the intangible technology and marketing (Fântână, R.S., 2010), among which: products and knowledge about production, distribution

network, contracts, projects, managerial ability, employees' capabilities, good name and credibility, informational system, computer software, expert knowledge, invention patents, copyright, etc.

Generally speaking, maximum benefit will go to those who are most useful to the society.

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