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WAS MARGINAL SCIENTIFIC REVOLUTION UNIQUE IN HISTORY OF ECONOMIC THOUGHT?

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Abstract

The immediacy of the problem under study stems from the fact that there is a growing need for new comprehension principles of the changes that occur in the modern economy in the context of economic life globalization and slowdown in global economic growth. In this regard, the economic doctrines discarded by history deserve new reading. The purpose of this article is to return researchers' attention to the problem of continuous/discontinuous development of economic thought. The key approach to dealing with this problem lies in the methodological principles of scientific knowledge development established by T. Kuhn and I. Lakatos and claiming that all sciences progress via revolutionary paradigm shifts. Contrary to this, history of economic doctrines generally includes only one scientific revolution – substitution of the labour theory of value for the marginal utility theory. This article proves that the forgoing misrepresents real development of economic thought. The reason for the current situation is failure to comply with the methodological principle of a uniform approach to examined phenomena. The marginal scientific revolution shifted focus of economic processes from production relations to consumption relations. However, there were no scientific revolutions in other cases of similar substitution of reproduction relations. The methodological intention of the article is to carry out a consistent analysis of social conditions of goods production in connection with to all new schools emerging in economic science rather than to make an exception for the marginalist economic school alone. Such approach allows discovering the forgotten scientific revolutions which actually happened once in the history of economic thought. This fills up the gap existing in economic theory. The content of the article can be used to correct education courses on the history of economic thought.

Keywords

Philosophy of economics – Methodology of economics – History of economic doctrines

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Introduction

Economic history of mankind traveled a long way of theoretical reflection and this process is still ongoing. Mark Blaug, famous methodologist of economic science, aptly noted, «... the history of economic thought is being rewritten every generation».¹ And yet, it has persisting problems not clearly resolved irrespective of all updates and corrections. These undoubtedly include the question: how does the economic theory develop, in a linear way or by leaps?

Different viewpoints appeared repeatedly and contradicted each other while the economic science progressed. And it seems, «... the successive transition from one paradigm to another via revolution is the usual developmental pattern of mature science».² Nevertheless, the literature on economic history makes it look like contradictions between economic schools had chiefly tactical nature. Generally, the economic thought developed gradually and in the line of ascent.

Though, this graduality was interrupted occasionally. Scientific articles draw attention to this, «The biggest stride in the development of economic science took place in the last third of XIX century and was associated with the marginal revolution»³. Textbooks point out the same, «The most significant revolution in the history of economic science seems to be the marginal revolution which dates back to the 70s of XIX»⁴. However, even these broken conventions and interrupted graduality are widely viewed as a temporary deviation from the general line as far as A. Marshall made so-called neoclassical synthesis of contradicting viewpoints soon.

If one watched a scientific revolution in economics just once, it would be difficult to escape the question: does the economic thought develop gradually, by climbing from one peak to another, or does it undergo a usual succession of scientific revolutions according to the methodological regularities discovered by T. Kuhn and I. Lakatos?⁵

Methods

To understand why some theoreticians suppose that the economic thought develops gradually while others think it does by revolutionary leaps, one must determine what methods particular authors employ and exactly what they consider as the driving forces of economic theory development.

Karl Marx is acknowledged to be the most prominent revolutionary among economists. After all, Marx deliberately based his sweeping criticism of political economy on a revolutionary dialectical method. Unexpectedly, K. Marx wrote nothing about any scientific revolutions in the economic thought. K. Marx discerned the main difference between the

¹ M. Blaug, *Economic Theory in Retrospect*. Fourth edition (Cambridge: Cambridge University Press, 1985).

² T. Kuhn, *The Structure of Scientific Revolutions*. Second Edition, Enlarged (Chicago: The University of Chicago Press, 1970).

³ M. G. Lapaeva, "Philosophy and Methodology of Economic Science", *Newsletter of Orenburg State University*, num 8 (2007): 4-9.

⁴ *History of Economic Doctrines*. Eds. by Avtonomov, V.; Anan'in, O. & Makasheva N. Textbook (Moscow: INFRA-M, 2002)

⁵ I. Lakatos, *The methodology of scientific research Programmes*. Philosophical Papers. Volume I. Ed. by John Worrall and Gregory Currie (Cambridge: Cambridge University Press, 1989).

theories not in that they broke from a tradition more or less but in that some of them studied essential processes in economics and others did superficial ones. That is why Marx called the latter vulgar theories.

According to K. Marx, the essence of economic processes is production rather than exchange, distribution or cost consumption. The economic science began to deal with this essence only in the years since A. Smith and D. Ricardo. That means that the economic thought was at a pre-theory stage before the classical school appeared, by Marx's eyesight.

Inasmuch as marginalists shifted focus of research from production to supply and demand, K. Marx regarded them as ordinary vulgar economists rather than scientific revolutionaries. It was himself whom Marx regarded as a revolutionary in the economic theory. But further development of the economic thought showed that Marx actually completed ideas of the classical school in political economy only.

But if one alternatively looks for the theoretician being a staunch proponent of evolutionary development of economics, Jürg Niehans, well-known American historian of economic thought, seems to best match this role. J. Niehans came to a conclusion, «Over the centuries, the history of economic theory has been one of monotonic, cumulative progress»⁶. In Niehans's opinion, it goes like this because all economists, including those claiming to shake fundamentals, stick to the same concept regardless of differing theoretic and political preferences. «This paradigm is the «economic man», who makes rational decisions in the sense that he (or she) tries to make the best of any given situation»⁷. And if there was one paradigm in the history of economic thought, then it could not certainly have any scientific revolutions.

Therefore, neither the marginal utility theory, Edward Chamberlin and Joan Robinson's monopolistic or imperfect competition theory, nor John von Neumann and Oskar Morgenstern's Theory of Games and Economic Behavior are scientific revolutions. As to J. M. Keynes's mind blowing ideas, Niehans noted, «Nor was there a revolution in the 1930s, despite all talk about a Keynesian revolution»⁸. All knowledge increased in science in an even cumulative way since each and all economists stuck to homo economicus concept maximizing own profit and minimizing loss.

Meanwhile, there is a sense that J. Niehans's argument is incorrect as a matter of fact. Indeed, profit maximization and loss minimization are the generic indicators inherent to economics. They distinguish economic phenomena from all others. Even chess has term «economical mate» i.e. a mate delivered with a minimum number of pieces. J. Niehans's argument feels like as if we said that there were no scientific revolutions in physics because I. Newton and A. Einstein dealt with the same thing – physical world view.

Although, J. Niehans adduces another, winning, argument why there can be no scientific revolutions in economic science. According to him, «The main reason for the absence of revolutions in economic theory is the absence of an overarching power structure.

⁶ Jürg Niehans, Revolution and Evolution in Economic Theory. The Bateman memorial Lecture delivered at The University of Western Australia on October 12, 1992.

⁷ Jürg Niehans, Revolution and Evolution in Economic...

⁸ Jürg Niehans, A History of Economic Theory. Classic Contributions, 1720-1980 (Baltimore and London: The Johns Hopkins University Press, 1990).

There is no ideological superstructure resisting innovation»⁹. However, this thesis sounds weak. There was no ideological superstructure in physics as well but quantum mechanics emerged nonetheless.

If all economic theories share the concept of «economic man», then why do researchers keep thinking that one of them is worse and another is better? What are the driving forces of economic science development? J. Niehans believed, «The main driving force of scientific progress did not come from the outside, but from inside of economic theory»¹⁰. «Lack of exactness», «similarities», «inconsistency» are the logical flaws which induce researchers to improve economic science, from J. Niehans's perspective. It develops thanks to «creative minds» that can notice and remove these flaws.

Besides, Niehans wrote, «Among the driving forces of scientific progress in economic theory, the rise in mathematical competence was one of the strongest»¹¹. He seems to hit the nail on the head here. After all, the marginalists are called so because W. Jevons and L. Walras used differential calculus with its marginal values in their theory.

But does the whole scientificity of the marginal revolution reduce itself only to that they introduced mathematics into economic analysis? There is no doubt that mathematics has played and continues to play a fruitful role in economic theory development. And yet, many marginalists, for instance C. Menger, coped well without it.

Pathos of the marginalists consisted in denial of the labour theory of value, first of all its Marxian version. The marginalists supposed that commodity prices depended not on production expenses but on a supply-and-demand situation, i.e. on «consumption expenses», so to speak. Then why did not Marx see a scientific revolution there while being a recognized dialectician-revolutionary?

In our view, simply because K. Marx believed that, under capitalism, «Production is the dominant moment, both with regard to itself in the contradictory determination of production and with regard to the other moments»¹². Marx meant the other moments to be exchange, distribution and consumption which were derivatives of production actually. In fact, Karl Marx equated production relations with reproduction relations whereas the marginalists equated consumption with production at least. If so, we must check in terms of methodology: doesn't production prevail over «the other moments» – consumption, exchange, and distribution – in other cases as deemed by K. Marx?

Results

But the idea that distribution can play an independent role must be abandoned right away since distribution is so related to available private property under civilization that it virtually dissolves in the exchange relations. As for exchange itself, it is easy to see that the relations were not always governed by production. Before XVIII, both in practice and theory, source of profit was deemed to be trade and non-equivalent exchange rather than labour.

⁹ Jürg Niehans, A History of Economic...

¹⁰ Jürg Niehans, Revolution and Evolution in Economic...

¹¹ Jürg Niehans, Revolution and Evolution in Economic...

¹² K. Marx, Economic Manuscripts of 1857-58 (First version of Capital). Marx & Engels. Collected works. Volume 28 (London: Lawrence & Wishart Electric Book, 2010).

For example, Strabo mentioned a Phoenician merchant in his «Geography». He went for lead and copper to the Cassiterides along the route known to his compatriots only at the time. The Phoenician noticed on his way that a Roman ship was spying on him. To conceal the secret, the Phoenician ran both ships upon a ridge. And grateful compatriots compensated him for all losses as they appreciated benefit of retaining the monopoly so much¹³.

The Act of Venice Government of February 15, 1362, showed the manner in which monopoly prices were kept during the Renaissance, «We (i.e. the Venetian authorities – A.A.) have the obligation not to fluctuate or cut the price for Clugie salt through the means that we applied to Cervie salt in the past. Our community bought Cervie salt for a sum of money over a period of years and threw it into the sea in whole only to sell Clugie salt without hindrance and therefore not to do harm to the good of our community...» («... ad nos pertinere nedum non turbare et impedire cursum salis Clugie, sed potius removere omnia impedimenta et sinistrantia cursum ipsum, sicut olim iam factum fuit de sale Cervie, quem Comune nostrum pluribus annis emit pro certa summa pecuniae, faciens ipsum totum in mare jactari, solum ut non impediret salem Clugiae, et per consequens utilitatem nostri Comunis ...»)¹⁴ As can be seen, profit-making through non-equivalent exchange and monopoly was the practice in history from Antiquity until the Early Modern Period. Mercantilism just brought it to the level of an economic theory. The non-equivalent exchange faithfully served merchants of all nationalities for thousands of years. Anyhow, that was the point which was primarily resisted by physiocrats who superseded mercantilists. They particularly declared equivalent exchange to be the main axiom of economic science. For instance, according to F. Quesnay, «Exchange and trade generate no wealth, exchange produces nothing /.../; it is required only to meet the demand that is the real reason for exchange»¹⁵. Was not that a true scientific revolution which went unnoticed so far? The physiocrats considered salutary foreign trade, monetary expansion in the country, mercantilist trade balance system to be meaningless. F. Quesnay virtually derided supporters of the trade balance system in his dialogue «On trade». «M.N.: What exactly is the very profit you want to gain and you call monetary balance?

M.H.: /.../ I'd like we sell to foreigners more than we buy from them.

M.N.: It seems difficult to me as, actually, *every purchase is sale and every sale is purchase*. (italics by F. Quesnay – A.A.). And I can't see how your wish could be fulfilled. Unless you agree to sell the products and goods to foreigners for which they will pay nothing to you...»¹⁶

Then why did nobody notice ludicrousness of the situation before the physiocrats?! Textbooks on economic history most often explain it by the fact that crash of the South Sea Company in England and the Royal Bank established by John Law in France compromised public policy interventions in economics and questioned primacy of money turnover with regard to production.

¹³ Strabo, The Geography. Volume I. London. Henry G. Bohn, York street, Covent Garden. MDCCCLIV.

¹⁴ M. A. Gukovsky, Italian Renaissance. Volume I. Italy from 1250 till 1380 (Leningrad, Leningrad Order of Lenin State University Publ, 1947).

¹⁵ F. Quesnay, Answer to Mr. M. H.'s memoir. Quesnay F. Selected economical works (Moscow: Sotsekgiz, 1960).

¹⁶ F. Quesnay, On trade. First dialogue between M. H. and M. N. Quesnay F. Selected economical works (Moscow: Sotsekgiz, 1960).

But still, these arguments do not explain the reason of paradigm shifts. Early capitalism is referred to as the era of primitive accumulation. One must have some original capital whether ordinary money or other resources in order to start any manufactory, i.e. to recruit workers, provide them with necessary raw materials and equipment. That is why K. Marx considered the era of commercial capital to be not only historical but logical basis for industrial capital.

Marx gained the principle of unity of the logical and historical in G. W. F. Hegel's dialectics. However, according to Hegel, the logical dominates over the historical; «the abstract» precedes «the tangible» on all occasions. Therefore, content of the preceding is virtually determined by the succeeding whether we pay or do not pay attention to it. And if the era of commercial capital led to the emergence of industrial capital in its development, then this process is its real essence. What else does K. Marx's term «the era of primitive accumulation» mean?

Soviet times hailed such dialectics of «Capital» as its greatest and indisputable advantage while the West has not criticized this aspect of K. Marx's methodology so far. Though, M. Blaug brilliantly showed in his work «Economic theory in retrospect» that K. Marx was a worthless positivist. One might as well have proved that D. Ricardo, for example, was a bad marginalist. It is much more difficult to criticize Marx from his own methodological positions.

Meanwhile, contrary to G. W. F. Hegel, Marx adhered to materialistic understanding of history hence he was obliged to explain any era from its own regularities. If we look at the emergence of industrial capital with a historian's eyes, we'll be amazed to find that, even during the era of late mercantilism, trade was not at all inspired by the aim to accumulate money for its further investment into industry.

Trade was internally driven by profit maximization like thousands of years ago. If a deal yielded such profit, it naturally evolved into another similar deal but on a larger scale. In case of failure for some reason, the profit fell out as «money crystals» or was lent as financial capital to other more successful merchants.

And since everything changed at a certain point of history, the reason for this should be found in the modified conditions of goods circulation rather than in some needs of the industry that was practically absent at that date. And how was exchange of goods modified by the time the physiocratic theory originated? After all, both in ancient times and now, any trade is conducted in full compliance with the principle: «buy low in one place, sell high in another».

The paradox here is that this inalterable principle altered trade itself eventually. Tradespeople earned major profit only in cases where disparities between «buy low» and «sell high» were the greatest. This made merchants and adventurers to ship out across the global ocean. M.A. Gukovsky noted, «... large profit was gained in the transactions with new goods which prices were obscure and therefore could be set pretty arbitrarily. The profit could substantially increase when a transaction was at high risk and required long journeys to unknown lands. That's why penchant for such journeys becomes popular»¹⁷.

¹⁷ M. A., Gukovsky, Italian Renaissance. Volume I. Italy from 1250 till 1380 (Leningrad, Leningrad Order of Lenin State University Publ, 1947).

Trailblazers were followed by vessels with those who also rushed to be in time for sharing of the cake. Hence, another «immutable» trade law came into effect: the more mass of profit the less sensitive it is to its rate. Outlandish goods were consumed in bulk due to competition among merchants. Soon such exotic goods as tea and coffee came into common use. Advent of three-mast galleons and caravels turned them into the most ordinary goods. In cases where new cultures didn't strike root in Europe, for example, cacao, sugarcane or tobacco, they were planted in America, Africa or Asia...

Trade development resulted in that the whole range of goods encountered on the Earth in their natural state eventually ceased to be a curiosity bringing super-profits to merchants. Sooner or later, only the things produced rather than readily available in nature could become super lucrative. As is evident, this very circumstance being on the other side of both commercial and industrial capital was the actual cause of subsequent increase in the number of manufactories. Therefore, money accumulations didn't give rise to them but facilitated their growth. Intensification of trade exchange led to that the equivalent exchange became normal for settlement of a transaction...

As one can see, the equivalent exchange considered by the physiocrats as inherent to the trade was the logical outcome of its long-term historical development in reality. Then where did profit come from if the exchange could no more be a source of profit due to equivalence? The physiocrats faced this question inevitably thus advancing economic science naturally.

The physiocrats declared productive forces of nature to be a new source of social wealth. F. Quesnay wrote, «Reproducible agricultural wealth serves the basis for all other forms of wealth, provides employment of any and all professions, promotes trade and well-being of the population, drives the industry and maintains prosperity of the nation»¹⁸. If F. Quesnay said only this, he should probably have added that nature generated profit not directly but using intermediate economic forms. Instead, F. Quesnay stirred up the discussion whether labour could make profit in the industry but denied such possibility in every way.

F. Quesnay's reasoning seems unimpeachable. If we recognize the equivalent exchange as axiomatic, then there can be no profit in case of exchange between an employee (labour) and an employer (remuneration). The recognition that the labour transformed into commodities adds value to them results in an absurdity.

«This drinking glass costs one sou. The original material used for its manufacture costs one liar. Labour of a craftsman who made this glass quadrupled value of the material. Therefore, wealth tripled in this case. So, it would be highly advantageous to find a way to manufacture such glasses through labour of two workers during a year and more advantageous through labour of four workers during two years»...¹⁹

There is no logical mistake in this reasoning. And yet, the labour theory of value simply ignored it because conditions of circulation of goods being produced changed once again. Whether we notice or not, F. Quesnay virtually recognizes any labour as socially necessary in his discourse on full recovery of expenses incurred by workers. Meanwhile,

¹⁸ F. Quesnay, Grains. Quesnay F. Selected economical works (Moscow: Sotsekgiz, 1960).

¹⁹ F. Quesnay, On craftwork. Second dialogue. Quesnay F. Selected economical works (Moscow: Sotsekgiz, 1960).

different manufactories will have different production expenses. And none of competitors will be able to upsell their commodities on account of higher expenses within one economic area. The market will readily correlate production cost and expenses with an iron but invisible hand.

However, that will be the case if there are commodities of the same type but with different conditions of production at the market. Such circumstance was lacking in the days of F. Quesnay when manufactories just originated. As a consequence, commodities mostly appeared as «incomparable» at the market. That is why F. Quesnay didn't know the difference between concrete and socially necessary labour in the historical environment then prevailing. All of a sudden, while recognizing payment of labour expenses as socially normal, Quesnay paradoxically began advocating the non-equivalent exchange which was ardently opposed by him.

Just as the physiocrats started with rejection of the non-equivalent exchange, the backbone of the mercantilist theory, so the classical theory of value acknowledged that labour was the essence of economics. And the physiocrats denied its participation in creation of value in every way. So, another true scientific revolution went unnoticed. It was traditionally accepted that there was no gap between the physiocrats and classicists. For example, Charles Gide and Charles Rist wrote in their «History of Economic Doctrines», «Notwithstanding the originality and vigour displayed by the Physiocrats, they can only be regarded as the heralds of the new science».²⁰

However, the days of A. Smith proved, «Though the manufacturer has his wages advanced to him by his master, he, in reality, costs him no expense, the value of those wages being generally restored, together with a profit, in the improved value of the subject upon which his labour is bestowed»²¹. A. Smith even examined the conditions under which the value improved. According to him, «They are regulated altogether by the value of the stock employed, and are greater or smaller in proportion to the extent of this stock»²².

But David Ricardo, immediate follower of A. Smith, remarked that such formula applied to manufacturing production rather than to machine production, «If men employed no machinery in production but labour only, and were all the same length of time before they brought their commodities to market, the exchangeable value of their goods would be precisely in proportion to the quantity of labour employed»²³. In D. Ricardo's opinion, employment of machinery resulted in that profit became dependent not on the amount of applied stock, as A. Smith supposed, but on the amount of applied floating stock only. K. Marx went further, showing that labour capacity, as a commodity, rather than labour shaped the capitalist mode of production in the context of machine production. First manufactories and then machinery rendered human labour meaningless by turning it into a simple operation of physical exertion and the worker into an appendage to a machine. The former worker turned into a proletarian who could sell the only thing – their own labour capacity.

²⁰ Ch. Gide & A. Ch. Rist, *History of Economic Doctrines. From the Time of the Physiocrats to the Present Day* (London: Ballantyne Co, LTD, 1915).

²¹ A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations. Volume I. Edited, with an Introduction, Notes, marginal Summary and an enlarged Index by Edwin Cannan* (London: Methuen & Co, 1904).

²² A. Smith, *An Inquiry into the Nature and Causes...*

²³ D. Ricardo, *On the Principles of Political Economy and Taxation. Ricardo D. The Works and Correspondence. Volume I. Ed. by Piero Sraffa with the Collaboration of M. H. Dobb* (Indianapolis: Liberty Fund, Inc, 2004)

According to K. Marx, «The determination of the *value* of labour capacity, as a commodity, is of vital importance. This value is equal to the labour time required to produce the means of subsistence necessary for the reproduction of labour capacity, or to the price of the means of subsistence necessary for the existence of the worker as a worker. It is only on this basis that the difference arises between the *value* of labour capacity and the *valorisation* of labour capacity — a difference which exists with no other commodity...» (italics by K. Marx – A.A.)²⁴. With any particular reservations, the capitalist pays to the worker as much as he needs to keep himself in working order. However, while performing as labour capacity, the proletariat generates more value than required for their sustention. The margin accrues to the capitalist.

The long struggle of workers and capitalists first for the normal working hours, then for the 10-hour workday and later for the 8-hour workday seemed to confirm how right K. Marx was. His theory of value was consistent with the reality inasmuch that S. Bulgakov, Russian religious thinker, wrote many years after Marx's death in 1912, «In practice, economists are Marxists, even if they hate Marxism»²⁵.

Nevertheless, in 1871 during K. Marx's lifetime, W. Jevons and C. Menger released program books asserting fallacy of Marx's theory of value. They offered the marginal utility theory as the substitute that measured value only with intensity of individual needs rather than with socially necessary labour time and production expenses.

That was another scientific revolution in economics. It is commonly associated with the names of Carl Menger, Eugen Böhm von Bawerk and William Stanley Jevons. However, the history of economic doctrines shows that subjective understanding of utility and value in economics is far older. Precursors of the marginalist theory are philosopher Étienne Bonnot de Condillac, economist Anne Robert Jacques Turgot, abbot Ferdinando Galiani, mathematician and naturalist Daniel Bernoulli and even railway engineer Jules Dupuit.

In a word, the ideas underlying the marginal utility theory were expressed many times during XIX century. Moreover, the year 1854 saw release of the book of German economist Hermann Gossen «Development of the laws of human intercourse, and the rules following therefrom for human action»²⁶ that actually contained the readily-available marginal utility theory including its mathematical apparatus. It is no wonder that W. S. Jevons wrote on August 21, 1878, to his brother Tom, «I am, therefore, in the unfortunate position that the greater number of people think the theory nonsense, and do not understand / it, and the rest discover that it is not new»²⁷.

Then why did the marginalist ideas expressed many times during XIX century await acknowledgment in science so long? Was it because they reflected some evolving economic process that became evident to everyone after a while?! In our opinion, the point is that the social conditions of goods circulation changed once again. Modern researchers including

²⁴ K. Marx, Economic Manuscripts of 1861-63. A Contribution to the Critique of Political Economy. Third Chapter. Capital in General. Marx & Engels. Collected works. Volume 30 (London: Lawrence & Wishart Electric Book, 2010).

²⁵ S. Bulgakov, Philosophy of Economy. The World as Household. Translated, Edited, and with an Introduction by Catherine Evtuhov (New Haven and London: Yale University Press, 2000).

²⁶ H. H. Gossen, Entwicklung der Gesetze des menschlichen Verkehrs und der daraus fliessenden Regeln für menschliches Handeln. VIII (Braunschweig, Druck und Verlag von Friedrich Bieweg und Sohn, 1854).

²⁷ Letters & Journal of W. Stanley Jevons. Ed. by his wife (London: Macmillan and Co, 1886).

Ragnar Frisch, 1969 Nobel Prize Winner in Economics, assert that the labour theory of value «... was essentially a theory of production costs based on the thinking of the private entrepreneur»²⁸. And it is because «... The cost of production is so to speak the solid base on to which the prices fall down and remain. Hence the cost of production is «the cause of prices»²⁹.

According to our reckoning, such explanation is true but insufficient. Anyway, it says nothing about why manufacturers solely set value in the days of classicists. Meanwhile, the manufacturers' dictate can be best explained simply by unsaturation of the market with goods. During K. Max's lifetime the capitalism still developed extensively and expanded geographically only. It made no sense to compete within own industry. It was much easier to invest into production of new goods or to cover new geographical regions with enterprises.

Theoretical misconceptions of the era confirm this characteristic. K. Marx spoke of free cross-flow of capital and workforce from one sector to another. J. Say stated that production automatically generated demand. D. Ricardo seconded him, «We do not say the commodities will under all circumstances be produced, but if they are produced we contend that there will always be some who will have the will and power to consume them, or in other words there will be a demand for them»³⁰.

The 1825 crisis dispelled those illusions. And D. Ricardo's words sounded bitter irony since demand and consumption certainly remained in times of crises except that commodities were sold at bargain prices... During Marx's lifetime the buyer faced commodities of one or two manufacturers at the market. For instance, Singer sewing machine soon conquered the entire world due to successful technical improvements and pioneered credit sale. Today this name brand doesn't stand out among commodities of the same kind.

Sellers and buyers were unequal under the economic conditions prevalent at the time of the classicists. Sellers of proprietary commodities determined their value in all ages. The classicists adequately reflected this state of affairs in the labour theory of value. The fact that Marx presented it as the only true was no mistake in his time.

Meanwhile, capitalism could not develop extensively in perpetuity simply because we have only one planet. As soon as the capitalism started involving into intensive development, the market got saturated with identical goods. A situation arose where commodities began to compete among themselves already not as average specimens of different types of labour, as described in «Capital», but also as particular patterns of the same type of labour within every sector. Monopoly of manufacturers vanished. As a consequence, such conditions did not any more allow that the market value of commodities was dictated by the manufacturers who proceeded in their assessments from production expenses. Consumers began to determine it by their real choice. Already the marginalists and not the classicists started adequately reflecting new economic performance in their theory.

²⁸ R. Frisch, From Utopian Theory to Practical Applications: The Case of Econometrics. Lecture to the memory of Alfred Nobel, June 17, 1970. Nobel Lectures, Economics 1969-1980. Ed. Assar Lindbeck (Singapore: World Scientific Publishing Co, 1992).

²⁹ R. Frisch, From Utopian Theory to Practical Applications...

³⁰ D. Ricardo, Notes on Malthus's Principles of Political Economy. Ricardo D. The Works and Correspondence. Volume II. Ed. by Piero Sraffa with the Collaboration of M. H. Dobb (Indianapolis: Liberty Fund, Inc, 2004).

Discussion

Then why did not such authoritative methodologists and historians of economic science as K. Marx, J. Niehans, M. Blaug and many others notice scientific revolutions while transiting from the mercantilists to the physiocrats and further to the classicists? Why did not they see interrupted graduality there? For instance, M. Blaug wrote, «... but all the basic elements of the classical approach to economic activity are embedded in the mercantilist literature»³¹.

We believe that was just because one could not look at any paradigm from the outside if they secretly shared some of its prerequisites. That was exactly what happened to J. Niehans and M. Blaug. While criticizing T. Kuhn's theory of scientific revolutions, J. Niehans and M. Blaug did not notice that their acknowledgment of linear development of economic science was associated with the mode of existence of normal science as described by T. Kuhn.

T. Kuhn wrote that in references, «Partly by selection and partly by distortion, the scientists of earlier ages are implicitly represented as having worked upon the same set of fixed problems and in accordance with the same set of fixed canons that the most recent revolution in scientific theory and method has made seem scientific»³². As a result, «From such references both students and professionals come to feel like participants in a long-standing historical tradition»³³. That is why, «... science once again comes to seem largely cumulative» after another scientific revolution when all old facts pave the way for a new paradigm³⁴.

The classic paradigm prevailed in economic science overlong. Unsurprisingly, all that remained after the mercantilists and physiocrats' doctrines in economic theory turned them into ordinary precursors of the classicists as they were generally accepted. That is why scientific community perceived substitution of the classical theory for the marginal utility theory as the first scientific revolution in economic science.

Conclusion

Scientific results and methodological way leading to them are virtually inseparable. Back in the old days the economic science completely neglected methodology. Let us recall the mercantilist sir Dudley North who in his work of 1691 «Discourses Upon Trade: Principally Directed to the Case of the Interest, Coynage, Clipping, Increase of Money» wrote, «... Methinks when I meet with a great deal of firsting, and seconding, I smell one who conceits himself an author, a creature as fulsome as any other sort of impertinents. If there be reason, and that understood, what could the formal methodist add? Let me have the cockle, and who will take the gay shell»³⁵. But the economic science has come a long way since and attention to the methodology continues to grow every year.

³¹ M. Blaug, *Economic Theory in Retrospect*. Fourth edition (Cambridge: Cambridge University Press, 1985)

³² T. Kuhn, *The Structure of Scientific Revolutions*...

³³ T. Kuhn, *The Structure of Scientific Revolutions*...

³⁴ T. Kuhn, *The Structure of Scientific Revolutions*...

³⁵ D. North, *Discourses upon Trade, principally directed to the cases of the interest, coinage, clipping and increase of money*. 1691. Mercantilism. Ed. by Plotnikov I. S. (Leningrad: OGIZ, Sotsekgiz, 1935).

This article points out that presented history of economic thought still violates the methodological principle of a uniform approach to the phenomena under study. In fact, the economic history repeatedly witnessed departure from traditions of the economic science that gave rise to the mercantilist school and that most researchers perceived as a scientific revolution. Social conditions of goods reproduction changed in the same way during transition from the mercantilists' doctrines to the physiocrats' theory and then to the classicists' economic school.

Logically speaking, that means that the history of economic thought saw not one scientific revolution (the marginal revolution). There were more such revolutions actually.

In terms of T. Kuhn, the modern history of economic thought is a history of normal science. It considers all preceding economic theories as stepping stones towards economics. And that's good since it allows saving considerable time to teach students. Nowadays the higher school not only comprises two levels, namely bachelor's and master's degree programmes, but provides different types of training for researchers as well. And future scientists benefit not only from findings but also from the scientific methods leading to them. For this reason and for this category of students, the conclusions of the article that the history of economic thought saw not one marginal scientific revolution but several revolutions can be used to correct the course of the history of economic thought.

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