# Has economics become a new theology? Some comments about the practice of modern economists and medieval theologians

Andri W. Stahel [Universitat Popular del Baix Montseny, UPBM, Barcelona, Spain]



**Abstract**
In this paper, parallels between the practice of medieval theologians and modern economists are made, showing the striking similarities between them. Exploring these links further shows that these links go much more profound and are functional to the central ideological role both played in their respective historical contexts. Moreover, it is argued that this ideological role may explain the remarkable grip neoclassic economics has on the academy for now over a century. The neoclassic approach has nearly completely removed alternative perspectives from the academy, notably the historical school of economics, despite its inability to adequately describe the economic process in its socioecological, historically changing dynamics. Despite the numerous internal and external critiques it has received since its inception. Thereby, in this paper, an ironic paradox is shown: modern economics, by grounding itself on the mechanistic methodology, set forth by those like Galileo, Kepler and Newton, which has dethroned the medieval theology-grounded depiction of reality, ended up becoming a new theology.

## Introduction

What does modern economics have in common with medieval theology? At a first glimpse, very little. After all, economics presents itself as a science, based on the same mathematical principles and ideals of objectivity and empiricism on which mechanical physics is grounded and which, as is known, replaced medieval theological description of reality. Moreover, they apply to different subjects: heavenly, spiritual matters for theology, earthly matters for economics. Notwithstanding, if we look at how modern economics is practised nowadays and its ideological role in supporting free markets and the hegemonic social and political practices, striking similarities emerge.

In terms of method, since at least the end of the 19th century and early 20th century, the mathematical, model-based approach to economics has become hegemonic to the point of baring from its practice all dissenting or different methods. Unlike other social and historical sciences, modern economics was built around the idea that the economic reality can and indeed had to be approached in the same way natural scientists approach simple, repeatable phenomena like the movement of inertial bodies in physics or chemical reactions in chemistry. Stanley Jevons (1871/1879, p. vii), one of the founding fathers of the modern neoclassical approach, put its aim bluntly:

> "In this work I have attempted to treat Economy as a Calculus of Pleasure and Pain, and have sketched out, almost irrespective of previous opinions, the form which the science, as it seems to me, must ultimately take. I have long thought that as it deals throughout with quantities, it must be a mathematical science in matter if not in language. I have endeavoured to arrive at accurate quantitative notions concerning Utility, Value, Labour, Capital, &c., and I have often been surprised to find how clearly some of the most difficult notions, especially that most puzzling of notions *Value*, admit of mathematical analysis and expression. The theory of Economy thus treated presents a close analogy to the science of Statical Mechanics, and the Laws of Exchange are

> found to resemble the Laws of Equilibrium of a lever as determined by the principle of virtual velocities."

Jevons (Ibid., p. xiv) even went on to substitute "the name Political Economy for the single convenient term *Economics"*, since he could not help "thinking that it would be well to discard, as quickly as possible, the old troublesome double-worded name of our Science." He argued as well that he would one day gladly hand the subject of economics over to skillful mathematicians:

> "I do not write for mathematicians, nor as a mathematician, but as an economist wishing to convince other economists that their science can only be satisfactorily treated on an explicit mathematical basis. When mathematicians recognize the subject as one with which they may usefully deal, I shall gladly resign it into their hands" (ibid., p. xiii).

Thus, neoclassic economics has been modelled on the image of Newtonian physics, which it seeks to resemble, despite looking at a living, historical reality and not passive objects' behaviour as physics did. Indeed, to do so, it had to take Newton's standard assumptions like inertial movement assuming that objects move friction-free or the total elasticity of colliding bodies – thus, that no energy is lost at the collision – to a completely different level. Just like Newton's laws of movement apply to frictionless inertial movement, the equations of the economist's models require linear, predictable behaviour to be the norm. Thus, it had to assume not just the nonexistence of minor factors affecting the observed real-world behaviour of objects, but also the nonexistence of central aspects of the economic process like the inexistence of technological change, changing political, institutional and cultural factors, as well as the inherent plasticity and unpredictability of human behaviour. Just as Newton described celestial bodies' behaviour, economists assumed that the economic process happens in an abstract, no-space and no-time historical void. Thanks to the ceteris paribus assumption, all qualitative change and non-mathematically depictable factors can be ignored.

By doing so, as I argued elsewhere (Stahel, 2020a), economics effectively placed itself out of any attempt of empirical refutation once any deviation of observed facts from the predicted outcomes in the model had to be necessarily attributed to the excluded, so-called exogenous variables of the model. But, unless physics, where the deviations observed due to the letting out of real-world frictions are usually minor and predictable, in economics, the variations are entirely different in nature and scale. Real-world frictions like political, technological, cultural, or environmental factors like the present Covid-19 epidemic or climate change affect real-world economic dynamics in complex and often unpredictable ways, with different feedback-loops phase-transitions and emergent properties happening all the time. And they are central to the process, unlike air friction which is just a relatively small and minor aspect affecting the fall of a billiard ball from the heights of the Pisa tower or the trajectory of a cannon-ball. Physicians would certainly not dare to predict the course of a falling feather on a windy day or that of a falling leaf in an autumn storm using Newton's equations. Nevertheless, economists do not shy back from predicting the outcome, in numerical and precise terms, of Greece applying the IMF backed and imposed "structural adjustment plan" on its economy. Although no cultural, political, historical and environmental context has been taken into account by the models.

What is even more striking is that, despite its visible and known shortcomings, the modern neoclassic approach to economics has become omnipresent and hegemonic in the academy. Now, for well over a century, it is almost the only accepted way to approach economics. We even forgot that when those like Jevons and Walras started their crusade, the historical approach to the economic process was the favoured one. Now it disappeared from economics. At that time, Wilhelm Dilthey (1989, first published in 1883) strongly rejected applying a methodology formed exclusively from the natural sciences (*Naturwissenschaften*) to the human sciences (*Geisteswissenschaften or* "spiritual sciences" as he

termed them). The former is centred on natural phenomena subjected to unvarying natural laws, which we aim to **explain** in terms of cause and effect. Notwithstanding, in the human sciences, we strive to **understand** them in terms of the parts' relations to the whole as a living, changing historical reality. Thus, according to Dilthey, a distinctively hermeneutic and phenomenological approach had to be applied to understand the latter. As it should be to understand the economic process, which, being a historical, creative and open process, cannot simply be explained through mathematical equations and formula. The economic process, too, is open to novelty and the emergence of new contexts and realities. Thus, context-specific and changing realities characterise it, not unchanging universal laws.

Notwithstanding, in economics, the mathematical, model-based approach has become hegemonic, to the point that a single methodological approach and even a restricted content to be approached has become the norm. Indeed, in economics, those who take an empirical, historical and institutional approach to the economic process have been ignored and excluded. Thus, authors such as Max Weber, Karl Polanyi, or Werner Sombart are not even considered economists or relevant to the profession. However essential and path-breaking their studies about the economic process from an empirical, historical and institutional perspective happened to be. Other institutional studies like those of John Kenneth Galbraith or Georgescu-Roegen's considerations of the role of the entropy law and qualitative change to the economic process are simply ignored by the mainstream, although they may be praised as economists.

Thus, we have already a first important parallel with medieval theological practice: unlike other social sciences, economics is constrained by following a single approach and, moreover, its subject is limited to a restricted field of inquiry. Thus, for instance, the classics' labour-value theory has been excluded from the debates and commonly agreed on academic topics. However, it too was stated in abstract, logical-deductive terms. Indeed, Smith and Ricardo's labour-value theory, later developed into a critique of the capitalist mode of production by Marx, has been the stated main target of Jevons and the neoclassic school. They based their critique on supposedly methodological grounds, although Smith, Ricardo and later Marx followed a purely abstract methodology too. A clear case in point is given by the so-called Cambridge X Cambridge debate in which Pierro Sraffa (1960), in strictly mathematical terms, proved the inconsistencies of the neoclassic definition and use of "capital". Although it started a heated debate at the time, it simply faded away and ceased to be considered after a while. Although the critique was never refuted in theoretical terms, economists just kept talking about capital as an independent variable, as if Sraffa had never proved that it could not. Indeed, both sides of the arguments being based on logical reasoning and abstract models, no way to settle the dispute on empirical grounds could be found. Unlike in natural sciences dealing with unchanging, universal laws where, for instances, empirical evidence favoured Einstein's theory of gravity over Newton's view.

But the unanswered question is how neoclassic economics managed to become that hegemonic in the academy despite the ongoing critique even by those professing it? As argued by Georgescu-Roegen, himself a reputed and recognised econometrician:

> "No science has been criticized by its own servants as openly and constantly as economics. The motives of dissatisfaction are many, but the most important pertains to the fiction of *homo oeconomicus*. (…) The criticism is irrefutable. However, the mechanistic sin of economic science is much deeper than this criticism implies. For the sin is still there even if we look at the economic process from the purely physical viewpoint only. The whole truth is that economics in the way this discipline is now generally professed, is mechanistic in the same strong sense in which we generally believe only Classical mechanics to be.

> In this sense, Classical mechanics is mechanistic because it can neither account for the existence of enduring qualitative changes in nature nor accept this existence as an independent fact. Mechanics knows only locomotion, and locomotion is both reversible and qualityless. The same drawback was built into modern economics by its founders, who, on testimony of Jevons and Walras, had no greater aspiration than to create an economic science after the exact pattern of mechanics. A most eloquent proof of how staunch the enthusiasm for mechanics was among the early architects is provided by Irving Fisher, who went to the trouble of building a very intricate apparatus just for demonstrating the purely mechanical nature of consumer behaviour" (Georgescu-Roegen, 1971, p. 1).

But the question still remains open: how has this methodology borrowed from Newton, who was dealing with relatively simple passive objects, become that hegemonic to the point to exclude from the profession alternative approaches and dissenting views about a complex, historical phenomenon like the economic process? As will be argued, the answer goes far beyond science and has a lot to do with the ideological dimension of modern economic theory.

The XIX century in Europe – and elsewhere – was a time of intense social, political and even military dispute. The ideological debate between Marxist economists and liberal economists was very present to the founders of the neoclassic approach. Jevons made it one of his main targets to refute Smith's and Ricardo's labour-value theory on which Marx's value theory was grounded, arguing that

> "I feel sure that when casting ourselves free from the Wage-fund Theory, The Cost of Production doctrine of Value, the Natural Rate of Wages, and other misleading or false Ricardian doctrines, we begin to trace out clearly and simply the results of a correct theory. (…)
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> When at length a true system of Economics comes to be established, it will be seen that that able but wrong-headed man, David Ricardo, shunted the car of Economic science on to a wrong line (…). It will be a work of labour to pick up the fragments of a shattered science and to start anew" (Jevons, op. cit., pp. l and lvii).

Notwithstanding, by arguing that this new science had to be based on idealized, abstract models of reality in which general economic equilibrium and full-employment could be proven to occur, Jevons had created an ideological construct more than empirical science. Indeed, once models point to the existence of "general equilibrium", full or near-full employment, "Pareto-optimality", among other desired outcomes; it is argued that once we implement those assumptions on which the model is based (like for instances more free-market and "rational economic behaviour"), reality too will move towards these results. Thus, as I argued elsewhere,

> "Instead of following Popper's idealised normative behaviour of abandoning a theory once its predictions fail to be observed, economists use their theories as ideological weapons to promote and defend given economic policies. Not searching theory to conform to reality, but the 'messy reality' to conform to the theoretical models instead" (Stahel, 2020a, p. 81).

It may be essential to inquire into this ideological function of modern economics a little further. After all, IMF's structural adjustment plans, which countries in financial distress like recently Greece are obliged to subscribe to gain access to foreign credit again, are based on these models. As are the policies and recommendations of the World Bank and, indeed, economic policies everywhere. As is said, "the

economy rules the world", making what is said about it behind a label of "scientificity" and objectivity even more relevant.

**Whence it all started**

**"***Eppur si muove"*[1] Galileo is quoted having said after being found "vehemently suspect of heresy" by the Roman Catholic Inquisition for sticking to his observations and conclusions that the Earth circles the sun and not the other way around as assumed by the Church's accepted dogma. His telescopic observations, made public in 1610 in his *Sidereus Nuncius* (The Starry Messenger) describing the Moon surface with his valleys and mountains, the planet phases of Venus and Jupiter (which implied them as well circling the Sun), among other evidence, were all considered heresy at the eyes of the Church. The argument went on for many decades, and despite the empirical evidence supporting Galileo, he was condemned in 1633 to lifelong imprisonment, commuted to house arrest until he died in 1642.

Many Church Astronomers repeated Galileo's observations. But instead of arriving at his conclusions, they went on along complicated arguments to reconcile them with the accepted geocentric view. Others directly refused to look through the telescope, as Galileo complained in a letter to Kepler: "My dear Kepler, I wish that we might laugh at the remarkable stupidity of the common herd. What do you have to say about the principal philosophers of this academy who are filled with the stubbornness of an asp and do not want to look at either the planets, the moon or the telescope, even though I have freely and deliberately offered them the opportunity a thousand times? Truly, just as the asp stops its ears, so do these philosophers shut their eyes to the light of truth."[2]

Unlike Galileo, Newton, who built on his method and followed his observations, was hailed as a hero during his lifetime. For his epitaph, the poet Alexandre Pope proposed to state: "Nature and Nature's laws lay hid in night: God said, Let Newton be! and all was light." Although this epitaph was finally not approved, a more extensive inscription in the Westminster Abbey where "lies that which was mortal of Isaac Newton" points to the same fascination and perspective:

> "Here is buried Isaac Newton, Knight, who by a strength of mind almost divine, and mathematical principles peculiarly his own, explored the course and figures of the planets, the paths of comets, the tides of the sea, the dissimilarities in rays of light, and, what no other scholar has previously imagined, the properties of the colours thus produced. Diligent, sagacious and faithful, in his expositions of nature, antiquity and the Holy Scriptures, he vindicated by his philosophy the majesty of God mighty and good, and expressed the simplicity of the Gospel in his manners. Mortals rejoice that there has existed such and so great an ornament of the human race! He was born on 25th December 1642, and died on 20th March 1726."[3]

Thus, when the British political economy was born, modern science had already taken the upper hand. Newton's theory was the epitome of the possibilities open to the human inquiring mind. Theology had been relegated to a minor role, and science was how humans were expected to assess empirical reality. It was in this context that Adam Smith wrote the founding book of modern economics, *An Inquiry into the Nature and Causes of the Wealth of Nations,* and it was in the mathematical, model-based deductive method proposed by Galileo and Newton that modern economists would seek advice on how to

[1] "Still it moves".
[2] From the Latin original source, quoted in Wikipedia https://en.wikipedia.org/wiki/Galileo_affair and Favaro, Antonio (Ed.) (1890–1909) *Le Opere di Galileo Galilei*. Edizione Nazionale. Florence: Barbera.
[3] Available online at http://www.westminster-abbey.org/our-history/people/sir-isaac-newton.

approach reality "scientifically". Even if at the price of greatly simplifying and reducing reality and ultimately ignoring it by introducing the *ceteris paribus* condition. However, economists never asked themselves whether this could be done without impairing their undertaking's scientificity and objectivity.

Notwithstanding, being presented as logic, scientific conclusions and not as politically motivated interests, Adam Smith's, Ricardo's and later neoclassic model's defence of the benefits of the "invisible hand", the free-market competition driving individual greed towards the common-good, end-up being represented as a logical necessity. Not as a historical reality affecting different individuals and groups differently. Paradoxically, thereby modern economics ignores the political character of the *political economy* as such.

But this methodological approach, which became the hegemonic and indeed only accepted one to modern economics, was highly disputed at that time. It may be interesting to recover Arnold Toynbee's arguments, actually the uncle of the better-known historian Arnold Joseph Toynbee. He was a prominent economic historian and social reformer of the 19th century. He was responsible, among others, for popularizing the term industrial revolution in Britain, a term coined by the French revolutionaries, mesmerized by the historical changes they could observe at the other side of the channel. His lectures on the industrial revolution in Britain of the 18th and 19th centuries were highly influential at the time. But, as it happened to the *historical school of economics* he represented, also known as the *Prussian Historical School*, then hegemonic in Germany and elsewhere, Toynbee ended up being ignored by the profession.

His historical and empirical perspective on markets contrasts sharply with Smith's, Ricardo's and later neoclassics' hypothetical, model-based approach. His arguments were based on interpreting historical and factual realities, not on abstract imaginary models and the search for "universal laws". For instance, Adam Smith, when making his case for the virtues of the "invisible hand" of market competition, simply stated it in absolute terms by generalising partial observations as constituting universal truths. Thus, he argued that:

> "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages" (Smith, 1776/1937, p. 14).

Indeed, as can be observed, sellers do not give out what is needed as a gift and benevolence whenever we buy something in the market. They sell it and may try to sell it at the highest possible price. But, by just asking a little bit further, we can – and thus Smith could have done – find plenty of examples pointing to the opposite directions. Cases whereby out of greed people have been exploited in the marketplace, ecosystems destroyed for profit, or people speculating in financial markets make huge profits without adding any new wealth in use-value terms to the process (Stahel, 2020b). Indeed, starting from partial observation, Smith could as well have reached the opposite conclusion.

The same can be seen if we look at Smith's and later Ricardo's and, indeed, neoclassical trade theory. Although apparently referring to actual world events, it is a logical argument based on a hypothetical reality not backed by empirical facts. Thus, for instances, both Smith and Ricardo argued that free-markets would promote the local economy and that this was precisely one of its benefits. However, later historical developments proved them wrong; it has not deterred later economists to still mention them as proponents of the benefits of free commerce. Therefore, it may be worth it to quote them here in length and ask ourselves whether, according to their own economic and ideological preferences, they would still be holding their defence of the invisible hand today. As they argued:

"Every individual is continually exerting himself to find out the most advantageous employment for whatever capital he can command. It is his own advantage, indeed, and not that of the society, which he has in view. But the study of his own advantage naturally, or rather necessarily, leads him to prefer that employment which is most advantageous to the society.

First, every individual **endeavours to employ his capital as near home as he can**, and **consequently as much as he can in the support of domestic industry**; provided always that he can thereby obtain the ordinary, or not a great deal less than the ordinary profits of stock. (…)

A capital employed in the home trade, it has already been shown, necessarily puts into motion a greater quantity of domestic industry, and gives revenue and employment to a greater number of the inhabitants of the country, than an equal capital employed in the foreign trade of consumption: and one employed in the foreign trade of consumption has the same advantage over an equal capital employed in the carrying trade. Upon equal, or only nearly equal profits, therefore, **every individual naturally inclines to employ his capital in the manner in which it is likely to afford the greatest support to domestic industry, and to give revenue and employment to the greatest number of people of his own country**.

Secondly, every individual who employs his capital in the support of domestic industry, necessarily endeavours so to direct that industry that its produce may be of the greatest possible value. (…)

**As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry**, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. **By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention**. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it" (Smith, pp. 421-423, emphasis added).

"Experience, however, shows, that the fancied or real insecurity of capital, when not under the immediate control of its owner, together with the **natural disinclination which every man has to quit the country of his birth and connexions, and intrust himself with all his habits fixed, to a strange government and new laws, checks the emigration of capital**. **These feelings, which I should be sorry to see weakened,** induce most men of property to be satisfied with a low rate of profits in their own country, rather than seek a more advantageous employment for their wealth in foreign nations" (Ricardo, 1817/1960, p. 83, emphasis added).

Indeed, looking at the social and ecological costs of our industrialised food production and the current globalisation of the economy, we could paraphrase Smith pointing to the negative side of free markets competition. Indeed, had Smith looked more carefully to what was happening already at his time, he could have easily concluded that

> "it is not from the lack of consciousness of the butcher, the brewer, or the baker, that we'd expect cheaper or adulterated ingredients in our dinner, but from their regard to their own interest. By preferring to employ children and women at lower wages; and by using lower cost and correspondingly lower quality ingredients to produce their sausages, beer or wine, they only intend their security; and by directing their industry in such a manner as its produce may be of the greatest value at the lowest cost, independently of their nutritional value or the environmental and social costs incurred in their production, they intend only their own gain. They are in this, as in many other cases, led by an invisible hand to promote an end that was no part of their intention. By pursuing their own interest, they frequently harm society more effectually than should they consciously be willing to do so."

It is precisely acknowledging that market competition may push into both directions what Toynbee concluded:

> "If we once grant the principle of the division of labour, then it follows that one man can live only by finding out what other men want, it is on this fact, for instance, that the food supply of London depends. This is the basis of the doctrine of *laissez faire*. (…)
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> But the principle of *laissez faire* breaks down in certain points not recognised by Adam Smith. It fails, for instance, in assuming that it is the interest of the producer to supply the want of the consumer in the best possible manner, that it is the interest of the producer to manufacture honest wares. It is quite true that this is his interest, where the trade is an old-established one and has a reputation to maintain, or where the consumer is intelligent enough to discover whether a commodity is genuine or not. But these conditions exist only to a small extent in modern commerce. (…) Thus the interest of producers and consumer conflict, and it has been necessary to pass Adulteration Acts, which recognise the non-identity of interest of sellers and buyers. (…) Adam Smith, moreover, could not foresee that internal free trade might result in *natural* monopolies. A conspicuous feature of our times is the concentration of certain industries in the hands of a few great capitalists, especially in America, where such rings actually dictate the prices of the market" (Toynbee, 1894, pp. 83-84).

These arguments are even more true today than in Smith's time when shorter distance and less product complexity and diversity meant a potentially better understanding by the consumers of the underlying production conditions and quality of the product they were acquiring. Local producers, dependent on a small local demand for their products, certainly have a greater selfish interest in maintaining their reputation. But this cannot be assumed within increasingly globalised markets and even internet sales where buyers do not even know where and how the products have been produced. Thereby, to assure quality and "honest wares", all kinds of product controls and laws are required to avoid cheating and harming consumers' interests and health. There is simply no automatic mechanism whereby empirically and theoretically, the "invisible hand" alone suffices invariably to redirect individual greed towards the common good.

Standard neoclassical models simply avoid the problem by assuming perfect information or at least information symmetry. By ignoring asymmetric information and the market incentives to *phishing for phools,* as Akerlof and Shiller (2015) put it, economists ignore that free-market competition selects those producers able to cheat their consumers more "efficiently". More globally, it stimulates producers to externalize their social and ecological costs while finding ways to exploit natural resources and their labourers more cost-efficiently.

Unlike assumed by theory, in actual practice, people base their decisions on highly incomplete information. We see just what we have in front of us: the seductively displayed and packed product and its price, mostly ignoring all the rest. Akerlof and Shiller are acknowledged professionals in the field, both having earned a "Nobel Prize". Notwithstanding, their critique and common-sense arguments respect the marketing and sales practices whereby markets and the search for profits push producers to *fish for fools* and dupe consumers, are still ignored by standard models based on the assumption of information symmetry. Mainly, Akerlof's and Shiller's point is rationalised aside by being considered a minor potential market failure addressed by appropriate regulations that do not impair fundamental free-market beliefs. They are not taken for what they potentially are: a severe questioning of the bulk of neoclassical theoretical framework built upon non-empirically verifiable and existing assumptions.

In the case of Toynbee, it has to be noted that he was undoubtedly not illiberal. In the debate in the political arena between mainstream economists and industrialists defending *laissez- faire* at one hand and the socialists' critique, he sought a reasoned middle-ground.

> "Competition, heralded by Adam Smith, and taken for granted by Ricardo and Mill, is still the dominant idea of our time; though since the publication of the *Origin of the Species*, we hear more of it under the name of the 'struggle for existence'. (…) It is next assumed that this struggle for existence is a law of nature, and that therefore all human interference with it is wrong. To that I answer that the whole meaning of civilisation is interference with this brute struggle. We intend to modify the violence of the fight, and to prevent the weak being trampled underfoot.
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> Competition, no doubt, has its uses. Without competition no progress would be possible, for progress comes chiefly from without, it is external pressure which forces men to exert themselves. Socialists, however, maintain that this advantage is gained at the expense of an enormous waste of human life and labour, which might be avoided by regulation. But here we must distinguish between competition in production and competition in distribution, a difference recognised in modern legislation, which has widened the sphere of contract in the one direction, while it has narrowed it in the other. For the struggle of men to outvie one another in production is beneficial to the community; their struggle over the division of the joint product is not. The stronger side will dictate its own terms; and as a matter of fact, in the early days of competition the capitalists used all their power to oppress the labourers and drove down wages to starvation point. This kind of competition has to be checked; there is no historical instance of its having lasted long without being modified either by combination or legislation or both. In England both remedies are in operation, the former through Trades-Unions, the latter through factory legislation. In the past, other remedies were applied. (…) Competition, we have now learnt, is neither good nor evil in itself; it is a force which has to be studied and controlled; it may be compared to a stream whose strength and direction have to be observed, that embankments may be thrown up within which it may do its work harmlessly and beneficially. But at the period we are considering it came to be believed in as a gospel, and the idea of necessity being

> superadded, economic laws deduced from the assumption of universal unrestricted competition were converted into practical precepts, from which it was regarded as little short of immoral to depart" (Toynbee, 1894, pp. 86-87).

The main point he makes, and indeed any economist should do, is that real markets are not just an abstract concept in which "perfect" or "imperfect competition" can be assumed. As all historical realities, markets are the fruits of past choices and developments and, by their very nature, a place where conflicting interests may collide. Indeed, as Karl Polanyi in his magnificent *The Breakdown of Nations* showed, our free-market-based industrial societies' idea and practice did not emerge until the 18th and 19th centuries, being unknown before then. Conventional economists like to argue that capitalism is not new and that markets as such have existed throughout history. They have, but they had never been free and seen to organise the economic process without external limits and controls. As Wolfgang Sachs showed,

> "As late as 1744, Zedler's *Universal Encyclopaedia* unwittingly gave a naive definition of the term 'market': 'that spacious public place, surrounded by ornate buildings or enclosed by stands, where, at certain times, all kinds of victuals and other wares are offered for sale; hence the same place is also called market place'. (…) There is no mention of 'market shares', 'price fluctuations' or 'equilibrium'. Between then and now a far-reaching change has taken place in the self-image of society.
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> Adam Smith was the first thinker who, when using the term 'market', no longer envisaged a locally determinable outlet for goods, but that society-wide space throughout which all prices intercommunicated" (Sachs, 1999, pp. 18-19).

Previously, markets were embedded and contained by society's broader social, cultural and political norms and forces. Political and administrative regulations and restrictions, cultural values and individual ethics hold the upper hand over and explicitly limit "market freedom". It is true that "at the local market places" and long-distance wholesale trade, individuals freely engaged in "the art of acquisition": buyers and sellers defining and accepting their exchange terms. But these spaces were circumscribed and limited by political, cultural and sometimes even moral and religious limits.

Labour, that fundamental pillar of our market economy, began to be hired in the labour markets instead of being acquired by warfare or, at the marketplace, as slave labour; or elsewhere being imposed by force or cultural tradition in feudal serfdom. Although found elsewhere in ancient societies, it was only with capitalism that wage-labour became the primary way labour was exerted, being freely bought and sold as a commodity whose price was called wages. It was then, already with Adam Smith, that labour, or what he initially termed "productive labour", has been defined solely in terms of a market-oriented activity. As he did with his other historical examples, he took for the whole that which was but a part of it. He reduced labour to wage-labour, ignoring all other ways whereby we humans (re)produce use-values, create new wealth by transforming and combining different elements of our environment. All other productive activities like domestic work and other non-paid for labour in the context of self-sufficiency, reciprocity, redistribution, or plunder by force.[4]

[4] For a better understanding of these other crucial ways of organizing and directing the economic process and their logic and relevance, see Polanyi, Karl (1944). *The Great Transformation*. New York: Farrar & Rinehart op. cit., and Stahel, Andri (2020b) *Oikonomy – The art of living and living well*. Campins: Montseny – Spiral Edition, pp. 10-33, where I added "plunder economy" to the list and discuss the relevance of these different forms to the economy and, therefore, to economic science. Once modern economics only concerns itself with one of these forms, that which in ancient Greece was known as chrematistics, ignoring all others, I argue for the need of using the term "oikonomy" instead of "economy" to differentiate one from the other.

Land and, for that purpose, all naturally available use-values (re)produced by autonomous ecological and biospheric dynamics, were no longer inherited as an unalienable family domain or, elsewhere, conquered through military force or held as commons by the community. Instead, it became a commodity open to being freely bought and sold. It was reduced to "natural resources" or merely raw material. Thereby Smith and later economists simply ignored the free and balanced ecological dynamics whereby our air and waters are renewed, wild fish stocks replenished and our lives sustained – implicitly considering it irrelevant to explain "*the Nature and Causes of the Wealth of Nations"*.[5]

Money too became something which could be obtained or lent for a given time at a freely agreed price, namely interests, once freed from the Medieval ban on usury. But these were all historical developments and choices, not the result of universal and unchanging natural laws.
As Karl Polanyi showed,

> "The transformation to this system from the earlier economy is so complete that it resembles more the metamorphosis of the caterpillar than any alteration that can be expressed in terms of continuous growth and development" (Polanyi, 1944, p. 42).

We may even take this image a step further to appreciate the scope of this historical transition better. It is known that once in their silky cocoon or their shiny chrysalis, caterpillar larvae first have to digest themselves, dissolving their previous form (except for some tiny "imaginal discs" which will be the basis for some future new structures). After passing through this dissolution process, similar to how food is reduced to its tiniest components through the digestion process, new structures and forms may be built.[6] Similarly, the ancient world had to be first wholly transformed and dissolved by the scientific, cultural, industrial, technological, and political revolutions that opened the modern world.

It is in this context that modern economic theory was born. But, by giving up in considering markets in a historical term to inquire into its nature and dynamics, viewing it as simple abstraction, modern economics lost touch with reality. Instead of being concerned with actual historical facts, it became a disagreement between abstract models of reality pointing for or against more market freedom. It stopped being scientific to become increasingly ideological and utopian. Models depict how an ideal world would function if it conformed to the model, not how it is. They ignore, among others, Polanyi's point that markets are treating as commodities realities that are not. As he argued:

> "A self-regulating market demands nothing less than the institutional separation of society into an economic and political sphere. (…) True, no society can exist without a system of some kind which ensures order in the production and distribution of goods. But that does not imply the existence of separate economic institutions; normally the economic order is merely a function of the social in which it is contained. (…)
>
> Such an institutional pattern could not function unless society was somehow subordinated to its requirements. A market economy can exist only in a market society. (…) A market economy must comprise all elements of industry, including labor, land and money. (…)
> The crucial point is this: labor, land, and money are essential elements of industry; they also must be organized in markets; in fact, these markets form an absolutely vital part of the economic system. But labor, land, and money are obviously *not* commodities;

[5] A discussion of the relevance and the ways of what I termed "Nature's oikonomy" can be found in part Two of my book, op. cit (2020b), pp. 169-290.
[6] Jabr, Ferris, August 10, 2012, http://www.scientificamerican.com/article/caterpillar-butterfly-metamorphosis-explainer/.

> the postulate that anything that is bought and sold must have been produced for sale is emphatically untrue in regard to them. (…) Labor is only another word for a human activity which goes with life itself, which in its turn is not produced for sale but for entirely different reasons, nor can that activity be detached from the rest of life, be stored or mobilized; land is only another name for nature, which is not produced by man; actual money, finally, is merely a token of purchasing power which, as a rule, is not produced at all, but comes into being through the mechanism of banking or state finance. None of them is produced for sale. (…)
>
> To allow the market mechanism to be the sole director of the fate of human beings and their natural environment, indeed even of the amount and use of purchasing power, would result in the demolition of society. For the alleged commodity 'labor power' cannot be shoved about, used indiscriminately, or even left unused, without also affecting the human individual who happens to be the bearer of this peculiar commodity. In disposing of a man's labor power the system would, incidentally, dispose of the physical, psychological, and moral entity 'man' attached to that tag. Robbed of the protective covering of cultural institutions, human beings would perish from the effects of social exposure; they would die as the victims of acute social dislocation through vice, perversion, crime, and starvation. Nature would be reduced to its elements, neighborhoods and landscapes defiled, rivers polluted, military safety jeopardized, the power to produce food and raw materials destroyed. Finally, the market administration of purchasing power would periodically liquidate business enterprise for shortages and surfeits of money would prove as disastrous to business as floods and droughts in primitive society" (Polanyi, 1944, pp. 71-73).

Indeed, any even superficial historical analysis corroborates this point: everywhere, there are political, administrative, or even moral limits to the way markets work and are allowed to function. Maybe drug and other illegal markets are the closest we have to "free-market" competition. But even there, people, cartels and gangs organise its functioning and set limits, using bullets if needed. Entirely free-markets are a convenient fiction, not a historical reality. Thus, Polanyi's point that modern industrial society's political history is a constant push for and against more market freedom. Some groups and interests ask for more deregulations and market freedom, others pushing in the other direction. But everywhere, administrative, political and cultural limits to market freedom have continued to be put in place. Be it through direct administrative and state intervention, laws and regulations, or through moral and ethical values promoting behaviours that go beyond short-term personal chrematistic interests.

In this context, we can better understand the debates in economics between *Keynesian* or *fiscalists* and *Monetarists*. More than a question of empirical truth, it is an ideological debate between different economic policy options. Although arguments are based on the outcomes of abstract models, those of the formers invariably tend to show that there is a scope and needed intervention by the government through active fiscal or monetary stimulus, the latter "proving" that leaving the markets self-regulate promotes the most desirable and "efficient" outcome. Thus, models are not chosen according to what is being observed but primarily according to what is being tried to be proven. Some are sustaining and legitimizing government intervention, others more deregulation and market freedom. Nor is it a coincidence that Adam Smith's ideas about the invisible hand driving individual greed towards the common good started to find friendly ears in Britain who, after all, based its hegemony on its industrial power and dominion of world trade.

*Trade, not rule,* was the official motto of Britain's foreign policy in the XIX Century and the cornerstone of its supremacy in the world. It was a fundamental aspect to support its growing industrial output

resulting from the industrial revolution it initiated, both finding markets for its products and raw materials for its industry. Smith's and later Ricardo's trade models gave it an apparently scientific and well-argued logical support. We just have to remember British support of Latin America's independence movements and eagerly signing trade deals with all of them or, in the same vein, how Britain obliged the Chinese Empire to submit to free-trade deals with Britain after losing the Opium Wars. A reality far-removed from the image of universal peace, welfare and brotherhood brought by trade as promoted by Smith and Ricardo.

Thus, after considering the history of economic thought, both Mark Blaug's and Maurice Dobb's conclusions:

> "When certain theories become the ruling scientific idea of their times for 'good' internalist reasons, there are frequently also ideological reasons that make the theory palatable to vested interests and appealing to the man-in-the-street" (Blaug, 1980, p. 177).

> "Whatever one may be led to expect *a priori*, the history of political economy from its inception makes abundantly clear how closely (and even consciously) the formation of economic theory was linked with the formation and advocacy of policy. Although the doctrines of the classical school were very abstract, especially in the form given to them by Ricardo (whom Bagehot called 'the true founder of abstract Political Economy'), they were related very closely to practical issues of their day, indeed surprisingly closely" (Dobb, 1973, p. 22).

> "There is an undetermined body of economic propositions and theorems which appear to be about economic behavior but which do not result in any predictable implications about that behavior. In short, a good deal of received doctrine is metaphysics. There is nothing wrong with this, provided it is not mistaken for science. Alas, the history of economics reveals that economists are as prone as anyone else to mistake chaff for wheat and to claim possession of the truth when all they possess are intricate series of definitions or value judgements disguised as scientific rules. (…) To be sure, modern economics provides an abundance of empty theories parading as scientific predictions or policy recommendations carrying concealed value premises" (Blaug, 1988, p. 711).

**The New Theology**

Taking a hermeneutic look at economics, by considering its development and practices in the broader political, cultural and ideological context in which it happened, shows how deeply economics is related to the legitimization and maintenance of the modern, market-centred historical order. More surprisingly and paradoxically perhaps – after all, economics' method is based on modern objectivist science, which dethroned theology and tradition as a way to assess empirical reality – economics came to resemble medieval theology both in its practice and their central ideological role.

In terms of practice, just as medieval theological discussions seem metaphysical, dogmatic and abstract, so did economics. Both are based on initial dogma or hypothesis from which conclusions, through deduction, are obtained and taken as truths. Both follow strict rules and orthodoxies, all those who deviated from being simply expelled from the corps and considered heretics. Just as theology had to stick to a clearly defined doctrine and corps of knowledge, economists are not supposed to engage

in other social sciences' subjects like sociology, cultural studies or political sciences. Nor are they supposed to ask themselves about human psychology more deeply. Humans' mechanical and predictable behaviour is simply assumed as an initial point of departure, just as particularly shaped production functions and consumer preferences. Like for theology, initial assumptions and logical reasoning are taken as the way to truth. As were Medieval theologians not supposed to consider other spiritual traditions or even direct personal mystic experiences besides the accepted official doctrine, as some nowadays greatly respected Medieval mystics like Meister Eckhart did. Like the Church, who ignored or censured the views of those who, like Giordano Bruno, Galileo or Kepler, dared to go against the accepted orthodoxy, economics ignores or condemn those who dare to think beside the box.

Both medieval theology and modern economics maintained their orthodoxy and closed character by resorting to a private language inaccessible to others. Latin and the intricate theological arguments for the former, mathematics and, probably more than in most other sciences, a series of technical terms and terminology for economics. "Pareto Optimality", "bounded rationality", "yield gap", "monopsony", "generational accounting", "marginal propensity to save", "income elasticity of demand", "liquidity trap", "adverse selection", etc., are just some of the terms and concepts needed to be known to participate in the debate. Notwithstanding, this is a way to effectively exclude common folk and even all non-theologians/economists from the discussions. Thus, generating a self-referential environment in which truth and the status of specific assertions and individuals are assessed.

Persio Arida (1983) wrote an interesting paper about the role of rhetoric in the settling of disputes within economics. As he argued, once there are no commonly agreed on external objective factors to assess the heuristic content of economic theories – unless other sciences in which empirical reality and falsificationism procedures are the ultimate yardsticks used – by looking at the history of modern economic thought, it can be seen that in economics it is more a matter of managing to assess your ascendency among your peers rhetorically, then of the positive overcoming of theories with a lower heuristic content by others with a higher level of explanatory power as assumed by science. Indeed, both theologies' and economics' abstract reasoning and idealised, non-observable realities on which their logic is applied render them immune to external, empirical scrutiny. Thereby, truthfulness can only be assessed by internal criteria, by its peers, and not by empirical evidence. It becomes all a matter of how the agreed rules, dogmas and procedures are followed and how the profession favours some theories and models over others.

Thus, as Arida argued and in line with theological practice, rhetoric and sticking to a clearly defined abstract field where given assertions are supposed to be valid and validated became the primary way disputes within economics have been solved in the past. Rhetorical dogmatism and not empirical fact-checking are, thus, the rule. These rules and practices may vary slightly in space and time. Nonetheless, as Arida claimed, some basic principles have been repeatedly favoured by economists and have led to some authors and models' enthronisation and others' side-lining. Here are some of the principles to traditional economics that Arida considers.

**Simplicity**, as an ideal borrowed from physics, is one of the central rhetorical practices in economics. Despite the intrinsic supposed complexity of the studied object, simple and straightforward statements are preferred to unclear, nuanced, dialectical and complex ones; simple, elegant mathematical formulae preferred to hermeneutic digressions and considerations. Thus, like Newton's movement equations or Einstein's famous $E=mc^2$, economic theories and models are supposed to be simple and elegant. They may be based on complicated mathematics and formulae. Still, they are expected to exclude the ambiguity of linguistic discourse, contradictions and complexities inherent to qualitative and ever-changing realities and their reluctance to be mathematised.

**Inner coherence** and the avoidance of *ad hoc* hypotheses to realign the model's inconsistencies is another generally agreed procedure. Thus, authors should clearly state their models' hypothesis and arrive at given statements through mathematical and coherent operations. Like in theological arguments, in economics, reasoning starts from clearly defined and accepted initial premises or dogma, and conclusions are reached by logical deduction and coherent argumentation.

Other fundamental and widely-used rhetorical procedures are the **greater amplitude** and **extent** of given theories and models. Thereby, those theories that explain a broader range of phenomena are preferred to those with a more restricted scope. Hence the frequent practice of portraying rival theories and models as "special cases" of the "general model" or theory being presented. For instance, Keynes's portrayal of the neoclassic full-employment equilibrium models as a particular case of his general theory, which, later on, and ironically perhaps, in its turn, was portrayed as a specific case of the more general IS-LM model instead.

Moreover, as was the case in traditional societies and theology, economists gain prestige by adhering **to a tradition and line of thought**. Thus, an allegiance to the founding father, Adam Smith, or the Ricardian tradition or Malthusianism in their polemic respecting rent and full-employment are cases in point. As do modern economists who line up as *monetarists* or *fiscalists,* for instances. Thus, like for religious faith, splitting into different branches, economics splits into separate lines, although all are adhering to the same faith. As in the other principles, adherence here has to be seen as rhetorical rather than necessary. By declaring to follow the line of accepted and revered authors, authors claim their authority and ascendency. As did Jevons by creating a list of many pages of "mathematical economists" whose tradition he claimed to have inherited. Thus, giving legitimacy to his approach and statements but significantly leaving Ricardo, whose labour-value-theory he despised, out of his list. He did so on a purely rhetorical basis, despite Ricardo's abstract, model-based methodology they shared, and which this list was supposed to reflect.

In this context, another often used rhetorical practice identified by Arida has to do with the **(re)invention and (re)assessment of tradition**. Thus, by reinterpreting past authors, ideas, and controversies, authors claim that given practices represent false paths. Simultaneously, the tradition claimed by themselves is portrayed as the correct one. Hence Keynes's vindication of Malthus in opposition to Say, or Sraffa's vindication of the classics and particularly Ricardo in the face of the neoclassical tradition. We can also see these very practices occurring in the theological disputes between different lines of faith, and between orthodoxy and heterodoxy.

Another fundamental rhetorical practice in economics is to claim **independence from particular interests, political and ideological motives**. Although most economics debates are related to specific and often conflicting interests, economists are expected not to be affected by these issues and follow "objective" and "non-ideologically tainted" research. Thus, at the rhetorical level, economists are supposed to be unaffected by their theories' implications. Like, for example, astrophysicists showing little concern with the fate of distant stars and supernovas as eventually predicted by their models. Thus, economists present themselves as "technicians" and "objective scientists", positively developing the economic "tool-box" arsenal, whose use and application is to be decided by others, by the so-called normative political instances.

Related to this rhetorical practice, another practice identified by Arida refers to the **minimum use of metaphors**. Although the use of metaphors and images may be necessary at the early stages of controversies, economic practice favours those who use more literal and direct explanations to those based on analogies and vague images.

Finally, and in a certain sense encompassing all these rhetorical practices, we find the choice of **mathematical language and formalisation over narrative and qualitative description**. By favouring, like in physics, mathematical formulae, economics portrays itself as **simple: reducing** the world's complexity to simple formulae. By sticking to the rules of mathematics, the theory's internal **coherence** is assumed. Moreover, it claims mathematical **universality** and **amplitude** and **adherence to the scientific tradition** set out by modern natural science and such great luminaries as Galileo, Newton and Einstein. Moreover, based on mathematics' precise, abstract language, theories and models are presented as **free from metaphors** and particularly **economists as objective** and detached from particular interest groups and conflicting powers. These all despite economics' direct relevance to informing and legitimising economic policy. Despite economics' ideological role legitimising modern free-market, chrematistic centred development model.

Indeed, to the economists, mathematics became the new Latin, a language whose grammar and meanings economists have to master and are not understood by the general public. Like the use of Latin by Medieval theologians, it shields from external critique and, at the rhetorical level, reinforces the practitioner's status and the aura of the profession as a whole. Just as understanding Latin endowed medieval theologians with ascendency over society and the common folk by their apparently deeper understanding of God's will, mathematics provides economists (and scientists in general) with a supposedly deeper understanding of the underlying workings of reality too.

The analogies that can be made between theologians and economists can be seen already at the training of aspiring future professionals. As for theology, there is a strikingly homogeneous and circumscribed program followed all over the world. Like aspiring theologians, there is considerable pressure to conform to a given, highly orthodox way of doing science and approaching the subject all students in economics go through. Moreover, if students wish to be accepted by their peers and follow an institutional career, they must adhere to both form and content carried by the prevalent hegemonic orthodoxy. Like for theologians no longer bothering that much about their deep spiritual questions, following established and accepted doctrine instead, economists have to conform to the limited scope of subjects to be approached and the mathematical method to make their career in economics.

By reflecting on modern economics as an institutionalized practice and considering it in the historical context it developed, a paradoxical development becomes clear: economics has become the new theology of our world, and economists have become the new theologians. Just as theology was a central ideological piece legitimising and holding the medieval social order, modern economics plays a central role in keeping the modern, industrial, free-market based order. Just as the medieval hierarchical order and tradition, with the Catholic Church and the Pope as central figures, did not accept being questioned; the idea of the benefit of free-market competition and the dogma of the *invisible hand* as leading to the common good and welfare was and still is not something that is easily questioned without jeopardising and menacing existing social structures, interests and practices. Nor is the scope of economic inquiry easily expanded without questioning our chrematistic, market-centred, growth-oriented development practice.

At the dawn of our modern era, with the feudal society based on inherited privilege and tradition crumbling down, a new set of theories and a new ideological construct replaced the previous one. Instead of the resort to tradition, reason and empiricism became the new way to access truth. As the philosopher Jürgen Habermas (1981) argued, instrumental reason replaced communicative reason. Instead of tradition and morals, human action had to follow a means-to-an-end logic. Thus, future expected outcomes, not the past, become our guide for our practice. To get there, the human spirit had to be freed from past superstitions, morals and ideologies. It had to get rid of religion and theology's ascendency as ways to understand and order our lives.

But, and here is perhaps the big irony, in the end, by following Galileo's method set out and consolidated by Newton and the scientific revolution that ended the theological explanation of reality, economics ended up becoming the new dogma, the new guardians of the truth. We came, thus, full circle. Modern science's instrumental approach and empiricism had successfully dethroned tradition-based morals and theological truths. As Max Weber argued, rationalization and the constitution of a society based on rational criteria and empiricism, instead of morals and tradition, have been central to the emergence of modern industrial society.

Notwithstanding, once applied to the economic practice's social, ever-changing realm, the mathematical method borrowed from mechanical physics led to a new abstract, dogmatic ideological discourse. Thus, seen in their respective contexts, economics occupies the same place theology once had occupied. Its orthodoxy and purity must be preserved at all cost once our very perception of what the economy and economic development are all about depends on it. Once we question some of its central truths like the infinity of human needs (confounding needs with satisfiers), examine the dogma of free-market's automatic benefits, the role of modern finances and speculative gains in our contemporary world increasing our social and ecological imbalances, the principle of ongoing chrematistic growth, among others, it is the whole edifice that has to be reviewed.

Perhaps, that is precisely what is needed, and we are approaching another of these Copernican moments in history. Now that our chrematistic growth-oriented development limits become evident, the social and ecological imbalances resulting from it increase more and more, a new understanding and a new *ethos* have to emerge. Exacerbated by the current Covid-19 pandemic, our current development model's political, social and ecological limits and contradictions are becoming more and more acute and evident. Just as were the limits of the Medieval feudal order at their time. Thus, the "new normality" spoken of cannot follow and repeat the previous one. A new world has to emerge. It is undoubtedly a needed step if we hope to find new development models and practices that are not at the service of profits and the logic of exchange-value accumulation, of infinite chrematistic growth, but are aimed at our individual, collective and ecological balances and welfare instead. An economy "as if life matters".

This means, first of all, recovering a living, phenomenological look at reality instead of following an inherited, dogmatic body of theories and preconceptions. To follow Newton's method, economics had to resort to the ceteris paribus condition, assuming that everything else is kept unchanged. Thereby, history and life's creative movement have been wiped out of its view. Thus, faced with the incapacity of modern economics to understand the economy in historical and ecological terms, we may nowadays, following Galileo, state: *eppur si muove*. The reality, and particularly economic reality in our increasingly accelerating and interdependent world, is always moving. Thus, to rightly look at it and try to understand it, a new way of looking at it must be found. The ceteris paribus condition has to be removed. And just as Galileo looked at the cosmos with fresh eyes, we too have to look at the economic process and our world in a new, living and open way. The question is, will economists dare to do so and look at reality with fresh eyes and new instruments, or will they do as the theological establishment tried to do at the dawn of modern science, sticking to their dogma and accepted doctrines?

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**Author contact**: andristahel@gmail.com

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