



The Post Covid-19 Reality and Economic Theory

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Abstract: This paper examines interconnectedness between Covid-19 and six nested subsystems of our planet: people, economy, society, anthroposphere, biosphere and planetosphere. It argues the complexity inside of them and in their interactions. The main question is what paradigmatic shift related to sustainable development economics did Covid-19 initiate, and what are the changes in paradigmatic manifestations of a post Covid-19 sustainable economic theory. Through comparison between neoclassical economics together with neoclassical paradigm manifestations, and what should be changed to avoid business as usual and enhance environmental economy, the paper concludes that much of everyday economic intellectual constructs and activities, including dominant economic theory is the part of the present reality that is not sustainable and has to be changed.

Keywords: sustainable development; paradigm; Covid-19; business as usual; nested subsystems; neoclassical economics.

JEL classification: B5, I11

Realnost in ekonomska teorija po Covidu-19

Povzetek: Članek preučuje medsebojno povezanost Covid-19 in šestih ugnезdenih podsistemov našega planeta: ljudi, gospodarstva, družbe, antroposfere, biosfere in planetosfere. Argumentira zapletenost znotraj njih in njihove interakcije. Glavno vprašanje, ki ga je sprožil Covid-19, je kakšen je paradigmatski premik, povezan z ekonomijo trajnostnega razvoja in kakšne so spremembe v paradigmatskih manifestacijah trajnostne ekonomske teorije po Covidu-19. S primerjavo neoklasične ekonomije in manifestacij neoklasične paradigme ter tega, kaj bi bilo treba spremeniti, da bi se izognili ustaljenemu poslovanju in okrepijo okoljsko ekonomijo, v prispevku ugotavljamo, da je večina vsakdanjih ekonomskih intelektualnih konstruktov in dejavnosti, vključno z dominantno ekonomsko teorijo, del sedanje resničnosti, ki ni trajnostna in jo je treba spremeniti.

Ključne besede: trajnostni razvoj; paradigma; Covid-19; ustaljeno poslovanje; ugnезdeni podsistemi; neoklasična ekonomija.

JEL klasifikacija: B5, I11

1. Introduction

Covid-19 is a typical emergent phenomenon in the highly complex, multidimensional planetary system, consisting of a set of nested subsystems (Trputec et al., 2014). It produces butterfly effects (low probability high impact events) in its environment and can be traced over the trajectory characterized by high uncertainty. To understand,

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analyse, trace and solve the problems Covid-19 has created, continues to create and will create on its way, what is needed is the complexity approach (Capra and Luisi, 2014; Schloer and Spariosu, 2016).

If the stone is thrown into water, it will provoke concentric ripples on the water surface, each consecutive ripple further from the centre. The surfaces of concentric ripples grow in the form of a quadratic function (r^2). These ripples impact nested subsystems in the planetosphere. As presented in figure 1, each consecutive nested subsystem is larger in a sense of containing more components creating more complex dynamic networks. Let us consider metaphorically that these consecutive more extensive ripples represent the space in which the new phenomenon impacts on those dynamic subsystems nested in one another. As the networks within and between nested dynamic subsystems grow parallel to their extension, we infer that the complexity of these interactions exhibits nonlinear dynamics.

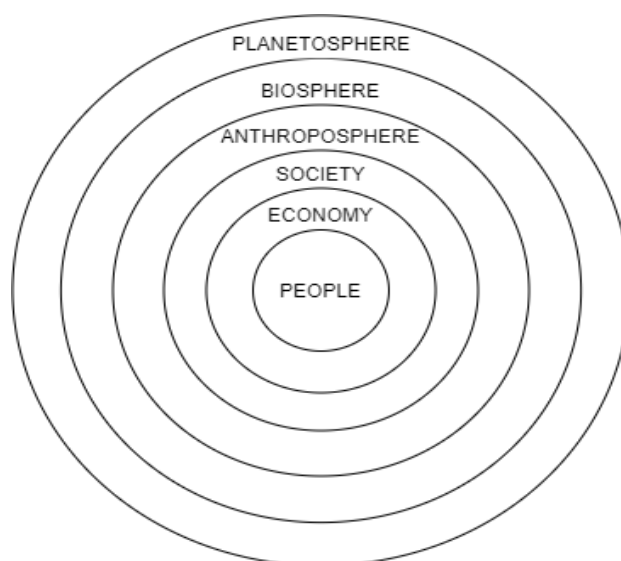


Figure 1. Dynamic nested systems of the planetosphere
Source: Authors creation

The stone thrown into the water, in our case the stone is Covid-19, has its history. In order to look for lasting solutions its history has to be traced back to its origins. There is a clear evidence that Covid-19 is a foodborne pathogen (various conspiracy theories are not considered here). The family of that type of pathogens is big and diversified in origin and causal chains, basically linked to the anthropogenic capital cycle, market and profit (Trputec, Šantić and Ljolje, 2018). The family of foodborn pathogens, often linked to a causal chain wild life – farm animals – humans, includes, among others: Swine fever, Avian flu, EbolaReston, Campylobacter, Cryptosporidium, foot-and-mouth disease, hepatitis E, Listeria, Nipah virus, Q fever, *Salmonella*, *Vibrio*, *Yersinia*, and a variety of novel influenza viruses (Wallace et al., 2020).

Here we are not interested in Covid-19 as zoonotic pathogen per se, but in the recent socio-economic history producing such phenomena. In earlier periods' ecosystems, widely spread and unharmed by human interventions, deforestation, and intrusion by human-urban transition zones (periurban development), controlled themselves the spreading of such diseases the way complex systems maintain their dynamic balance, combining positive and negative feedbacks.

Natural protection is now crippled by mentioned interventions, connected to anthropogenic "modern" farming and animal husbandry, letting pathogens free to streamline into human population like unexpected and unknown eruptions. More often than not, capital-market-profit led deforestation is accompanied by deficit of public health and environmental stewardship and sanitation. A host of recent scientific studies summarised in one (Wallace et al., 2020, p. 3), points towards the basic set of problems leading to emergent phenomena such as Covid-19. Modern production lines are organized around practices that

accelerate the evolution of pathogen virulence and subsequent transmission. Growing genetic monocultures – food animals and plants with nearly identical genomes – remove immune firebreaks that in more diverse populations slow down transmission. Pathogens now can just quickly evolve around the commonplace host immune genotypes. Meanwhile, crowded conditions depress immune response. Larger farm animal population sizes and densities of factory farms facilitate greater transmission and recurrent infection. High throughput, a part of any industrial production, provides a continually renewed supply of susceptible at barn, farm, and regional levels, removing the cap on the evolution of pathogen deadliness.

Going back to our metaphoric presentation, the enumerated members of the same family of diseases were also stones thrown earlier into the water. Only, most of them were “smaller stones” in comparison to Covid-19. They were smaller only because we were lucky that their impact didn’t grow as Covid-19’s did. The latter was so big as to provoke not just ripples but a tsunami in anthropological, economic, and social nested subsystems. The question is whether it could somehow impact environmental and planetary boundaries. It uncovered previously hidden, ignored, or neglected dimensions and interactions in various nested subsystems, exposing their weaknesses, dysfunctions, and unsustainability.

The closest “ripple” to the centre, targeted the nested subsystem of human individuals (people on the picture - anthropological subsystem) putting their lives in danger. Supposedly, lives are protected by the health-medical system. The latter is a system for delivering care, cure, and support. It is also a system of information, health promotion, quality control, scientific research, and lab science. In most of the countries, even the richest ones, the health systems were unprepared for dealing with numerous above-mentioned issues, not to talk about unpreparedness for this pandemic. Health-medical system’s fundamental function, delivering the most precious common good - healthy life conditions – was far from being fulfilled. The wave of neoliberal politics and privatization was neglecting or dismantling many common goods (including health), well before this pandemic. Despite of a number of studies, analyses and scenarios prepared during and after previous infectious diseases in last twenty years, exposing mentioned deficiencies and flaws, the health care conditions did not substantially improve (Rockefeller Foundation, 2020) – at least in most of the countries.

2. Methods

The purpose of this section of the article is to analyse holistically the basic interdependence and interactions within the planetary system of nested subsystems, with regard to the specific systems dynamics generated by the virus. Indeed, people come increasingly to this conclusion, perceiving the connection even between racism and sustainable development. The more detailed analysis will be devoted only to some aspects of the social metaparadigm and of the paradigm of economic theory.

3. Covid-19 and its impact on the subsystems

In accordance with the behaviour of complex systems, the Covid-19 is an expected, if a low probability emergent phenomenon under given planetary conditions and dynamics. The planet, and specifically its biosphere as the nested subsystem of global life, functions through micro, local and global geo-biochemical interactions, and cycles. Over millennia these cycles were relatively stable (Holocene). During this time humans developed complex civilization(s). Human activities and population over last 250 years grew exponentially and now the biosphere is seriously out of balance in terms of ecology, organic and inorganic flows, and cycles, changing atmospheric processes, ocean currents and sea level. Let us add to that rain-forest destructions, losses of wildlife habitats, losses of topsoil, shrinking of arable land. On the top of that there are issues like pollutants and toxins from hydrocarbons to micro-plastics, drugs, medicines, heavy metals, electromagnetic waves and many others, being almost ubiquitous in the environment and causing the sixth extinction of life on earth. The first mass extinction happened 440

million years ago, called Ordovician-Silurian Extinction, when about 86% of organisms became extinct. The next mass extinction is called Devonian extinction, occurring 365 million years ago when about 75% of the organisms became extinct. The third mass extinction was the largest (known as the Permian-Triassic one), 250 million years ago, when 96% of Earth's species died. About 210 million years ago, between the Triassic and Jurassic periods, came the fourth mass extinction when 80% of existing species died. And, finally, the fifth mass extinction happened about 65.5 million years ago, at the end of the Cretaceous period when the dinosaurs died. Probably humans are not yet aware that this process is indiscriminate – they are all part of it.

Why should these global processes matter as we talk about Covid-19? As we explained before, Covid-19 has its history and is a product of above-mentioned processes. It is safe to say that the pandemic itself is one of anthropogenic phenomena.

We often hear two apparently contradictory assertions: "We hope we soon go back to normalcy" and "After Covid-19 nothing will be the same". As to the first assertion: What on earth was normal before Covid-19? Are any of anthropogenic phenomena enumerated above - "normal"? To go back to real "normalcy" many things actually *must* change. So, there is no contradiction between those two assertions. It only depends on which angle we look at them.

The next circular ripple produced is the one targeting the nested subsystem closest to any living creature, the one providing all that is needed for life maintenance and reproduction – it is the economy. All along the human history, for some two hundred thousand years, the economy had fundamentally the same task as for other living creatures – to serve the maintenance and the reproduction of life. In other words, economy was the servant of life.

The evolution of economy went hand in hand with increasing complexity of social organization and its physical and technological structure, as the first aspect of economic reality. Two next nested subsystems, social and all-embracing human anthroposphere (all that was intellectually and physically created and modified by humans) were added. Their existence and development took place within the biosphere and planetosphere as our metasystem (biological and geochemical subsystems), providing existential conditions, necessary resources and being a final border of expansion of human civilization. The system – planetosphere – is the result of co-evolution of all nested (connected and interdependent) subsystems. Under particular circumstances every subsystem, wider or narrower, could "lead the evolutionary game". Some two and half billion years ago the cyanobacteria oxygenised the atmosphere, changing its chemical structure and creating conditions for the further evolution of multicellular life.

Since sixteenth century, and more intensively since industrial revolution, economic subsystem through national and international market networks took the leading role in the co-evolution of the planetosphere. The economy itself was gradually dominated by specific organizational pattern and rules of a new socio-political order. This process is magnificently described in the works of Fernand Braudel (1992) and Karl Polanyi (1944). In its new form and role, the economy transformed life into its servant. How and why did this happen? Following Braudel's and Polanyi's historical approach one comes to the conclusion that this transformation was not planned and premeditated by any particular person, but was rather a product of series of interlinking events leading to atomization of ownership of various means of production – privatization – as a result of growing production, division of labour, technological complexity of all production processes (agriculture in the first place) and specific intellectual and institutional solutions under given historical conditions.

As a consequence, everything that enters into the set of "factors of production" – including the nature and human beings - gets "commodified", treated as commodity, valued and measured by the one and only measuring rod – the money. This evolutionary process was and still is backed by its intellectual presentation – economic theory. In other words, they both co-evolve. As economic reality is synergic and antagonistic at the same time, reflecting often conflicting interests of various social groups participating

in it, economic theory itself is not homogeneous and unidirectional. However, in a specific period of time some theory is dominant, but also exposed to critics and eventually losing its dominant position. Today's dominant economic theory, as an element of reality, is neoclassical economics. We will point to the reasons why it is time it should lose its dominant position.

Another aspect of economic reality is the public image, the dominant perception as to what is economy. The communicology scientist Anat Shenker-Orsorio analysed how the general public, as well as journalists, economists, politicians, metaphorically perceive economy in times of Covid-19. People tend to talk about the economy as a body. One can hear this expressed in language like "economy is suffering" or "the economy is thriving." We have a "recovery bill" to get the economy "off life support" and "restore it to health." What this metaphor suggests is that in grave cases, we must "resuscitate the patient".

For the majority of economists and politician's economy must always grow. Politicians' rating and re-election depends on it. The position of the countries on the world rating lists depends on it. Consequently, in the spirit of the above metaphor, the economy is a permanent baby. Indeed, in developed countries it is already an enormous giant baby that never comes to maturity and never stops growing. Enormous baby has no more space to grow. This is why the life on earth is facing the sixth extinction. Under conditions of Covid-19 in order to have space to continue to grow the economy even crowds out human beings sacrificed for "not hurting the economy". We have seen and heard conservative politicians (and not only conservative) all around the world minimising in the beginning and even in its full swing, the danger of the pandemic in their country, postponing the introduction of necessary measures or hurrying to close them down after being introduced. All that is presented to the population as politicians' worry for the wellbeing of the masses jeopardised by closing down economic activities.

There is no one wishing intentionally to endanger the existence of other people shutting down economic activities. But the point is how to reorganize temporary the society and economy in order to preserve life of people in vulnerable groups and keep the pandemic under control. After a very long-time life, if only shortly, got priority over economy. As in old days. This is the sign and the warning that things not only could but *must* be ordered in a different way after Covid-19. The question to be answered in a new way is how to enhance the progress and the wellbeing without necessarily "doing business as usual" and depending only on economic growth.

In today's globalised world where nature, labour and means of production (physical and structural capital) are "commodified" but separated – belonging to different owners – the livelihood of the owners of labour power depends entirely whether they are engaged (hired) in the production process by the capital owners. The labourers group includes all the "gig" and self-employed persons. The Covid-19 pandemics pointed also to the third group of mini enterprise owners with a few workers, often the members of the same family. The self-employed activities for the survival are predominant in the employment structure in poor countries of the world's South. Most of them have already a huge unemployment and weak health care system. Political establishments in some of them, like in Brazil show a despicable contempt for human life and only worry about economic activities (bringing profits to their masters).

In the most "socially progressive" and not necessarily the richest countries, "care for life" included two measures of apparently contradictory nature. In order to *protect life* of elderly and other vulnerable groups, and to keep the health system in function, the measures of "social distancing", strict hygiene, isolation and closing down of the most of production and service activities took place. This badly "hurt the economy" cutting "gig" persons, self-employed and salary workers from the means of subsistence. Also, a measure of a "new social solidarity" was taken by some "modern humanistic states" to pay for a limited time a minimum salary (basic income) to the mentioned groups of population in order to take care of their lives.

The closer look at these new solidarity measures shows that they were undertaken more to save the economy by keeping the demand and the consumption as high as possible, than to protect life. They were

wholeheartedly endorsed by capital owners for it was cheaper for them to keep workers employed, but also less dramatic than to fire them. Or better to say, by such measures political establishments were killing two birds with one stone. However, very soon, and for many medical experts too soon, we were witnessing the pressure from business, as well as from right wing politicians, to resume economic activities. The profit and growth imperative were back on the stage. It is important to note that there is a huge difference between the countries undertaking such measures. Some have a sovereign monetary system with possibility of printing new money. The others must borrow from domestic and international financial institutions. And they will have to pay that money back with interest. As is quite obvious, the taxpayers will bear the burden. The debt is always an effective means of pressure of all kinds, as the history teaches us.

The Covid-19 ripple impacting social nested subsystem proves the strong interdependence and connectedness of all six subsystems. If anything is certain these days, it is the total confusion in the behaviour of political elites in countries ranging from “overdeveloped” (USA), “in transition” (Russia) and “developing” (Brazil). In the socio-political sphere one can notice some promising elements for the post Covid-19 behaviour, such as solidarity, strategic role of the state, financial reorientation towards life supporting activities, revival of importance of common goods, international cooperation, and multilateralism. On the other side, autocratic behaviour of the political and administrative apparatus, nationalism, isolationism, anti-immigration policies, and institutionalized racism in many places, societies and states show their ugly face. There are manipulated riots against life protective measures being blamed as direct and only causes of growing unemployment and poverty, as if these did not exist before Covid-19.

As to the next ripple - impact on the biosphere - the generalised slowdown of production and consumption brought visible improvements in air and water pollution, the skies brightened, if only for a brief period. If anything is certain, economic slowdown indicated the direction the life-oriented societies and their economies are supposed to go. As practically all political establishments are nervous and impatient to revive economic activities as they were before, necessary transformations to sustainable economic activities are not in their plans.

This brief presentation of impact of the stone Covid-19, thrown into the nested systems of the planetosphere, clearly exposes the reluctance to change and the enormity of tasks in front of the human civilization to save itself. Profound institutional transformation, the role of the public behaviour and the change of the worldview are “conditio sine qua non” of necessary changes in economy. As economic theory is the part of that reality, its change is an important prerequisite to open the road towards a sustainable civilization.

4. New economic theory as the part of post-Covid-19 reality

The communication experts, such as Anat Shenker-Orsorio, point towards the mainstream behaviour of population based on the majority shared worldview. The existing political establishments strengthen the underlying worldview that “business as usual” with permanent economic growth is the only road to the durable prosperity of each and every individual and finally of our civilization. Here one comes to the point to realize enormous importance of the general public perception as to what type of economic behaviour is “normal”, expected and even indispensable. These perceptions do not come from a thin air. Their origin lies in the social metaparadigm as a set of principles, rules and instructions that direct and control people’s cognitive operations and dictate individual and mass behaviour.

This is why ruling elites are so keen in insisting upon going “back to normalcy” using the prevailing worldview to determine what such “normalcy” means. As economists, we are aware that dominant neoclassical economic theory is the part of such reality. It does not only play a crucial role in directly shaping general opinion. Its role is more subtle, and being realised through teaching, consulting,

influencing, and directing economic, monetary, social, and even environmental policy. As the disastrous situation of our civilization was brutally exposed by Covid-19, it told us that we needed to rethink and change much of our everyday economic intellectual constructs and activities, including dominant economic theory. Simply, because it is the constitutive part of the present reality that is not sustainable.

There are various roads open to the post Covid-19 economy and economic theories adequately explaining and directing towards a chosen one. The dominant economic theory has its own “weak sustainability” program based on environmental economics. It is presented in various projects of the “green economy” as an environmental modernization of the economy, with a strong focus on economic instruments, free market mechanism and voluntary agreements. As explained before, natural environment is commodified; considering the nature as a life support, a sink and a set of economic goods, the green economy pushes the commodity frontier into the territory of environment which has previously been common pool of goods collectively or publicly owned and managed.

In the green deal projects externalities, social as well as environmental, are considered as market failures that would not have happened in a perfectly functioning market. Consequently, market mechanism and dominant business agents are not to be blamed for unsustainable functioning of the economy. The “business as usual” has to continue and will bring sustainability in post Covid-19 economy simply by modifying framework conditions which are assumed to have kept the market from perfect functioning.

Before going back to environmental economics, the reader has to be aware that the dominant economic theory itself is far from homogeneous. There are serious differences regarding interpretation and policy prescriptions of various issues, for instance between contemporary post Keynesians and new classical economists. Why do we still believe that these differences are minor and that the post Covid-19 reality must be guided by a radically different theory? What really makes the difference between various economic theories, as in any other scientific field, is their paradigmatic core. Consequently, the paradigm of economic theory occupies central critical domain in this article, as was already indicated by the concept of the social metaparadigm.

The paradigm as a concept has a long history and various interpretations. For Edgar Morin (1991) the paradigm for each discourse taking place in its domain contains fundamental concepts or determining categories of perception, comprehension and understanding, as well as types of logical principles and relations between those concepts and categories. The real nature of scientific paradigm in each scientific theory is hidden and disclosed only through its manifestations. With regard to economic theory four categories manifest the paradigm: its ontology, anthropology, epistemology and axiology (and praxeology for some authors).

In order to deal with paradigmatic core of neoclassical and environmental economics, non-orthodox economists attack their anthropological, ontological, epistemological and axiological positions. These different approaches indicate at the same time which way will unfold the paradigmatic core of a new economic theory. The result will be the necessary paradigm shift. Due to different approaches of various non-orthodox schools of thinking, it is more appropriate to talk about a set of new theories, different and overlapping in many topics. Here, our critics and proposals are based mainly on evolutionary approach, elaborated in our textbook draft on introduction to sustainable development economics planned to be published in 2021.

We will concentrate our analysis on comparing neoclassical economic paradigm manifestations with what should be the paradigmatic manifestations of a new, post-Covid-19 sustainable economic theory. We consider this undertaking as a humble contribution to the needed public debate leading further to necessary changes of the public worldview.

There are two ontological critics we deem important. First, the economy is understood by neoclassical economics as a closed physical system. Newtonian physics was taken as the scientific basis for neoclassical general equilibrium theory. Its creator Leon Walras saw the balance of supply and demand in

a market as metaphorically like the balance of forces in a physical equilibrium system. He practically copied physical equilibrium equations from the textbook written by the mathematician Louis Poinso (published in 1803), thus laying the mathematical foundations for the marginalism and neoclassical economics. Solving simultaneous supply-demand equations the prices would settle economic system down to the general equilibrium.

Let us set aside various epistemic flaws of the general equilibrium concept, due to the neglect of real time, introduction of an imaginary auctioneer, reduction of economic process to exchange, impossibility of transforming individual demand curve to macro level and others (Trputec, 1973; Beinhocker, 2006; Keen, 2011). What does drive our attention is a complete ontological failure classifying economy as a mechanical system, instead of as a complex self-creating, self-organizing, adaptable, open, dynamic system. The correct ontological procedure is to put economy into the class of complex living systems with previously enumerated characteristics.

Instead of “naturally” tending to equilibrium in a perfectly competitive market, economy as a complex living system, is permanently in a dynamic disequilibrium through its metabolic functions with nature.

Second, as we have metaphorically already explained by talking about servant-master relationship between economy and life, in neoclassical economics, the economy was presented as an independent, internally consistent self-sufficient market system behaving by internal rules as do the physical systems. More precisely, these rules are analogical to physical laws. Detailed and argument critics of such an approach prove that economic rules are formal and informal institutions. Institutions are human creation, changing by human actions in time and space. When “externalities” were recognised as a problem that hampers economic system to produce optimal effects, neoclassical economics absorbed externalities incorporating auxiliary hypotheses of environmental economics. Previous internal economic rules and business agents still remained as dominant.

The commodification of nature, its atomization through private property, its inclusion into the market and the price tag on all-natural phenomena, produced a strange vision of economy as being a metasystem in which social and natural systems were subsystems. That entails that economic rules and “laws” of profit and growth are “natural”, valid, and dominant in all planetosphere. Under conditions of perfect substitutability of factors of production and unlimited faith in technological progress, such ontology strengthens unsustainable path of our civilization. It is today one of the biggest misconceptions of environmental economics based upon neoclassical economic theory. To prioritize economic rules of profit and growth means to create permanent conditions of systematically life-blind assaults on life fabrics and conditions.

According to GAIA theory, during the time, 3.2×10^9 years, that life has been present on Earth, the physical and chemical conditions of most of the planetary surface have never varied from those most favourable for life. The geological record reads that liquid water was always present and that the pH was never far from neutral. During this same period, however, the Earth's radiation environment underwent large changes. As the sun moved along the course set by the main sequence of stars its output will have increased at least 30% and possibly 100%. It may also have fluctuated in brightness over periods of a few million years. At the same time hydrogen was escaping to space from the Earth and so causing progressive changes in the chemical environment. This in turn through atmospheric compositional changes could have affected the Earth's radiation balance. It may have been that these physical and chemical changes always by blind chance followed the path whose bounds are the conditions favouring the continued existence of life. Early after life began it acquired control of the planetary environment and that this homeostasis by and for the biosphere has persisted ever since (Lovelock and Margulis, 1974). As we opt for the GAIA theory, we consider the planetosphere as a complex living system with the biosphere as its central nested subsystem in which the life takes place. Consequently, economy is not a metasystem over nested social and biological systems but is itself inferior to those two subsystems. The relationships between nested subsystems, explained by complexity approach, are characterised by interactive recurrent processes that

have no predetermined outcome. However, in a complex living system the superior rules (to the rules of the economy) of GAIA are favourable to creating, maintaining, and preserving life. Such fundamental criteria of common life-ground, demand to respect the priority of human and other species life requirements through generational time, and the bonding of all life communities on these bases. The priority of rules of planetosphere as a metasystem is based upon its function as indispensable and irreplaceable life supporting system. People usually read life supporting system as supporting human life. It is not the meaning we give to it in this article. We mean the totality of life. The reason is obvious – there is an interdependence between various forms of life. There are two fundamental components of that system: bio-geo-chemical resources and bio-geo-chemical cycles. As the former are exhaustible and the latter relatively easily disturbed, the fundamental rules of human behaviour stem from respect of the precautionary principle and of the permanent adjustment regarding maintenance and enhancement of life.

5. Discussion

The above discourse leads to the determination of anthropological component of economic theory. Briefly, neoclassical economics is founded on assumptions of selfish “rational” behaviour of isolated “representative” individual satisfying her/his needs. Even our cerebral structure and functions deny the selfishness assumption. In spite of a huge mathematical elaboration of marginal utility function and indifference curves, the controversies regarding intrapersonal measuring and interpersonal comparison of such a purely subjective phenomenon lead us to the rejection of the idea that in economic behaviour human beings obey such rules (Trputec, 1973; Keen, 2011).

Rejecting “homo economicus”, the post Covid-19 human beings would have a much more complex function and consequently a much more complex behaviour. The consciousness that each of us is responsible regarding the impacts upon others, the living beings in general and the nature in its entirety, requires a completely new economic morality that we present further in discussing axiology. Our behaviour regarding economic matters is always bounded, influenced by our environment and prevailing worldview. But most important of all changes of view regarding anthropological component of a new paradigm, are human con-possibilities (Trputec and Serrano, 1997). On various social levels individual potentials and capabilities are transformed through interactions into common social capacities – social intelligence. It is the capacity of a given society to perceive, understand, develop tools and act responsibly to solve its problems of any nature. In order to have the con-possibilities on the highest possible level, the individuals have to enjoy the conditions enabling them to unfold fully their potentials (Trputec and Serrano, 1997). This is why a new worldview is so important for a post Covid-19 society.

In economic domain, apart from consumption, human beings’ fundamental role is in production. In neoclassical economic theory basic production entity is the enterprise, not an individual. There is no diversity or question marks regarding the type of property. In this theory private property is natural, has no historical evolution or possible modifications in the future. The incorporation of private property in economic theory is for itself interesting. Any talk about private property as a natural right starts by citing James Locke. His words regarding freedom and democracy are faithfully cited in US Declaration of Independence, reflecting the new spirit of bourgeois revolution. But Locke’s conditions of just private property were then, and until today’s economic theory, ignored and forgotten. According to the original Locke’s philosophical discourse, one is entitled to the private property on the basis of his labour. It is always good enough to leave over for others. No waste or spoilage should be allowed. These three justifications of the private property as “natural right”, with the introduction of money were completely forgotten not only by Locke’s followers, but by Locke himself as well.

With regard to the production entity, apart from private ownership, neoclassical economic theory is very superficial as to its fundamental aspects of purpose, membership, governance, capital and networks, which they create or belong to, leaving a more in depth elaboration of these aspects to the theory of business management and to the legal system. As economic theory measures everything in monetary

terms, at least one of enumerated aspects is clearly defined – the enterprise works for profit - although under idealised theoretical conditions of perfect competition it works for the so called “normal profit”. Essential characteristic of such production entity is its extractive design requiring extracting production inputs from nature and labour power from workers. In neoclassical economic theory diminishing marginal productivity of factors of production sets the limit to the profitable production of individual firm. Since the marginal productivity concept is theoretically and empirically unattainable (Blinder et al., 1998; Keen, 2011), today’s for-profit firms follow a different business pattern with economic, organizational, social and environmental consequences not explained (or not correctly explained) by the neoclassical economic theory. This is why this theory is blind to many of real business processes and their impact on environment and society. We will briefly treat some of them here (Kelly, 2012; Hinton, 2020).

In economy as a complex system there are numerous feedback loops provoked by business activities. In order to accomplish its main task – produce profit for accumulation and stock owners – managers regularly face competition, try to lower production costs and/or introduce product differentiation and advertising in order to expand production. Continued growth is enhanced also by planned obsolescence of produced goods. Such business policy leads to market concentration dynamics. As this policy is generalised, it requires on the macroeconomic level permanent growth and increasing pressure on nature’s resources and its resilience capacity. On the social level such business behaviour strengthens the tendency to consumerism. In last thirty years growing concentration of wealth and simultaneous stagnation of wages are a clear empirical prove that these business dynamic feedback loops lead to growing inequality all around the world (ILO, 2018).

If the behaviour of private business is by above description correctly described, then economic growth, inequality, consumerism, and the destruction of natural environment are structural characteristics of a for-profit economy. Therefore, poor social and ecological outcomes are not anomalies, market failures, or externalities that just need to be internalized in the for-profit economy, as suggested by neoclassic environmental economics. Rather, they are expected and logical outcomes of profit-seeking strategies in a profit-driven economy.

On the level of business firms, the new economic theory does not have yet clear-cut solutions. Years ago, a triple bottom line approach in accounting and business policy was considered as revolutionary, but it was still based on profit (people, planet and profit), and a not-for profit organizational forms are a new, promising road. According to that concept they are based on collective ownership. For Barry Stein private ownership is a situation in which “divided rights are vested in individuals”, collective ownership is the situation in which “all rights are vested in an undivided collectivity” (Stein, 1976). As a difference from not-for-profit traditional organizations that rely mostly or wholly on philanthropy, grants, and donations, not-for-profit forms of business generate considerable part of their revenue through the sale of goods and services and seek to be financially self-sufficient through trade. However, such businesses clearly distinguish themselves from for-profit businesses for having the sole purpose to deliver social benefit, have no private owners, and must use all financial surplus for social benefit.

New economic theory for the post Covid-19 societies must elaborate and examine all dynamic feedback loops in business in order to determine to what extent they are beneficial or destructive to nature and society. The fundamental criterion to be applied is whether such business is creating the conditions for life - being generative. We have seen that this task was not at all, or very superficially, performed by neoclassical economics or by environmental economics.

Apart from producers and consumers there are “prosumers” – producers and consumers in the same time. The biggest one is the State. Neoclassical economic theory, connected directly to the neoliberal policy, is really inimical to the role of the State in economy. That stems from neoclassical onto-epistemic assertion that considers the market as the basic organizational form that respecting economic laws of supply and demand leads economy to the general equilibrium - being ideal state of the economy and society. Following what was written earlier in the article, neoclassic economists consider their economic theory as

value free and objective science, as physics. Consequently, the market functions are considered a perfect mechanism. Any interference of agents outside the market, including the State, leads to market disruptions with negative economic consequences.

The same theoretical destiny in the neoclassic economic theory follow all Common and Public goods, as elaborated in the "tragedy of Commons" example (Hardin, 1966). The State is a typical institution as the guardian of Commons and the creator of Public goods. Its role in economic activities, and as the owner of economic assets is still today extremely important in practically all parts of the world. The Covid-19 has disclosed to the public the real tragedy of many States for not having sufficient public goods, such as health care and education. However, alternative economic theories are lacking a consistent theory of economic functions of the State (Sekera, 2018). As its role in the post Covid-19 world will be qualitatively different, due to enormous importance of how the Commons and Public goods will be treated, protected, created and used, the theory of economic role of the State needs an urgent elaboration. Parallel to that an entirely new and complex governance concept must be designed in order to define the role and place for all and every economic agent in economic subsystem.

As a "value free" discipline the neoclassic economic theory does not need axiology, being a branch of philosophy dealing with understanding how, why and to what degree humans should or do value objects, whether the objects are physical or abstract (an idea, an action), or anything else. The new meaning of the post Covid-19 economy will be strongly reflected in axiological aspects of business and economic activities in general. Primarily due to its essential role for guiding the behaviour of all economic agents, but also to correct almost total neglect of moral values in "business as usual" activities. The lack of moral considerations in the profit seeking economy is not due to the nonexistence of moral theories and moral philosophy, but due to the fact that whenever economists and philosophers did treat axiological questions, they were not incorporated in economic theory or in business practice. Very evident examples are John Locke (cited in the article) and Adam Smith who wrote a book on moral sentiments that provided the ethical, philosophical, psychological, and methodological underpinnings to all future economic theorising.

The GAIA concept of the living planet dictates the fundamental axiological principles to be followed with regard to any level of the planetosphere. These principles must be life coherent (McMurtry, 2004). As only human beings are able to destroy life conditions and life itself, be it of other species or of its own, they have a vested responsibility to think, feel and act to protect, preserve and enhance life. Living beings have inherent value, distinguished from their instrumental value they may have in economic system. Also, other things in economic system may have both types of value. In today's economic system instrumental value for the system is not only dominant but almost exclusive and measured in monetary terms. The post Covid-19 economy humans have to apply life grounded normative principles in thinking, feeling and acting, respecting inherent values of all and everybody.

6. Conclusion

Economic reality as a complex living system and a nested subsystem in the social subsystem, has four aspects: organizational pattern, structure, processes and meaning. The latter is the inner world of reflective consciousness connecting all other aspects (Capra and Luisi, 2014). Paradigms and metaparadigms are the sublimation of meaning in social systems. The dominant economic theory, as we tried to explain, contributes to the distorted meaning of economy and its relation to life. In the background of this article is our intention to grasp the meaning of economy and life for the post Covid-19 future of our civilization. The economy is a testing ground. And so is its theory. What direction will it take *in ultima linea* depends on our individual and collective self-consciousness, and its paradigm shift.

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