

Ecce Homo-Economicus? The *Dr. Jekyll & Mr. Hide* syndrome of the economic man in the context of natural resources scarcity and environmental externalities

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Abstract: Indeed, the artificial entity '*Homo-Economicus*' plays a central role in modern neoclassical economic theory. Maybe an illegitimate child of markets' self-regulation doctrine and the emerging rationalism - professed by the post-modern realms of neoliberalism and the ongoing globalization process - this theoretical abstraction is promoted as a potential prototype of human behavior. It is firmly believed, that this individualistic, self-motivated, and above all, perfectly informed 'entity' could, theoretically, lead the economic system into profound balance between supply and demand, consumption and production, utility maximization, and so on. The present paper consists of a criticism to the mainstream prototype of Homo-Economicus, with further extensions to the neoclassical paradigm. Placing this criticism in the context of ecological economics, the paper argues that the notorious rationality of Homo-Economicus seems to be vanished in the deadlock of a futile race towards non-renewable natural resources depletion and increasing environmental externalities. Finally, a brief review of alternative theoretical frameworks and evidence from institutional and behavioral economics, delineates an emerging pressing request for a paradigm change.

Keywords: Homo-Economicus; Homo-Consumericus; natural resources scarcity; rationality; neoclassical model; institutional economics; ecological economics

Introduction

In a brilliant brief 2.5 million years retrospect of economic history, Eric Beinhocker (2007) describes the rigorous steps of humankind, from the

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Australopithecus Africanus and Homo-Erectus, to the intelligent and sophisticated Homo-Sapiens and his modern (and theoretical) evolution into Homo-Economicus (or Homo oeconomicus). Homo-Economicus is the so-called 'economic man', according to the standard economic model of human behavior. An endeavor to trace the roots of Homo-Economicus prototype, leads back to the seminal studies of Adam Smith and other great classical economists (Van Meer, 1998). In words of William Grampp (1948): 'If the economic man is an abstraction which typifies social behavior in the market place, it cannot be denied that Adam Smith created such a figure and gave it a place in his writings.' (315)

We may then trace the diachronic durability of Homo-Economicus concept in the mechanistic origins of the early economic theory. Indeed, the initial foundations of the economic science on mechanics and physics endowed neoclassical economics with the unrealistic, yet firm, belief of 'perfect rationality' in the context of human behavior. In line with these thoughts, Beinhocker (2007) characteristically argues:

Walras and later economists tried to justify ex post facto the lack of realism in the assumptions by arguing that even if the assumption of perfect rationality was not a good description of how people do behave (in economics lingo, a 'positive model'), it could be interpreted as a description of how they should behave (a 'normative' model). We can model a perfectly rational economy and then see how far the real world is from this ideal. (118)

The 'normative' concept of Homo-Economicus (and, hence, the 'rationality axiom' that lies behind it), stating that economic man endeavors to maximize his utility [1], has been severely questioned in the context of the physical reality (Pettit, 2001; Mäki, 2001). It seems that, market's self-regulation theory and the relevant assumptions of rationality in human behavior may led to the development of a great part of the consumer's theory, as it is well known today. Evidently, empirical analysis in the relevant literature does not validate the existence of Homo-Economicus, as a realistic pattern of human social behavior (Goleman, 2006; Cohen, 2012).

The present paper utilizes the metaphor of 'Dr. Jekyll' and 'Mr. Hide' to vividly illustrate the 'Janus' syndrome that characterizes Homo-Economicus: the facet of rationality in utility maximization, on the one hand (*Dr. Jekyll*); and the opposite facet of consumption maximization, on the other (*Mr. Hide*), rooted in the very nature of unlimited human needs. The criticism on the mainstream prototype of Homo-Economicus focuses in the various shortcomings and unrealistic assumptions lie behind its establishment, and more importantly, in the implications it may has

on the aggregate scarcity of natural resources and the environmental degradation, from the point of view of ecological economics. For this reason, we utilize the end-means theoretical spectrum, as it was proposed by Herman Daly (1980) and further discussed by Donella Meadows (1998).

All in all, the article concludes that the described syndrome of Homo-Economicus might lead in a remarkable mislead of the theoretical purpose of the economic process: the confrontment of the economic problem [2]. The economic problem, seen in its elementary simplified definition, consists of two contradictory parts: infinite human needs, subject to temporal saturation, and finite means of production (thus, scarce resources). Towards this end, the constant 'creation' of artificial wants (i.e. see Galbraith 1958), promoted by the structure of the modern economic system, may gradually lead the Homo-Economicus, through his prevailing Homo-Consumericus alter ego, in a fatal violation of the fundamental principle of the economic problem, namely the optimal solution between infinite needs and finite means. We argue that this violation may has crucial implications to the aggregate scarcity of natural resources and the environmental externalities, since it promotes non-optimal solutions of the economic problem.

The paper is structured as follows: A brief literature review on the so-called economic man is presented, as well as other alternative prototypes which classify various aspects of human behavior. A subsequent section discusses the implications that a potential dominance of *Mr. Hide* Homo-Consumericus prototype may have on the aggregate scarcity of natural resources and the relevant environmental externalities. The end-means spectrum is briefly introduced here. Next, we present various alternatives to the neoclassical paradigm, approaches which may provide a solid ground for a fruitful debate over the necessity of an essential paradigm change in the realms of economic theory. The final section summarizes the overall conclusions of the paper and provides insights for future research.

A brief literature review

In search of the 'economic man' and other 'homo-entities'

The period of 'classical economics', ruled by the pioneering studies of A. Smith, D. Ricardo, T. Malthus, and J. Stuart Mill, revealed to some extent the early recognition of the complexity of motivations underlying human behavior. The following period of the so-called 'Marginalistis', unfolded further developments

of the 'economic man' theoretical model, with Jevons's 'calculating man' and Menger's 'choosing man' (Morgan, 2006). However, during the 20th century, a great variation occurred in the realms of economic theory, with the domination of the so-called 'neoclassical' model (Boulter and Goldfarb, 1991). This model established a surprisingly narrower view of human behavior, contrary to the great classical economists' initial hesitations, by assuming that there are only two main types of economic actors in perfectly competitive markets: firms, which want to maximize their profits by producing and selling goods and services; and households, which want to maximize their satisfaction by purchasing and consuming goods and services (Goodwin et al., 2009).

At the very core of the neoclassical paradigm lies the fundamental axiom of 'rationality'. According to this axiom, the main interest of the rational economic man (*Homo-Economicus*) is the pursuit of maximizing his/her satisfaction, thus his/her utility. However, restricting the term rationality into the narrower definition of utility maximization, this may silently imply that any other behavior, but the pursuit of self-interest, is irrational. These assumptions in neoclassical economic theory have raised considerable criticism over the years (Read, 2009). Furthermore, the experimental empirical research derived from various scientific fields, such as sociology, evolutionary biology, and neuro-psychology, does not verify the rationality axiom as an actual pattern of human behavior (Doucouliagos, 1994; Beinhocker, 2007; Goodwin et al., 2009; Goleman, 2006; Cohen, 2012). More radically, Grey (2007) concludes that, after the collapse of the existing socialism, the new utopia that confronts humanity today is the endeavor to 'shape' the rational economic man, according to the imperatives of the neoclassical school of economic thought.

The emerging interest in *Homo-Economicus* (hereinafter H-E) entity in transdisciplinary studies and empirical research has led into a considerable creation of numerous 'antecedents' of H-E. Following O'Boyle (2007), we may briefly summarize some of them as: (1) *Homo-reciprocans* (Bowles et al., 1997), (2) *Homo-politicus* (Nyborg, 2000; Söderbaum, 2001), (3) *Homo-sociologicus* (Hirsch et al., 1987), (4) *Homo-socioeconomicus* (Nitsch, 1975), (5) *Homo homini lupus* and *homo darwinianus* (de Waal, 2005; Pearson, 2000), (6) *Homo-orthodox* (Dinello, 1998), (7) *Homo-religiosus* (Bryant, 2000), (8) (Neo-) *Homo-economicus* and (Paleo-) *Homo economicus* (Doucouliagos, 1994) and (9) *Homo-sapiens* (Thaler, 2000).

A common feature of these efforts is the quest for more realism and interdisciplinary analysis, hence a tendency to enrich and extend the narrow

neoclassical concept of 'economic man' (H-E), or to focus on specific human characteristics which are being neglected by the strict use of the rationality axiom.

In search of the Homo-Consumericus

Early on, Erich Fromm has introduced the concept of 'Homo-Consumens'. Analyzing, from a different point of view, the human evolution in the era of industrialization, Fromm (1966) argues notably that: 'Man has transformed himself into a homo consumens. He is voracious, passive, and tries to compensate for his inner emptiness by continuous and ever-increasing consumption.' (177)

Fromm investigates mainly the psychological roots of this gradual transformation and reveals the socio-economic impacts that this evolution may have:

Twentieth century industrialism has created this new psychological type, homo consumens, primarily for economic reasons, i.e., the need for mass consumption, which is stimulated and manipulated by advertising. But the character type, once created, also influences the economy and makes the principles of ever-increasing satisfaction appear rational and realistic. (ibid)

Fromm further argues that the rationality axiom may be artificially 'adapted' in different patterns of consumption. In other words, if the mainstream paradigm of 'prosperity' in a society lies in the constantly increasing consumption of goods and services, then it may be considered as 'rational' the pursuit of more and more consumption. Hence, once consumption maximization pre-defined as the utmost ideal, the rationality could be 'regulated' accordingly. The 'Rationalization' of consumption's maximization seems a complex multidimensional process (Deaton, 1992). This limitation of rationality in a strict maximization-minimization mathematical equation of self-interest has been severely criticized by others (see among others i.e. Castoriadis and Murphy, 1985; Sen, 1994; Castoriadis, 1997).

Following Fromm's early attempt to define the consumption phenomenon in terms of psychology, the neologism of 'Homo-Consumericus' (H-C, hereinafter) has gradually emerged in social sciences and evolutionary psychology (Saad, 2014), to define the phenomenon of mass consumption in the context of human psychology. Zelinka provides an inside to the psychosocial behavior of the postmodern human being in the western societies (Zelinka, 2014): '...the contemporary western human has undergone an unprecedented process of dehumanization, turning into a void, ailing automation...' (115).

In line with the foregoing considerations, Lipovetsky argues that modern times have brought about the rise of a new type of H-C, who seems to be more unpredictable and even more insatiable (Lipovetsky, 2006). The post-industrial potential 'transformation' of western humans into a kind of H-C behavioral group certainly needs further brave justification and evaluation before someone adopts it as scientific evidence. Nonetheless, the increasing concern over the neglected aspects of H-E prototype, such as excessive consumerism among others, as a representative cultural characteristic of western lifestyle, has led into intensive debates over the years (Røpke, 1999, 2001; Reisch and Røpke, 2004, Dutt 2008; Himmich, 2014; McKay, 2014; Brown et al., 2017).

By all odds, the present paper aspires to discuss the implications these potential prototypes of human behavior may have once considered in the context of the natural resources scarcity and the respective environmental externalities caused by the production process. Towards this aim, the next section introduces and discusses the potential implications of H-C behavioral pattern, as if the prevailing facet of H-E, on the resources scarcity-externalities complex, from the perspective of ecological economics.

Homo-Consumericus as a 'Mr. Hide' facet of the economic man. Implications on environmental externalities and the aggregate scarcity of natural resources

The economic problem and the ends-means spectrum

The struggle for the temporal satisfaction of human needs, by wisely arranging the scarce means of production, is the core question of the economic problem, according to most of the introductory textbooks in economics. The economic problem, in its elementary form, mainly consists of two contradictory parts: infinite human needs, subject to temporal saturation, and finite means of production (scarce resources), subject to the depletion of stocks, capital accumulation and the technological progress (knowledge accumulation) which mitigate the depletion trends.

Let us argue over the first part. The human needs are mainly characterized by their infinite nature and their temporal saturation. Due to the infinite nature of human needs, classification schemes and tables (i.e. see Max-Neef, 1991; Doyal and Gough, 1984) are commonly used to arrange which need is urgent to be satisfied first, and so on. However, based on the very nature of human needs, the ex-post creation

of numerous artificial needs seems to be provocative to the very nature of the economic problem, as it is defined in the present analysis. Early on, distinguished economists such as John Kenneth Galbraith argued about artificial wants created by an economic system that pursues continuous economic growth (Galbraith, 1958): 'Increasing consumption in the US society on the 1950s was no longer based on satisfying the human needs, but on creating artificial wants...'

In a nutshell, Galbraith argues that advertising and other marketing techniques of firms create (artificially) wants for people, which increase their desire to consume more and more, without any actual improvement in their welfare status. Despite the criticism on Galbraith's use of the term 'artificial wants' (see Dutt, 2008), we adopt the main concept of Galbraith's reasoning in the analysis of the next section.

As far as the second part is concerned, Herman Daly has timely argued about the false perspective of the ends-means relationship, in the context of the neoclassical school of thought (Daly, 1973, 1980). In theory, the optimal solution to the economic problem is to wisely allocate the finite means (resources) in the service of infinite ends (human needs) (see Fig. 1). In the context of the ecological economics' perspective, Daly (1996) defines low entropy matter-energy as the ultimate means that man utilizes in the production process. These means cannot, by definition, be created by man or totally substituted by man-made means [3] (see also, Georgescu-Roegen, 1971, 2002). Accordingly, capital stock and labor force are defined as intermediate means. The intermediate means generally consist of man-made accumulated capital (tools, machines, factories, etc.) and human labor (human capital). From the ends point of view, below the ultimate end(s) that may incorporate metaphysical meanings, ideologies, ethical commitments, religious beliefs and other existential questions, there are the intermediate ends (residence, food, education, health, transportation, entertainment, and so on). Meadows (1998) summarizes the intermediate ends as the human and social capital which also includes knowledge, communication and leisure, besides consumer goods. Yet, after satisfying the, indeed great, range of the intermediate ends, there ought to be an (some) ultimate end(s), a 'purpose', which is beyond and above all intermediate ends, a 'summum bonum' – the highest good – in words of Daly. Meadows (ibid) agrees with the impossibility of translating ultimate end(s) into a universal definition, as we deal with a qualitative immaterial notion. (Meadows uses for example words such as happiness, fulfillment, enlightenment, to mention indicatively just a few ones). Daly argues that the neoclassical theory pays attention only to the middle range of Fig. 1, as the poles of Fig. 1 (the ultimate ends-means spectrum) are being ignored by mainstream economic analysis (Daly, 1980).

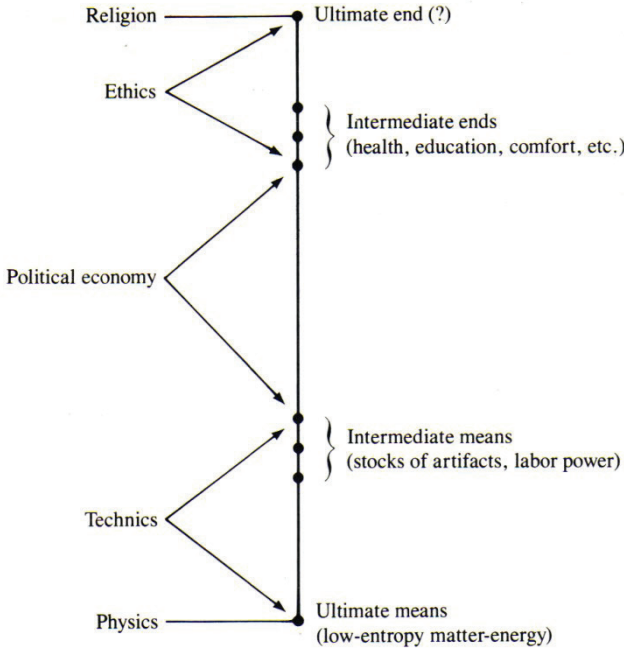


Figure 1 The ends-means spectrum
 Source: Daly (1980, p.9), reproduced with permission.

If we accept the argument that the neoclassical theory mainly deals within the range between intermediate means and intermediate ends, then what replenishes the empty space between the ultimate-intermediate means and between the ultimate-intermediate ends?

As far as the ultimate means are concerned, the answer may be sought in the timely debate between 'entropy pessimists' (the strong sustainability school of thought) and the 'technology optimists' (the weak sustainability school of thought). Indeed, the problem of the aggregate scarcity of natural resources could be resolved with technological progress and 'substitutability' among different types of resources, with substitutions taking place between natural and man-made capital (Solow, 1974). Yet, the potential limits of substitution between man-made and natural capital, and the thermodynamic restrictions imposed on the feasibility of constant technological

progress, have triggered a hot debate which dates back in the 1970s and still goes on (i.e. Georgescu-Roegen, 1971; Daly, 1996; Cleveland and Ruth, 1997; Ayres, 2007). It is worth mentioning that the term 'scarcity', as it is defined here, is being adopted by ecological economics and the timely debate between the weak-versus-strong sustainability schools of thought. It goes without saying, that the used definition of 'scarcity' is neither unique nor exhaustive, since contemporary studies question the one-dimensional definition of the term and focus on how scarcity is socially generated (Mehta, 2010).

Concerning the second part of the above question, the lack of any clear definition of the ultimate end(s) might imply the identification of ultimate(s) with intermediate ends. Equating, for instance, the intermediate end(s), the consumption of material goods and immaterial services, with the 'summum bonum' of existence, may have very crucial implications on the H-E prototype and the natural resources scarcity-environmental externalities complex. For the needs of the present analysis, we may call this potential convergence between ultimate and intermediate ends as the 'apotheosis' of consumerism. This convergence hypothesis is further discussed in the next section.

Convergence between intermediate and ultimate ends. Towards more rationality or the rationalization of more consumption?

Indeed, the economic problem vanishes if we assume the abundance of natural resources (thus, the abundance of ultimate means) (Bithas, 2011). If that assumption could hold true in the physical reality and its restrictions (thermodynamics and entropy law), then the term scarcity vanishes, since the very source of the scarcity lies in the finite nature of the ultimate means. However, in the context of the present analysis, the economic process ought to be a struggle for satisfying all society's competing ends, by rationally allocating the scarce (finite) means. In that sense, the substance of the resources scarcity problem is deeply interrelated with the goals the society sets (ultimate-intermediate ends) and the state of technology which converts natural resources (ultimate means) and other factors of production, such as capital and labor (intermediate means), into final goods and services, more capital accumulation, knowledge, and so on (produced for the satisfaction of the intermediate ends). Obviously, the actual moderator of the level of natural resources scarcity, besides technological progress, lies in the ends-means spectrum arrangement (on a social, political, institutional, or even ideological basis) (see also Mehta, 2010).

What if a consumers' society is focusing primarily in the satisfaction of the intermediate means? In other words, what if a society is being oriented towards consumption of goods and services as being the ultimate end, the most desirable and ultimate pursuit beyond it life has no meaning? Based on Daly's ends-means concept, an effort to answer the above queries is the hypothesis of an ongoing process taking place in modern post-industrial societies; the intermediate ends tend to converge with the ultimate end(s). Once the intermediate ends are equated with the ultimate end(s), the empty space between them cascades down to further intermediate ends. This process seems like an 'apotheosis' of consumption, as a promoted ultimate purpose of life. To return to the original reasoning of the analysis, if the 'rationality axiom' is, indeed, sidelined by the 'consumption axiom' – promoting the maximization of consumption –, then the concept of the 'economic man' seems to mislead, among other critical properties, the fundamental force of consumerism in modern societies. Or, according to Castoriadis (1997) and Fromm (1966), rationality could be adjusted in strict quantitative schemes of maximization-minimization decisions. Could this hypothetical rationalization of consumption be the point where Mr. Hide H-C is revealed?

As already discussed, the consumption preferences tend to be predefined by the marketing process of advertisements (Redmond, 2001). These 'artificial wants' (Galbraith, 1958), seem to surpass the sphere of basic human needs (i.e. Maslow's pyramid), since they are human contrivances that create 'artificial demands' for more and more new commodities. This is translated into more production, hence less unemployment, and economic expansion, videlicet, further economic growth. Concisely, it seems that there is a 'communicating vessels' interrelation between the economic growth and the consumerism; the economic system requires the continuous creation of artificial needs beyond the potential level of welfare maximization. In the meantime, the creation of artificial needs is further complemented by the design of products that are intentionally not lasting long so as after a short period of time should be replaced by new identical products, or even by slightly 'facelifted' products (Cooper, 2016). Other researchers use the term 'consumerist syndrome' to describe these complex interrelations occurring between the market and the consumption preferences, ruled by infinite desires (Rojek, 2004).

Globalization and Western lifestyle spread out

It seems that in the context of the globalization process and the liberalization of the economic system, there is a simultaneous process of cultural export from the

so-called western societies to the rest of the developing world (Robertson, 1992; Featherstone, 1995; Edmunds and Turner, 2005). This occurring cultural spread out promotes, to some extent, the western consumerism as a predominant lifestyle; in other words, as a representative prototype of well-being and prosperity. In line with the analysis so far, this could be seen as the potential spread out of the theoretical convergence between intermediate ends and the ultimate end(s); the 'apotheosis' of consumption as a provoking cultural paradigm.

Homo-Consumericus in the context of natural resources scarcity and environmental externalities

The analysis so far dealt with the scarcity problem in the context of the ends-means spectrum, the constant creation of artificial wants (thus, artificial needs), the theoretical convergence between the intermediate-ultimate ends (the apotheosis of consumption) and the potential spread out of the western consumerism's lifestyle through the globalization process. To synthesize all these assumptions in the context of scarcity and environmental externalities, some more evidence from the ecological economics perspective, is required. This evidence is the odd, yet considerable absence of any theoretical macroeconomic break on constant economic growth. Heading back to the neoclassical paradigm again, one realizes that there is no provision of when economic growth might turn into being 'uneconomic'. Contrary to the microeconomic theory, where there is an explicit marginal analysis setting limits to all the economic activities, the macroeconomic theory lacks any limits to growth. Herman Daly characteristically argues on that (Daly, 2010):

All of microeconomics is devoted to finding the optimal scale of a given activity – the point beyond which marginal costs exceed marginal benefits and further growth would be uneconomic. Marginal Revenue = Marginal Cost is even called the 'when to stop rule' for growth of a firm. Why does this simple logic of optimization disappear in macroeconomics? Why is the growth of the macroeconomy not subject to an analogous 'when to stop rule'? [...] The macroeconomy too is a part, a subsystem of the biosphere, a part of the Greater Economy of the natural ecosystem. Growth of the macroeconomy too imposes a rising opportunity cost that at some point will constrain its growth.

Perhaps, this lack of a clearly defined opportunity cost of constant growth reflects the unrealistic basis of the neoclassical paradigm itself; the same unrealism in the rationality axiom has already been identified in the H-E prototype, with the use of *Dr. Jekyll* and *Mr. Hide* metaphor. H-E acting, through his alter ego, in a

macroeconomic environment lacking any explicitly defined limit to growth, seems like a bull in a china shop. Yet, this overall unrealism in theory might have actual consequences in physical reality. The lack of any explicit rule in the macroeconomy, defining when economic growth is becoming undesirable, may give the wrong signal in both the production process and the consumption potentials; no breaking point might be acknowledged as if the increase in production and consumption trends could be limitless. That is translated as an unbalance in the needs-means complex which triggers further scarcity.

In a finite closed system, which earth is, where only solar energy enters, the realization that there is no universal 'when to stop' rule in growth, whilst at the same time, constantly increasing needs require more and more production of goods and services, is at least irrational. This might give the false perspective of a potentially unlimited process that could go on without any kind of macro-opportunity cost or other kinds of implications. Thus, H-E, (though the prevailing facet of H-C) acts in the context of this arbitrary macroeconomic perspective. The lack of any logical (rational) rule of that kind might indirectly promotes irrational consumption maximization, or at least, it does nothing to rationalize it.

The aggregate scarcity of natural resources stands as the first crucial obstacle that restricts the adequate satisfaction of infinite human needs. Furthermore, there is an increasing scientific concern over the material growth beyond a certain threshold, as there seems to be neutral to further improvements in the quality of life (Beddoe et al., 2009). It seems like growth, beyond a certain threshold, grows for serving growth itself, not human needs (Max-Neef, 2010).

The second obstacle is the externalities, inevitably, caused by the production process and constituting a major threat for human survival, such as emissions, climate changes, biodiversity loss and degradation of ecosystems services, among others. All these human-induced externalities have long increased the concern of distinguished scholars over the potential violation of critical planetary boundaries that remain essential for human survival (Rockström et al., 2009). Remarkably, the enormous impact of human activities is broadly recognized as the epoch of the 'Anthropocene', where mankind acts as a geological agent (Steffen et al., 2011).

The 'remedies' that could theoretically overcome these two fundamental obstacles are our omnipotent technology and the potential substitution among means. Technological progress, thus efficient use of natural resources and externalities mitigation (or adaptation to their aftermaths), together with capital and knowledge

accumulation, increasing labor productivity, and potential substitutions between different types of means, are the arms in the battle of solving the economic problem. Yet, this sensitive dynamic balance is constantly deteriorated by the crucial driving factors of overpopulation, excessive needs expansion, and cultural transitions promoting overconsumption. H-E (through his alter ego) is committing a 'hubris', like in ancient Greek tragedies, as the creation of artificial needs and the struggle to produce more and more goods for their temporal saturation, in a finite planet with finite means, seems like a sound example of an enormous and unprecedented hubris.

Beyond Homo-Economicus and his alter ego. Some alternatives to the neoclassical paradigm

Is then H-E a psychopath with various personae or alter egos [4]? Do really humans act in a rational predefined way [5]? Evidently, from the early pioneering studies of Tversky and Kahneman (1974) to the contemporary interdisciplinary synergies, such as behavioral economics and psychology, sociology and social psychology, the weaknesses of the mainstream model of H-E is revealed (Gintis, 2000; Anderson, 2000; Henrich et al., 2001). At the same time, contemporary research investigates how various sustainability efforts can take advantage of some of the natural tendencies of human behavior and mitigate others to provide strategic solutions to unsustainable practices and behavioral patterns (Beddoe et al., 2009; Brown and Vergragt, 2016; Akenji et al., 2016; Kopnina, 2017).

Apart from the behavioral approach, there is an increasing amount of literature on alternative approaches in economics seeking for more realism and openness to scientific pluralism and different ideological orientations, other than the prevailing neoclassical framework. Among the alternatives to the neoclassical paradigm, one option is the field of Institutional Economics (Söderbaum, 1992). Evidently, from Veblen (1898) and Hamilton (1919) to (Kapp, 1950), institutional economics carry a long history of endeavors to enrich economic theory with more pluralism (Myrdal, 1978). Additionally, neo-institutional economics go beyond neoclassical framework and earlier Institutional Economics, to mention indicatively the pioneering work in the struggle to govern the commons, of Elinor Ostrom (2015).

From the ecological economics point of view, Herman Daly has early envisioned the Steady State Economy (SSE), as an alternative paradigm to the neoclassical perception of economic growth (Daly, 1980). The SSE is considered as the final stage of degrowth (O'Neill, 2012), where the economy balances in paths of sustainable

development, instead of continuous growth. Furthermore, the contemporary degrowth debate emerges as an alternative, to the neoclassical, approach (Kallis et al., 2012). It is worth mentioning, that there are also institutional versions of ecological economics (see for example, Jakobsen, 2016).

A move beyond H-E, business-as-usual growth model and the neoclassical paradigm requires an actual 'democratization' of the economic theory, a change that encourages new paradigms and ideological orientations, instead of discarding them through the underlying censorship imposed by the monopoly of neoclassical economics (Söderbaum and Brown, 2010). In line with the foregoing considerations, human scale development approaches and the endeavor of establishing the foundations of the 'new economy', as it is proposed by Max-Neef, are worth mentioned here (Max-Neef, 1991, 2010). In any case, an extensive discussion over the different approaches focusing on the establishment of a new holistic paradigm (see i.e. Haapanen and Tapio, 2016), beyond the neoclassical monopoly, is rather a hard task and remains beyond the scope of the present analysis.

Conclusions

The present study aims to shed light on the obscured aspects of the neoclassical 'Homo-Economicus' prototype, from a critical point of view. To unveil the underlying irrationality of H-E entity, the analysis adopts the metaphor of 'Dr. Jekyll' rational economic man and his/her 'Mr. Hide' alter ego, Homo-Consumericus. Once the economic man (H-E) is placed in the context of the so-called 'consumerist syndrome', it seems that the 'rationality axiom' is gradually sidelined by the 'consumption axiom' (H-C) – promoting maximization schemes as the only rational pattern of human behavior. The discussion over the theoretical assumption of consumption's rationalization is based on the analysis of the economic problem. Defining the economic problem as the struggle for the temporal satisfaction of the infinite human needs by optimally allocating the scarce means of production, the analysis focuses on the potential proliferation of human needs through the theoretical process of the artificial wants creation and the spread out of the western consumerism's lifestyle, as a predominant cultural paradigm.

A theoretical prevalence of the H-C facet, through the complex interrelation of artificial needs creation, and western consumerism life-style adoption, unbalances the equilibrium: the economic problem is diverging from the golden section between infinite intermediate human needs (ends) and finite resources (ultimate means),

whilst, the intermediate ends are gradually converging with the ultimate end(s). To this end, the emerging gap, by the lack of ultimate end(s), is progressively fulfilled with more consumption, thus – expansion of intermediate ends. This theoretical convergence between the intermediate-ultimate ends is defined as the 'Apotheosis' of consumption (and consumerism).

The dynamics of the assumed 'Apotheosis' of consumerism are becoming clearer in the context of the aggregate scarcity of natural resources and the respective environmental externalities, caused by the production process. The dramatic lack of any catalytic when-to-stop rule in the macro-economy identifies the Apotheosis of consumerism as an actual challenge to sustainability, as it promotes an excessive consumption pattern which triggers further scarcity and, inevitably, more externalities. Under these assumptions, the economic problem becomes unsolved.

It goes without saying that the theoretical abstraction of Homo-Consumericus entity does not aspire to provide either a new theoretical approach, or a new behavioral prototype. Instead, it should be perceived as a criticism over the vagueness and the unrealism of the mainstream Homo-Economicus concept. What is more, the unrealism in the context of the H-E framework reveals to some extent the underlying unrealism in various fields of the prevailing neoclassical paradigm. Daly's crucial macroeconomic analysis on the ends-means spectrum and the lack of any when-to-stop rule, unveils a widespread criticism that goes far beyond the Homo-Economicus framework. If the rationalization of consumption's maximization and the artificial needs shape a cultural paradigm, which could be transferred through globalization, then, in an already overpopulated world with finite means, the result would be further scarcity of means and, inevitably, more environmental externalities. Such a potential outcome could compromise sustainability goals.

It seems that the pressing demand for a paradigm change remains: could the new evidence emerging from fields such as the institutional and neo-institutional economics, de-growth theoretical debate, or Daly's proposal of Steady State Economy (SSE), be able to solve the Gordian knot of the economic problem? Towards the quest for a potential spectrum of more realistic solutions, a first solid step may be the movement beyond the monopoly of the neoclassical economics, with the democratization of the economic theory itself. In the end, an effort to move beyond the H-E prototype calls for a mighty paradigm shift, capable of providing more realism and pluralism in the realms of the economic science.

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Endnotes

[1] Others utilize the term 'self-interest' instead of 'utility' or 'well-being'.

[2] The term 'economic problem' is presented in the article as it is taught at the undergraduate level, in the vast majority of economic schools, worldwide. It goes without saying that this definition of the economic problem is elementary and is by no means an exhaustive one.

[3] The substitutability of natural capital for man-made capital is among the cornerstones of the theoretical dispute between the weak and the strong sustainability schools of thought. However, any further analysis on that remains beyond the scope of the present paper.

[4] Source *Forbes* magazine: <http://www.forbes.com/sites/peterubel/2014/12/15/is-homo-economicus-a-psychopath/#71682fda42c5> (Retrieved in April 2016).

[5] Source *The Wall Street Journal*: <https://www.wsj.com/articles/how-homo-economicus-went-extinct-1431721255> (Retrieved in April 2016).

References

Akenji, L., Bengtsson, M., Bleischwitz, R., Tukker, A., and H. Schandl, H. (2016), 'Ossified materialism: introduction to the special volume on absolute reductions in materials throughput and emissions', *Journal of Cleaner Production*, 132, 1-12.

Anderson, E. (2000), 'Beyond homo economicus: New developments in theories of social norms', *Philosophy & Public Affairs*, 29(2), 170-200.

Ayres, R. U. (2007), 'On the practical limits to substitution', *Ecological Economics*, 61(1), 115-128.

Kalimeris, Panos (2018), 'Ecce Homo-Economicus? The Dr. Jekyll & Mr. Hide syndrome of the economic man in the context of natural resources scarcity and environmental externalities', *The Journal of Philosophical Economics: Reflections on Economic and Social Issues*, XII: 1, 89-111

Beddoe, R., Costanza, R., Farley, J., Garza, E., Kent, J., Kubiszewski, et al. (2009), 'Overcoming systemic roadblocks to sustainability: The evolutionary redesign of worldviews, institutions, and technologies', *Proceedings of the National Academy of Sciences*, 106(8), 2483-2489.

Beinhocker, Erik, D. (2007), *The Origin of Wealth: The radical Remaking of Economics and What It Means for Business and Society*, Boston (MA): Harvard Business School Press.

Bithas, K. (2011), 'Sustainability and externalities: Is the internalization of externalities a sufficient condition for sustainability?', *Ecological Economics*, 70(10), 1703-1706.

Boulter, B.L. and R.S. Goldfarb (1991), 'Pisces Economicus: The Fish as Economic Man', *Economics and Philosophy*, 7(1), 83–86.

Bowles, S., Boyd, R., Fehr, E., and H. Gintis (1997), 'Homo reciprocans: a research initiative on the origins, dimensions, and policy implications of reciprocal fairness', *Advances in Complex Systems*, 4(2/3), 1-30.

Brown, H. S., and P. J. Vergragt (2016), 'From consumerism to wellbeing: toward a cultural transition?', *Journal of Cleaner Production*, 132, 308-317.

Brown, Judy, Peter Söderbaum and Malgorzata Dereniowska (2017), *Positional Analysis for Sustainable Development: Reconsidering policy, economics and accounting*, London: Routledge.

Bryant, J. M. (2000), 'Cost-benefit accounting and the piety business: is Homo Religiosus, at bottom, a Homo Economicus?', *Method & Theory in the Study of Religion*, 12(1), 520-548.

Castoriadis, C. and J. Murphy (1985), 'Reflections on "rationality" and "development"', *Thesis Eleven*, 10(1), 18-36.

Castoriadis, C. (1997), 'La rationalité du capitalisme: Notes pour servir à une critique de la rationalité du capitalisme', *Revue internationale de psychosociologie*, 4(8), 31-51. (Translated in Greek by K. Spantidakis, Athens: Ypsilon/Book Editions 1998)

Cleveland, C. J., and M. Ruth (1997), 'When, where, and by how much do biophysical limits constrain the economic process? A survey of Nicholas Georgescu-Roegen's contribution to ecological economics', *Ecological Economics*, 22(3), 203-223.

Cohen, D. (2012), *Homo economicus, prophète (égaré) des temps nouveaux*, Paris: Albin Michel Editions.

Cooper, Tim (ed.) (2016), *Longer Lasting Products: Alternatives to the Throwaway Society*, New York: Routledge.

Daly, Herman, E. (1973), *Toward a Steady State Economy*, San Francisco: W. Freeman & Company.

Daly, Herman, E. (ed.) (1980), *Economics, Ecology, Ethics: Essays toward a steady-state economy*, San Francisco: WH Freeman.

Daly, Herman, E. (1996), *Beyond Growth: The economics of sustainable development*, Boston, Massachusetts: Beacon Press.

Daly, H. (2010), "Two meanings of "Economic Growth"", <http://steadystate.org/two-meanings/> January 2018 , 28 February.

De Waal, F. B. (2005), 'Homo homini lupus? morality, the social instincts, and our fellow primates', in Changeux, J. P. P., Damasio, A., and W. Singer, (eds.), *Neurobiology of Human Values*, Heidelberg: Springer, pp. 17-35.

Deaton, Angus (1992), *Understanding Consumption*, Oxford: Oxford University Press.

Dinello, N. (1998), 'Russian religious rejections of money and homo economicus: The self-identifications of the "pioneers of a money economy" in post-Soviet Russia', *Sociology of Religion*, 59(1), 45-64.

Doucoulagos, C. (1994), 'A note on the evolution of homo economicus', *Journal of Economic Issues*, 28(3), 877-883.

Doyal, L., and I. Gough (1984), 'A theory of human needs', *Critical Social Policy*, 4(10), 6-38.

Dutt, A. K. (2008), 'The dependence effect, consumption and happiness: Galbraith revisited', *Review of Political Economy*, 20(4), 527-550.

- Edmunds, J., and B. S. Turner (2005), 'Global generations: social change in the twentieth century', *The British journal of sociology*, 56(4), 559-577.
- Featherstone, Mike (1995), *Undoing Culture: Globalization, postmodernism and identity*, London: Sage Publications.
- Fromm, Erich (1966), 'The psychological aspects of the guaranteed income', in R. Theobald (ed.), *The Guaranteed Income*. New York: Doubleday & Co., pp. 175-184.
- Galbraith, John Kenneth (1958), *The Affluent Society*. Boston-New York: Houghton Mifflin Company.
- Georgescu-Roegen, Nicholas (1971), *The Entropy Law and the Economic Process*. Boston, Massachusetts: Harvard University Press.
- Georgescu-Roegen, N. (2002), 'Four challenges of sustainability', *Conservation Biology*, 16(6), 1457-1460.
- Gintis, H. (2000), 'Beyond Homo economicus: evidence from experimental economics', *Ecological economics*, 35(3), 311-322.
- Goleman, Daniel (2006), *Emotional intelligence*, New York: Bantam Books, Inc.
- Goodwin, Neva, Julie Nelson, Frank Ackerman and Thomas Weisskopf (2009), *Microeconomics in Context*, New York: M.E. Sharpe.
- Grampp, W. D. (1948), 'Adam Smith and the Economic Man', *Journal of Political Economy*, 56(4), 315-336.
- Grey, John (2007), *Black Mass: Apocalyptic Religion and the Death of Utopia*. New York: Farrar Straus and Giroux.
- Haapanen, L., and P. Tapio (2016), 'Economic growth as phenomenon, institution and ideology: a qualitative content analysis of the 21st century growth critique', *Journal of Cleaner Production*, 112, 3492-3503.
- Hamilton, W. H. (1919), 'The institutional approach to economic theory', *The American Economic Review*, 9(1), 309-318.
- Henrich, J., Boyd, R., Bowles, S., Camerer, C., Fehr, E., Gintis, H., and R. McElreath (2001), 'In search of homo economicus: behavioral experiments in 15 small-scale societies', *The American Economic Review*, 91(2), 73-78.

- Himmich, B. (2014), 'Can Globalization Still Be Humanized?', *Diogenes*, 61(1), 18-27.
- Hirsch, P., Michaels, S., and R. Friedman (1987), 'Dirty hands" versus "clean models', *Theory and Society*, 16(3), 317-336.
- Jakobsen, Ove (2016), *Transformative Ecological Economics. Process Philosophy, Ideology and Utopia*, London: Routledge, Taylor & Francis Group.
- Kallis, G., Kerschner, C., and J. Martinez-Alier (2012), 'The economics of degrowth', *Ecological Economics*, 84, 172-180.
- Kapp, K. W. (1950), 'Political economy and psychology', *Kyklos*, 4(4), 291-315.
- Kopnina, H. (2017), 'Working with human nature to achieve sustainability: Exploring constraints and opportunities', *Journal of Cleaner Production*, 148, 751-759.
- Lipovetsky, G. (2016), *Le bonheur paradoxal. Essai sur la société d'hyperconsommation*, Paris: Gallimard.
- Mäki, U. (2001), 'Rationality and homo economicus', in Mäki, U. (ed.) *The Economic World View: Studies in the Ontology of Economics*, Cambridge: Cambridge University Press, pp. 55-56.
- Max-Neef, M. (1991), *Human Scale Development*, New York: The Apex Press.
- Max-Neef, M. (2010), 'The world on a collision course and the need for a new economy', *Ambio*, 39(3), 200-210.
- McKay, I. (2014), 'A Half-Century of Possessive Individualism: CB Macpherson and the Twenty-First-Century Prospects of Liberalism', *Journal of the Canadian Historical Association/Revue de la Société historique du Canada*, 25(1), 307-340.
- Meadows, Donella, H. (1998), *Indicators and Information Systems for Sustainable Development*, a report to the Balaton Group, Hartland VT: The Sustainability Institute.
- Mehta, Lyla (2010), *The Limits to Scarcity: Contesting the Politics of Allocation*, London: Routledge.

- Morgan, M. S. (2006), 'Economic man as model man: ideal types, idealization and caricatures', *Journal of the History of Economic Thought*, 28(1), 1-27.
- Myrdal, G. (1978), 'Institutional economics', *Journal of Economic Issues*, 12(4), 771-783.
- Nitsch, T. (1975), 'On institutional and environmental economics ("Toward human economys")', *Forum for Social Economics*, 5(1), 6-9.
- Nyborg, K. (2000), 'Homo economicus and homo politicus: interpretation and aggregation of environmental values', *Journal of Economic Behavior & Organization*, 42, 305-322.
- O'Boyle, E.J. (2007), 'Requiem for Homo Economicus', *Journal of Markets & Morality* 10(2): 321-337.
- O'Neill, D. W. (2012), 'Measuring progress in the degrowth transition to a steady state economy', *Ecological Economics*, 84, 221-231.
- Ostrom, Elinor (2015), *Governing the Commons. The Evolution of Institutions for Collective Action*, Cambridge: Cambridge University Press.
- Pearson, H. (2000), 'Homo economicus goes native, 1859-1945: The rise and fall of primitive economics', *History of Political Economy*, 32(4), 933-989.
- Pettit, Philip (2001), 'The virtual reality of homo economicus', in Mäki, Uskali (ed.), *The Economic World View: Studies in the Ontology of Economics*. Cambridge: Cambridge University Press, pp 75-97.
- Read, J. (2009), 'A genealogy of homo-economicus: Neoliberalism and the production of subjectivity', *Foucault Studies*, 25-36.
- Redmond, W. H. (2001), 'Exploring limits to material desire: the influence of preferences vs. plans on consumption spending', *Journal of Economic Issues*, 35(3), 575-589.
- Reisch, Lucia and Inge Røpke (eds.) (2004), *The Ecological Economics of Consumption*, Cheltenham: Edward Elgar Publishing.
- Robertson, Roland (1992), *Globalization: Social theory and global culture*, London: Sage Publications.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S., Lambin, E. F., et al. (2009), 'A safe operating space for humanity', *Nature*, 461(7263), 472-475.

Rojek, C. (2004), 'The consumerist syndrome in contemporary society: an interview with Zygmunt Bauman', *Journal of Consumer Culture*, 4(3), 291-312.

Røpke, I. (1999), 'The dynamics of willingness to consume', *Ecological Economics*, 28(3), 399-420.

Røpke, I. (2001), 'The environmental impact of changing consumption patterns: a survey', *International Journal of Environment and Pollution*, 15(2), 127-145.

Saad, G. (2014), 'The Evolutionary Instincts of Homo consumericus', in Stephanie Preston, Morten Kringelbach and Brian Knutson (eds.), *The Interdisciplinary Science of Consumption*, Cambridge, Massachusetts: The MIT press, pp. 59-76.

Sen, A. (1994), 'The formulation of rational choice', *The American Economic Review*, 84(2), 385-390.

Söderbaum, P. (1992), 'Neoclassical and institutional approaches to development and the environment', *Ecological economics*, 5(2), 127-144.

Söderbaum, P. (2001), 'Political economic person, ideological orientation and institutional change: on competition between schemes of interpretation in economics', *Journal of Interdisciplinary Economics*, 12(3), 179-197.

Söderbaum, P. and J. Brown (2010), 'Democratizing economics', *Annals of the New York Academy of Sciences*, 1185(1), 179-195.

Solow, Robert M. (1974), 'The economics of resources or the resources of economics', in Chennat Gopalakrishnan (ed.) (2016), *Classic Papers in Natural Resource Economics*, New York: Routledge, pp. 257-276.

Steffen, W., Persson, Å., Deutsch, L., Zalasiewicz, J., Williams, M., Richardson, K., et al. (2011), 'The Anthropocene: From global change to planetary stewardship', *AMBIO: A Journal of the Human Environment*, 40(7), 739-761.

Thaler, R. H. (2000), 'From homo economicus to homo sapiens', *The Journal of Economic Perspectives*, 14(1), 133-141.

Tversky, A., and D. Kahneman (1974), 'Judgment under uncertainty: heuristics and biases', *Science*, 185(4157), 1124-1131.

Kalimeris, Panos (2018), 'Ecce Homo-Economicus? The Dr. Jekyll & Mr. Hide syndrome of the economic man in the context of natural resources scarcity and environmental externalities', *The Journal of Philosophical Economics: Reflections on Economic and Social Issues*, XII: 1, 89-111

Van Meer, B. (1998), 'Homo Oeconomicus: Enquête sur la constitution d'un paradigme, Pierre Demeulenaere. Presses Universitaires de France, 1996, ix 288 pages', *Economics and Philosophy*, 14(2), 369-373.

Veblen, Thorstein (1898), 'Why is economics not an evolutionary science?', in Malcolm Rutherford and Warren J. Samuels (eds.) (1997), *Classics in Institutional Economics: The Founders, 1890-1945*, vol I., London: Pickering and Chatto, pp. 3-27.

Zelinka, E. (2014), 'Something is rotten with homo sapiens: a psychosocial analysis of the postmodern human in the West', in Runcan, Patricia-Luciana, Georgeta Rata and Alin Gavreliuc (eds.), *Applied Social Sciences: Psychology, Physical Education and Social Medicine*, Newcastle: Cambridge Scholars Publishing, pp. 115-122.

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