A Critical Review of *Homo Economicus* from Five Approaches

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Abstract. Neoclassical economics is based on and structured around the notion of *homo economicus*. The theory of consumer choice, the theory of the firm, industrial organization, and welfare theorems all require the assumption that agents act in accordance with the scheme of individualistic rational optimization. In this context, our contribution is threefold. First, we delimit the notion of *homo economicus* according to five characteristics or dimensions. Second, we critically review this anthropological scheme from five distinct approaches, namely, behavioral economics, institutional economics, political economy, economic anthropology, and ecological economics. Third, we conclude that the scheme of *homo economicus* is clearly inadequate and deficient. However, despite its inadequacies, it remains one of the fundamental pillars of the neoclassical paradigm in economics, which allows us to discuss why we have not yet overcome this paradigm.

Introduction

The notion of *homo economicus*—a theoretical construct that posits calculated self-interest as the primary human motive in all transactions—has been under heated discussion for decades among economists. This discussion has also included scholars from several other

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social sciences, such as psychology, sociology, anthropology, history, and political science. This is not surprising, as neoclassical economics is based on and structured around the notion of *homo economicus*. The theory of consumer choice (utility maximization), the theory of the firm (profit maximization), industrial organization, the theorems of welfare, which together comprise practically the entire neoclassical paradigm in economics, require, directly or indirectly, the assumption that agents act in accordance with the anthropological *homo economicus* scheme. Thus, as is pointed out by Trevor J. Barnes (1988: 477), this notion provides neoclassical economics with a structure:

> [It establishes a] methodological agenda [that] reduc[es] the complexity of economic events at any time or place to the universal trait of rational choice making; a trait that, because of its determinist nature, is easily represented in a formal model.

The notion of *"economic man"* goes back to John Stuart Mill, although the term itself was introduced by his critics (Ingram 1888). According to Mill (1836: 321):

> [Economics] does not treat of the whole of man's nature as modified by the social state, nor of the whole conduct of man in society. It is concerned with him solely as a being who desires to possess wealth, and who is capable of judging the comparative efficacy of means for obtaining that end.

However, it has been argued by Persky (1995) that the anthropological conception of Mill is not as reductionist as is sometimes thought; on the contrary, it adapts to various institutional forms and has a wider range of motivations than the mere desire for wealth, including leisure, luxury and procreation.

The idea of *homo economicus*[1] that has been adopted and intensively used in neoclassical economics is much more specific than in the writings of Mill. It is this restrictive concept that is more relevant to review. Once the neoclassical notion of *homo economicus* is well defined, a critical review from five approaches can be conducted.[2] The intention is not so much an exhaustive record of everything that has been written about *homo economicus*. Our aim is rather to select those studies that allow us to discuss in a thorough manner the conceptual delimitation of *homo economicus* that we propose.

Therefore, our contribution is threefold. First, in the following section, the current notion of *homo economicus*, which is extensively used in the field of neoclassical economics, is conceptually delimited. Second, in the sections that follow, we present a critical review from five approaches, starting with individually focused paradigms and moving towards more comprehensive ones. The five approaches are:

- *Behavioral economics,* based on cognitive psychology;
- *Institutional economics*, based on a study of how institutions influence behavior;
- *Political economy*, which studies the capitalist mode of production and its influence;
- *Economic anthropology*, as a way of understanding the broader determinants of history and culture;
- *Ecological economics*, which considers the most fundamental context of human existence, as part of an ecosystem.

Finally, the most important results of the review are summarized and a discussion is introduced about why we have not yet overcome the neoclassical paradigm in economics.

The Conceptual Delimitation of *Homo Economicus*

We begin with a careful definition of the concept of *homo economicus* to enable us to criticize it with greater clarity and explicitness than has been done in previous discussions. Our proposed definition is based on five dimensions of *homo economicus* according to the neoclassical conception of it:

(i) *Individualism*: Individuals only think, decide, and act according to their own interests. The scheme of *homo economicus* "assumes that man is atomistically self-interested" (Ng and Tseng 2008: 279). Some authors have inferred that economic agents are unable, according to the self-interest criterion, to concern themselves with the welfare of others. But this is not necessarily accurate. Individuals can worry about the welfare of others *as far as it* *affects their own welfare*. According to this approach, if someone gives alms, it could be due to the desire to feel noble about being a "good person" or wanting to prevent the suffering of others in order not to feel bad oneself. In other words, the neoclassical perspective posits that there is an individualistic motivation behind the actions that we normally consider altruistic (Axelrod 1984). Therefore, any moral consideration will not be binding in itself, but it would be subordinate to (or would occur exclusively in terms of) individual utility maximization.

(ii) *Optimizing behavior*: Human beings would be instantaneous calculators of pleasures and pains, costs and benefits, and seek always to obtain the best result given the means at their disposal. Thus, consumer choice theory states that the consumer seeks to maximize utility subject to budget constraints, and the theory of the firm states that the entrepreneur seeks to maximize profits given production possibilities and costs. It is precisely due to this that "[i]n practical terms neoclassical economics is able to model such determinant behavior by employing the mathematical technique of constrained maximization" (Barnes 1988: 476).

(iii) *Full rationality*: Individuals would have full capacity to properly process the information available (Simon 1986). This should not be confused with the expectation of *complete information* in some neoclassical models, as the *homo economicus* scheme also operates in models of incomplete information. Strictly speaking, all that is required is that individuals rationally process all the available information. In other words, they must be totally objective regarding the characteristics of the options from which to make a decision, without falling into any kind of cognitive bias.

(iv) *Universality*: The universal validity of the postulate of *homo economicus* as a model of behavior is maintained. Thus, it would apply to all kinds of events in every time and place. There would be no society or individual that can escape from this scheme. This has been strongly advocated by Gary S. Becker (1981: ix):

> [The] economic approach is not restricted to material goods and wants or to markets with monetary transactions, and conceptually does not distinguish between major and minor decisions or between

> "emotional" and other decisions. Indeed … the economic approach provides a framework applicable to all human behavior—to all types of decisions and to persons from all walks of life.

(v) *Exogenous preferences*: Neoclassical economics considers that preferences are exogenously given (Bowles and Gintis 2000). The agents engage in economic interactions with defined preferences whose formation process is beyond the scope of economics. In neoclassical economics, there is also "a conception of the human act that is independent of interaction" (Wilson and Dixon 2008: 245). In this context, it is assumed that agents are consistent when they are ordering their preferences; that is to say, preferences must meet certain mathematical properties: they must be complete, transitive, and monotonic.

A Critical View from Behavioral Economics

Behavioral economics can be defined as the approach that aims to introduce more realism to economic analysis from a set of more plausible psychological principles. In this way, it seeks to generate new theoretical insights, make better predictions of field phenomena, and suggest better policies (Camerer and Lowenstein 2004: 3).

In the first stage, Herbert A. Simon (1947, 1955) was one of the pioneers in calling into question the supposed full rationality of *homo economicus*. Simon argued that for a proper study of the decision-making process, we must consider the cognitive and noncognitive limitations of individuals. For instance, the ability of the human mind to store, process, and retrieve information or how it is conditioned by the knowledge and experience of the individual should be considered as cognitive boundaries in the decision-making process. Moreover, individuals do not always develop computational calculations when making decisions, which brings us to question the idea of mechanistic optimization. Noncognitive factors such as culture, emotions, or imitation also bind the rationality of the individual. This is why Simon introduced the assumption of bounded rationality in economic modeling, which treats *satisfaction* rather than *optimization* as the central motivation in the study of rational choice.

It is not difficult to find other researchers who have also seriously questioned the assumption of optimization and full rationality in the neoclassical notion of *homo economicus*. For example, Leibenstein (1976, 1978) developed his work on the psychological premise of *selective rationality*. According to him, individuals do not try to optimize among possible options, but choose the intensity with which they react to opportunities and constraints based on their personalities and external pressures.

In the second stage of behavioral economics, the research program developed by Daniel Kahneman and Amos N. Tversky in the field of "behavioral decision research" attracted the attention of economists. These authors, thanks to advances in the field of cognitive psychology, questioned the supposed full rationality of individuals through their thesis regarding *heuristics* and *biases* (Tversky and Kahneman 1974; Kahneman et al. 1982). They discovered that individuals, when making decisions, systematically appeal to heuristics (mental shortcuts), which allow assessments based on partial data. These cognitive shortcuts are used even when they have additional data that would enable a more accurate and precise evaluation. Two of the most studied heuristics by these authors are *representativeness* and *availability*. On the one hand, the *representativeness heuristic* is a cognitive bias in which individuals make decisions or judgments that are the opposite of applying the basic rules of probability. On the other hand, under the *availability heuristic,* individuals tend to greatly skew their judgments based on the recency[3] or personal relevance of available information.

Additionally, compared to the *theory of expected utility*, which models fully rational behavior in situations of uncertainty and risk, Kahneman and Tversky developed an alternative critical model, which was named *prospect theory* (Kahneman and Tversky 1979). The core of this criticism refers to *framing effects* (Tversky and Kahneman 1981). From a series of experiments, these authors demonstrated that individuals make their choice of different alternatives depending on how the information is presented. For example, individuals tend to take more risks to avoid a loss than to achieve a gain—hence, the notion of "loss aversion." For all of these reasons, the ability of individuals to order their preferences consistently is seriously questioned. That ability is central to the model of *homo economicus*.

In the second stage, those who study behavioral economics have been particularly critical of the notion of *homo economicus*. For instance, Nobel Laureate Richard Thaler (1980) describes a total of 10 types of problems where consumers are particularly prone to deviate from the predictions of the normative model of *homo economicus*. He concludes that the neoclassical model of consumer behavior is particularly poor at predicting the optimizing behavior of the average consumer. This is not because consumers are fools; rather, they do not use all of their time attempting to make the best decisions. Other behavioral economists have focused more on the critique of individualism, finding evidence that individuals do not behave in a purely self-interested way (see Fehr and Gächter 2000; Henrich et al. 2001; Fehr et al. 2002; Miettinen et al. 2017). From the use of experimental methods applied to the field of economics (public goods experiments, prisoner's dilemma, the dictator game, the ultimatum game), researchers have shown that individuals tend to cooperate voluntarily with players who treat them fairly but punish those who do not cooperate—demonstrating the effects of "strong reciprocity."

A Critical View from Institutional Economics

Institutional economics[4] is an approach that focuses on institutions (social structures, norms, ideas, values, etc.) in order to understand the economy. If in neoclassical economics the "institutional framework" is considered as exogenous, in institutional economics, institutions are considered not only endogenous but also as *constitutive* aspects of the economic system.

In this vein, the first critique of *homo economicus* focuses on an epistemological issue—methodological individualism. For institutional economics, individual subjectivity cannot be consistently understood as something prior to "the social world." Rather, it is *always* and *necessarily* constructed from a given set of institutional and social influences. In fact, according to Geoffrey M. Hodgson (2000: 327), this idea is "the single most important characteristic of institutionalism." According to institutional economists, the economic process "takes place not through the individual, but through the habits of thought, conventions and institutions" (Papageorgiou and Michaelides 2016: 14).

Beyond the previous methodological issue, institutional economics criticizes the idea of individualism with respect to human motivations. Human beings are not simply beings that make transactions in an isolated manner, as they are always part of a society. Faber et al. (2002: 328) take this into account when they formulate the concept of *homo politicus*, which is distinguished from mere *homo economicus* by assuming that "[h]uman beings do not care solely about their private interests in respect of their own individual preferences, but they also want to receive the approval from their fellow citizens for what they say and for what they do." But this in no way contradicts the postulate of *homo economicus*, as the individual exhibits "pro-social" behavior only to the extent that doing so will gain recognition from the community, which could well be an individualistic motivation (Alexander 1987). However, as noted by Faber et al. (2002: 328–329), the issue goes beyond this:

> This does not mean that *homo politicus* maximizes consent by any means. *Homo politicus* wants not only to obtain but also to merit the approval of others. … To put it differently: human beings consider themselves as beings who do have legal and moral obligations and rights.

In another attempt to theorize human behavior in a more socially oriented way, Bastien and Cardoso (2007) collected a set of critical perspectives on *homo economicus* that emerged from the corporatist movement in southern Europe, especially Italy and Portugal. This is relevant in the context of institutional economics because, as opposed to the individualistic neoclassical scheme, corporatism suggests that individual economic agents are not moved by primarily individualistic rational motivations; on the contrary, they generally cooperate. Interactions are made possible through institutional control and supervision guaranteed by corporations and the government; thus, *society* is more than a mere aggregation of individual actions (Hollis 1987). The concept of *homo corporativus* differs from *homo economicus* "not only because he is a social being oriented towards belonging to communities, but also because he is directed by a notion of social interest provided by both the corporations and the State" (Bastien and Cardoso 2007: 123–124). Accordingly, it is the inherently social nature of human beings manifested in and conditioned by various institutional settings that makes *homo economicus* a largely nonviable construct in understanding social action or even a single economic action, which is *always* and *necessarily* also a social action.

Moreover, institutional economics has also criticized the neoclassical vision of the human being as a mere calculator. Thorstein Veblen (1898: 389), father of American institutional economics, described the notion of the human being underlined by neoclassical economics as outdated given that it sees a person as "a lightning calculator of pleasures and pains who oscillates like a homogeneous globule of desire of happiness under the impulse of stimuli that shift him about the area, but leave him intact." Rather, Veblen argued that human beings are creatures of customs, habits, and instincts who are affected *continuously and constitutively* by their social context. This was precisely what led him to develop notions such as "the instinct of workmanship," "conspicuous consumption," "conspicuous leisure," and "pecuniary emulation" in his *Theory of the Leisure Class* (Veblen 1899).

Finally, institutional economists call into question the neoclassical idea of exogenous preferences. For instance, Galbraith (1967) argues that economists must explicitly study the origin of preferences as part of their understanding of the economic system. The neoclassical assumption of consumer sovereignty is obsolete in a society that has the means through marketing and publicity to directly influence consumer subjectivity. These means are used in accordance with the requirements imposed by the "planning system." Thus, Galbraith (1958) proposes the existence of a "dependence effect," according to which the production system creates the needs it pretends to meet. Given this new context of market dynamics and institutions, the relevant matter is to conceptualize consumer preferences as endogenous (Bowles 1998).

A Critical View from Political Economy

Political economy can be defined as "the science of the laws governing the production and exchange of the material means of subsistence in human society" (Engels [1878] 1947: 90). Thus, in classical analysis, fundamental concepts involved the study of the economic characteristics of social classes (mainly workers and capitalists) and the social relationships established among them in both the production and exchange phases of the economic process. A clear difference is therefore established between *classical political economy*, which focused on class analysis, and *neoclassical economics,* focused on the analysis of the isolated individual (i.e., methodological individualism).

One of the most influential authors of classical political economy was Adam Smith. A passage in his most famous work, *An Inquiry into the Nature and Causes of the Wealth of Nations*, is often used to justify the sort of individualistic and self-interested behavior that underlies the notion of *homo economicus*:

> It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages. (Smith 1776: Book 1, Chapter 2)

However, in an earlier and less known work (*The Theory of Moral Sentiments*), Smith (1759: Part I, Section I, Chapter I) portrays a more complete image of human behavior:

> How selfish soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others, and render their happiness necessary to him, though he derives nothing from it except the pleasure of seeing it. … That we often derive sorrow from the sorrow of others, is a matter of fact too obvious to require any instances to prove it; for this sentiment, like all the other original passions of human nature, is by no means confined to the virtuous and humane, though they perhaps may feel it with the most exquisite sensibility. The greatest ruffian, the most hardened violator of the laws of society, is not altogether without it.

Adam Smith stressed the importance of context in individual behavior. For example, the rules applied in market-oriented relationships among individuals whose values are unknown are different from the rules used in other institutions such as the family. Thus, according to Smith, the predominant feature of the market environment is the interaction between individuals driven by self-interest; however, this does not mean it is the only conduct to guide human behavior. The market is part of a larger system of shared social norms to which compliance or noncompliance involves approval or disapproval.

Another particularly influential author was Karl Marx, who understood his work as a critical contribution to classical political economy. According to Marx, the notion of *economic man* corresponds to the appropriate description of behavior that has arisen due to capitalism (Marquardt and Candeias 2004). Hence, *economic man* constitutes a social construction of the capitalist mode of production, and this type of anthropology and behavior would not be "universal"; on the contrary, under other forms of social-economic organization, human behavior would be different. In communism, "alienation" caused by selfishness would not exist. Karl Marx (1859: Preface) explained how each type of economic system creates its own mode of thought:

> It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness. … Just as one does not judge an individual by what he thinks about himself, so one cannot judge such a period of transformation by its consciousness, but, on the contrary, this consciousness must be explained from the contradictions of material life, from the conflict existing between the social forces of production and the relations of production.

More recently, *radical political economy* is a critical approach to neoclassical economics and capitalism that seeks to recover the tradition begun by the classical economists and Marx. One of its main criticisms focuses on the individualistic and optimizing behavior of *homo economicus*, a one-dimensional view that is conceptually insufficient, given the complexity of problems such as the economic crisis. Authors like Tsakalotos (2004, 2005) and Hodgson (2012) agree on the need to reinstate moral motivations, values, and social commitment in economic analysis.

Moreover, Samuel Bowles has dedicated much of his research to the criticism of the neoclassical notion of *homo economicus* under an approach that could properly be named "post-Walrasian political economy." In the Walrasian scheme, preferences and norms are considered as given or exogenous, as is the enforcement of contracts. By contrast, in a post-Walrasian model, preferences and norms should be seen as endogenous, based on power relationships that allow the manipulation of agents and the imposition of asymmetric regulations on the market (Bowles 1985, 1998; Bowles and Gintis 1988, 1993). In summary, Bowles (1998) proposes a new behavioral foundation for all social sciences in terms of three key issues:

(i) Many behaviors are best explained with *social preferences* that rely on reciprocity, aversion to inequality, envy (or spite), and altruism;
(ii) Individuals are *rule-following adaptive agents* whose actions toward others are governed by internalized social norms that are supported by social sanction;
(iii) Behaviors are *context dependent* and based on social situations. Individual preferences are situation specific and endogenous, involving changes over time.

A Critical View from Economic Anthropology

Narotzky (2001) defines *economic anthropology* as an approach that addresses the recurring interaction of individuals—within and between social groups and with the wider environment—in order to provide themselves with goods and services necessary for social reproduction. It focuses primarily on the study of primitive and non-capitalist economies.

The formalist-substantivist debate about the universal applicability of behavior in a capitalist system to other forms of economy is the key aspect regarding the notion of *homo economicus*. Formalists, such as Firth (1967), argued that individual optimizing behavior is universally applicable in every time and place. On the contrary, substantivists, following Polanyi (1957), argued that the neoclassical rational choice model would only be valid in the context of Western market societies. Thus, Polanyi (1944) showed that relationships of exchange in most societies and individuals did not historically follow a capitalist pattern. Therefore, in order to implement such a pattern of social and economic organization in Western countries, a "great transformation" was required along many dimensions. Due to its very unnatural character, the capitalist patterns were met with a great deal of resistance and opposition from groups more attached to traditional social norms. Polanyi thus showed that *homo economicus* did not produce capitalism but rather that capitalism produced *homo economicus*.

Along the same lines, George Dalton (1961: 20) suggested that the differences between the primitive economy and the industrial economy were substantial and that theoretical schemes derived from the latter could not be directly applied to the study of the former:

> Primitive economy is different from market industrialism not in degree but in kind. The absence of machine technology, pervasive market organization, and all-purpose money, plus the fact that economic transactions cannot be understood apart from social obligation, create, as it were, a non-Euclidean universe to which Western economic theory cannot be fruitfully applied. The attempt to translate primitive economic processes into functional equivalents of our own inevitably obscures just those features of primitive economy which distinguish it from our own.

Thus, contrary to what is proposed by Becker (1981), the scheme of utility maximizing agents could not be applied to all times and places. For example, Elster (1989) explains that rational choice theory does not provide a completely adequate explanation for social norms and their evolution because rational individualistic behavior is concerned with outcomes and, by contrast, social norms are unconditional (not outcome oriented).

Therefore, human beings are not merely individualistic creatures; they are also cooperative and solidary at a fundamental level. Thus, as Sen (1977) points out, individuals not only show *sympathy* (concern for others because their welfare affects ours), they also show *commitment* (concern for others regardless of how their welfare affects ours). It is evident that *commitment* is not compatible with the *homo economicus* approach.

The neoclassical model is not too complex; on the contrary, it is too simple. The mathematical scheme of rationality understood only as individual optimization cannot consistently capture the reality of choice processes that are polyvalent. Choices are conditioned by patterns of rationality derived from other dimensions, such as ethics and culture, that cannot be reduced to individual optimization. Hodgson (2012) argues that the issue is not simply to incorporate moral considerations into the utility function; ethics has its own nature and specificities, and humans are generally *both* morally motivated and self-interested.

Another relevant topic that has been highlighted by economic anthropologists is the difference between "market society" and "gift society." In this regard, Mauss (1923) analyzed special exchange ceremonies such as the "potlatch" practiced by Native North Americans and the "Kula ring" practiced by the people of Papua New Guinea. He found that the value of the "gift" was based on the relationship between people and objects, whereas in the *market society* there is a remarkable dissociation between people and objects. This issue was deepened by Sahlins (1965), who related reciprocal transactions to the social distance between people involved. Later, Weiner (1992) described how objects can create, sustain, and regenerate social relationships beyond the mere giving-receiving movement associated with reciprocity. These kinds of interactions go beyond *homo economicus* and show why it cannot be universal. In fact, the dissociation between people and objects—as a specific characteristic of market economies—partially explains why capitalist societies are markedly more unequal than other societies (Gudeman 2015).

In addition, economic anthropology calls into question the neoclassical methodological assumption of exogenous preferences. Individuals' decisions cannot be consistently understood by abstracting them from their cultural, sociological, and historical context: "Even if our concern is with the provision of material goods, … we must deal with activities and structures which, by traditional definitions, are religious or social or ceremonial" (Vayda 1967: 87). Therefore, it is necessary to endogenously consider factors such as socialization, enculturation, and customs (Jimenez and Garcia 2016).

The knowledge of the wider context in which cultures or societies conduct their economic interactions is key to the success (or failure) of the development of policies, and it will unlikely be reflected by a scheme that considers all these issues as merely "exogenous."

> [M]ost neoclassical economists … seem to know remarkably little about the social, cultural, or historical circumstances of the countries for which

> they are prescribing remedies. … [I]n the paradigms that now dominate contemporary economics … there is no place for such "empirical quibbles." (Ferguson 2000: 995)

In sum, economic anthropology broadens the perspective towards the study of diverse cultures and societies and finds that the anthropological model proposed by neoclassical economics is highly restrictive, deficient, and misleading.

A Critical View from Ecological Economics

Ecological economics can be defined as a heterodox approach that explicitly understands the economy "as both a social system, and as one constrained by the biophysical world" (Gowdy and Erickson 2005: 208). It must not be confused with "environmental economics." The latter is not a heterodox approach but only a branch of applied studies within neoclassical economics. It extrapolates the marginalist logic and welfare economics criteria to the environment as if it were a mere issue of "externalities" or only a "market good."

> Ecological economics goes beyond the perspective of neoclassical environmental economics, which is based solely on preferences and the well-being of individuals. Ecological economics does not view environmental and resource problems exclusively as external effects, or as a problem of public goods, but perceives economy and humans as parts of an encompassing ecological whole. (Faber et al. 2002: 323)

Ecological economics differs substantially from the individualistic notion of *homo economicus*. Neoclassical economics conceptualizes the environment as fundamentally "external" to the individual who perceives it in terms of the logic of consumption (utility) or production (exploitation). Instead, the environment in ecological economics is seen not as "exogenous" but as constitutive of the identity and existence of the individuals themselves. Siebenhüner (1999), in his discussion of the anthropological basis of an ecological perspective, relates the findings of neurobiology and evolutionary sciences to the fact that human beings have feelings of protection or esteem not only for others but also towards nature itself. Consequently, the radical dissociation between individuals and the environment, rather than stemming from an intrinsic human trait, is something historically conditioned by Western capitalist society and the modern processes of urbanization. Ecological economics calls into question both individualism and the claim of universality in the neoclassical model of anthropology; it proposes a broader analysis in the context of so-called human ecology (Steiner 2016).

As for the optimizing behavior of *homo economicus,* neoclassical economics considers it in terms of marginal decision analysis (marginal utility, marginal product, marginal cost). In this vein, the models and theorems of welfare economics are based on several maximizers interacting "rationally" in order to achieve the maximum social welfare (Debreu 1959). Consequently, cost-benefit analysis is applied to assess environmental issues assuming "axiological monism" under which all objects of utility have some characteristics in common that allow them to be compared. However, the environment considered as a whole is qualitatively different from any object of consumption or particular production factor; consequently, it cannot be coherently understood in accordance with the logic of marginal analysis of optimization based on the *ceteris paribus* condition.

> Removing or adding one species to an ecosystem, for example, will affect other species and the general integrity of the system in unpredictable ways. Furthermore, the effects are likely to be different each time a change is made. … In evolutionary systems it is impossible to change one thing and hold everything else constant. The existence of qualitative and non-marginal change is a powerful argument for rejecting microeconomic theory. (Gowdy and Erickson 2005: 215)

The idea of full rationality is also considered within ecological economics. Specifically, individuals often fall into "temporary myopia" by seeing and arbitrarily preferring the present more than the future. This is precisely one of the causes of the current ecological problem. Individuals "rationally" seek the maximum benefit of consumption from the exploitation of natural resources in the short term; however, collectively acting in this manner ends up affecting and even destroying the availability of resources in the long run. Thus, what seems "rational" at the individual, short-term level may not be so at the collective, long-term level. The resulting behavior ultimately harms the individuals themselves. Therefore, intertemporal neoclassical analysis, which uses discount rates to account for the importance of future environmental gains or losses, is not only limited but also misleading (Georgescu-Roegen 1976; Price 1993).

Some phenomena that are considered "anomalies" in neoclassical economics are actually part of the behavior of real agents. For example, *endowment effects* occur when individuals arbitrarily assign more value to things because they own them, which can affect the implementation of specific ecological solutions such as "ecological subdivision designs" (Magliocca et al. 2014). Another example is *hyperbolic discounting*, which occurs when individuals value the near future considerably more than the distant future. Taking this phenomenon into account, environmental managers who wish to act rationally from an integral perspective must calculate not only the "economic time discounting rate" but also the "ecological time discounting rate" (Mazziotta et al. 2016). A third example of how individual preferences can give highly misleading information regarding social outcomes is the *part-whole problem*. This occurs when individuals value the sum of individual parts of an object more than the entire object itself. (For example, according to capitalist logic, the value of the trees in an important ecosystem may be deemed more valuable than the ecosystem, which is treated as an "externality.") To correct this problem, an analysis in terms of "complex systems" is required in order to understand economy in its ecological context (Balmann and Valentinov 2016).

In summary, from an ecological perspective, the neoclassical notion of *homo economicus* should be questioned. A theoretical framework that considers environmental issues as merely "exogenous" or simply as an applied topic cannot be an adequate guide for rational action since the rationality of *homo economicus* can lead to "ecological irrationality." Hence the ecological approach points to a profound reformulation of economics.

> Such concerns as depletion of the ozone layer, reduction in biodiversity, and the destruction of rain forests, to mention only a few of the more prominent environmental concerns, are sufficiently removed from the sorts of issues with which economists have traditionally dealt that it would

> be surprising if this body of theory did not require serious revisions to deal with environmental policy. (Gintis 2000: 311–312)

Applying the Critiques

As a result of this critical review, the main conclusion to be reached is that the scheme of *homo economicus* is clearly inadequate and deficient. However, despite its inadequacies, it remains one of the fundamental pillars of the neoclassical paradigm in economics, which allows us to question: Why have we not yet overcome this paradigm?

The answer proposed in this discussion is that the notion of *homo economicus* constitutes a theoretical base for the moral and ideological legitimation of our whole economic system. According to that logic, when individuals behave in a rational and self-interested manner, there is an "invisible hand" that procures the common good. As in Bernard Mandeville's 1714 "Fable of the Bees," we unconsciously assume that private vices become public benefits through the magic of the market. From this standpoint, if individuals are rational it is possible to assume that the whole system is rational. If a general competitive equilibrium is achieved in free markets, neoclassical economists argue that the resources of the society are being used in the most efficient way possible. This removes any possibility of ethical or moral qualms regarding self-interested behaviors.

Additionally, neoclassical economics has assisted in establishing an omnipresent identity between welfare and human happiness by measuring the latter by the indiscriminate multiplication of commodities in a capitalist society. This paradigm has valorized the desire for an indefinite increase in the production of commodities. The gross domestic product (GDP) is a monetized indicator of this idea of progress, in which pecuniary values dominate society to the detriment of other, more vital values (Naredo 2015: 85).

A contradiction arises in a market society between actual outcomes and the expected improvement of general welfare, even in terms of the hedonistic principles of neoclassical economics. This contradiction is not only reflected in the food crisis of poor countries but is also proven by the loss of quality of life in material and psychological terms observed in the industrial metropolis. If we focus on the United States, the enormous increase in the production of commodities since World War II has been accompanied by a significant increase in pollution and degradation of raw materials and energy resources. Moreover, it has not resulted in a significant improvement in basic needs, such as food, clothing, or housing.

In relation to food, the profit maximization scheme in a *market society* is placed ahead of consumer health, the livelihood of the American farmer, labor conditions of workers, and the natural environment. When examining the first issue, a clear setback is observed in the quality of the diet consumed by the average American. According to Monteiro et al. (2013), numerous food-processing procedures are beneficial to human health. Nevertheless, the way in which food is actually processed as well as the degree of processing and the reasons for it have been revolutionized as an essential part of industrialization. Since the mid-19th century, mechanization has resulted in much higher efficiency and effectiveness in the manufacture, distribution, and sale of food. Nutrient deficiencies have been diminished, and labeling requirements have reduced uncertainty about food ingredients, which were initially the main food-related public health problems. However, processing later allowed the introduction of foods high in fat and sugar, which was followed by increases in cardiovascular disease, at first in affluent countries, and then spreading more globally (Omran 2005). A more recent revolutionary development in the practice of food processing (or even ultra-processing) can be seen since the 1980s. Rapid advancement in food science techniques has facilitated the development of an immense array of highly palatable products made from cheap ingredients and additives. Transnational food and drink manufacturing, distribution, and retailing companies, as well as fast food and allied companies, whose profits derive from homogeneously branded ready-to-consume products, have grown into titanic global corporations. These changes have been accompanied by significant increases in obesity and related chronic noninfectious diseases, most significantly diabetes, mainly in high- and middle-income countries (Popkin 2002).

In relation to clothing, the apparel industry is another example of the contradictions associated with the "benefits" of the market society.

Not long ago, there were only two major seasons of clothing per year. Currently, every 15 days "fast fashion" retailers change their collection. Shopping for clothes has become an entertainment experience: "As we do not want to see the same movie twice, when we go shopping we do not want to see the same dress twice" (Doeringer and Crean 2006). That leads us to see consumers constantly disposing of their used (or even unused) clothing. Fast fashion is a concept developed initially in France to serve markets for teenagers and young adults who want trendy, short-cycle, and inexpensive clothing. This philosophy, based on "quick response" and "quick manufacturing" at an affordable price, is used by large retailers to allow mainstream consumers to buy current clothing styles at a lower price. The Spanish company—Inditex—has been at the forefront of this fashion retail revolution. It has become the global model of how to decrease the time between design and production, while simultaneously reducing costs.

However, the ability to change and update clothes and trends every 15 days has a negative aspect that is important to discuss. Psychology, psychiatry, and even marketing have studied an increase in the number of disruptive behavioral disorders in recent decades. For example, "compulsive buying" arises when a consumer experiences intense, irrepressible impulses to shop and purchase (Edwards 1993). Compulsive consumers are often witnessed engaging in compulsive buying practices as compensation for low self-esteem or unhappy events (O'Guinn and Faber 1989). The consumer's self-esteem and mood may temporarily be elevated by the act of buying; however, this is frequently followed by feelings of disgrace or unhappiness (McElroy et al. 1995). There are various repercussions of compulsive buying that may lead to family or marital discord, anxiety, frustration, and financial debt (O'Guinn and Faber 1989). Compulsive buyers often have a strong interest in fashion (Park and Burns 2005) along with their physical appearance and attractiveness. Fast fashion retailers may be an irresistible temptation if a consumer already possesses compulsive buying habits, as the compulsive consumer can rely on the knowledge that new and up-to-date clothing products will always be available.

The other controversial issue regarding fast fashion involves working conditions. Apparel is a labor-intensive industry, in which most production jobs are semi-skilled or unskilled, and capital per employee is relatively low. The United States is significantly handicapped in production costs when compared to the hourly compensation in China's apparel industry of less than $1 and approximately $2.50 in Mexico. Therefore, the steady increase in imports from labor-abundant countries since the mid-1970s is not surprising (Doeringer and Crean 2006). Labor exploitation cases in the United States have also increased. Since 2001, workers' complaints have been based on long and exhausting working days: ironing or packing clothing six days a week, sometimes 12 hours a day, for far less than the minimum wage. In other cases, employees are paid per piece they sew instead of per hour, which does not always yield a minimum wage.

Furthermore, fast fashion is environmentally catastrophic. For instance, the link between cotton production and the environmental devastation in the Central Asian inland sea has been widely discussed. Between 1989 and 2014, the Aral Sea nearly completely dried up. In principle, cotton is sustainable in the sense that it is a natural fiber produced by plants. It is biodegradable and leaves no trace once discarded, and we can always grow more of it, as cotton does not intrinsically require resources that we cannot replace. Nevertheless, cotton production is incredibly water-intensive, taking up to 2,700 liters to produce a single T-shirt and obtaining competitive industrial-scale yields are only possible with precise watering schedules (Chapagain et al. 2006). However, the problem does not end at water usage, as industrial-scale production of cotton crops requires treatment with astonishingly high levels of pesticides and herbicides. Pesticides in the United States were estimated in 2014 to cause $9.6 billion of environmental and societal damage annually, and the United States is only the world's third biggest cotton producer, after India and China, whose environmental regulations are generally less restrictive (Pimentel and Burgess 2014: 47). Cotton production remains the fourth largest consumer of agricultural chemicals, despite the efforts in genetic engineering and other methods to reduce the use of such chemicals.

Finally, when considering the need for housing, we can also report significant complications derived directly from "improvements" in a market society. The problem arises when the desire for profit maximization becomes the guiding principle that orders the territory and builds the city. Two phenomena are noteworthy: the pressure imposed by market society to grow without limits and the conjunction between growth and several models of urban development.

First, growth obsessions force the expansion of cities at rates much higher than the growth of population and disposable income. Although, cities must grow spatially to accommodate an expanding population, too much spatial growth can occur (Brueckner 2000). It is not uncommon to observe empty houses in inner-city areas and the promotion of new housing in other parts of the city, which implies the expansion of towns and cities under the productivist logic that prevails in a market society.

Second, these growth processes are implicitly adjusted to two models that cause increased social fragmentation and greater dependence on market commodities:

(a) The *urban sprawl* model characterizes modern cities. It separates and expands in a very inefficient way the different parts of the city over a territory, requiring costly transport infrastructure to connect them. Thus, as Brueckner (2000) argues, excessive urban expansion means overly long commutes, which generate traffic congestion while contributing to air pollution. Additionally, by spreading people out, low-density suburban development may reduce social interaction, weakening the bonds that underpin a healthy society.

(b) A model of *architectural uniformity* is also imposed in the modern city. Before the advent of capitalism, "vernacular architecture" was the norm. It was localized, diverse, and reflected local knowledge, culture, and traditions. It took into account the environmental and climatic conditions, such as humidity and temperature, as well as the materials available in the region. Market society displaced vernacular architecture with an industrialized architectural uniformity. These "non-vernacular architectural" styles, which are relatively cheap due to mass production, have made urban dwellers more dependent on the consumption of heating appliances or air conditioners that fit perfectly into the logic of capitalist accumulation.

Thus, we can see that the notion of *homo economicus* and the market society that embraces it have created contradictions within three areas of basic subsistence: food, clothing, and housing. In each case, the scale of commodity consumption has increased, which neoclassical economics regards as the only measure of success. But the triumph of quantity has meant a decline of quality of life in many respects. For that reason, we need better economic models that can more adequately recognize these contradictions and seek to overcome them.

Summary and Conclusion

The neoclassical scheme of *homo economicus* is clearly inadequate and deficient in portraying the complexity of human behavior. We have used not one, but five approaches to criticize the notion of *homo economicus*, which underlies the entire framework of neoclassical economics.

- From the study of psychology, *behavioral economics* has shown that there is no perfect rationality or criterion for optimization; on the contrary, our perceptions and decisions are systematically affected by biases and cognitive limitations.
- From an analysis of the way behavior is shaped by social norms, *institutional economics* has established that we are not isolated subjects with given preferences but are constitutively formed by norms and social structures. Even our apparent individuality and preferences themselves are influenced by social factors.
- From the perspective of social and power relationships, *political economy* finds that individuals do not exist separately and independently. Humans exist in social groups or classes within a hierarchical scheme. The self-interested nature of *homo economicus* is not universal; on the contrary, it is a social construction of capitalism itself.
- From the historical study of cultural development, *economic anthropology* calls into question the universality of *homo economicus* by showing that, in pre-capitalist economies, schemes of social interaction based on cooperation and solidarity cannot be reduced to self-interested motivations. The complexity of motivation involves deeper and transcendental connotations.
- Finally, from the broader vision of conceptualizing human beings as part of a large ecosystem, *ecological economics* considers the environment not as something exogenous that can be addressed

> as a subsidiary issue in economic theory. Conversely, it should be considered endogenous, as something that needs to be consistently addressed from a holistic perspective and not from the limited neoclassical scheme.

Despite these critical perspectives, the defense of *homo economicus* remains in force because it legitimizes and rationalizes the functioning of the current market society. A series of contradictions have emerged in market societies and reveal the pressing need to transcend the approach created by adherence to the logic of *homo economicus*.

The first contradiction involves the hedonistic principles of *homo economicus*, which tie happiness or well-being to consumption of goods and services. We seriously question the validity of that connection. As we have shown, the quality of life for the population may actually be declining in relation to food, clothing, and housing.

Second, the optimizing logic of production and consumption in an increasingly competitive environment of capitalist accumulation lowers the price of commodities. In neoclassical theory, this result is treated as an indicator of the success of capitalism. However, the logic of optimization has also caused the deterioration of working conditions and a reduction of the remuneration of the working class. The failure of neoclassical economics to address this trend reveals an enduring alliance between mainstream economics and the capitalist class.

Third, the model of *market society* in the industrial metropolis (the rich nations of the Global North) is not generalizable on a global scale. The level of production achieved in these metropolitan centers is built on the increasing use of energy and nonrenewable raw materials. That process can be sustained only through the appropriation of energy and the raw materials from countries of the Global South and through practices of ecological colonialism, such as operating the most polluting industries in their territory.

Finally, *ecological economics* shows us how the expansion of the current model of society and its growing dependence on the degradation of energy and nonrenewable raw materials has already met the limits offered by our small planet. Thus, it is becoming more urgent to keep in mind the relatively short deadlines for the exhaustion of a whole series of nonrenewable raw materials and the rupture of the basic ecological balances that make life on earth possible (Naredo 2015: 87).

The notion of *homo economicus* continues to dominate the thinking of mainstream economists and, by extension, of other agents of the capitalist economy. In order to obtain consistent and genuine progress toward a more just and sustainable economy, a multi-paradigmatic vision is required. We have sought to call attention to several types of paradigms that would need to be incorporated in this new perspective. More critical knowledge would enable us to construct an alternative economics and an alternative economy. We close with the inspiring thought of Pierre Bourdieu (1993: 944) that a new world is truly possible: "What the social world has done, it can, armed with this knowledge, undo."

Notes

1. Apparently, the first use of the term "*homo economicus*" (in Latin) is in Vilfredo Pareto's *Manual of Political Economy* (1906).
2. Following Kuhn (1962), it is understood that an approach or paradigm is defined in terms of certain epistemic and axiological assumptions.
3. In cognitive psychology, "recency" refers to the way memory gives greater credence to the latest information received compared to earlier data.
4. We have focused on critical contributions of institutional economics as it was originally defined. By contrast, the "*New Institutional Economics* has generally identified itself as an attempt to extend the range of neoclassical theory by explaining the institutional factors traditionally taken as givens, such as property rights and governance structures, and, unlike the old institutionalism, not as an attempt to replace the standard theory" (Rutherford 2001: 187).

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