From classical to contemporary ecological economics theory

Denona Bogović, Nada; Licul, Ivana

Source / Izvornik: **Ekonomski vjesnik : Review of Contemporary Entrepreneurship, Business, and Economic Issues, 2018, 31, 361 - 370**

Journal article, Published version
Rad u časopisu, Objavljena verzija rada (izdavačev PDF)

Permanent link / Trajna poveznica: https://urn.nsk.hr/urn:nbn:hr:192:722466

Nada Denona Bogović
University of Rijeka
Faculty of Economics
Ivana Filipovića 4,
51000 Rijeka, Croatia
nada.denona.bogovic@efri.hr
Phone: +38551355142

Ivana Licul
University of Rijeka
Faculty of Tourism
and Hospitality Management
Primorska 42, p.p. 97,
51410 Opatija, Croatia
ivana.licul@fthm.hr
Phone: +38551294181

UDK: 33.01:502
Review article

Received: May 11, 2018
Accepted for publishing: August 7, 2018

FROM CLASSICAL TO CONTEMPORARY ECOLOGICAL ECONOMICS THEORY[1]

Abstract

Global social and economic trends are marked by the increasing imbalance between production and consumption activities on one side, and the conditions of environment on the other. The consequences of such imbalance are numerous, so the environment, from the development aspect, is increasingly becoming a limiting factor. At the same time, just for this reason, economic theory assigns growing importance to research of the interrelationships between economics and the overall ecosystem. The greatest contribution of such research is within the framework of ecological economics, a relatively young scientific discipline. The purpose of the research was to present the basic features of the theoretical approaches which explain the importance of the environment from the aspect of economics as a science, and the management of specific ecological and economic policies. Using the relevant analytical approach, the authors highlighted the basic conceptual features of ecological economics at various stages of its development, and specifically explored the distinction between the starting points of environmental and ecological economics theory. The research results point to a successful affirmation of ecological economics as a scientific field, but at the same time to its scientific vulnerability, especially from the aspect of the existing methodological instrument. The authors conclude that in spite of the existing weaknesses, research in the field of ecological economics represents a particular challenge, especially in terms of contemporary global problems such as unequal food distribution, lack of some sources of energy, environmental pollution and degradation, or waste management.

Keywords: Ecological economics, economic and environmental imbalance, conceptual characteristics

1. Introduction

The accomplished level of development of science and the ranges of the latest technological achievements point at the same time to serious constraints of the current development models and the economic growth model. Economics oriented exclusively towards the growth of monetary aggregates is increasingly becoming a target of sharp criticism, which is primarily related to the inefficiency of the market mechanism in the area of resource allocation. The critics of the current economic growth model argue that the economic doctrine *laissez-faire* is unsustainable and the model of economic development is incomplete unless it looks beyond economics to respect social and ecological dimensions of development, and at the same time, unless it re-examines the criteria for valuing human relationship to the rest of the nature. From this context, in order to look at all the effects of interrelationship between economics and natural environment, the importance of ecological economics emerges as a relatively new area of scientific research, dealing with the dynamic interdependence of economics and the natural ecosystem.

Contemporary ecological economics brings together and connects different disciplines within natural and social sciences, taking into account environmental

awareness with a full emphasis on economic, but also social, political, and behavioural problems. As it was institutionalized only at the end of the last century, it is a young science whose conceptual framework and methodological instruments are still subject to scientific discussion. Namely, the structure of scientific disciplines is the result of a long historical process in which knowledge is often fragmented in different fields and disciplines, and research and study of research phenomena are institutionalized through the establishment of different schools. The structure of scientific disciplines has been constantly changing, and new areas of research have emerged as phenomena in relation to established scientific disciplines or as new scientific fields derived from the current teaching frameworks. Such a scenario is also valid for ecological economics, which authors describe today as transdisciplinary (Røpke, 2005; Daly, Farley, 2011; Costanza et al., 2014); multidisciplinary (Burkett, 2006) or as "orchestrated" science (Martinez-Alie et al., 1998).

According to the above mentioned issue, based on positive and negative conceptual features, the purpose of this paper is to evaluate the success of the environmental affirmation of ecological economics as a scientific discipline, and its possible contribution to solving contemporary global problems.

The basic goal of this research is to present, in a systematic and chronological manner, the basic features and the conceptual framework of ecological economics as a theoretical approach that, by connecting and understanding social and natural legacy, explains the importance of the environment from the aspect of economics as a science and the management of specific ecological and economic policies. Also, the objective of this paper is to define the limiting or problematic features of ecological economics within the scientific paradigm.

Methodologically, this paper is based on the results of the previous research by respectable authors and representatives of ecological economics (Proops, 1989; Common, Perrings, 1992; Martinez-Alier et al., 1998; Söderbaum, 1999; Burkett, 2006; etc.). Works of Røpke (2005), Daly (2007), Daly and Farley (2011), and Costanza et al. (2014) were specially consulted, and their scientific contributions served to analyse the conceptual framework of environmental economics as a science.

In this work, the authors used the usual qualitative analysis methods, since research has been inspired by findings from the field of history of science, and in particular relies on the theoretical frameworks, which analyse the scientific fields as organized systems. The paper is structured in a way that it follows the course of ecological economic development through two chronological environments. After the Introduction, the second part of the paper analyses the basics and beginnings of the development of ecological economics, which are found in the works of representatives of the classical economic theory (Smith, 1838; Mill, 1848; Ricardo, 1926; etc.). The third part of the paper summarizes the development of the contemporary ecological economics after its institutionalization. This part is dedicated to the analysis of the conceptual framework of modern ecological economics, research areas, as well as the structural problems it faces. The work ends with conclusion and discussion, where the contribution of ecological economics is highlighted in the context of the ever increasing imbalance between economic activities and the natural environment. In this part of the paper, challenges have been identified for future researchers, particularly from the aspect of contemporary global problems.

2. Ecological economics in the work of the classical economic theory

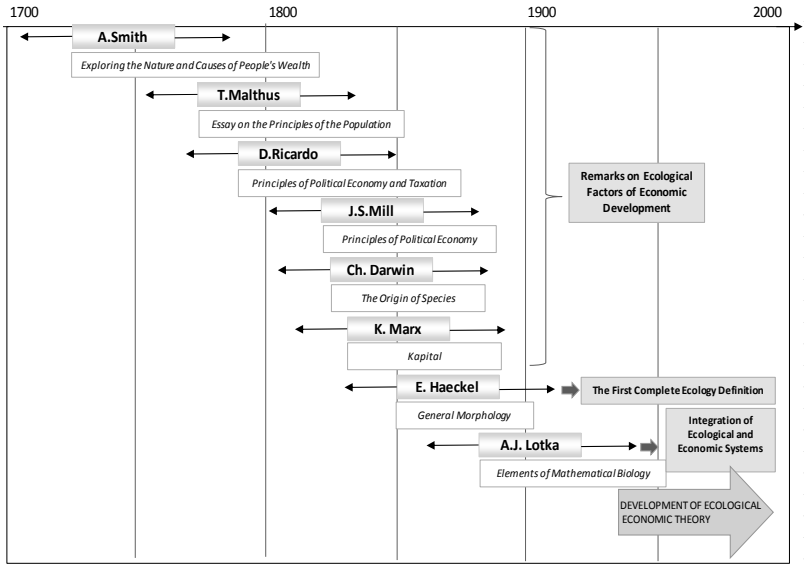
As a phrase, ecological economics is a relatively new term in economic theory. However, the strong connection between its structural terms, ecology and economics, derives from the same lexical basis, from the root of the Greek word "*oikos*" (home, place of life). While economics, a scientific discipline of the use of limited resources for the purpose of production and distribution of goods and services, has been intensively studied and developed throughout human history, ecology has become a subject of study much later in today's meaning of the word. Namely, as a science of relationships in connection to the limits of "habitat" of living beings, ecology has for a long time been reduced to a special biology branch (Brkljačić, 1973: 435), and it has been explicitly defined as an area for exploring mutual relationships between organisms and their environment. It was only in the second half of the twentieth century that it became a scientific discipline. Its more powerful development took place in 1950s, when recognition grew that a man with his actions couldn't exploit the nature and work against the law, without endangering his own existence. In other words, ecology, in the contemporary and interdisciplinary meaning, emerges at a time when economic activity begins to degrade nature systematically, so that a man questions the conditions for his further development. Such a turn of events inspired discourse in wider academic circles, while

observing of economics as an inseparable part of the wider ecosystem became the subject of research by many scientists.

The representatives of the classical economic theory have explored the area of conservation of natural resources, aware that the market is not a perfect regulator, especially in the environmental protection segment. The questioning of the prevailing *laissez-faire* doctrine, besides the reality of existence of market imperfections, has in particular focused on the problem of relationship between rational behaviour of entrepreneurs and social costs, or negative social externalities.

The following is a presentation of the contribution of representatives of philosophy, and the classical economic theory and natural sciences to the beginning of development and the establishment of the foundations of the ecological economic theory.

Figure 1 Contribution of representatives of philosophy, the classical economic theory, and natural sciences to the beginning of development and the establishment of the foundations of the ecological economic theory



Source: Authors

The beginnings of reflection about the connection between economics and ecology can be recognized in the work of Adam Smith (1723-1790), the founder of modern economics and the author of "invisible hand". As an exemplary supporter of economic liberalism, Smith claimed that the best development results were achieved in a free market. Furthermore, he concluded that it is in the human nature to strive for the realization of private interests, which at the same time provides the best results from the aspect of social benefits and brings them to the maximum limit. In his work *An Inquiry into the Nature and Causes of the Wealth of Nations*, Smith specifically points out the importance of the population and the limited natural resources as developmental factors, which is also emphasized by the contemporary ecology.

The connection of population and economic development, from the aspect of limitation of natural resources, was of special interest for Thomas Malthus (1766-1834) in his controversial essay on population (Bićanić, 1969: 8). Reflecting on the size of the population that changes according to the availability of food, Malthus has developed the principle that the population grows geometrically, and food production by arithmetic progression. Considering that geometric growth is faster than arithmetic, according to Malthus, there is a permanent natural disagreement between population growth and growth of food production. In his works Malthus claimed that people would destroy the earth, go to war for food, and suffer from illness and hunger. In this way, the number of people would be reduced to a sustainable level, from which point this process

would be restarted. The success of Malthus's model arises from its simplicity, but the dynamics of population growth and the way people depend on the environment is much more complicated than the assumptions on which the model is based.

A complex model of connection between economic activity and the environment was created by David Ricardo (1772-1823) by introducing rent from property as a variable (Ricardo, 1926). Brkljačić (1973: 442) explains Ricardo's law of decline in the rate of profit as a result of the increase of the population on restricted agricultural land, to the level of so-called stagnant state or zero rate of growth. Ricardo's model, according to which agricultural activities take place in response to population growth and food price changes, is crucial for understanding complex relationships between human survival and ecological life-sustaining systems (Costanza et al., 2014: 36).

The ecological dimension of economic growth was studied by John Stuart Mill (1806-1873), who in 1848, in his book *Principles of Political Economics* (Mill, 1848), dedicated a chapter to the concept of the so-called stationary state, claiming that the West will move to stationary (prime) growth when it reaches a high level of knowledge and economic development. Pupavac (2015: 106) concludes that Mill did not oppose the economic growth, but was opposed to placing it above social, moral, and ecological issues. Mill, in fact, objected to the accumulation of wealth by inertia, considering that forging production by itself is not a priority, but rather, more equal distribution of wealth produced should be prioritized. We find the metaphor of Mill's stationary state in the contemporary postulates and foundations of a conceptual approach to sustainable development (Daly, 1977).

A remarkable place in the development of the ecological dimension of economic evolution belongs to Karl Marx (1818-1883), whose work will be later used in the studies of contemporary ecologists. In his work *Capital I* (Marx, 1976: 461), Marx refers to Darwin's Theory of Species by Natural Selection, emphasizing the importance of the natural environment for human activities, especially food production. Foster (2000) explains that Marx persistently emphasized the problem of metabolic relationships between humans and nature, which depend on a number of factors, including the existing technological possibilities. With positions of today's ecological economics, we can conclude that Marx advocated a sustainable relationship between man and technology on one side, and the natural environment on the other. Such theoretical works by some authors (Burkett, 2006: 6) are also considered to frame future policies and structural economic changes of modern civilization.

Even though ecology has its roots in Greek science of Hippocrates, Aristotle, and Theophrastus and continues in Darwin's evolutionary biology, ecology as a science did not exist as an independent discipline with its own name until 1866 when the word *oecologie* was used for the first time by Ernst Heinrich Haeckel (1834-1919). In 1870, Haeckel developed the first full definition of ecology: *"Ecology implies knowledge about the nature of the economics - the study of the overall relationship between the animal and its inorganic and organic environment, above all, its friendly and hostile relations with those animals and plants with which it comes directly or indirectly into contact - in one word, ecology is studying of all the complex interpersonal relationships that Darwin mentioned as the conditions for the struggle for existence"* (taken from Costanza et al., 2014: 42 as translated in Allee et al., 1949). Hackel's definition of ecology indicates a deeper conceptual relationship with the economics. In a practical sense, Haeckel's ecology was perceived as a study of the economics of that part of nature that does not involve people, while the economics itself is understood as the ecology of people.

Alfred J. Lotka's (1880-1949) broad interests in the field of chemistry, physics, biology, and economics resulted in the synthesis of these fields together with thermodynamics in the book *Elements of Mathematical Biology* published in 1925. Lotka was among the first to attempt to integrate ecological and economic systems in a quantitative and mathematical sense, observing the world through its interactive interconnected system components. While Lotka is probably best known for the Lotka-Voltaire equations describing the dynamics of the populations of two species, his important contribution to the development of ecological economics was his attempt to treat ecology and economics as a unique entity, showing nonlinear dynamics and a limited and structured flow of energy (Costanza et al., 2014: 43). Lotka tried to explicitly shape nature's effect and developed a general evolutionary approach to this problem, which contributed to future attempts at reintegration of ecology and economics.

Centuries of creativity of classical economists, as well as scientists from other areas, especially natural sciences, have laid the foundations for the development of the contemporary ecological economics.

3. Development of the contemporary ecological economics theory

The beginnings of development of ecological economics in the framework of the classical theory of economics have created the basis for a more significant study of the importance of interaction between economic activities and the natural environment. In the conceptual sense, two new areas of economics emerged: environmental economics, on the one hand, as part of the neoclassical economics theory, and of ecological economics on the other, which has the characteristics of a multidisciplinary or transdisciplinary field of study.

3.1 From environmental to ecological economics

Ecology developed with the growing awareness of the scarcity of resources, i.e. with the realization that economic development had come into conflict with social progress, which in turn became limited by a number of factors, in particular, as Button (1988) points out, by the imbalance between a constantly growing population and declining resources for their life and constant pollution of vital human space. Consequently, environmental protection is gradually being considered as an economic problem at the macro and micro level (Marković et al., 2010: 32). It also begins to indicate the need to reconcile economic and ecological needs, since the complex relationship between man and nature cannot be reduced solely to market relations nor solved with market mechanisms. Such reflections and knowledge initiated the development of a new area which explores the economic-ecological linkage and developmental condition.

This development has generated two new areas in economics: the environmental and ecological economics. Hanley et al. (1997) point out that environmental economics is based on the knowledge of market failures of efficient allocation of production resources. In fact, environmental economics is part of the neoclassical economics theory, and in explaining the relationship between economics and the environment, familiar patterns and concepts of monetary valuation and economic equilibrium are used. This approach is primarily directed towards the efficient management of natural resources and an adequate assessment of the impact of waste and pollution on the living environment. Daly (2007) views environmental economics as a part of microeconomics, which as a measure of success takes an increase in value or GDP, while it neglects the price and exhaustion of public goods. In addition, environmental economics is based on a production function whose maximum value is realized with an optimal combination of labour and capital factors. At the same time, the concept of environmental economics doesn't start from an assumption of natural restraints on economic growth (Burness, Cummings, 1986: 323).

On the other hand, ecological economics goes a step further and views the entire economics as a subsystem of the ecosystem in space and time. The concepts of ecological economics are the result of previous multidisciplinary researches which were based on natural and social sciences. The Ecological Economics School (Loiseau et al., 2016: 368) seeks to model socio-ecological systems by analysing causal relationships and dynamic processes with the environment. Such integrated and biophysical interactions between the environment and the economics aim to contribute to addressing ecological problems (Ekins et al., 2003; van den Bergh, 2001). Mirošević (2012: 13) explains the basic idea of ecological economics in terms of natural capital preservation, therefore ecological economists advocate more rigid attitudes regarding resource utilization than is the case with much more traditional environmental economics. Ecological economics emerges outside of the limited focus of environmental economics, which often neglects the social organization of production and seeks solutions to ecological problems in the field of market exchange (England, 1986: 235).

Different authors approach the modern ecological economics differently. They often attribute to it the character of multidisciplinarity (Burkett, 2006) or transdisciplinarity (Røpke, 2005; Daly, Farley, 2011), and some challenge the structural changes (Spash, 2012). Regardless of this, ecological economics has made a turnaround – in the practical and scientific sense – of economic system studies as a subsystem of much wider ecosystems, which is evidenced by the works of contemporary ecological economists.

3.2 The contemporary ecological economics theory after institutionalization

Contemporary ecological economics was institutionalized by the founding of the International Society for Ecological Economics (ISEE) in 1988 and by the appearance of the first issue of its journal *Ecological Economics* in 1989. Researchers of ecological systems and economics were involved in the process of forming this new transdisciplinary field, as Røpke (2005: 266) described the ecological economics theory. They shared the basic view that the economics and ecosystems are much more interwoven than what was believed. Instead of describing the relationship

between economics and nature in terms of confrontation of two different systems, they emphasized the attitude where the economics was embedded in nature, whereby economic processes could be conceptualized as natural, but also viewed as biological, physical, and chemical processes (Røpke, 2005: 267). The conceptual framework of ecological economics, its methodological toolkit, and the entire scientific field organization, have put the contemporary ecological economics into focus of discussion that brings together the theorists of ecological economics from different perspectives.

Table 1 An overview of the current research in the field of contemporary ecological economics theory

AUTHOR	ORIGINAL TITLE AND YEAR OF PUBLICATION	CONTRIBUTION TO DEVELOPMENT OF ECOLOGICAL ECONOMIC THEORY
Proops, J. L.	*Ecological economics: rationale and problem areas* (1989)	The goals of ecological economics are divided into two groups. The first relates to scientific goals and problems, while the other to political and ethical issues.
Common, M., & Perrings, C.	*Towards an ecological economics of sustainability* (1992)	Ecological economics implies an approach that puts system requirements above individual requirements.
Martinez-Alier, J., Munda, G., & O'Neill, J.	*Weak comparability of values as a foundation for ecological economics* (1998)	The ecological economics theory is a project of "orchestrated science" that studies the sustainability of complex systems.
Söderbaum, P.	*Values, ideology and politics in ecological economics* (1999)	Ecological economics is prepared to address the underlying issues of its conceptual framework and values, whereby interaction with scientists from other disciplines is extremely useful.
Gowdy, J., & Erickson, J. D.	*The approach of ecological economics* (2005)	Ecological economics has not yet developed into coherent scholarly thought, but is a leading candidate among heterodox schools to become a comprehensive alternative to neoclassical orthodoxy.
Røpke, I.	*Trends in the development of ecological economics from the late 1980s to the early 2000s* (2005)	As a scientific field, ecological economics is not well-structured and is systematically unorganized, it has a relatively weak identity, and the internal organization of the field is characterized by a flat structure.
Burkett, P.	*Marxism and ecological economics* (2006)	Ecological economics has a strong advantage in methodological pluralism, and it is in itself multidisciplinary, because it defines the links between economic systems and the natural environment.
Daly, H. E.	*Ecological economics and sustainable development* (2007)	Ecological economics has a holistic approach as it accepts and complements the relative and synergistic realities of ecology.
Daly, H. E., & Farley, J.	*Ecological economics: principles and applications* (2011)	Ecological economics is not a discipline, nor does it strive to become one. Due to the lack of better terms, it is called transdisciplinary, and since it is still in the process of development, there are currently no adequate developed methods and tools.
Spash, C. L.	*New foundations for ecological economics* (2012)	Ecological economics must develop a stricter approach and establish a theoretical structure, or it will become more eclectic, uncontrolled, and irrelevant.
Costanza, R., Cumberland, J. H., Daly, H., Goodland, R., Norgaard, R. B., Kubiszewski, I., & Franco, C.	*An introduction to ecological economics* (2014)	Ecological economics is an attempt to overcome the narrow discipline boarders that have been present over the last 90 years, in order to strengthen the intellectual capital in the struggle with problems we are facing today.

Source: Authors

Since its institutionalization, ecological economics has so far achieved clear dimensions of its activity in a scientific and practical sense. It explores mutual connection of ecosystems and economic activities (Proops, 1989: 76) with an emphasis on solving the problematic issues such as the use of fossil fuels, nuclear waste disposal, deforestation, etc. Proops (1989: 78) divided the aims of ecological economics into two groups: those that relate to scientific goals and problems, and those that are focused on political and ethical issues. Ecological economics thus represents a complete approach towards an adequate allocation of resources that does not jeopardize the stability of the system as a whole, nor the stability of all its components. Common and Perrings (1992) approach ecological economics from the perspective of the system theory, pointing out that a self-regulating economic system, even if environmentally sustainable, should result in a sustainable level of consumption and production (Common, Perrings, 1992: 25). Also, Söderbaum emphasizes commitment in a sustainable ecological sense as one of the crucial features of ecological economics (Söderbaum, 1999: 161). In addition, Söderbaum raises the question of the conceptual framework and the value of ecological economics, emphasizing the usefulness of interaction with scientists from different scientific disciplines.

Ecological economists have often advocated methodological pluralism, as seen in Martinez-Alier et al. (1998), who describe ecological economics as a project of "orchestrated science" studying the sustainability of complex systems (Martinez-Alier et al., 1998: 283). The use of a multidimensional approach indeed seems desirable. Namely, such a system calls for the abandonment of neoclassical economics assumptions and opens towards the techniques of evaluation of multicriteria procedures, taking into account multidimensional, sometimes conflicting, but at the same time uncertain results of various scientific disciplines. This makes a promising framework for assessing ecological economics at the micro and macro level. Burkett (2006: 13) points out multidisciplinarity of ecological economics, since it combines the elements of natural science (physics, biology, chemistry, geology) with the economic analysis tools, and that as a science it is both natural and social at the same time (Burkett, 2006: 15). Daly, H.E., who is one of the most influential ecological economists and a declared opponent of neoclassical liberal economics, adds some features to ecological economics putting it at the same time into a transdisciplinary framework. It is, as pointed out by Daly (2007: 83), focused on the problem and not on abstract modelling, directing its focus from microeconomics to macroeconomics, while moving the time frames from short to long time periods. At the same time, it accepts and complements the relative and synergistic (biological) realities of ecology, and above all it marks a holistic rather than a reductionist approach. In their 2011 textbook, Daly and Farley point out the need to study ecological economics as a necessary development of economic thought and its detachment from the neoclassical economics which dominated the academic community for more than a century. This view is supported by Burkett, who points out that ecological economics must be historically open in regard to accepting new visions and opportunities in the area of economic policy and institutional changes (Burkett, 2006: 14). However, Burkett, Daly and Farley partially disagree regarding the conceptual framework in which they place ecological economics.

While Burkett emphasizes the complexity of economic and ecological systems that require dialogue and a multiple methodological approach with a goal to discuss and intensify collaboration between different scientific disciplines (Burkett, 2006: 13), Daly and Farley go a step further, pointing out that ecological economics is not a scientific discipline, and due to the lack of more adequate terms they characterized it as transdisciplinary (Daly, Farley, 2011: 18). In advocating transdisciplinary research, the authors argue that the boundaries of scientific disciplines are actually academic constructs completely irrelevant outside the university, and scientists must allow the problem to be studied with a goal to develop a suitable set of methodological tools, and not vice versa (Daly, Farley, 2011: 24). Daly has once again confirmed this view in a book that he co-authored (Costanza et al., 2014: 14), in which ecological economics is characterized as a return to the classical roots of the economics. It is about returning to a point where economics and other sciences were integrated, and not academically isolated as they are today. Gowdy and Erickson discussed a similar point of view in 2005, observing ecological economics as holistic and scientifically based, which would transform the content and methodology of economic science (Gowdy, Erickson, 2005: 207) and would become a comprehensive alternative to neoclassical orthodoxy (2005: 219). Ecological economics has thus become an area that is not closely related to

the historical tradition of the neoclassical economics, nor is it limited to past world views.

The conceptual approaches of the above-mentioned contemporary ecological economists indicate their consent with the opening of ecological economics to other scientific disciplines, with the aim of developing adequate methodological instruments and a holistic approach to the phenomena that environmental economists deal with. However, Spash suggests rejecting the thesis on the transdisciplinary nature of ecological economics, which so perceived often ranges from positivism to relativism. Spash cites the need for revising such a position in favour of realism and rational criticism (Spash, 2012: 36), whereby it is necessary to reject the methodological pluralism which has accompanied the institutionalization of ecological economics. While criticizing unstructured and uncritical pluralism, Spash turns to formulating a very different vision of ecological economics, significantly different from the orthodox economics. In this respect, ecological economics has two options. It will either develop a stricter approach and establish a theoretical structure, or it will become more eclectic, uncontrolled, and irrelevant (Spash, 2012: 46).

Røpke (2005) contributed greatly to the research of ecological economics. His research results point to the degree of ecological economics development as a scientific field. Røpke (2005: 284) concludes that it is not well structured and is systematically disorganized. On the contrary, the field is program-opened, pluralistic, and transdisciplinary, and even independent contributions of various scientific disciplines may appear as parts of the contribution to ecological economics. Speaking of the absence of clear boundaries in respect to other areas, Røpke also points out the relatively weak identity of this scientific field, which allows researchers from other areas to make contributions relevant to ecological economics.

4. Discussion and conclusion

Contemporary economics has developed valid instruments for researching the laws and behavioural trends of income maximization and minimization of expenditures. However, when the focus of the analysis is shifted towards the sustainability problem of the wider ecosystem, these instruments are shown as inadequate. In order to balance out the economic development with the needs of preservation of living environment, it was necessary to raise awareness of the link of economic and environmental goals. Ecological economics indicates mutual interest in economics and ecology which conceptualises the economic system as part of the ecosystem. Ecological economics offers sustainable alternatives through theoretical foundations and recommendations of the neoclassical welfare economics. Its economic behaviour models encompass consumption and production in the broadest sense, including their ecological, but also social and ethical dimensions, as well as market consequences.

From the beginnings of development within the classical economic theory, up to its institutionalization, ecological economics has been successfully affirmed as a new scientific field. However, the achieved success is at the same time vulnerable due to the structural problems faced by this scientific area. Thus, it is very likely that ecological economics will be faced with additional reflections and academic discussions. Namely, as a scientific field, ecological economics is very complex, especially when it comes to selection of specific empirical-operational instruments which result from the often-highlighted transdisciplinary and multidisciplinary approaches. In this regard, a special danger is possible weakening of interest for further development of ecological economics (Røpke, 2005). Also, methodological and often uncritical pluralism (Spash, 2012) can easily result in the establishment of weaker criteria within the field of science, which is justified by its transdisciplinary nature. It can therefore be concluded that ecological economics has not yet achieved its development with an adequate level of coherence.

Although faced with many challenges, ecological economics has already made a significant contribution to addressing the issues of growing imbalance between economic activities and the natural environment, as well as the causes of this imbalance. For this reason, future research in this area poses a special challenge for all researchers, particularly from the aspect of contemporary global problems such as unequal food distribution, lack of some sources of energy, pollution and degradation of the environment, waste disposal as a result of production and consumption activities. Ecological economics, with its holistic approach to economic, social, and ecological systems, is already endowed with the necessary scientific attributes to redefine the still dominant theoretical forms of economic development and applied development policies.

References

1. Allee, W. C., Emerson, A. E., Park, O., Park, T., Schmidt, K. P. (1949). Principles of animal ecology, Philadelphia: Saunders.
2. Bićanić, R. (1969), "Pregled teorija o agrarnoj prenapučenosti", Sociologija i prostor: časopis za istraživanje prostornoga i sociokulturnog razvoja, No. 23-24, pp. 5-21.
3. Brkljačić, I. (1973), "Ekologija kao teorija svjetskog ekonomskog razvoja", Politička misao: časopis za politologiju, Vol. 10, No. 4, pp. 434-446.
4. Burkett, P. (2006). Marxism and ecological economics. Leiden: Brill.
5. Burness, H. S., Cummings, R. G. (1986), "Thermodynamic and Economic Concepts as Related to Resource-Use Policies: Reply", Land Economics, Vol. 62, No. 3, pp. 323-324.
6. Button, J. (1988). A dictionary of green ideas: vocabulary for a sane and sustainable future. London: Routledge.
7. Common, M., Perrings, C. (1992), "Towards an ecological economics of sustainability", Ecological Economics, Vol. 6, No. 1, pp. 7-34.
8. Costanza, R., Cumberland, J. H., Daly, H., Goodland, R., Norgaard, R. B., Kubiszewski, I., Franco, C. (2014). An introduction to ecological economics. Boca Raton: CRC Press.
9. Daly, H. E. (1977). Steady state economics. San Francisco: W. H. Freeman.
10. Daly, H. E. (2007). Ecological economics and sustainable development. Cheltenham: Edward Elgar Publishing.
11. England, Richard W. (1982), "Workers, Capitalists, and Environmental Policy: An Economic Analysis", The American Economist, Vol. 26, No. 2, pp. 39-45.
12. Ekins, P., Simon, S., Deutsch, L., Folke, C., De Groot, R. (2003), "A framework for the practical application of the concepts of critical natural capital and strong sustainability", Ecological Economics, Vol. 44, No. 2-3, pp. 165-185.
13. Festini, H. (2016), "Karl Marx: prirodna povijest (ekologija)", JAHR-European Journal of Bioethics, Vol. 7, No. 13, pp. 45-54.
14. Foster, J. B. (2000.). Marx's Ecology: Materialism and Nature. New York, Monthly Review Press.
15. Gowdy, J., Erickson, J. D. (2005), "The approach of ecological economics", Cambridge Journal of Economics, Vol. 29, No. 2, pp. 207-222.
16. Hanley, N., Shogren, J. F., White, B. (1997). Environmental Economics: In Theory and Practice. London: Macmillan Press Ltd.
17. Loiseau, E., Saikku, L., Antikainen, R., Droste, N., Hansjürgens, B., Pitkänen, K., Thomsen, M. (2016), "Green economics and related concepts: An overview", Journal of Cleaner Production, Vol. 139, pp. 361-371.
18. Lotka, A. J. (1956). Elements of mathematical biology. New York, Dover.
19. Marković, D., Ilić, B., Ristić, Ž. (2010). Ekološka ekonomija. Beograd: EtnoStil.
20. Martinez-Alier, J., Munda, G., O'Neill, J. (1998), "Weak comparability of values as a foundation for ecological economics", Ecological Economics, Vol. 26, No. 3, pp. 277-286.
21. Marx, K. (1976). Capital Volume I. New York: International Publishers.
22. Mill, J. S. (1848). Principles of Political Economics. New York: D. Appleton And Company.
23. Mirošević, H. (2012), "Analiza razvojnih dokumenata Republike Hrvatske", Working Paper EIZ-WP-1205, The Institute of Economics, Zagreb, December 2012.
24. Proops, J. L. (1989), "Ecological economics: rationale and problem areas", Ecological Economics, Vol. 1, No. 1, pp. 59-76.

25. Ricardo, D. (1926). Principles of political economics and taxation. London: Everyman.
26. Røpke, I. (2005), "Trends in the development of ecological economics from the late 1980s to the early 2000s", Ecological Economics, Vol. 55, No. 2, pp. 262-290.
27. Smith, A., McCulloch, J. R. (1838). An Inquiry into the Nature and Causes of the Wealth of Nations. Edinburgh: A. and C. Black and W. Tait.
28. Söderbaum, P. (1999), "Values, ideology and politics in ecological economics", Ecological Economics, Vol. 28, No. 2, pp. 161-170.
29. van den Bergh, J. C. (2001), "Ecological economics: themes, approaches, and differences with environmental economics", Regional Environmental Change, Vol. 2, No. 1, pp. 13-23.

(Endnotes)

1 This work has been supported by University of Rijeka under the project number 13.02.1.2.04. and 13.02.1.2.02.646.

Nada Denona Bogović
Ivana Licul

OD KLASIČNE DO SUVREMENE EKOLOŠKE EKONOMSKE TEORIJE

Sažetak

Globalna društvena i ekonomska kretanja obilježena su sve većom neravnotežom između proizvodnih i potrošnih aktivnosti s jedne strane, te stanja okoliša s druge strane. Posljedice takve neravnoteže su brojne, te okoliš s razvojnog gledišta sve više postaje ograničavajući čimbenik. Istovremeno i upravo iz tog razloga, ekonomska teorija sve veću važnost pridaje istraživanju međuodnosa između ekonomije i ukupnog ekosustava. Najveći doprinos takvih istraživanja nalazimo u okviru ekološke ekonomije, relativno mlade znanstvene discipline. Cilj ovog istraživanja je bio prezentirati osnovna obilježja teorijskih pristupa koji objašnjavaju važnost okoliša s gledišta ekonomije kao znanosti i vođenja konkretnih ekološko-ekonomskih politika. Relevantnim analitičkim pristupom, autori su ukazali na osnovna konceptualna obilježja ekološke ekonomije u različitim fazama njezinog razvoja, te posebno istražili distinkciju između polazišta okolišne i ekološke ekonomske teorije. Rezultati istraživanja ukazuju na uspješnu afirmaciju ekološke ekonomije kao znanstvenog polja, ali istovremeno i na njezinu znanstvenu ranjivost, posebice s gledišta postojećeg metodološkog instrumentarija. Autori zaključuju, da unatoč postojećim slabostima, istraživanja u području ekološke ekonomije predstavljaju poseban izazov, naročito s gledišta suvremenih globalnih problema, kao što su neravnomjerna distribucija hrane, nedostatak nekih izvora energije, zagađenje i degradacija okoliša, zbrinjavanje otpada.

Ključne riječi: ekološka ekonomija, neravnoteža ekonomije i okoliša, konceptualna obilježja