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Culture of Sustainability *Culture della Sostenibilità*

International Journal of Political Ecology

ISSN 1972-5817 (print) 1972-2511 (online) web: culturesostenibilita.it

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To cite this article: Guarino R., Martini F., Bagliani M. (2023). Georgescu-Roegen and the energy theory of value: the reasons of a dispute. *Culture della Sostenibilità*, 31. DOI 10.7402/CDS.31.005



2023 · Istituto per l'Ambiente e l'Educazione Scholé Futuro Onlus



Published on line: Giugno 2023



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Georgescu-Roegen and the energy theory of value: the reasons of a dispute

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Abstract

Georgescu-Roegen's (G-R) non-reductionist perspective (Couix, 2020) emphasizes the recognition of the physical foundations and specific functioning of the economic process. G-R argues that economists are the only scientists who can afford the luxury of ignoring the laws of thermodynamics, particularly the second law regarding entropy increase (Georgescu-Roegen, 1971). However, G-R vehemently opposes the formulation of an energy theory of value, particularly in the version proposed by Costanza (1980), dismissing it as a "purely fantastical construction, engaged in algebraic exercises devoid of any connection to the real facts of economic life" (Georgescu-Roegen, 1998). Costanza (1980), on the other hand, demonstrates the correlation between monetary output and embodied energy at the sectoral level, including the energy costs of labour and government services. However, he uses this relationship to argue for the self-regulatory capacity of markets in optimally allocating resources. This article aims to analyze the relationship between the author and theories of value in order to identify possible points of contact between G-R's analysis, the classical economics approach to value, and the more recent theories of World-Ecology (Moore, 2017).

Keywords: Georgescu-Roegen, energy theory of value, input-output analysis, political ecology, history of economic thought, Flow-Fund Model.

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Georgescu-Roegen e la teoria energetica del valore: le ragioni di una controversia.

Riassunto

La prospettiva non riduzionistica di Georgescu-Roegen (G-R) (Couix, 2020) richiede il riconoscimento delle basi fisiche del processo economico e del suo funzionamento specifico. G-R sostiene che gli economisti siano gli unici scienziati a potersi permettere di ignorare le leggi della termodinamica, in particolare la seconda legge sull'aumento dell'entropia (Georgescu-Roegen, 1971). Tuttavia, G-R critica duramente la formulazione di una teoria energetica del valore, in particolare quella proposta da Costanza (1980), definendola come una "costruzione puramente fantastica, impegnata in esercizi algebrici privi di legame con i fatti reali della vita economica" (Georgescu-Roegen, 1998). Costanza (1980) dimostra la correlazione tra l'output monetario e l'energia incorporata a livello settoriale, considerando i costi energetici del lavoro e dei servizi governativi, ma utilizza questa relazione per sostenere la capacità autoregolativa dei mercati nella corretta allocazione delle risorse. L'articolo si propone di analizzare il rapporto tra l'Autore e le teorie del valore al fine di individuare possibili punti di contatto tra l'analisi di G-R, l'approccio dell'economia classica nei confronti del valore e le più recenti teorie della World-Ecology (Moore, 2017).

Parole chiave: Georgescu-Roegen, teoria energetica del valore, input-output analysis, ecologia politica, storia del pensiero economico, Modello Fondi-Flussi.

■ 1. Introduction

The most disruptive aspect of Georgescu-Roegen's work (G-R) is to bring out the rift between economic and ecological sciences. According to Quentin Couix (2020), G-R's contributions primarily revolve around the relationship between human activity and natural resources, inspiring the development of ecological economics or "bioeconomics". G-R's concern stems from the understanding that "the relationship between the economic process and the Entropy Law is only an aspect of a more general fact, namely, that this law is the basis of the economy of life at all levels" (Georgescu-Roegen, 1971). Entropy can be understood in terms of the availability of energy before and after a process. It represents the measure of disorder or randomness within a system. As processes occur, the overall entropy tends to increase, reflecting a dispersion of energy and a decrease in its ability to perform useful work (Gell-Mann, 1994-5). The present article aims to explore two key aspects: firstly, the criticisms raised by