

## **UTILITY AND ENTROPY**

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### **ABSTRACT**

There have been many attempts to link economic concepts to thermodynamic theory, with varying degrees of success. I began my own research into this area more than four decades ago, culminating in a number of published papers and two books, along with a number of presentations to conferences and universities in Hungary, Netherlands, USA and China. I gave two presentations at the joint ISEE – ISBPE conference in Washington in 2016 and another at the JETC Thermodynamics 2.0 conference in Prague in 2021.

This paper explores some of the economic concepts that will be highlighted in a third book that I am in the middle of writing – in particular utility and its relationship to entropy to be generated on consumption of a good. I show that the economic concept of the marginal utility of a product with respect to a change in volume demanded/consumed, divided by the product's price is exactly equivalent to the marginal entropy generated with respect to change in volume demanded/consumed all divided by its price, both being equivalent to a function of the product's productive content, its relative lifetime and its demand elasticity with respect to its price.

Keywords: utility, entropy, marginal utility, marginal entropy, price

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