

A NEW EXACT ALGORITHM OF THE AFRIAT'S INDEX

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ABSTRACT:

In the economic literature, Afriat [1973] was the first author in suggesting a non parametric index in order to measure the rationality of individuals in their consumption choices. The original procedure proposed by Afriat is non-polynomial because its computational cost grows exponentially in relation to the size of the demand data. To solve this computational problem, Houtman and Maks (1987) proposed to use an iterative procedure based on the bisection method, which does not provide an exact value of the Afriat's index.

In this work, we examine all the properties related to the Afriat's index and provide a new algorithm for obtaining the exact value of the Afriat's index in a polynomial time. This new algorithm does not present the disadvantages of both the original Afriat's method, since it is polynomial, and the method proposed by Houtman and Maks (1987), since it is exact.
