Divisor Apportionment Method and Generalized Entropy

Based on

Atkinson Social Welfare Function

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Junichiro Wada

wada@yokohama-cu.ac.jp

Yokohama City University

22-2 Seto, Kanazawa, Yokohama, JAPAN

Tel. +81-45-787-2311

Fax. +81-45-787-2413

Abstract

Using the Atkinson Social Welfare Function, which includes the Rawlsian, Nash, and Benthamian Social Welfare Functions, as a foundation for equity, we derive the generalized entropy, which includes Mean Log Deviation, the Theil Index (Kullback-Leibler divergence, relative entropy), and Coefficient of Variance, along with a divisor method for apportionment with the Stolarsky mean, which includes the U.S. Lower House, Sainte-Lague, and d'Hondt methods. We then evaluate the methods from the viewpoint of equity between populations and between their representatives.