

Proposal of a New SI Base Unit for Value. An Hedonic Estimation of the Physical Purchasing Power (PhPP) of Money

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This contribution proposes a definition of a new SI base unit for value and estimates the physical purchasing power (PhPP) of money, i.e. its transaction or market value, in terms of that unit. Hitherto, the purchasing power of money has been measured in terms of consumer baskets and index numbers. All index methods are however sensitive to consumer basket variations. Such variations happen in time and geographically as a result of economic phenomena (changing revenues, relative prices, individual and collective preferences, technological and cultural factors). As economics includes precisely the study of these phenomena, the proposed value unit must be maximally invariant with respect to them, i.e. maximally non-anthropogenic in nature. Physical units limit the possibility of manipulation by economic competitors. The study proposes a methodology based on hedonic regression in order to determine the PhPP of money in terms of the market value of the Planck energy (1956 MJ) having the highest quality (electricity). Planck units are chosen because they form a natural system of units, and energy is chosen because it has a physiological interpretation in terms of the life process. The differentiation by quality introduces not only intrinsic differentiation of energy with respect to energy-carrying products, but also extrinsic differentiation (exergy) with respect to terrestrial physiochemical equilibrium conditions. Following SI rules, the unit is named walras (Wal) in honour of the economist Léon Walras (1834 - 1910) having first formalized a general equilibrium model and shown that it allows for exactly one numeraire (value scale). The study uses official disaggregated Swiss Producer and Consumer Price Index data and estimates the PhPP of the Swiss franc in 2003. The methodology translates the presence of economies or diseconomies of scale in the energy markets of a country as non-linearity of money with respect to the proposed SI value scale.

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