

# The role of diminishing marginal utility in the ordinal and cardinal utility theories

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## Abstract

We illustrate the role of the law of diminishing marginal utility in the two main modern utility theories, the ordinal and cardinal utility theories, using a generalised total utility function. In short, the ordinal utility theory, in which utility is immeasurable, must abandon the law of diminishing marginal utility; the cardinal utility theory, although able to retain this law, suffers from keeping the unrealistic view of utility measurability, which Samuelson criticises as “infinitely improbable.” A new utility theory with the advantages of the two mentioned theories (i.e. the notions of both diminishing marginal utility and utility immeasurability) but without the disadvantages (i.e. the law of diminishing marginal utility is excluded and utility is measurable) therefore still seems to be a Holy Grail deserving search and development by economists.

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