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THE MEASUREMENT OF VALUE

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Abstract of
THE MEASUREMENT OF VALUE

N. C. Dalkey

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The fundamental contemporary issue in the theory of value is the objectivity of values. Since the notion of value is basically quantitative this issue comes down to the question: are values measurable?

Von Neumann and Morgenstern in their book Theory of Games and Economic Behavior have suggested an ingenious yardstick, namely, the comparison of goods with probability combinations. They have demonstrated that such comparisons allow the construction of a numerical scale for values which is unique except for the choice of zero point and an arbitrary scale factor. *This theory is discussed from a critical point of view.*

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Two major criticisms have been raised against the Von Neumann-Morgenstern procedure. 1) It assumes that a person can arrange all goods in a single, linear order of preference. 2) It assumes that psychological expectations combine with probabilities like classical mathematical expectations. The little experimental evidence we have on this subject, as well as general experience, suggest that neither assumption is true.

However, both of these criticisms are easily met by inessential changes in the Von Neumann-Morgenstern construction.

I. By assuming a slightly stronger form of consistency in a person's comparisons of goods and probability combinations, the procedure can be extended to a wide range of partial orders — i.e. to preference relations where the individual cannot always state a direct preference between pairs of goods. This extension not only creates a measuring scale for values, it also provides a new linear ordering.

II. We need not assume that psychological expectation is equivalent to mathematical expectation. According to the classical conception, the amount a man should pay for a value, v , expected with a probability p is pv . If we admit the more general possibility that the amount a man will pay is $f(p)v$, where $f(p)$ is a function of the probability, fulfilling certain consistency conditions, we can still set up a numerical scale for values with all the uniqueness properties of the Von Neumann-Morgenstern method.

These two liberalizations give a measuring apparatus which is sufficiently flexible to deal with most of the issues raised in classical utility theory; namely they make room for multi-dimensional values, for the "utility" of gambling, and insurance.

There remains the empirical test of the assumptions, in particular of the assumptions of consistency. What little experimental work I am familiar with suggests that preference relations in both animals and humans are reasonably consistent. It is possible that an even more flexible measuring device would result if some of the techniques of psychometrics were used — e.g., if A is preferred to B were defined to mean that A is chosen over B a certain percentage of times.

On the other hand, the experimental fact that preference relations become more consistent with increasing familiarity with the valued objects suggests that the assumption of consistency might better be interpreted as a normative rule, rather than an empirical statement about behaviour. The scale would then represent a rational reconstruction of a person's values.

Of course, the foregoing leaves completely untouched the second major problem in value theory, namely interpersonal comparison of values.