INTROSPECTIVE UTILITY AND
THE GROUP CHOICE PROBLEM

ABSTRACT. This paper presents empirical evidence somewhat supportive of the hypothesis that von Neumann-Morgenstern utility and so-called 'introspective utility' are intrinsically the same. In other words, this evidence is somewhat supportive of the view that the Allais Paradox and related phenomena are more apparent than real. The bearing that this evidence has on the relationship between two methods of group choice is discussed.

I. INTRODUCTION

It has been argued [4] that the so-called sum-of-the-utilities method of group choice should be used in many situations involving the following conditions: (1) a group must rank various alternatives in the order of their desirability, and each member of the group perceives some hypothetical worst and some hypothetical best alternative; (2) each member of the group has a von Neumann-Morgenstern utility function over all the alternatives and will always give a true statement of his utility values. With the sum-of-the-utilities method each group member assigns a von Neumann-Morgenstern utility value to each alternative, the hypothetical worst and best alternatives being assigned the values 0 and 100, respectively. Then the social ordering of the alternatives is obtained by ordering the utility totals for the alternatives.

It has been hypothesized by Rothenberg [5, pp. 211-217] that the preference intensities implied by a von Neumann-Morgenstern utility function are intrinsically the same as those revealed through non-risky psychometric procedures (i.e., that von Neumann-Morgenstern utility and so-called 'introspective utility' are intrinsically the same).

One commonly used real-world method of group choice (which we shall term the sum-of-the grades method) involves having each member of the group assign a grade to each alternative through a process of introspection which sometimes involves a semantic differential approach. The social ordering of the alternatives is then obtained by ordering the grade totals for the alternatives.

The main purpose of this paper is to present some empirical evidence
somewhat supportive of the Rothenberg hypothesis and to argue that in

certain cases the sum-of-the-grades method may represent a reasonable

approximation to the sum-of-the-utilities method.

II. EMPIRICAL EVIDENCE

The empirical evidence comes from experiments involving 48 University

of Houston students, each of whom had studied basic probability theory

but not utility theory.

Each subject was asked to imagine that he had just gone to work for

a company that would give him two weeks of vacation time anytime dur-

ing the next twelve months. Each subject was then asked to think of the

best possible all expense paid two-week vacation trip that came to his

mind; for each subject this trip was called his dream trip. Then descrip-

tions of nine all expense paid one or two-week vacation trips were pre-

sented to each subject, and the subject was asked to grade each trip on a

scale on which his dream trip had a grade of 100 and the prospect of not

taking a trip had a grade of 0. Each subject then turned his grades in and

was not allowed to refer to them again. The grades were assigned on a

purely introspective basis without the aid of a semantic differential

technique.

Then for each subject a utility value was obtained for each trip on

a utility scale ranging from 0 (for the prospect of not taking a trip) to

100 (for his dream trip). The process of obtaining a utility value for a

trip was as follows:

The subject was asked to state his preference as between (1) being

able to take the trip for certain and (2) spinning a wheel that gave a

0.95 probability of his dream trip coupled with a 0.05 probability of

no travel. Then the subject was asked to state his preference for the

case where 0.90 and 0.10 were used in place of 0.95 and 0.05, respectively.

Then the subject was asked to state his preference for the case where 0.85

and 0.15 were used in place of 0.95 and 0.05, respectively. And so forth.

This process led to a narrow range (5 units) within which the utility

value lay. The utility value was then obtained by asking the subject at

what precise probability value for no travel did he find himself indifferent

as between the trip for certain and spinning the wheel.

The above procedures led to a pair of values (a grade and a utility