

Quality, measurement and social choice

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ABSTRACT

Quality is defined as preference, which means reflexive and transitive, relation. On the other hand measurement is a kind of analogy, that is a homomorphism between similar mathematical structures. Mathematical structure or scale is understood as a family of relations. The paper further develops Arrows investigations over problem of social choice. Of course there are interdependencies between individual preferences of the members of a group and that preference which governs the whole group. Functions of social choice introduced, under quite national conditions, by Arrow was projections. In this article we have defined also natural social choice preference called optimal, namely preference which maximizes the index of concordance with individual preferences of the members of the group. Here were also introduced Arrows numbers to divide family of all populations into two disjoint subfamilies those able to govern themselves, and those for which social preference is from outside. In the space of preferences a metric is also defined and has been shown that the optimal social choice function is strictly connected with optimal approximation in this metric space. At last some Debreu type theorem on existing continuous representation a utility function for preferences is formulated and simple and natural proof was given.

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