

论文

A DECOMPOSITION METHOD OF STRUCTURAL DECOMPOSITION ANALYSIS

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摘要 Over the past two decades, structural decomposition analysis

(SDA) has developed into a major analytical tool in the field of

input-output (IO) techniques, but the method was found to suffer

from one or more of the following problems. The decomposition

forms, which are used to measure the contribution of a specific

determinant, are not unique due to the existence of a multitude of

equivalent forms, irrational due to the weights of different

determinants not matching, inexact due to the existence of large

interaction terms. In this paper, a decomposition method is

derived to overcome these deficiencies, and we prove that the

result of this approach is equal to the Shapley value in

cooperative games, and so some properties of the method are

obtained. Beyond that, the two approaches that have been used

predominantly in the literature have been proved to be the

approximate solutions of the method.

关键词 [Economic structure, structural decomposi](#)

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Abstract Over the past two decades, structural decomposition analysis (SDA) has developed into a major analytical tool in the field of input-output (IO) techniques, but the method was found to suffer from one or more of the following problems. The decomposition forms, which are used to measure the contribution of a specific determinant, are not unique due to the existence of a multitude of equivalent forms, irrational due to the weights of different determinants not matching, inexact due to the existence of large interaction terms. In this paper, a decomposition method is derived to overcome these deficiencies, and we prove that the result of this approach is equal to the Shapley value in cooperative games, and so some properties of the method are obtained. Beyond that, the two approaches that have been used predominantly in the literature have been proved to be the approximate solutions of the method.

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