



Estimating Input Coefficients for Regional Input–Output Tables Using Deep Learning with Mixup

Shogo Fukui¹

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Abstract

Input–output tables provide important data for the analysis of economic states. Most regional input–output tables in Japan are not publicly available; therefore, they have to be estimated. Input coefficients are pivotal in constructing precise input–output tables; thus, accurately estimating these input coefficients is crucial. Non-survey methods have previously been used to estimate input coefficients of regions as they require fewer observations and computational resources. However, these methods discard information and require additional data. The aim of this study is to develop a method for estimating input coefficients using artificial neural networks with improved accuracy compared to conventional non-survey methods. To prevent overfitting owing to limited data availability, we introduced a data augmentation technique known as mixup. In this study, the vector sum of data from multiple regions was interpreted as the composition of the regions and the scalar product of regional data was interpreted as the scaling of the region. Based on these interpretations, the data were augmented by generating a virtual region from multiple regions using mixup. By comparing the estimates with the published values of the input coefficients for the whole of Japan, we found that our method was more accurate and stable than certain representative non-survey methods. The estimated input coefficients for three Japanese cities were considerably close to the published values for each city. This method is expected to enhance the precision of regional input–output table estimations and various quantitative regional analyses.

Keywords Regional input–output table · Deep learning · Non-survey method · Data augmentation · Mixup

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Estimating Projecting Input Output Coe

RJ Shavelson



Estimating Projecting Input Output Coe:

Unveiling the Magic of Words: A Review of "**Estimating Projecting Input Output Coe**"

In some sort of defined by information and interconnectivity, the enchanting power of words has acquired unparalleled significance. Their ability to kindle emotions, provoke contemplation, and ignite transformative change is truly awe-inspiring. Enter the realm of "**Estimating Projecting Input Output Coe**," a mesmerizing literary masterpiece penned by way of a distinguished author, guiding readers on a profound journey to unravel the secrets and potential hidden within every word. In this critique, we shall delve in to the book is central themes, examine its distinctive writing style, and assess its profound effect on the souls of its readers.

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