

A basket two-part model to analyze medical expenditure on interdependent multiple sectors

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This study proposes a novel statistical methodology to analyze expenditure on multiple medical sectors using consumer data. Conventionally, medical expenditure has been analyzed by two-part models, which separately consider purchase decision and amount of expenditure. We extend traditional two-part models by adding the step of basket analysis for dimension reduction. This new step enables us to analyze complicated interdependence between multiple sectors without an identification problem. As an empirical application for the proposed method, we analyze data of 13 medical sectors from the Medical Expenditure Panel Survey. In comparison with the results of previous studies that analyzed the multiple sector independently, our method provides more detailed implications of the impacts of individual socioeconomic status on the composition of joint purchases from multiple medical sectors, while our method has a better prediction performance.

Keywords: Medical expenditure; Two-part model; Multivariate analysis; Dimension reduction; Market basket analysis

JEL classification codes: I11; C35; C38

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