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Inverse frontier-based benchmarking for investigating the efficiency and achieving the targets in the Vietnamese education system

Dr Minh Hanh Le[1,2], Prof Heinz Ahn[3], Prof Mohsen Afsharian[3]
[1]*Auckland University, Auckland, New Zealand*
[2]*Vietnamese German University, Binh Duong, Vietnam*
[3]*Technical University of Braunschweig, Braunschweig, Germany*

Biography
Dr Minh Hanh Le is currently conducting her second PhD program in Education at Auckland University. She has completed a PhD program in Business Economics. Her previous researches are in the area of value-based efficiency assessment using frontier analysis method. For the coming period, she expects to explore the decision making criteria of students in the principal - agent relationship with teachers.

ABSTRACT
This paper extends the theory of inverse frontier-based benchmarking to address the issue of effectiveness when investigating the efficiency of household expenditure in the case of the Vietnamese education system. Enhancing the conventional efficiency measurement approach by Data Envelopment Analysis (DEA), our study focuses on the derivation of meaningful benchmarks – in terms of the required level of inputs and outputs –for performance improvement. The proposed inverse optimization problem identifies the essential household education expenditures for 63 provincial education systems at different efficiency levels while the university entrance threshold for exam results is satisfied as an effectiveness constraint. The results strongly recommend including this constraint in the action plans for improving educational achievements in all provinces across Vietnam. Besides revealing policy implications in the specific case, the proposed approach adds to the current DEA literature by suggesting complementary measures such as effectiveness and feasibility to strengthen performance assessment.