

# 國光客運民營化後 國道客運業之生產效率分析\*

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本研究主要針對台汽民營化為國光客運之後，對於整體國道客運產業在技術效率以及各種效率變動指數上的影響。本文首先利用 2001~2007 年「中華民國公共汽車客運業統計資料」所整理之縱橫資料 (panel data)，利用 CCR 與 BCC 之資料包絡法，估算各年度、各國道客運公司投入傾向之各種技術效率與效率變動指數；其次利用 Tobit 追蹤資料模型來估計整體國道客運產業技術效率之影響因素，並利用動態追蹤資料模型來討論生產力變動指數的影響因素。估計結果顯示國光客運民營化後整體國道客運產業在技術效率上並未有明顯提升，2006 年後則持續惡化，不過這段期間的生產力指數平均值仍高於 100，表示生產力有所提升。此外，行駛總距離與市場占有率對於技術效率的提升有正向顯著的影響，但是 2007 年對於規模效率卻為顯著地負向影響。而影響生產力變動的因素中，駕駛員工數的增加會顯著降低生產力的提升，行駛班次與行駛總距離的增加則可顯著提升之。

關鍵字：國道客運、資料包絡法、Tobit 追蹤資料模型、動態追蹤資料模型

# The Production Efficiency of the Highway Bus Service Industry After the Privatization of Kuo-Kuang Motor Transit Company

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## ABSTRACT

This paper focuses on the changes of technical efficiencies and the overall efficiency changes of the highway bus service industry after the privatization of Taiwan Transport Bus Company (also called Kuo-Kuang Motor Transport Company) in 2001-2007. We calculate the technical efficiencies and efficiency changes of every bus company in every year by applying the CCR and BCC models in data envelopment analysis (DEA) method. We also apply the Tobit panel data model and the dynamic panel data model to investigate the factors influencing the level of technical efficiencies and efficiency changes respectively. We find that the technical efficiency of the highway bus service industry has not improved on average after Kuo-Kuang's privatization and has been worsening since 2006. Meanwhile, the average Malmquist Index is slightly higher than 100, which implies the productivity of the highway bus service industry has improved. In addition, the total driving distance and market share of a bus company are vital factors which could positively and significantly improve the technical efficiencies. Finally, the increases of total driving distance and total number of frequencies could significantly increase the productivities.

Key Words: highway bus service, data envelopment analysis, Tobit panel data model, dynamic panel data model