

Analysis of Mode Choice Behavior Before-and-After the Operation of the Taiwan High Speed Rail

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Abstract

Taiwan High Speed Rail (THSR) operated since Jan. 2007. It has brought a large impact on the long-range intercity transportation of Taiwan western corridor. As the interurban road network is well constructed, the flow of private vehicles keeps increasing on freeway in recent years. After THSR operating and the soar-up of oil price, the trips of private vehicle start to slow drop. This shows that it will be the era of mass transportation in the near future.

Before Taiwan High Speed Rail starts, previous studies mainly investigate with stated preference (SP). This study will adopt the revealed preference (RP) method to estimate the utility function, and analyze the mode choice behavior of passengers when Taiwan High Speed Rail offers a new transportation service. This survey includes major routes of western Taiwan: Taipei to Kaohsiung, Taipei to Taichung, and Taichung to Kaohsiung, and adopts face to face interview to collect data at intercity terminals. The data set contains high-speed rail, air, train, bus, and car. The empirical results of the multinomial logit choice models reveal that travel time, shuttle time, gender, educational background, personal income, job, and number of cars are significant variables associated with the choice of intercity modes. The results provide important implications for travel demand forecasts and policy decisions.

**Keywords: Mode Choice, Intercity Travel, Revealed Preference (RP),
Multinomial Logit Model**

高鐵通車前後台灣西部走廊旅客運具選擇行為 之比較分析

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摘 要

台灣高鐵已於 96 年 1 月正式營運通車，對於西部走廊長程旅客市場已經造成衝擊。由於公路運輸路網相當完備，根據近 5 年西部走廊的旅運資料顯示，私人運具在國道的使用量上升，反觀各城際大眾運輸的旅客均逐年下降。高鐵通車後，興起一波大眾運輸的風潮。也由於油價高漲，96 年開始，私人運具的使用量開始趨緩下降。這顯示往後幾年將是大眾運輸的年代。

過去城際運具選擇的研究因高鐵尚未通車，多使用敘述性偏好作問卷調查。本研究欲利用顯示性偏好來分析高速鐵路營運後，旅運者運具選擇行為的影響，分別調查台北至高雄、台北至台中、台中至高雄三條路線，對象為目前使用高鐵、航空、台鐵、客運及小汽車的城際旅運者。多項羅吉特模式之校估結果發現，總旅行時間、起迄點接駁時間、性別、學歷、個人所得、職業、擁有車輛數等，均會影響旅運者所選擇之城際運具。本研究結果可作為規劃者進行運輸需求預測與研擬運輸策略之參考。

關鍵詞：運具選擇、城際運輸、顯示性偏好、多項羅吉特模式