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EVALUATING THE PERFORMANCE OF MASS RAPID TRANSIT STATIONS BY THE DEA MODEL- A STUDY OF ZHONGHE-XINLU LINE

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ABSTRACT

The MRT system that features high efficiency, energy saving and cleanliness becomes favorable in the recent year for emphasizing on sustainable development. However, the performance of MRT system is attended normally because of its bulky construction cost. Among the performances of MRT system, the decision on the location/position and the number of MRT stations influences the most.

In the past, the domestic studies on the performance of MRT system mostly focused on the road network and operation of MRT, and paid less attention to MRT station. Moreover, the performance evaluation mostly starts from MRT administration view, and is less attentive to the benefits of users. Besides, there has no operable evaluation efficiency framework of MRT station to provide for reference. Thus, this paper establishes operable evaluation efficiency framework for MRT station, and through the empirical analysis of 26 MRT stations in Zhonghe-Xinlu Line by DEA, to expect the outcome of analysis to be regarded as references for the MRT development and policy in the future.

According to the outcome of empirical analysis in this paper, Jingan station and Yongan Market station are relatively efficient and achieve optimal scale level. Jingan station shows the strongest steadiness in efficiency because of having the largest number of references by inefficient DMUs. Based on the result of Slack Variable Analysis, Danfeng station is the most necessary improvement among all MRT stations in Zhonghe-Xinlu Line.

KEYWORDS: MRT Station, Efficiency Analysis, Data Envelopment Analysis