

**An assessment of Airport-oriented Development (AOD) based on location, network, and shape:  
Case of Tier-II Indian cities**

**Sunny Bansal (14ID90J02)**

**Abstract**

The fast pace of urbanization has induced an urgent need for a more dynamic planning system for the efficient growth of cities. In this scenario, an airport and the growth fuelled by it or airport-oriented development (AOD) is touted as a unique urban development proposition. Thus, it becomes crucial to investigate the role of an airport and its location in shaping and connecting the cities in the network of cities. But, can AOD act as a potential growth driver in making more efficient urban systems? Understanding the relationship between the airport's 'location', air transport 'network', and 'shape' dynamics of the urban growth might answer the question. The present research is an attempt to measure the relationship between these three dimensions - location, network, and shape for the assessment of airport-oriented development. The research has taken a case of Tier-II cities as they can be effectively used as a testbed for reforms in planning, serving as a vital intermediary in the hierarchy of the system of cities. The research may become even more relevant for Indian cities where the connectivity of airports is majorly complementary rather than competitive.

The research framework comprises of three objectives based on the three dimensions of the research. The first objective investigates the role of location in measuring the performance of all the airports in India by exploring the presence of spatial effects in airport efficiency assessment. The second objective assesses the air network of medium-hub international airports of Tier-II Indian cities in terms of its type, accessibility, and connectivity. Finally, the third objective analyzes the spatial and temporal patterns of urban growth and shape dynamics focussing on the airports in Tier-II Indian cities and identifying the appropriate AOD model for the region.

The overall findings reveal that the airport's location has spatial effects which consequently affect the airport's network performance. It also signifies that the airport's impact at the air network level also has implications for the local urban growth and shape dynamics. Further, it indicates that an airport and its region have a multi-layered relationship between them, resulting in patterns of spatio-temporal changes. The research has fairly attained an understanding of the role of the location and network of an airport in the growth of the city and shaping it.

This is the first of its kind of a collective attempt to employ the dimensions of location, network, and shape in the airports' efficiency assessment and its impact on urban planning and regional development. The research seeks to provide a cumulative deductive methodology to assess the scope and potential of AOD. The research is of significant relevance to the emerging vision of urban and regional planners and policymakers working in the domain of infrastructure (airport) induced urban growth and regional development. The research is an inclusive attempt to advance their vision in the domain of fulfilling a balanced development in the ladder of the system of cities.

**Keywords:** airport-oriented development, location, spatial effects, network assessment, shape dynamics, Tier-II cities, India

Supervisor \_\_\_\_\_

Chairman DSC \_\_\_\_\_