

## Study on the Construction of Airport Economic Zone

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**Abstract.** In the process of globalization in the 21st century, China will become the largest consumer and market in the global aviation industry and airport economy. It is of great significance to strengthen the construction of airport economic zone. Based on the analysis of the related concepts and construction significance of airport economy, this paper discusses the spatial distribution of airport economy zone and airport-related industry, the conditions of airport economy development and some important issues in the construction of airport economy zone.

### Introduction

Airport economy plays a positive role in promoting the growth of airport passenger and freight transport, promoting local economic development, accelerating the upgrading of industrial structure, increasing government tax revenue, attracting talents and promoting employment growth. Airport economic zone has become a window for regional economic development because of its convenient traffic conditions. Airport-related Economy not only interacts with the regional economy, but also has the advantage of interacting with the wider regional economy. With the advent of knowledge economy and the upgrading of industrial structure, regional economic integration will provide more opportunities for the development of airport economy, facilitate the active participation of Airport Economic Zone in regional economic cooperation, and the airport economy will break through the boundaries of local regions and form industrial interaction in larger regional space.

### Conceptual Analysis

**Airport-Related Industry.** Airport-related industry generally refers to a variety of industrial types that are located around the airport for the main purpose of utilizing Airport resources.

Because the development and evolution of airport-related industry are mainly influenced by airport function and hinterland economy, there are differences in the types of airport-related industry in different regions, but generally speaking, there are three categories of airport-related industry:

**First, Airborne Agriculture.** Some agricultural products, such as fresh products, high-grade frozen food, flowers and so on, require very high transportation time. Therefore, many modern agriculture with high added value is located around the airport, that is, airborne agriculture.

**Second, the Airport-Related Industry.** Airport-related industry mainly includes aviation supporting industry and high-tech industry. Aviation supporting industry mainly refers to Aerospace Science and technology, aviation-related manufacturing and processing industry, etc. Airborne high-tech industry mainly refers to computer and its accessories, micro-electronics, IT and other manufacturing industries and research and development centers, as well as biopharmaceuticals and so on.

**Third, the Airborne Tertiary Industry.** As the most basic function of airport-related industry is to provide services for passenger and freight transport, the scope of airport tertiary industry is relatively wide, mainly including logistics, commerce and so on.

**Airport-related Economy.** Relying on airport facilities resources, through air transport behavior or aviation manufacturing activities, and utilizing the industrial agglomeration effect of airports, relevant capital, information, technology, population and other factors of production are centralized

to the surrounding areas of airports. Airport-centered economic space forms industrial clusters with different degrees of aviation linkages. This emerging regional economic form is called airport-related Economy.

**Airport Economic Zone.** Airport economic zone refers to the multi-functional economic zone formed by the huge effect of air transport, which promotes the agglomeration of production, technology, capital, trade and population in the areas adjacent to the airport and along the airport corridor.

Airport economic zone takes the development of airport-related industry as its core, including leading industries and related industries. The leading industries are mainly transportation (passenger transport, freight transport) and integrated civil aviation services; related industries include ancillary services, traditional manufacturing, logistics distribution, business catering, residential development and high-tech industries.

### **The Significance of Building Airport Economic Zone**

**First, the Need for Coordinated Regional Development.** Because of its perfect infrastructure and convenient transportation, airports often become the important places where people flow, logistics, capital flow and information flow converge. The increase of people flow and logistics will certainly promote the formation of communication center and logistics center, and promote the agglomeration of airport-related industry. The development of airport-related industry has also expanded the scale of employment and population in the region, and promoted the development of commercial, social services and cultural and entertainment facilities in the region.

**The Second is the Need of the Development Of Modern Industry.** High-tech industry, which saves resources and energy and has high added value, is the commanding point of industrial economic development that countries are competing for. In order to achieve the effect of real-time production, air transportation has become the most important mode of transportation in high-tech industry. It is not only convenient for international transportation, but also convenient for domestic transportation. Therefore, the vast majority of high-tech parks in various countries are close to airports, and there is even a tendency to concentrate on airports. For example, in Japan, high-tech industries are mostly located in economic zones near large airports, and many successful airport industrial parks are 10-20 kilometers away from airports. Kyushu, which accounts for 40% of Japan's semiconductor output, has relatively perfect airport facilities in major counties, and runways of 2500-3000 meters are used for jets to take off and land.

**Third, the Development Needs of Modern Service Industry.** Not only has the high-tech manufacturing industry developed in the airborne areas because of its benefits from air transportation, but also the modern service industry has flourished near the airport. For example, modern logistics, public warehousing, communication services, e-commerce, financial insurance, information consultation, legal advertising, cultural and entertainment, life services, business and trade, basic education, health care and so on. Travel companies also benefit from being close to airports because they are more flexible in adjusting their flights and reducing travel costs.

### **Spatial Structure Analysis of Airport Economic Zone**

The airport is the geographical center of the airport, and it expands along the transportation line. It exists in a certain geographical range (usually in the airport as the center and in the radius of 10-15 km). According to the International Airport spatial structure model, airport-related Economy can be divided into four circles: Central Airport circle, commercial service circle, manufacturing and distribution circle and peripheral circle. As shown in Figure 1.

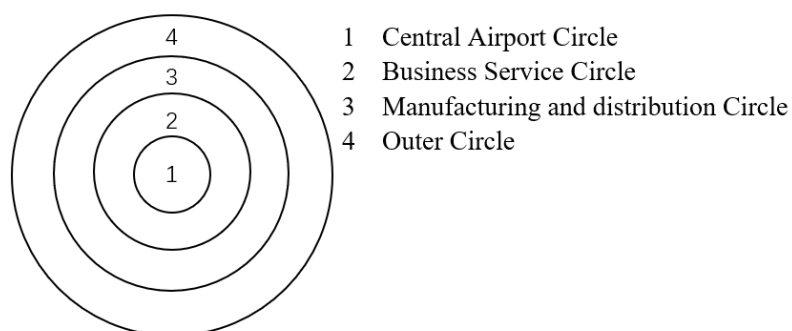


Fig. 1 Spatial Structure of Airport economic zone

**Central Airport Circle.** The range is within 1 km around the airport. It includes airport infrastructure and industries directly related to the air transport industry, such as aircraft logistics, passenger services, air cargo, parking and airline offices.

**Business Service Circle.** The range is within 1 km to 5 km around the airport. It is mainly a commercial service area, providing relevant commercial services for airport operations, airline staff and passengers, such as residential, supermarkets, financial institutions, living service facilities and so on.

**Manufacturing and Distribution Circle.** The range is within 5 km to 10 km around the airport, or within 15 minutes' drive. It mainly utilizes the transportation advantages of airports and the high timeliness of port development, high value-added related industries, such as capital and technology-intensive high-tech industries, as well as the logistics distribution developed by the location advantages of airports. In addition, it sometimes includes tertiary industries such as tourism exposition, office and conference services.

**Outer Circle.** The range is from 10 km to 15 km around the airport. With the increase of the distance from the central airport, the influence gradually weakens until the influence of the central airport on the site disappears. Areas other than this are not affected by airports.

Because the airport economy is the product of the huge influence (including attraction and radiation) of the aviation hub, according to the influence degree of the aviation hub and the corresponding spatial layout change characteristics, the whole airport economy can be divided into six influence circles in turn: Airport area, Airport area, aviation city, Airport economy, frequent influence area of the airport economy and occasional influence area of the airport economy. Of course, because the spatial structure of the near airport area depends not only on the characteristics of airport and air service, but also on the accessibility of ground traffic between airport and central city, the economic structure of central city and the surrounding regional environment, the actual spatial structure of the near airport economy will not present a regular concentric circle structure, but will follow the natural conditions on the ground and the traffic corridor. Some irregular changes have taken place in the direction of economic relations with the central cities.

## Conditions Analysis of Airport Economic Development

Airport facilities and equipment resources are the root cause of airport economy. Air transport or aviation manufacturing based on airport facilities resources is the dominant driving factor for the emergence of airport economy. At the same time, the external environment, such as government policies, regional economy and resource endowment conditions, is an important constraint for the development of airline industry economy. Through the case study of FedEx's Memphis and Sobik Bay Airport, Amsterdam Skip Airport and Cologne Airport, we believe that the development of airport economy must have the following conditions:

**First, a Certain Scale of Passenger and Cargo Flow is the Basis of the Development of Airport Economy.** The International Airport Association (ACI) has surveyed and evaluated 142 airports around the world. It has come to the conclusion that international hub airports generate 1110-1600 jobs per million passengers per year, large and medium airports (passenger throughput > 5 million), 750-1100 jobs per million passengers per year, and small regional airports (passenger

throughput < 5 million) per year. One million passengers generate 350-750 jobs. In addition, this amount is also affected by factors such as structure and capacity utilization. That is to say, the development of airport economy must not only have certain passenger and cargo flow, but also satisfy the following conditions: in this quantity, international flights should occupy a certain amount, transit passengers should occupy a certain proportion, large base airlines, and large capacity expansion space.

**Second, Rich Regional Resources.** That is to say, it is necessary to have the basis of industrial development, such as geographical location, natural resources and so on. At present, more successful airports rely on geographical advantages and rich tourism resources.

**Third, Policy Support.** The development of airport economy can not be separated from the support of government policies, such as free trade zone policy, low tariff policy, environmental protection policy and so on.

**Fourth, Integrated Transportation System.** It is difficult for air transport to exist independently of other modes of transport. Whether passenger transport or freight transport, it needs coordinated development with other modes of transport, and comprehensive transport can play its maximum effect.

**Fifth, Good Customer Relationship.** Customer relationship is the most easily neglected factor in airport development, but it is also a very critical factor. Airlines, business partners, investors or operators in other industries should be strategic partners of airports, and they should be a win-win relationship of benefit sharing.

### **Several Important Issues in the Construction of Airport Economic Zone**

**Building an Accessible Comprehensive Transportation Network.** Airport economic zone is an important node connecting large urban areas and airports. Enterprises in the region require high convenience of transportation, which requires high accessibility of ground transportation network in the Airport economic zone. In the future, the traffic network in the airport economic zone will present a circular structure centered on the airport and a highway layout radiating outward from the airport. In modern airports, multi-mode exchange nodes provide information transmission for different modes of transportation in airports. Airport highways and expressways will effectively connect airports with surrounding and remote commercial and residential areas. Seamless multi-modal transport infrastructure will accelerate the interactive transport of people and goods, thereby improving the efficiency of transport systems. And it has a far-reaching impact on the location of enterprises and the formation of aviation metropolis.

**Priority should be Given to Supporting Airport Development.** To develop the airport-related Economy, we must rely closely on the highly developed air transport industry. Whether it is the airport economic zone or the airport city, there is a busy airport as the core.

The development of Beijing Shunyi airport economy can be said to be a successful model in China. The most important successful experience is that the airport industry and the capital airport fly side by side. Without the index of the capital airport rising, there will be no airport industry cluster around the capital airport. Relying on the Capital Airport, Shunyi District has unique advantages in developing Airport economy. The emerging industries such as logistics, exhibition, financial leasing and high-end manufacturing are in the ascendant, making the airport industry an important pillar industry in Shunyi District and even the whole Beijing, and greatly accelerating the urbanization process of Shunyi District. For many second-and third-tier cities, there is no such congenital advantage. Although ambitious in the development of air-borne economy, due to the relatively backward air transport industry, small airport throughput, the advantages of developing air-borne economy are not obvious, the air-borne industry lacks strong support, and in some places, air-borne economy is only a concept. For cities with insufficient economic development conditions, the primary task of developing airport economy is to support the development of local airports and create conditions for the soaring of aviation industry. As an important public infrastructure of a city, airport is not only a local business card, but also a booster of local economic and social

development. Airport brings huge flow of people, logistics, capital and information, which is the solid foundation of airport-related industry agglomeration.

**To Formulate and Improve Policies to Support The Development of Airport Economy.** To develop the airport economy based on territorial airports, local governments should formulate and improve policies to support the development of local airport economy in an all-round way.

*Firstly, we should Provide Policy Guarantee Suggestions in the Form of Direct Control.* We should optimize the allocation of scarce resources in the form of laws and regulations. According to the Civil Aviation Law and the Regulations on the Administration of Civil Airports, we should increase the proportion of funds for public infrastructure and authorize management by means of land management and franchise. In addition, the allocation method of scarce public resources in airport airport economic circle can be promulgated through laws and regulations. We should increase financial investment in infrastructure construction. The government can support the infrastructure construction of transportation, energy and communication in Airport Airport Economic Zone by direct investment, support the construction of industrial base and business supporting facilities, improve the soft and hard environment of investment, and enhance supporting service capacity.

*Second, Provide Policy Guarantee Suggestions by Indirect Induction.* We should increase our efforts to attract investment. Relevant airport economic management departments further provide high-quality services for various enterprises, and enhance the investment attraction and competitiveness of Airport Airport Airport Economic circle.

*Thirdly, we should Provide Policy Guarantees in the Form of Information Guidance.* The important premise and foundation of airport airport economic development is to make a scientific, comprehensive and systematic planning for the development of airport airport economic zone. At the same time, the airport airport economic development planning should be closely integrated with the local government's economic and social development planning and the development planning of aviation-related industries, so as to make overall consideration and ensure the effective implementation of the planning status.

*Fourthly, we should Provide Policy Guarantees in the Way of System Construction.* It is necessary to establish and improve a multi-party coordination mechanism for airport air-borne economy. Airport airport economic development needs cross-regional, cross-sectoral and cross-industry collaboration. In many aspects, such as land use, planning and layout, management authority and investment channels, comprehensive arrangements and considerations should be made.

*Fifth, Organize Relevant Departments to Study Policy-Related And Key Issues.* Airports are urban public infrastructure. At the same time, large airports have commercial value. A good management system is very important for the development of airports and their due role in the construction of airport economy. Therefore, it is necessary for relevant government departments to actively promote the reform of airport management system and build a legalized and standardized airport management system and operation order.

## Conclusion

Airport economy is a new service mode of modern economic development. Its development has its unique complexity and is becoming the focus of economic development of major cities in the future. From China's rapid economic growth, the increasing degree of economic marketization and internationalization, the rapid development of air transport and the promotion of regional economic development, we need to vigorously develop the airport economy. Airport service, network of transportation system, airport-related industry agglomeration and regional policy support are the factors affecting the development of airport economy. According to the influencing factors of airport economy development, we should perfect airport service system, construct industrial layout of circle structure, build convenient comprehensive transportation network, set up supporting educational and scientific research institutions, and establish efficient administrative service system, so as to provide strategic guidance for the healthy development of airport economy in China,

overcome the bottleneck of regional economic development, and promote China's internationalization and city. The degree of localization can realize the coordinated development of efficiency and fairness among regions.

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