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## Development mechanism research based on agglomeration and spillover effects of cruise industry

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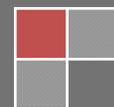
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### ABSTRACT

Development of cruise industry is very important to a port city. It can transfer its huge energy through the agglomeration effect and spillover effect. This article first defines concept of agglomeration effect and spillover effect of cruise industry. Then it elaborated mechanism of the agglomeration effect and spillover effect. Finally, through the example of the cruise industry development of Shanghai, it reveal that cruise industry is a significant role in promoting the development of a coastal port city.

### KEYWORDS

Cruise industry; Shanghai international shipping institute; Agglomeration effect; Spillover effect.



## INTRODUCTION

Cruise originally refers to the fixed line in the ocean on a regular basis of large passenger ships. The modern sense of the cruise ship is equipped with a relatively complete Life and entertainment facilities for recreation and sightseeing<sup>[1]</sup>. From the view of tourism industry chain, cruise ship arrived in a series of products and service, arrived at the dock, left, before the cruise terminal caused by the transaction, that is usually referred to the cruise industry, is a marginal industry<sup>[2]</sup>, which is between transportation industry, tourism and leisure industry, travel industry. At the same time, the operation and development of cruise tourism industry will also stimulate the development of relevant industries. It will The formation of the cruise economy phenomenon in many industries and common development<sup>[3]</sup>.

Modern cruise industry first appeared in twentieth Century in the late 60's in North America. By the end of 2013, the first global cruise vacation tourists reached 2 million passengers according to the latest CLIA statistics. In twentieth Century eighty years since 30 years, the global cruise tourism market performs outstanding. With the development of international cruise industry focus eastward, Asia has become the emerging market of cruise tourism. According to the Ocean Shipping forecast in 2015, Asia Pacific cruise passenger volume will reach 2000000, and China is a key regional markets in Asia.

Domestic and foreign scholars research on the cruise industry from different perspectives. Li Xiaonian<sup>[4]</sup> thinks the development trend China cruise industry is good, but it still exist all kinds of problems and restricting factors, gaps and obstacles in policies and laws related to the cruise. Cai Xiaoxia<sup>[5]</sup> constructs the evaluation index system of the development potential of the cruise industry. It is with the method of factor analysis as the main line. The city is divided into three potential levels of potential evaluation. Hu Jianwei<sup>[6]</sup> deeply analyzes the connotation and extension of the cruise economy. The use of industrial cluster theory and core competence theory to analyze the feasibility and necessity of development of industry of Shanghai passenger liner. He put forward the dynamic mechanism of the formation of industrial clusters. Sun Xiaodong<sup>[7]</sup> thinks the cruise industry is regarded as the "gold industry on the floating golden waterway". It does not get enough attention in academic circles and summarizes the China tourism industry research problems. Li Baiqing<sup>[8]</sup> is in Hainan of Sanya city as an example. He has carried on the analysis to the cruise industry ecosystem from the view of industrial ecology. He makes an evaluation of the closed cycle and provides theoretical basis for development of cruise industry science. Papathanassis & Beckmann<sup>[9]</sup> conducted a review of cruise tourism literature from the angle of tourism research. They put forward the research dilemma of cruise tourism and feasible research process. Sun, Jiao & Tian<sup>[10]</sup> reviewed the status of cruise industry from market research, cruise operation and earnings management perspective. It includes general market research, cruise pricing, space allocation and route design and optimization. It puts forward research direction in the future from a more microcosmic point of view.

From the existing research results, related research cruise industry has made some achievements. Some scholars have also seen the cruise industry agglomeration and spillover. But at present the research about its mechanism is no more systematic exposition. This paper defines the transmission mechanism of the cruise industry agglomeration effect and spillover effect. Then it expounds its agglomeration effect and spillover effect by the Shanghai cruise industry as empirical.

## THE CRUISE INDUSTRY AND THE AGGLOMERATION EFFECT

Research of the problem of agglomeration industry started in the late nineteenth Century. In 1890 Marshall began to pay attention to the economic phenomenon of industrial agglomeration. He proposed the concept of "internal economy" and "external economy". Then, Webb's location agglomeration theory, Peter's innovation industrial agglomeration theory, E M Hoover's the optimal scale of industrial clustering theory, Potter's enterprise competitive advantage and the diamond model further developed the industrial agglomeration theory. The agglomeration effect mainly refers to the economic effect produced by various industrial and economic activity concentration in the space and the centripetal force which attracted economic activity closer to a certain area. It is the basic factor of city formation and expanding. Calculation of the agglomeration effect generally use a constant elasticity of substitution (CES) analysis method to estimate the production function.

The cruise industry as an emerging industry is also with strong agglomeration effects. Seeing from the analysis of concepts of cruise industry definition and the existing literature, the cruise industry could be considered as the economic system consisting of manufacturing group, operation group, consumer group and service group based on the industrial cluster. The cruise industry also can be seen as one composed of different stakeholders in the industry value chain<sup>[7]</sup>. In this industry chain, cruises, cruise port and cruise the consumer are the core part. At the same time, the development of cruise industry dependence also promotes the development of other related industries, such as shipbuilding, repair and maintenance, real estate lease, logistics and transport, port agent, mechanical electronic products, trade, entertainment, finance and insurance, education and consultation etc.. Therefore, the cruise industry is not an independent industry. It is closely related with many industries and the agglomeration effect of it is very strong industry. The relationship between the cruise industry and related industries can be explained by figure 1.

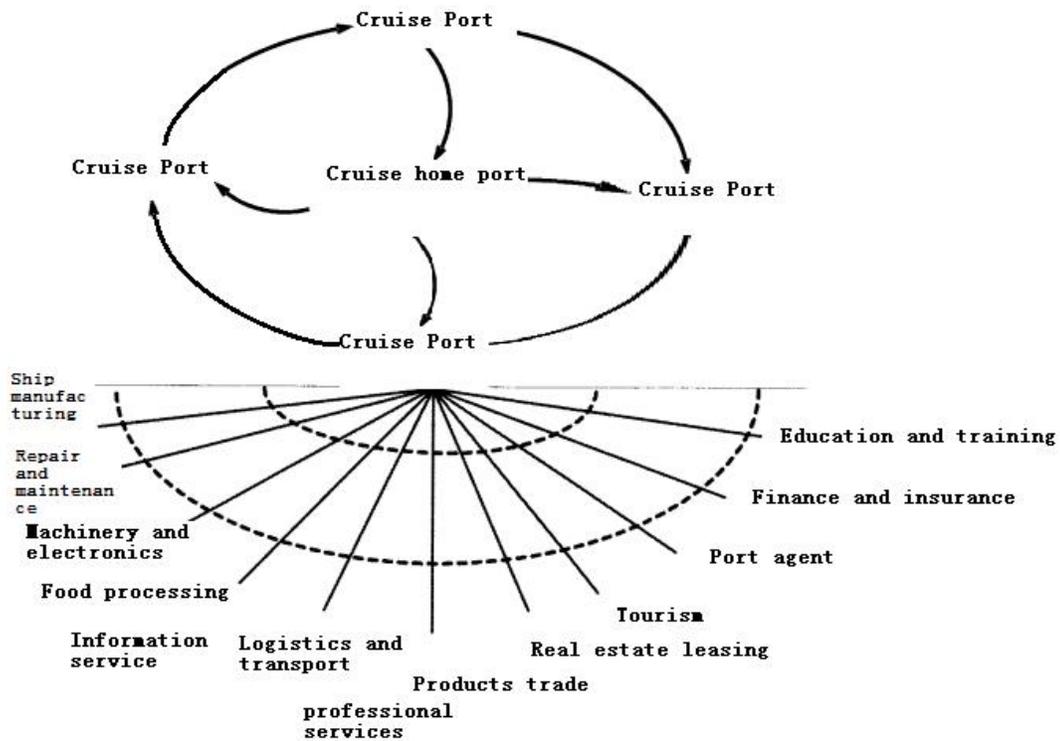


Fig. 1 : The cruise industry system

Moreover , industry agglomeration and industrial cluster are the same in the eyes of many economists. In another word,discussion of the agglomeration effect of cruise industry is in fact to form the cruise industry cluster.Due to the agglomeration of cruise industry born, the world cruise industry also generally begin to reveal some characteristics of industry cluster(Table 1)<sup>[6]</sup>.One of the most representative is Miami.

TABLE 1 : Industry of world cruise city agglomeration effect table

Cruise home port city	Factors of industrial agglomeration	Industrial extension	Agglomeration efficiency
Miami	With 12 super cruise Pierhead Building, simultaneous berthing 20 cruise ship, the world's biggest annual sailing fleet, a few minutes gathering in large shopping mall, hotel, catering facilities, 15 minutes from the airport by car	a plurality of scenic area to the south of the America, Close to the Caribbean Sea, the Gulf of Mexico Scenic Area	The cruise industry profit have about \$16,000,000,000, providing more than 500,000 employment opportunities in 2010
Singapore	simultaneous berthing 9 cruise ship, gathering in large shopping mall, dining hotel facilities in the front row in Asia,hailed as "the most efficient cruise terminal operators of the world"	Extending to the all related industries of island nation	more than 1200 International Cruise to port and Contribution of \$3,000,000,000 in economic benefits to the Singapore In 2001, Singapore received more than 1,000,000 cruise passengers and direct consumption

			amounted to \$520,000,000 in 2011
Hongkong	New cruise terminal can cope with 2 world-class giantcruise of total tonnage of 220000 tons of while parked, gathering upscale shopping, dining and hotel facilities, known as "shopping paradise"	Extending to all Hong Kong, the Pearl River Delta and other related industries	the total income of \$1,500,000,000 In 2011,it can bring \$1,500,000,000 to \$2,600,000,000 additional economic benefits and add 5,000 to 8,000 jobs from Eic new pier new terminal opened to 2023 every year
Barcelona	simultaneous berthing 9 cruise ship, gathering dining, hotel facilities, Convenient transportation	The tourism resources and related industries of Mediterranean count ries	more than 900 cruise to port and about 8,000,000 international tourists In 2010

Data sources: finished and drawn according to the "2012 world cruise industry information" and the government website

### THE CRUISE INDUSTRY AND SPILLOVER EFFECT

Spillover effect can be traced back to the external concept which proposed by Marshall and Pigou in the early years in the twentieth century. When an organization is in an activity, Spillover effect not only will produce the desired effect of influence activities, but also will affect to people outside the organization or society. Therefore the spillover effect also can be regarded as a kind of external economy. Spillover effect also has a great relationship with industrial cluster.

In order to further reveal the spillover effect of cruise industry, the interaction of cruise economy subsystem and the second system result feedback response process, mechanism and system of internal processes can also to build using the principle of system dynamics.<sup>[11]</sup>

From the actual economic effect, the cruise industry has remarkable results. According to the International Cruise Association Statistics, the average income of reception of international tourists is \$740. The average income of reception of cruise tourists is \$1341. In the developed countries, the cruise industry plays an obvious role. At the same time, the rapid development of cruise tourism has important significance to display the city and area the city's international image and enhance the leisure quality and the international culture communication and other social benefits.

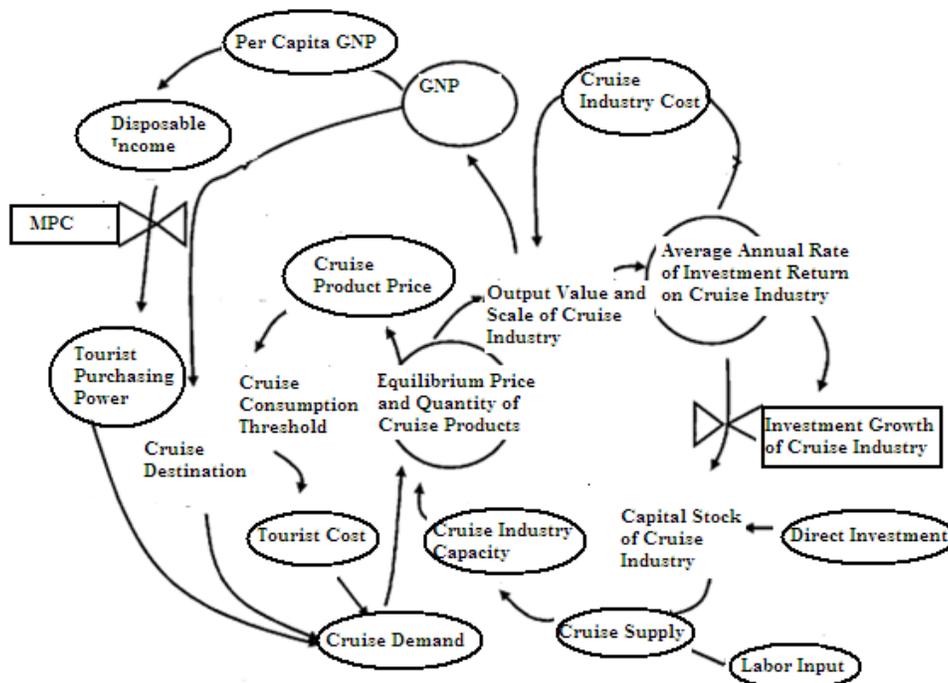


Fig. 2 : The System Dynamics Interpretation of Dynamics Mechanism on Cruise Economy

## SHANGHAI CRUISE INDUSTRY DEVELOPMENT AND AGGLOMERATION EFFECT, SPILLOVER EFFECT

In recent years, as China's largest port city of Shanghai port, and access from the port of Shanghai cruise voyage abroad increases greatly year by year. By the end of 2011, up to 97 vessels of foreign nationality passenger liner identified arrived travel. Among them, the Royal Caribbean cruise line, Costa cruises and princess Italy cruise company's three largest cruiseship Group Shanghai cruise number will have 73 second. The total planned hanghai cruise 75%. Therefore, whether the existing situation or the future potential, development of industry of Shanghai passenger liner is very important. The development of Shanghai cruise industry belongs to the advantage of district<sup>[5]</sup> in china. Cruise home port is also becoming an important part of the construction of Shanghai international shipping center.

### Agglomeration effect

Regional scale of industrial cluster is different and hierarchical, small to a professional town, likely spread to many cities, the whole country and even across national borders. We can see from figure 1, The agglomeration effect of cruise industry mainly for: (1) Cruise home port agglomeration related service facilities; (2) With the port city as the center of the country to the surrounding area, diffusion agglomeration effect. As the strongest economic zone, related industries, the entire city of Shanghai and the Yangtze River Delta region has a foundation of geographic concentration, Yangtze River Delta plus "city group" effect, which makes the agglomeration effect of Shanghai cruise industry have radiation to the Yangtze River Delta region potential. The Shanghai cruise industry cluster can be divided into the core area, secondary core area and extending area cluster.

At present, the Shanghai cruise terminal facilities has created "the development pattern of the two main preparation": International passenger transport center of Shanghai port, Shanghai Wusongkou International Cruise Port, and the Waigaoqiao six multi function terminal. The core area of the cluster is mainly composed of exogenous constructs the forming dynamic mechanism. It includes a center terminal passenger international port of Shanghai has gathered 850 meters landscape coastline, the simultaneous berthing 3 ships of 80000 tons of large international cruise and has a perfect 10 minutes inside the hotel, commercial, office, leisure, landscape and other comprehensive service facilities. The passenger transportation center will also have a 181000 square meters of super large underground space. At the same time Binjiang green and open space of 80000 square meters are constructed. Wusongkou international cruise port waters plans a total coastline of 1500 meters. A coastline length of 774 meters has built 2 large cruise ship berth, reliable Berth 1 100000 Tonner cruise and 1 200000 Tonner cruise. In April 27, 2010, Cruise port success trialing on 116000 tons of "Diamond Princess". In October 2011, the port operation officially opened. Then in 2012, 62 cruise ships stopped by. In 2013, 127 cruise ships stopped by. In 2014, 217 cruise ships stopped by. In 2014, over 300 cruise ships will stopped by. It will become the busiest international cruise home port and cruise city for the Asia Pacific Region. Core area by the endogenous and exogenous combine to form a dynamic mechanism. It mainly gather related industry center of Shanghai city and suburban area, including the Lingang New City, including tourism, education and scientific research, training, construction of cruise ship repair and R & D institutions. Extension region is composed of endogenous. Exogenous is formed by the combination of dynamic mechanism. Its scope includes the related industry of the whole Yangtze River Delta region.

In short, in the "push double home port", the Shanghai cruise industry has shown a strong agglomeration effects. The development of harbor of passenger liner mother has also led to the rapid development of surrounding related industries such as ship manufacturing, repair maintenance, government services, logistics and transport, product trade, real estate lease, entertainment, finance and insurance, business consulting, education and training industry and institutions.

### Spillover effect

As the leading city of the Yangtze River Delta region, Shanghai's influence and radiation force to other city is huge. Development of The cruise industry of Shanghai has great strategic significance for Shanghai and even the whole Yangtze River Delta region. Up to now, the spillover effect of Shanghai cruise industry perform in the following three aspects.

(1) GDP overflow: According to the multiplier effect, the enormous economic benefits of cruise industry itself. Cruise home port economic income is 10-14 times that of ordinary port. Except bringing the tremendous business opportunities to the travel agency company of ship of cruise tourism project but also bring home port dock in particular has brought great economic benefit. According to statistics on Harbor Cruise in 2013 revenue of 36780000 and total profit is ¥1200000. The year 2014 It is expected to achieve revenue 41890000 and profit is ¥1090000. In 2013 the Wusongkou international cruise port connected by the 128 cruise ships. Reception of visitors is 600000. This has been confirmed to be alongside 239 ships. It is expected to exceed 1000000 person time visitors. According to "the cruise industry in twelfth five year development plan" the goal of Shanghai, 5-8 cruise ship in Shanghai for the first base at the end of 2015, Cruise home port passenger will be capacity to 300000 -50 million. The entry and exit of cruise and cruise passengers were 500 ships and 1000000 -120 million scale. The cruise industry contributes to Shanghai in the 5 - 8 billion yuan of direct economic. The overall economic contributes of up to 15- 20 billion Yuan scale. To 2020, Shanghai international cruise into one of the Asia Pacific regional hub port, international cruise center. It reaches exit 500 cruise ships, cruise passengers 2 million passengers of the scale, and gradually realize the localization of the cruise industry. Thus, the rapid development of Shanghai cruise industry has great significance to Shanghai and even the whole Yangtze River Delta region's economic development. It is conducive to further promote economic and social development in these regions.

(2) Spatial Strategic Spillover: Shanghai as an international cruise home port, it becomes the strategic center of radiation related industries and the strategy of absorbing Center in the Yangtze River Delta. The former mainly constitute the strategic tourism routes to Shanghai as the center of an extension of the "umbrella". The latter mainly absorb international tourists landing in Shanghai, and to other areas of Shanghai, Yangtze River Delta, China tourism. At the same time, it also absorb Chinese citizens first to Shanghai, Yangtze River Delta and then cruise outbound tourism. In 2013, international passenger transport center of Shanghai port international cruise terminal and Wusong berthing 195 ships were completed. They welcome domestic and international passenger 759000 person time. It grows 113% compared to the same period. These figures have produced enormous radiation and absorption role to the Yangtze River Delta region. It has an important strategic significance.

(3) Tourism industry value overflow: Due to its characteristic of marginal industry, the cruise industry tourism brand benefit is obvious. The development of cruise industry is advantageous to extending Shanghai "cruise home port" brand to "international shipping center and an international metropolis" brand. The cruise industry is expected to become the "first mover" of Shanghai tourism industry cluster. It plays to the demonstration effect and promotes the formation of the Yangtze River Delta tourism value of brand. This is an added value of ascension to Shanghai and even the whole Chinese tourism industry.

## CONCLUSION

This article mainly researches the problem of agglomeration effect and spillover effect of the cruise industry. As the center of the Yangtze River Delta, Shanghai has rich surrounding tourist resources and has the favorable conditions for the development of cruise industry. It should be developed into international cruise home port as the target, so as to gradually become Chinese even in the whole Asia Pacific area of cruise center. At the same time, we should also see the transverse gap between Shanghai and the rest of the world cruise center such as Miami, Singapore. We should further enhance strong points and avoid weaknesses and increase the supporting infrastructure construction. We also should pay attention to the training and cultivation of talents and play agglomeration effect and spillover effect of Shanghai's cruise industry, then Shanghai may bring the development of whole Yangtze River Delta cruise industry and related industry. Only in this way, all the supporting construction of Shanghai international shipping center can be further promoted and perfected.

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