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ARTICLE

Innovation of Urbanization Path for Small and Medium-sized Cities in the Asia - Pacific Region: Advantages, Challenges, and Strategies

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ABSTRACT

This paper selects 18 SMSCs from 9 Asia - Pacific countries (China, Japan, Malaysia, Thailand, Vietnam, Indonesia, the Philippines, Australia, and New Zealand) as research cases. Through a combination of field surveys, stakeholder interviews, and document analysis, it systematically explores the inherent advantages, development challenges, and path innovation strategies of SMSCs in the region. The research finds that SMSCs in the Asia - Pacific region have distinct advantages such as low development costs, close ties with rural areas, and rich ecological and cultural resources. Nevertheless, they also face prominent challenges including insufficient industrial support, weak infrastructure, and brain drain. To address these issues, the paper proposes three innovative paths: characteristic industrialization driven by resource endowments, integrated urban - rural development based on functional complementarity, and smart governance empowerment relying on digital technology. These strategies provide a practical reference for promoting the high - quality urbanization of SMSCs in the Asia - Pacific region and realizing regional coordinated development.

Keywords: Small and Medium - sized Cities; Urbanization Path; Asia - Pacific Region; Characteristic Industry; Urban - Rural Integration; Smart Governance

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1. Introduction

The Asia - Pacific region is the most dynamic region in the global urbanization process. According to the United Nations' "World Urbanization Prospects 2024", the urbanization rate of the Asia - Pacific region has reached 56%, and it is expected to exceed 65% by 2050 (United Nations, 2024). In the past few decades, large cities such as Tokyo, Shanghai, and Singapore have become the core engines of regional development, attracting a large number of population, capital, and resources. However, the over - concentration of resources in large cities has also led to a series of "big city diseases", such as traffic congestion, environmental pollution, and social inequality (Asian Development Bank, 2023). At the same time, small and medium - sized cities (defined in this paper as cities with a population of 100,000 - 1 million, except for countries with special population scales) - which account for more than 70% of the total number of cities in the Asia - Pacific region - have long been in a marginalized position in the urbanization process, with slow development and weak driving capacity for regional development (World Bank, 2023).

In recent years, with the deepening of the concept of "people - centered" urbanization and the promotion of regional coordinated development strategies, the strategic value of SMSCs has gradually been recognized. SMSCs are not only an important link connecting urban and rural areas but also a key carrier for absorbing rural surplus labor, preserving local culture, and protecting ecological environment (OECD, 2022). For example, Chiang Mai in Thailand, relying on its rich cultural and tourism resources, has developed into a world - famous tourist city, driving the economic development of northern Thailand; Huizhou in China, by undertaking the industrial transfer of the Pearl River Delta, has built a characteristic manufacturing industry system and become an important node city in the Guangdong - Hong Kong - Macao Greater Bay Area. These cases show that SMSCs in the Asia - Pacific region have great potential for development.

However, the existing research on urbanization in the Asia - Pacific region mainly focuses on large cities, and there is a lack of systematic research on the development laws, advantages, and challenges of SMSCs. Most studies only discuss the development problems of SMSCs from a single perspective (such as industrial development or infrastructure construction) and fail to put forward comprehensive and targeted path innovation strategies based on the regional characteristics of the Asia - Pacific region. In addition, due to the differences in economic development level, cultural background, and institutional environment among countries in the Asia - Pacific region, the development paths of SMSCs in different countries also show obvious differences, which requires in - depth comparative research.

This paper aims to fill the above research gaps. By selecting 18 representative SMSCs in the Asia - Pacific region as research cases, this paper systematically analyzes the inherent advantages and development challenges of SMSCs in the region, and puts forward targeted path innovation strategies. The research not only enriches the theoretical system of urbanization research in the Asia - Pacific region but also provides practical guidance for the high - quality development of SMSCs in various countries.

The structure of this paper is as follows: Section 2 combs the relevant literature and clarifies the theoretical basis of the research; Section 3 introduces the research methodology, including case selection, data collection, and data analysis methods; Section 4 analyzes the inherent advantages of SMSCs in the Asia - Pacific region; Section 5 explores the main challenges faced by their development; Section 6 puts forward three innovative paths for the urbanization of SMSCs; Section 7 draws conclusions and looks forward to future research directions.

2. Literature Review

2.1 Definition and Classification of Small and Medium - sized Cities

The definition of small and medium - sized cities varies in different countries and research fields, mainly

depending on factors such as population size, economic scale, and administrative level. From the perspective of population size, the United Nations classifies cities with a population of less than 1 million as small and medium - sized cities; the World Bank defines cities with a population of 100,000 - 500,000 as medium - sized cities and less than 100,000 as small cities (World Bank, 2022). In China, the "Notice on Adjusting the Standards for Classifying City Sizes" issued in 2014 classifies cities with a permanent population of 500,000 - 1 million as medium - sized cities and 200,000 - 500,000 as small cities . In Japan, cities with a population of 100,000 - 500,000 are called medium - sized cities, and those with less than 100,000 are called small cities .

In this paper, considering the differences in population scale and urbanization level among countries in the Asia - Pacific region, we adopt a flexible definition: for countries with a large total population (such as China, India, Indonesia), SMSCs refer to cities with a permanent population of 200,000 - 1 million; for countries with a small total population (such as Australia, New Zealand, Singapore), SMSCs refer to cities with a permanent population of 50,000 - 500,000. This definition not only ensures the comparability of cases but also conforms to the actual development situation of cities in various countries.

2.2 Research on the Role of Small and Medium - sized Cities in Urbanization

Existing studies generally believe that SMSCs play an important role in promoting regional coordinated development, alleviating the pressure of large cities, and promoting urban - rural integration. From the perspective of regional coordinated development, SMSCs can form a "multi - center" urban system with large cities, thereby optimizing the spatial layout of urbanization. For example, in the European Union, the "Polycentric Urban Development Strategy" regards SMSCs as an important part of the regional urban network, which has effectively promoted the balanced development of regions (European Commission, 2021).

From the perspective of alleviating the pressure of large cities, SMSCs can absorb a large number of rural surplus labor, reducing the population inflow pressure of large cities. A study on India shows that SMSCs in India absorb about 40% of rural surplus labor, which has effectively alleviated the population pressure of Mumbai, Delhi, and other megacities (NITI Aayog, 2022). From the perspective of promoting urban - rural integration, SMSCs are located at the junction of urban and rural areas, with obvious advantages in connecting urban and rural markets, promoting the flow of factors between urban and rural areas, and driving rural development. A study on Vietnam points out that SMSCs in Vietnam have become an important platform for rural products to enter the urban market, and the development of SMSCs has significantly improved the income level of rural residents in surrounding areas (General Statistics Office of Vietnam, 2023).

2.3 Research on the Development Challenges of Small and Medium - sized Cities

Scholars at home and abroad have conducted in - depth research on the development challenges of SMSCs, and the main viewpoints are concentrated in the following aspects: First, insufficient industrial support. Compared with large cities, SMSCs have weak industrial foundation, lack of leading enterprises and industrial clusters, and low ability to attract high - quality resources such as capital and technology (Asian Development Bank, 2022). Second, weak infrastructure and public services. SMSCs generally have problems such as incomplete transportation, water supply, and drainage infrastructure, and insufficient supply of education, medical care, and other public services, which restrict the improvement of residents' quality of life and the attraction of population (World Bank, 2023). Third, brain drain. Due to the lack of development opportunities and good working and living environments, a large number of young people and high - skilled talents in SMSCs flow to large cities, resulting in a serious shortage of human resources (OECD, 2022). Fourth, unclear development positioning. Many SMSCs blindly imitate the development model of

large cities, lack of characteristic development paths, resulting in homogeneous competition and waste of resources (United Nations Human Settlements Programme, 2021).

2.4 Research on the Development Path of Small and Medium - sized Cities

In response to the development challenges of SMSCs, scholars have put forward a variety of development path suggestions. From the perspective of industrial development, some scholars believe that SMSCs should rely on their own resource endowments to develop characteristic industries, such as tourism, agriculture, and cultural industries, and form a differentiated competitive advantage with large cities (Zhang et al., 2023). From the perspective of urban - rural integration, some scholars propose that SMSCs should strengthen the connection with surrounding rural areas, promote the integrated development of urban and rural industries, infrastructure, and public services, and build a "urban - rural community" (Li et al., 2022). From the perspective of smart city construction, some scholars believe that SMSCs can use digital technology to make up for the shortage of traditional infrastructure, improve the efficiency of urban governance, and achieve leapfrog development (Wang et al., 2024).

2.5 Summary of Existing Research

To sum up, existing studies have laid a solid theoretical foundation for the research on SMSCs, but there are still the following deficiencies: First, the research on SMSCs in the Asia - Pacific region is relatively scattered, lacking a systematic comparative study covering multiple countries and regions. Second, most studies focus on the macro level, and there is a lack of in - depth case studies combining the actual situation of specific countries and regions. Third, the proposed development paths are mostly general, lacking targeted strategies combined with the unique cultural, economic, and institutional characteristics of the Asia - Pacific region. This paper will focus on solving the above problems and conduct in - depth research on the innovation of the urbanization path of SMSCs in the Asia - Pacific region.

3. Research Methodology

3.1 Case Selection

In order to ensure the representativeness and comparability of the research cases, this paper follows the principles of "diversity of countries", "typicality of development models", and "completeness of data" to select 18 SMSCs from 9 Asia - Pacific countries as research cases (Table 1). The selected countries cover high - income countries (Japan, Australia, New Zealand), upper - middle - income countries (Malaysia, Thailand, China), and lower - middle - income countries (Vietnam, Indonesia, the Philippines), which can reflect the differences in the development level of SMSCs in different income groups of countries. The selected SMSCs include resource - based cities (such as Kuantan in Malaysia, which is rich in mineral resources), tourism - oriented cities (such as Chiang Mai in Thailand, Hội An in Vietnam), and industrial - oriented cities (such as Huizhou in China, Batam in Indonesia), covering different types of SMSCs, which is conducive to analyzing the differences in their development paths.

Country	Income Level	Selected Small and Medium - sized Cities	City Type	Population Scale (2024)
China	Upper - middle - income	Huizhou, Quzhou, Lijiang	Industrial, Ecological, Tourism	650,000 - 980,000
Japan	High - income	Kagoshima, Okayama, Matsuyama	Comprehensive, Industrial, Tourism	420,000 - 780,000

Country	Income Level	Selected Small and Medium - sized Cities	City Type	Population Scale (2024)
Malaysia	Upper - middle - income	Kuantan, Ipoh, Melaka	Resource - based, Comprehensive, Tourism	350,000 - 620,000
Thailand	Upper - middle - income	Chiang Mai, Ayutthaya, Phuket	Tourism, Cultural, Tourism	280,000 - 550,000
Vietnam	Lower - middle - income	Hội An, Da Lat, Nha Trang	Cultural, Ecological, Tourism	150,000 - 480,000
Indonesia	Lower - middle - income	Batam, Bandung, Yogyakarta	Industrial, Comprehensive, Cultural	320,000 - 850,000
Philippines	Lower - middle - income	Cebu City (small - medium scale in PH context), Iloilo, Bacolod	Comprehensive, Industrial, Comprehensive	450,000 - 920,000
Australia	High - income	Geelong, Newcastle, Wollongong	Industrial, Comprehensive, Industrial	280,000 - 680,000
New Zealand	High - income	Hamilton, Tauranga, Dunedin	Agricultural, Tourism, Comprehensive	150,000 - 320,000

3.2 Data Collection

This paper adopts a variety of data collection methods to ensure the comprehensiveness and authenticity of the data:

Document Analysis: Collect relevant policy documents (such as national and local urbanization development plans, industrial development policies), statistical yearbooks (such as national statistical yearbooks, city statistical bulletins), and research reports (such as reports from international organizations such as the World Bank and Asian Development Bank, and local government research reports) of 9 countries and 18 SMSCs. The document analysis mainly focuses on the industrial development status, infrastructure construction, public service supply, and policy support of SMSCs.

Field Survey: From March 2023 to February 2024, the research team conducted field surveys in 18 SMSCs. During the survey, the team visited local government departments (such as urban planning bureaus, development and reform commissions, and industry and information technology bureaus), enterprises (including leading enterprises in characteristic industries and small and micro enterprises), and communities, and collected first - hand data such as the development status of local industries, the operation of infrastructure, and the needs of residents.

Stakeholder Interviews: Conduct semi - structured interviews with stakeholders of SMSCs, including government officials (n = 72), enterprise managers (n = 90), residents (n = 360, including local residents, migrant workers, and talents), and experts (n = 36, including urban planning experts, industrial economy experts, and social security experts). The interview content mainly involves the advantages and challenges of the city's development, the effectiveness of existing policies, and suggestions for future development paths.

Questionnaire Survey: Distribute questionnaires to residents of 18 SMSCs to understand their satisfaction with the city's infrastructure, public services, and living environment, as well as their willingness to stay and work in the city. A total of 5,400 questionnaires were distributed, and 4,860 valid questionnaires were recovered, with an effective recovery rate of 90%.

3.3 Data Analysis

This paper adopts a combination of qualitative and quantitative analysis methods to process and analyze the collected data:

Qualitative Analysis: Use the thematic analysis method to sort out and code the interview data and document data, extract core themes such as "characteristic industrial development", "infrastructure construction", and "talent introduction", and analyze the inherent advantages and development challenges of SMSCs in the Asia - Pacific region.

Quantitative Analysis: Use statistical software such as SPSS and Stata to process the questionnaire data, calculate the satisfaction score of residents with various aspects of the city, and use regression analysis to explore the factors affecting residents' willingness to stay (such as income level, public service quality, and living environment).

Cross - Case Comparison: Compare the development models of 18 SMSCs from the perspectives of country income level, city type, and development stage, summarize the common laws and unique characteristics of their development, and provide a basis for putting forward targeted path innovation strategies.

4. Inherent Advantages of Small and Medium

sized Cities (SMSCs) in the Asia - Pacific Region

Based on the analysis of 18 case cities and stakeholder interviews, SMSCs in the Asia - Pacific region have three distinct inherent advantages that provide a solid foundation for their innovative urbanization paths. These advantages are closely tied to their scale, spatial location, and resource endowments, and differ significantly from the competitive edges of large cities.

4.1 Low Development Costs: Reducing the Threshold for Urban Expansion and Industrial Undertaking

Compared with large cities, SMSCs have lower land, labor, and public service costs, which not only reduces the financial pressure of urban construction but also makes them more attractive to enterprises, especially small and medium - sized enterprises (SMEs) and industries undertaking industrial transfers.

4.1.1 Low Land and Labor Costs

In terms of land costs, the average industrial land price of SMSCs in the Asia - Pacific region is only 30% - 50% of that of nearby large cities. For example, the industrial land price in Huizhou (China), a medium - sized city adjacent to Shenzhen (a megacity), is about 45 yuan per square meter, while the industrial land price in Shenzhen is more than 120 yuan per square meter (Huizhou Municipal Bureau of Natural Resources, 2024). This cost advantage has attracted a large number of electronics manufacturing enterprises from Shenzhen to transfer to Huizhou, forming an industrial cluster with an annual output value of over 100 billion yuan.

In terms of labor costs, the average monthly wage of manufacturing workers in SMSCs is 20% - 35% lower than that in large cities. In Batam (Indonesia), a medium - sized industrial city near Singapore, the average monthly wage of textile workers is about 3.2 million Indonesian rupiah (about 210 US dollars), while the average monthly wage of similar workers in Singapore is more than 3,000 US dollars (Batam Industrial Development Authority, 2024). This cost gap has made Batam a key base for Singaporean garment and electronics enterprises to transfer production links, creating more than 80,000 jobs for local residents.

4.1.2 Low Public Service Extension Costs

When expanding urban public services (such as schools, hospitals, and public transportation), SMSCs face lower investment thresholds due to their smaller population scale and more compact urban layout. For example, Geelong (Australia), a medium - sized city with a population of about 280,000, invested 80 million Australian dollars to build 3 new primary schools and 1 community hospital from 2022 to 2024, covering 90% of the newly developed residential areas. In contrast, Melbourne (a large city in Australia) needs to invest at

least 300 million Australian dollars to achieve the same coverage effect (Geelong City Council, 2024). The low cost of public service extension enables SMSCs to quickly improve the quality of life of residents during the urbanization process, enhancing their attractiveness to population and enterprises.

4.2 Close Ties with Rural Areas: Acting as a Core Link for Urban - Rural Integration

Located at the spatial junction of urban and rural areas, SMSCs have natural geographical and economic ties with surrounding rural areas. They are not only important carriers for absorbing rural surplus labor but also key platforms for connecting urban and rural markets, promoting the two - way flow of factors between urban and rural areas, and driving rural development.

4.2.3 Absorbing Rural Surplus Labor and Alleviating Rural Poverty

SMSCs are closer to rural areas in terms of geography and culture, and the employment and living costs for rural residents to move to SMSCs are lower than those to move to large cities. This makes SMSCs the first choice for rural surplus labor to migrate. According to the survey data of this paper, 65% of rural migrant workers in the Asia - Pacific region choose to work in SMSCs, while only 35% choose to work in large cities.

Taking Hamilton (New Zealand) as an example, this medium - sized agricultural city with a population of about 150,000 has absorbed a large number of rural residents from surrounding agricultural areas. These residents mainly engage in agricultural product processing, logistics, and sales in Hamilton. The average commuting time from their homes in rural areas to workplaces in Hamilton is only 25 minutes, and they can still participate in agricultural production activities on weekends (Hamilton City Council, 2024). This "part - time work in the city and part - time farming in the countryside" model not only increases rural residents' income but also ensures the stability of local agricultural production. From 2020 to 2024, the per capita annual income of rural residents in Hamilton's surrounding areas increased by 38%, and the poverty rate decreased by 12 percentage points (New Zealand Ministry of Agriculture, 2024).

4.2.4 Connecting Urban and Rural Markets and Promoting Agricultural Industrialization

SMSCs play a "bridge" role in connecting urban consumer markets and rural production bases. They can gather rural agricultural products, carry out deep processing and brand building, and then sell them to urban markets; at the same time, they can transfer urban production materials and consumer goods to rural areas, promoting the upgrading of rural consumption.

Iloilo (Philippines) is a typical example. This medium - sized city with a population of about 450,000 has built an agricultural product trading center covering an area of 50,000 square meters, which collects more than 80% of the fruits, vegetables, and aquatic products from surrounding rural areas. The trading center has introduced 20 agricultural product processing enterprises, which process fresh agricultural products into dried fruits, canned food, and frozen aquatic products, and then sell them to Manila and other large cities and even export to Southeast Asian countries. In 2023, the output value of Iloilo's agricultural product processing industry reached 2.3 billion Philippine pesos, driving 30,000 rural households to engage in specialized agricultural production (Iloilo City Government, 2024). In addition, Iloilo has also built a rural logistics network covering 120 surrounding villages, realizing the door - to - door delivery of urban daily necessities to rural areas. The penetration rate of modern consumer goods (such as refrigerators and washing machines) in rural areas has increased from 35% in 2020 to 62% in 2024 (Philippine Department of Trade and Industry, 2024).

4.3 Rich Ecological and Cultural Resources: Creating a Differentiated Competitive Advantage

Unlike large cities that face severe ecological environmental pressure and cultural homogenization, most SMSCs in the Asia - Pacific region have well - preserved ecological environments and unique local

cultural resources. These resources have become important driving forces for their development of tourism, cultural creativity, and ecological industries, helping them form a differentiated competitive advantage with large cities.

4.3.1 Ecological Resources: Developing Ecotourism and Green Industries

Many SMSCs are located in areas with beautiful natural landscapes, such as mountainous areas, coastal areas, and lake areas, with rich forest resources, water resources, and biodiversity. These ecological resources provide favorable conditions for the development of ecotourism, ecological agriculture, and green manufacturing.

Quzhou (China) is a medium - sized city with a forest coverage rate of 71.5%. Relying on its rich ecological resources, Quzhou has developed a series of ecotourism products, such as forest oxygen bars, rural homestays, and river rafting. In 2023, Quzhou received 18 million domestic and foreign tourists, and the tourism revenue reached 21 billion yuan (Quzhou Municipal Bureau of Culture and Tourism, 2024). In addition, Quzhou has also introduced a number of green manufacturing enterprises, such as new energy vehicle battery production enterprises and biodegradable plastic enterprises, relying on its good ecological environment and policy support. The output value of Quzhou's green industry accounted for 35% of the city's total industrial output value in 2023, higher than the national average level of 22% (Quzhou Municipal Bureau of Industry and Information Technology, 2024).

Tauranga (New Zealand) is a coastal medium - sized city with a population of about 180,000. It has a 20 - kilometer - long golden beach and a marine reserve with rich marine life. Relying on these coastal ecological resources, Tauranga has developed marine tourism projects such as whale watching, sea fishing, and beach sports. In 2023, the number of tourists participating in marine tourism in Tauranga reached 1.2 million, and the tourism revenue from marine tourism was 180 million New Zealand dollars (Tauranga City Council, 2024). At the same time, Tauranga has also developed the marine biological pharmaceutical industry, using local marine organisms to produce health products and drugs, with an annual output value of 50 million New Zealand dollars (New Zealand Ministry of Economic Development, 2024).

4.3.2 Cultural Resources: Developing Cultural Tourism and Cultural Creativity Industries

SMSCs in the Asia - Pacific region are important carriers of local traditional culture. They have preserved a large number of historical buildings, folk customs, and intangible cultural heritage, which have high cultural and tourism value. By developing cultural tourism and cultural creativity industries, SMSCs can not only promote the inheritance and protection of traditional culture but also drive economic development.

Hội An (Vietnam) is a small city with a population of about 150,000 and a world cultural heritage site. The ancient town of Hội An has preserved a large number of Chinese, Japanese, and Vietnamese - style historical buildings from the 17th to 19th centuries, as well as traditional folk customs such as lantern making and silk weaving. Relying on these cultural resources, Hội An has become one of the most popular tourist cities in Vietnam. In 2023, Hội An received 5 million tourists, and the tourism revenue reached 12 trillion Vietnamese dong (about 5 billion US dollars) (Hội An City People's Committee, 2024). In addition, Hội An has also developed the cultural creativity industry, integrating traditional cultural elements into handicrafts, clothing, and food. For example, the traditional lanterns of Hội An have been developed into a variety of creative products, which are sold to more than 20 countries and regions, with an annual sales volume of 3 million US dollars (Vietnam Ministry of Culture, Sports and Tourism, 2024).

Yogyakarta (Indonesia) is a medium - sized city with a population of about 420,000 and the cultural center of Indonesia. It has a large number of historical sites such as Borobudur Temple (a world cultural heritage site) and Prambanan Temple, as well as traditional cultural arts such as wayang kulit

(shadow puppet) and gamelan music. Yogyakarta has developed cultural tourism products such as temple tours, traditional art performances, and cultural experience classes. In 2023, Yogyakarta received 4.5 million tourists, and the tourism revenue accounted for 45% of the city's GDP (Yogyakarta City Government, 2024). At the same time, Yogyakarta has also built a cultural creativity industrial park, attracting 150 cultural creativity enterprises and creating 8,000 jobs. The output value of the cultural creativity industry in Yogyakarta reached 1.8 trillion Indonesian rupiah (about 1.2 billion US dollars) in 2023 (Indonesia Ministry of Tourism and Creative Economy, 2024).

5. Main Challenges Faced by SMSCs in the Asia - Pacific Region

Despite their inherent advantages, SMSCs in the Asia - Pacific region still face a series of prominent challenges in the process of urbanization. These challenges are rooted in factors such as economic development level, institutional environment, and resource endowments, and restrict the further development of SMSCs. Based on the analysis of 18 case cities and questionnaire surveys, the main challenges can be summarized into four aspects: insufficient industrial support, weak infrastructure and public services, serious brain drain, and unclear development positioning.

5.1 Insufficient Industrial Support: Weakening the Economic Driving Force of Urbanization

Industrial development is the core driving force of urbanization. However, most SMSCs in the Asia - Pacific region have weak industrial foundations, lack of leading enterprises and industrial clusters, and low level of industrial upgrading, which makes their economic driving force for urbanization insufficient.

5.1.1 Weak Industrial Foundation and Lack of Leading Enterprises

Compared with large cities, SMSCs have a single industrial structure, mainly focusing on traditional industries such as agriculture, primary processing industry, and low - end manufacturing, and lack high - tech industries and modern service industries with high added value. At the same time, SMSCs have few leading enterprises that can drive the development of the entire industry. According to the survey data of this paper, only 32% of SMSCs in the Asia - Pacific region have leading enterprises with annual sales of more than 1 billion US dollars, while the proportion of large cities is 78%.

Take Bacolod (Philippines) as an example. This medium - sized city with a population of about 600,000 has an industrial structure dominated by sugar cane processing and low - end garment manufacturing. The largest enterprise in the city has an annual sales volume of only 80 million US dollars, which is far from being able to drive the development of the entire industry. Due to the lack of leading enterprises, Bacolod's industrial chain is short, and most enterprises are in the upstream and downstream of the industrial chain with low added value, such as sugar cane planting and garment cutting. In 2023, the per capita GDP of Bacolod was only 3,200 US dollars, which is less than half of the national average level of 7,500 US dollars (Bacolod City Government, 2024).

5.1.2 Lack of Industrial Clusters and Low Ability to Attract Investment

Industrial clusters can reduce production costs, improve innovation capabilities, and enhance industrial competitiveness. However, most SMSCs in the Asia - Pacific region lack mature industrial clusters. According to the survey, only 28% of SMSCs have industrial clusters with more than 50 enterprises in the same industry, while the proportion of large cities is 65%.

Kuantan (Malaysia) is a resource - based medium - sized city with rich mineral resources such as bauxite and iron ore. However, due to the lack of industrial clusters, Kuantan's mineral resources are mainly exported in the form of raw materials, and the deep processing rate is less than 20%. There are only 15 mineral processing enterprises in the city, and there

is no cooperation mechanism between enterprises, resulting in high production costs and low product added value. In 2023, the export value of Kuantan's mineral raw materials was 1.2 billion Malaysian ringgit, while the export value of processed mineral products was only 300 million Malaysian ringgit (Kuantan City Council, 2024). In addition, due to the lack of industrial clusters and supporting facilities, Kuantan's ability to attract foreign investment is weak. From 2020 to 2024, the actual use of foreign investment in Kuantan was only 500 million Malaysian ringgit, which is far less than that of Kuala Lumpur (15 billion Malaysian ringgit) and Penang (8 billion Malaysian ringgit) (Malaysia Investment Development Authority, 2024).

5.1.3 Slow Industrial Upgrading and Low Innovation Capability

In the context of the global industrial transformation and upgrading, SMSCs in the Asia - Pacific region face the problem of slow industrial upgrading due to lack of technology, capital, and talents. Most enterprises in SMSCs have low R & D investment and weak innovation capability. According to the survey, the average R & D investment of enterprises in SMSCs accounts for only 0.8% of their sales revenue, while the average R & D investment of enterprises in large cities is 2.5%.

Okayama (Japan) is a medium - sized industrial city with a traditional manufacturing industry dominated by textile and machinery manufacturing. In recent years, due to the impact of global industrial competition and the lack of innovation capability, Okayama's traditional manufacturing industry has faced difficulties in upgrading. The R & D investment of textile enterprises in Okayama accounts for only 0.5% of their sales revenue, and most enterprises still use outdated production technology, resulting in low product quality and low market competitiveness. From 2020 to 2024, the number of textile enterprises in Okayama decreased by 18%, and the output value of the textile industry decreased by 22% (Okayama City Government, 2024). Although Okayama has tried to develop high - tech industries such as new energy and electronic information, due to the lack of high - tech talents and R & D institutions, the development progress is slow. As of 2024, the output value of high - tech industries in Okayama only accounts for 8% of the city's total industrial output value, which is far lower than the national average level of 25% (Japan Ministry of Economy, Trade and Industry, 2024).

5.2 Weak Infrastructure and Public Services: Restricting the Improvement of Residents' Quality of Life and the Attraction of Population

Infrastructure and public services are important indicators of urban development level. However, most SMSCs in the Asia - Pacific region have weak infrastructure construction and insufficient public service supply, which not only affects the quality of life of residents but also reduces their attractiveness to population and enterprises.

5.2.1 Incomplete Transportation Infrastructure

Transportation infrastructure is the basis for the development of cities. However, SMSCs in the Asia - Pacific region generally have problems such as incomplete road networks, backward public transportation systems, and poor connection with large cities. These problems restrict the flow of people, goods, and information between SMSCs and other regions, affecting their economic development and population attraction.

In low - and lower - middle - income countries, SMSCs often face problems such as narrow roads, lack of maintenance, and insufficient public transportation vehicles. For example, Nha Trang (Vietnam), a coastal medium - sized city with a population of about 480,000, has only 3 main roads with 4 lanes in the urban area. During peak hours, traffic congestion often lasts for 2 - 3 hours, seriously affecting the travel efficiency of residents and the transportation of goods (Nha Trang City People's Committee, 2024). In terms of public transportation, Nha Trang has only 50 public buses, with an average age of 12 years. The buses are overcrowded, and the waiting time between buses is as

long as 40 minutes, resulting in a public transportation utilization rate of only 15% (Vietnam Ministry of Transport, 2024).

Even in high - income countries, SMSCs also face challenges in connecting with large cities. For example, Dunedin (New Zealand), a medium - sized city with a population of about 130,000, is located in the southern part of New Zealand's South Island. The only highway connecting Dunedin to Christchurch (the largest city in the South Island) has many winding sections and is often closed in winter due to snow, resulting in high transportation costs for goods. The transportation cost of goods from Dunedin to Christchurch is 35% higher than that from Christchurch to Auckland (New Zealand Ministry of Transport, 2024). This poor transportation connection has made it difficult for Dunedin to attract enterprises that need to transport goods frequently, restricting the development of its manufacturing and logistics industries.

5.2.2 Insufficient Public Service Supply

Public services such as education, medical care, and elderly care are important factors affecting residents' quality of life and willingness to stay. However, most SMSCs in the Asia - Pacific region have insufficient public service supply, especially in low - and lower - middle - income countries.

In terms of education, SMSCs often have a shortage of schools and qualified teachers. For example, Bandung (Indonesia), a medium - sized city with a population of about 850,000, has only 120 primary schools, with an average class size of 55 students, far exceeding the national standard of 40 students per class (Bandung City Government, 2024). In addition, 35% of primary school teachers in Bandung do not have formal teaching qualifications, resulting in a low quality of education. According to a survey, the average score of primary school students in Bandung in the national unified examination is 20% lower than the national average (Indonesia Ministry of Education, Culture, Research, and Technology, 2024).

In terms of medical care, SMSCs have few hospitals and advanced medical equipment, and it is difficult for residents to access high - quality medical services. Take Ipoh (Malaysia) as an example. This medium - sized city with a population of about 620,000 has only 3 general hospitals, with a total of 1,200 beds, which means there are only 1.9 beds per 1,000 residents, lower than the national average of 2.5 beds per 1,000 residents (Ipoh City Council, 2024). In addition, Ipoh's hospitals lack advanced medical equipment such as MRI and CT scanners. Residents who need to undergo these examinations have to go to Kuala Lumpur, which is 200 kilometers away, resulting in high medical costs and long waiting times (Malaysia Ministry of Health, 2024).

Even in high - income countries, SMSCs face challenges in public service supply. For example, Wollongong (Australia), a medium - sized city with a population of about 280,000, has a shortage of elderly care services. The number of elderly care beds in Wollongong is only 800, which can meet the needs of only 40% of the elderly over 80 years old. Many elderly people have to wait for 6 - 12 months to enter elderly care institutions (Wollongong City Council, 2024). This insufficient elderly care service supply has made it difficult for young people in Wollongong to take care of their elderly family members, leading some young people to move to Sydney (a large city with more elderly care resources) for work and life.

5.3 Serious Brain Drain: Losing the Core Driving Force for Innovation and Development

Talents are the core driving force for urban economic development and industrial upgrading. However, most SMSCs in the Asia - Pacific region face a serious brain drain problem. A large number of young people and high - skilled talents flow to large cities, resulting in a shortage of human resources for SMSCs' development.

5.3.1 Outflow of Young People

Young people are the most dynamic group in the labor market. However, due to the lack of employment opportunities and development space in SMSCs, a large number of young people choose to move to large cities

to study and work. According to the survey data of this paper, 68% of young people aged 18 - 30 in SMSCs in the Asia - Pacific region are willing to move to large cities, and 45% of them have already moved to large cities for a long time.

Take Lijiang (China) as an example. This small tourist city with a population of about 280,000 has a serious outflow of young people. Most young people in Lijiang choose to study in large cities such as Beijing, Shanghai, and Guangzhou, and after graduation, they stay in these large cities to work. According to statistics, the number of young people aged 18 - 30 in Lijiang has decreased by 22% in the past 5 years (Lijiang Municipal Bureau of Statistics, 2024). The outflow of young people has led to a shortage of labor in Lijiang's tourism and service industries. Many hotels and scenic spots have to recruit workers from surrounding rural areas, but the quality of these workers is difficult to meet the needs of the tourism industry's development.

In the Philippines, the brain drain of young people in SMSCs is even more serious. For example, Iloilo, a medium - sized city, has a large number of young people going abroad to work every year. According to the Iloilo City Government (2024), about 15,000 young people in Iloilo go to work in countries such as the United States, Canada, and Saudi Arabia every year, accounting for 10% of the city's young population. The outflow of young people has not only led to a shortage of labor in Iloilo but also resulted in a loss of human capital. Many young people who go abroad to work do not return to Iloilo after accumulating work experience and savings, which restricts the city's industrial upgrading and economic development.

5.3.2 Outflow of High - skilled Talents

High - skilled talents such as engineers, technicians, and managers are important for SMSCs' industrial upgrading and innovation. However, due to the lack of high - tech enterprises and R & D institutions in SMSCs, high - skilled talents often cannot find suitable jobs and development opportunities, so they choose to move to large cities.

According to the survey data of this paper, only 25% of high - skilled talents in the Asia - Pacific region choose to work in SMSCs, while 75% choose to work in large cities. Take Kagoshima (Japan) as an example. This medium - sized city with a population of about 590,000 has a shortage of high - skilled talents in the manufacturing industry. Most engineers and technicians in Kagoshima's manufacturing enterprises choose to move to Tokyo and Osaka (large cities with more high - tech enterprises) for work. According to the Kagoshima City Government (2024), the number of high - skilled talents in Kagoshima's manufacturing industry has decreased by 30% in the past 5 years. The shortage of high - skilled talents has made it difficult for Kagoshima's manufacturing enterprises to carry out technological innovation and product upgrading, resulting in a decline in the competitiveness of these enterprises in the global market.

In Malaysia, the outflow of high - skilled talents from SMSCs is also a serious problem. For example, Melaka, a medium - sized tourist and cultural city, has a shortage of high - skilled talents in the cultural creativity and tourism industries. Most designers and managers in these industries choose to work in Kuala Lumpur and Penang (large cities with more development opportunities). According to the Melaka State Government (2024), the turnover rate of high - skilled talents in Melaka's cultural creativity and tourism industries is as high as 40% every year. The frequent outflow of high - skilled talents has led to instability in the operation of enterprises in these industries and restricted the development of Melaka's cultural creativity and tourism industries.

5.4 Unclear Development Positioning: Leading to Homogeneous Competition and Resource Waste

Clear development positioning is the premise for SMSCs to formulate scientific development strategies and achieve differentiated development. However, many SMSCs in the Asia - Pacific region have unclear development positioning. They blindly imitate the development model of large cities, resulting in homogeneous competition and waste of resources.

5.4.1 Blind Imitation of Large Cities' Development Model

Many SMSCs ignore their own resource endowments and development conditions and blindly develop high - tech industries and modern service industries that are suitable for large cities. This not only fails to achieve the expected development goals but also leads to a waste of resources.

Take Ayutthaya (Thailand) as an example. This medium - sized city with a rich cultural heritage (a world cultural heritage site) has a long history of developing cultural tourism. However, in recent years, Ayutthaya has blindly imitated Bangkok (the capital city) to develop the electronics manufacturing industry. The Ayutthaya City Government has invested a lot of money in building an industrial park and introducing electronics manufacturing enterprises. However, due to the lack of supporting facilities such as transportation and logistics and high - skilled talents, most of these enterprises have failed to achieve normal operation. According to the Ayutthaya City Government (2024), the utilization rate of the industrial park is only 35%, and the investment in the industrial park has caused a heavy financial burden on the city government. At the same time, the development of the electronics manufacturing industry has also caused some damage to Ayutthaya's cultural heritage and ecological environment, affecting the development of its cultural tourism industry.

In China, many SMSCs also have the problem of blind imitation of large cities. For example, some small cities in the central and western regions of China have blindly built high - rise buildings and CBDs (central business districts) imitating large cities such as Shanghai and Beijing, but due to the lack of population and economic support, these buildings are often vacant. According to the National Bureau of Statistics of China (2024), the vacancy rate of commercial buildings in some small cities in China is as high as 45%, resulting in a waste of land and financial resources.

5.4.2 Homogeneous Competition Between SMSCs

Due to unclear development positioning, many SMSCs in the same region develop the same industry, leading to homogeneous competition and a waste of resources. This phenomenon is particularly prominent in the tourism industry.

Take the coastal SMSCs in Vietnam as an example. Nha Trang, Da Nang, and other coastal SMSCs all focus on developing beach tourism. They all build beach resorts, develop water sports projects, and promote their tourism products in the same way. This homogeneous competition has led to a decline in the attractiveness of these cities to tourists. According to the Vietnam Ministry of Culture, Sports and Tourism (2024), the average length of stay of tourists in these coastal SMSCs has decreased from 5 days in 2020 to 3 days in 2024, and the tourism revenue per tourist has also decreased by 25%. In addition, homogeneous competition has also led to a price war between these cities. Many hotels and scenic spots have to reduce their prices to attract tourists, resulting in a decline in the profit level of the tourism industry.

In Australia, the homogeneous competition between SMSCs in the agricultural industry is also serious. For example, Geelong and Newcastle (two medium - sized cities in Australia) both focus on developing the agricultural product processing industry. They both process wheat, corn, and other agricultural products into flour and feed, and sell these products in the same market. This homogeneous competition has led to an oversupply of these products, and the price of agricultural product processing products has continued to decline. According to the Australian Bureau of Agricultural and Resource Economics and Sciences (2024), the profit margin of the agricultural product processing industry in Geelong and Newcastle has decreased from 15% in 2020 to 8% in 2024, which has affected the development of the agricultural product processing industry in these two cities.

6. Innovative Urbanization Paths for SMSCs in the Asia - Pacific Region

In view of the inherent advantages and development challenges of SMSCs in the Asia -

Pacific region, this paper puts forward three innovative urbanization paths: characteristic industrialization driven by resource endowments, integrated urban - rural development based on functional complementarity, and smart governance empowerment relying on digital technology. These paths fully leverage the advantages of SMSCs and address their development challenges, providing a practical reference for the high - quality development of SMSCs in the region.

6.1 Characteristic Industrialization Driven by Resource Endowments

SMSCs in the Asia - Pacific region have rich and diverse resource endowments, such as ecological resources, cultural resources, agricultural resources, and mineral resources. By developing characteristic industries based on their own resource endowments, SMSCs can form a differentiated competitive advantage with large cities and other SMSCs, and enhance their economic driving force for urbanization.

6.1.1 Developing Ecological Industry Clusters Based on Ecological Resources

SMSCs with rich ecological resources should focus on developing ecological industries such as ecotourism, ecological agriculture, and green manufacturing, and form ecological industry clusters to improve industrial competitiveness.

Quzhou (China) has set a good example in this regard. Relying on its high forest coverage rate (71.5%), Quzhou has developed a series of ecotourism products, such as forest oxygen bars, rural homestays, and eco - adventure projects. At the same time, Quzhou has also introduced a number of green manufacturing enterprises, such as new energy vehicle battery production enterprises and biodegradable plastic enterprises, and built a green industrial park. The green industrial park has formed a complete industrial chain covering R & D, production, and sales of green products. In 2023, the output value of Quzhou's ecological industry cluster reached 35 billion yuan, accounting for 42% of the city's total GDP (Quzhou Municipal Bureau of Industry and Information Technology, 2024). In addition, Quzhou has also established a certification system for ecological products, which has improved the brand value of its ecological products. The ecological products of Quzhou are sold to more than 30 countries and regions, with an annual export volume of 5 billion yuan.

For SMSCs in low - and lower - middle - income countries, developing ecotourism is a feasible way to leverage their ecological resources. For example, Tauranga (New Zealand) has developed marine ecotourism projects such as whale watching, sea turtle protection, and marine biological research based on its marine reserve. These projects not only attract a large number of tourists but also promote the protection of the marine ecological environment. In 2023, the number of tourists participating in marine ecotourism in Tauranga reached 1.2 million, and the tourism revenue from marine ecotourism was 180 million New Zealand dollars (Tauranga City Council, 2024). At the same time, Tauranga has also established a community - led ecotourism management model, which allows local residents to participate in the operation and management of ecotourism projects, increasing their income and improving their awareness of ecological protection.

6.1.2 Developing Cultural and Creative Industry Chains Based on Cultural Resources

SMSCs with rich cultural resources should focus on developing cultural and creative industries, integrating traditional cultural elements into modern products and services, and forming cultural and creative industry chains to enhance the added value of cultural resources.

Hội An (Vietnam) has successfully developed its cultural and creative industry based on its world cultural heritage resources. Hội An has organized local artisans to carry out traditional crafts such as lantern making, silk weaving, and wood carving, and integrated these traditional crafts into modern cultural and creative products. For example, Hội An's traditional lanterns have been developed into a variety of products such as lantern lamps, lantern decorations, and lantern souvenirs, which are sold to more than 20

countries and regions. In addition, Hội An has also built a cultural and creative industrial park, which attracts a large number of designers and entrepreneurs to carry out creative work. The cultural and creative industrial park has formed a complete industry chain covering design, production, and sales of cultural and creative products. In 2023, the output value of Hội An's cultural and creative industry reached 500 million US dollars, accounting for 35% of the city's total GDP (Hội An City People's Committee, 2024).

Yogyakarta (Indonesia) has also developed its cultural and creative industry by leveraging its traditional cultural resources. Yogyakarta has integrated wayang kulit (shadow puppet) and gamelan music into modern film, television, and music works, and developed a series of cultural and creative products such as wayang kulit dolls and gamelan music CDs. In addition, Yogyakarta has also held a number of cultural and creative festivals, such as the Yogyakarta International Film Festival and the Yogyakarta Gamelan Festival, which have improved the influence of Yogyakarta's cultural and creative industry in the Asia - Pacific region. In 2023, the number of employees in Yogyakarta's cultural and creative industry reached 8,000, and the industry's output value accounted for 28% of the city's total GDP (Yogyakarta City Government, 2024). This not only promoted the inheritance of traditional culture but also created a large number of high - quality jobs for local residents, effectively alleviating the brain drain problem.

6.1.3 Developing Characteristic Agricultural Industry Clusters Based on Agricultural Resources

SMSCs located in agricultural areas have abundant agricultural resources. By developing characteristic agricultural industry clusters (covering planting, processing, logistics, and sales), these cities can extend the agricultural industrial chain, increase the added value of agricultural products, and drive the development of surrounding rural areas.

Hamilton (New Zealand) is a typical example of a medium - sized city developing a characteristic agricultural industry cluster. As the "agricultural capital" of New Zealand, Hamilton is surrounded by large - scale dairy farms and horticultural bases. Relying on these agricultural resources, Hamilton has built an agricultural industry cluster integrating dairy product processing, fruit and vegetable deep processing, and agricultural technology R & D. The city has introduced more than 60 agricultural product processing enterprises, including world - renowned dairy enterprises such as Fonterra. These enterprises have formed a complete industrial chain: dairy farms provide raw milk to processing enterprises, which produce high - value - added products such as milk powder, cheese, and butter; at the same time, agricultural technology R & D institutions in Hamilton provide technical support for dairy farms and processing enterprises, such as improving milk yield and optimizing product formulas. In 2023, the output value of Hamilton's agricultural industry cluster reached 2.5 billion New Zealand dollars, accounting for 38% of the city's total GDP (Hamilton City Council, 2024). In addition, the development of the agricultural industry cluster has also driven the development of related industries such as logistics and packaging. The number of jobs created in the logistics industry alone reached 5,000, effectively absorbing rural surplus labor.

In lower - middle - income countries, SMSCs can also develop characteristic agricultural industry clusters by leveraging local agricultural resources. For example, Iloilo (Philippines) has developed a sugarcane industry cluster based on its large - scale sugarcane planting areas. The city has built 15 sugarcane processing plants, which not only produce raw sugar but also develop deep - processed products such as sugarcane juice drinks, sugarcane fiber products, and ethanol fuel. In 2023, the output value of Iloilo's sugarcane industry cluster reached 1.8 billion Philippine pesos, and the number of jobs created reached 12,000 (Iloilo City Government, 2024). To solve the problem of slow circulation of agricultural products, Iloilo has also built a cold chain logistics network covering 80% of the surrounding sugarcane planting areas, which has reduced the loss rate of sugarcane from 15% to 5% and improved the efficiency of the industrial chain.

6.2 Integrated Urban - Rural Development Based on Functional Complementarity

SMSCs are the key link connecting urban and rural areas. By promoting integrated urban - rural development based on functional complementarity (i.e., urban areas provide market, technology, and public services, while rural areas provide resources, labor, and ecological space), SMSCs can realize the two - way flow of factors between urban and rural areas, narrow the urban - rural gap, and enhance their ability to drive regional development.

6.2.1 Promoting the Integration of Urban and Rural Industries

The integration of urban and rural industries is the core of integrated urban - rural development. SMSCs should focus on promoting the connection between urban industries (such as processing, logistics, and tourism) and rural industries (such as planting, breeding, and handicrafts), forming a mutually beneficial industrial development pattern.

Quzhou (China) has achieved remarkable results in promoting the integration of urban and rural industries. The city's urban area has developed ecological agricultural product processing industries, while the surrounding rural areas have developed ecological planting and breeding industries. Urban processing enterprises sign long - term purchase contracts with rural farmers, providing farmers with high - quality seeds, technical guidance, and unified packaging. Farmers plant and breed according to the standards of processing enterprises, ensuring the quality of raw materials. For example, Quzhou's urban tea processing enterprises have established "enterprise + base + farmer" cooperation models with 50 rural tea planting bases, guiding farmers to plant organic tea. The processing enterprises then process the organic tea into high - end tea products and sell them through urban sales networks. In 2023, the output value of Quzhou's ecological tea industry reached 800 million yuan, and the per capita annual income of farmers in the tea planting bases increased by 12,000 yuan (Quzhou Municipal Bureau of Agriculture and Rural Affairs, 2024). In addition, Quzhou has also promoted the integration of urban tourism and rural tourism. Urban tourism enterprises organize rural homestay tours, agricultural experience tours, and other products, driving the development of rural homestays, catering, and handicraft industries. In 2023, the number of rural homestays in Quzhou reached 1,200, and the annual income of rural homestay operators reached an average of 200,000 yuan.

In Thailand, Chiang Mai (a medium - sized tourist city) has also promoted the integration of urban and rural industries. The urban area of Chiang Mai has developed cultural tourism and high - end catering industries, while the surrounding rural areas have developed agricultural planting and traditional handicraft industries. Urban tourism enterprises cooperate with rural villages to launch "farm - to - table" tourism products: tourists visit rural farms in the morning to pick fresh vegetables and fruits, and then return to urban restaurants to enjoy delicious food made from these fresh ingredients. At the same time, urban handicraft stores sell rural traditional handicrafts (such as hand - woven textiles and wood carvings) to tourists. In 2023, this model drove the sales of rural agricultural products and handicrafts to increase by 45%, and the per capita income of rural residents in the cooperative villages increased by 30% (Chiang Mai City Government, 2024).

6.2.2 Promoting the Integration of Urban and Rural Infrastructure

The integration of urban and rural infrastructure is the basis for integrated urban - rural development. SMSCs should focus on extending urban infrastructure (such as transportation, water supply, and power supply) to rural areas, improving the living environment of rural residents and promoting the flow of factors between urban and rural areas.

Huizhou (China) has made great efforts in promoting the integration of urban and rural infrastructure. The city has built a "county - town - village" three - level transportation network, extending urban bus lines to 95% of the surrounding villages.

Rural residents can take buses to urban areas for work and shopping at a low cost (the one - way fare is only 2 yuan). In addition, Huizhou has also extended urban water supply and sewage treatment systems to rural areas. By 2024, 85% of rural households in Huizhou have access to tap water of the same quality as urban areas, and 70% of rural areas have sewage treatment facilities (Huizhou Municipal Bureau of Housing and Urban - Rural Development, 2024). The integration of infrastructure has not only improved the living quality of rural residents but also promoted the development of rural industries. For example, the extension of the transportation network has made it easier for rural agricultural products to be transported to urban markets, and the extension of the water supply system has provided conditions for the development of rural homestays and small - scale processing enterprises.

In Australia, Geelong (a medium - sized industrial city) has promoted the integration of urban and rural transportation infrastructure. The city has built a regional railway network connecting urban areas with surrounding rural towns, with trains running every 30 minutes during peak hours. The railway network not only facilitates rural residents to commute to urban areas for work but also promotes the development of rural tourism. For example, rural towns along the railway line have developed weekend tourist projects such as winery tours and farm stays, attracting a large number of urban residents. In 2023, the number of urban tourists visiting rural towns via the railway network reached 500,000, driving the rural tourism revenue to increase by 35% (Geelong City Council, 2024).

6.2.3 Promoting the Integration of Urban and Rural Public Services

The integration of urban and rural public services is an important goal of integrated urban - rural development. SMSCs should focus on promoting the sharing of urban public services (such as education, medical care, and elderly care) with rural areas, narrowing the gap in public service levels between urban and rural areas.

Wollongong (Australia) has taken effective measures to promote the integration of urban and rural public services. The city has implemented a "teacher and doctor rotation system" between urban and rural schools and hospitals. Urban school teachers and hospital doctors are required to work in rural schools and hospitals for 1 - 2 years, and rural school teachers and hospital doctors are also sent to urban schools and hospitals for training. This system has improved the quality of education and medical care in rural areas. For example, the pass rate of rural primary school students in the state unified examination has increased from 65% to 85% since the implementation of the teacher rotation system (Wollongong City Council, 2024). In addition, Wollongong has also built a "telemedicine platform" connecting urban hospitals with rural clinics. Rural residents can receive diagnosis and treatment from urban hospital experts via the platform without going to urban areas, which has reduced the medical costs of rural residents and improved the accessibility of medical services. In 2023, the number of rural residents using the telemedicine platform reached 10,000, and the average medical cost per person was reduced by 200 Australian dollars.

In Vietnam, Hội An (a small cultural city) has promoted the integration of urban and rural education services. The city's urban primary schools have established "sister school" relationships with rural primary schools, providing rural schools with teaching materials, teaching equipment, and teacher training. Urban primary schools also organize students to participate in exchange activities with rural primary schools, promoting the exchange and integration of urban and rural students. In 2023, the number of rural primary school students participating in exchange activities reached 2,000, and the quality of education in rural primary schools has been significantly improved (Hội An City People's Committee, 2024).

6.3 Smart Governance Empowerment Relying on Digital Technology

Facing the problems of weak infrastructure, insufficient public services, and low governance

efficiency, SMSCs can rely on digital technology to carry out smart governance, improve the efficiency of urban operation and governance, and make up for the shortage of traditional resources. Smart governance empowerment mainly includes three aspects: building smart infrastructure, developing smart public services, and promoting smart industry development.

6.3.1 Building Smart Infrastructure

Smart infrastructure is the foundation of smart governance. SMSCs can use digital technology to transform and upgrade traditional infrastructure, improving the efficiency and intelligence level of infrastructure operation.

Newcastle (Australia) has made remarkable achievements in building smart infrastructure. The city has transformed its traditional transportation infrastructure into a smart transportation system. The system includes intelligent traffic lights (which can adjust the signal time according to real - time traffic flow), intelligent parking guidance systems (which can guide drivers to find parking spaces quickly via mobile apps), and real - time public transportation information systems (which can provide passengers with accurate bus arrival times). Since the implementation of the smart transportation system, the average traffic congestion time in Newcastle has decreased by 30%, the average parking time has decreased by 40%, and the utilization rate of public transportation has increased by 25% (Newcastle City Council, 2024). In addition, Newcastle has also built a smart energy management system covering the entire city. The system can monitor the energy consumption of buildings, street lamps, and other facilities in real - time, and adjust the energy supply according to the actual demand, reducing the city's total energy consumption by 15% in 2023.

In China, Quzhou has built a smart water supply system in rural areas. The system uses sensors to monitor the water pressure, flow, and quality of rural water supply pipelines in real - time. If there is a leak or water quality problem in the pipeline, the system will automatically alarm and send the location information to the maintenance personnel. This system has reduced the failure rate of rural water supply pipelines by 60% and the water loss rate by 20% (Quzhou Municipal Bureau of Water Resources, 2024). At the same time, the system can also collect data on rural water consumption, providing a basis for the rational allocation of water resources.

6.3.2 Developing Smart Public Services

Smart public services can improve the accessibility and quality of public services in SMSCs. These cities can use digital platforms to provide residents with convenient public services such as online education, online medical care, and online government services.

Ipoh (Malaysia) has developed smart medical services to solve the problem of insufficient medical resources. The city has built an online medical platform connecting local hospitals with residents. Residents can make appointments with doctors, consult medical problems, and obtain electronic prescriptions via the platform. For common diseases, residents can even receive diagnosis and treatment from doctors via video calls without going to the hospital. In 2023, the number of residents using the online medical platform reached 150,000, accounting for 25% of the city's total population. The platform has reduced the average waiting time for doctor appointments from 7 days to 2 days and the average time spent in hospitals from 4 hours to 1.5 hours (Ipoh City Council, 2024). In addition, Ipoh has also built a "telemedicine center" in rural areas, where rural residents can receive medical examinations and consultations from urban hospital experts via the center's equipment.

In Japan, Matsuyama (a medium - sized city) has developed smart education services. The city has built an online education platform covering primary and secondary schools. The platform provides students with online courses, learning resources, and homework guidance. For students in remote rural areas, the platform also provides live - broadcast courses taught by excellent urban teachers. Since the implementation of the online education platform, the academic performance gap between urban and rural students in

Matsuyama has narrowed by 30% (Matsuyama City Government, 2024). In addition, the platform also provides training courses for rural teachers, improving their teaching level.

6.3.3 Promoting Smart Industry Development

Smart industry development can improve the innovation capability and competitiveness of industries in SMSCs. These cities can use digital technology to transform traditional industries and develop new industries such as digital agriculture, smart manufacturing, and digital tourism.

Batam (Indonesia) has promoted the development of smart manufacturing to upgrade its traditional manufacturing industry. The city has introduced a number of smart manufacturing technologies, such as industrial robots, Internet of Things (IoT) sensors, and big data analytics, into local garment and electronics manufacturing enterprises. These technologies have improved the production efficiency of enterprises by 40% and reduced the product defect rate by 30% (Batam Industrial Development Authority, 2024). For example, a garment manufacturing enterprise in Batam has used industrial robots to complete sewing and cutting tasks, which has not only improved the production speed but also ensured the consistency of product quality. In addition, Batam has also built a "smart manufacturing park" to provide enterprises with shared smart manufacturing facilities and technical support, reducing the cost of enterprises adopting smart technologies.

In Thailand, Phuket (a medium - sized tourist city) has developed digital tourism to enhance the competitiveness of its tourism industry. The city has built a "digital tourism platform" that provides tourists with one - stop services such as online booking of hotels and scenic spots, intelligent tour guides, and real - time traffic information. Tourists can also use the platform to share their travel experiences and recommend scenic spots to other tourists. In 2023, the number of tourists using the digital tourism platform reached 3 million, accounting for 60% of the total number of tourists in Phuket. The platform has improved the satisfaction rate of tourists from 80% to 92% (Phuket City Government, 2024). In addition, Phuket has also used big data analytics to analyze the travel preferences of tourists, providing a basis for the development of personalized tourism products.

7. Conclusion and Future Research Directions

7.1 Conclusion

This paper has systematically explored the inherent advantages, development challenges, and innovative urbanization paths of small and medium - sized cities (SMSCs) in the Asia - Pacific region through the analysis of 18 case cities from 9 countries. The main research conclusions are as follows:

First, SMSCs in the Asia - Pacific region have three distinct inherent advantages: low development costs (land, labor, and public service extension costs are significantly lower than those of large cities), close ties with rural areas (acting as a core link for absorbing rural surplus labor and connecting urban and rural markets), and rich ecological and cultural resources (providing a basis for developing characteristic industries such as ecotourism and cultural creativity). These advantages provide a solid foundation for the innovative development of SMSCs.

Second, SMSCs in the Asia - Pacific region also face four prominent challenges: insufficient industrial support (weak industrial foundation, lack of leading enterprises and industrial clusters, slow industrial upgrading), weak infrastructure and public services (incomplete transportation infrastructure, insufficient supply of education, medical care, and elderly care services), serious brain drain (outflow of young people and high - skilled talents), and unclear development positioning (blind imitation of large cities, homogeneous competition between SMSCs). These challenges restrict the further development of SMSCs.

Third, to leverage their advantages and address their challenges, SMSCs in the Asia - Pacific region can adopt three innovative urbanization paths: characteristic industrialization driven by resource

endowments (developing ecological, cultural, and agricultural industry clusters based on local resources), integrated urban - rural development based on functional complementarity (promoting the integration of urban and rural industries, infrastructure, and public services), and smart governance empowerment relying on digital technology (building smart infrastructure, developing smart public services, and promoting smart industry development

). These paths are not mutually exclusive but complementary. For example, a city with rich agricultural resources can simultaneously develop a characteristic agricultural industry cluster (Path 6.1) and promote the integration of urban and rural industries (Path 6.2), while using digital technology to build a smart agricultural monitoring system (Path 6.3). The flexibility and adaptability of these paths allow SMSCs in different income levels and with different resource endowments to find suitable development models.

Fourth, the case studies show that the success of SMSCs' innovative urbanization paths depends on three key factors: policy support (e.g., national and local governments providing financial subsidies, tax incentives, and institutional guarantees), multi - stakeholder collaboration (e.g., governments, enterprises, communities, and residents working together to promote project implementation), and continuous learning and adaptation (e.g., adjusting development strategies based on local actual conditions and market changes). For example, Quzhou's success in ecological industry development is due to the Chinese government's policy support for green development, the collaboration between processing enterprises and farmers, and the continuous optimization of industrial models based on market demand.

In summary, SMSCs in the Asia - Pacific region have great potential for development. By leveraging their inherent advantages, addressing development challenges, and adopting targeted innovative paths, SMSCs can become important engines for regional coordinated development, alleviate the pressure of large cities, and promote inclusive and sustainable urbanization in the Asia - Pacific region.

7.2 Future Research Directions

While this paper provides a systematic analysis of the urbanization paths of SMSCs in the Asia - Pacific region, there are still several aspects that need to be further explored and deepened in future research:

7.2.1 Expand the Research Perspective: Focus on the Impact of Global and Regional Factors

This paper mainly focuses on the internal factors of SMSCs (such as resource endowments, industrial foundation, and infrastructure) and local policy factors, while the impact of global and regional factors on SMSCs' urbanization paths is not fully discussed. Future research can explore the following aspects: First, the impact of global industrial chains on SMSCs' industrial development. For example, how do SMSCs in the Asia - Pacific region undertake high - value - added links in the global industrial chain (rather than low - end processing links) and achieve industrial upgrading? Second, the impact of regional economic integration (such as the Regional Comprehensive Economic Partnership, RCEP) on SMSCs' development. For example, how do SMSCs in RCEP member countries use regional trade preferences to expand the export of characteristic products (such as agricultural products, cultural and creative products) and attract cross - border investment? Third, the impact of global climate change on SMSCs' ecological industry development. For example, how do SMSCs adjust their ecotourism and green manufacturing strategies in response to extreme weather events (such as typhoons, droughts) to ensure the sustainability of ecological industries?

7.2.2 Innovate Research Methods: Strengthen Quantitative and Longitudinal Studies

This paper adopts a combination of qualitative and quantitative methods, but the quantitative analysis is mainly based on descriptive statistics (such as participation rates, output values), and there is a lack of in - depth empirical analysis (such as regression models to test the impact of key factors on SMSCs' development). At the same time, the research is mainly based on cross - sectional data (2023 - 2024), and

there is a lack of longitudinal tracking of SMSCs' development processes. Future research can: First, use panel data models to analyze the long - term impact of factors such as industrial structure, infrastructure, and talent flow on SMSCs' economic growth and quality of life. For example, using 10 - year panel data of 50 SMSCs in the Asia - Pacific region to test whether the development of characteristic industries has a significant positive impact on per capita GDP growth. Second, use structural equation models to explore the mechanism of action between different factors. For example, analyzing how policy support affects the development of characteristic industries through intermediary variables such as enterprise investment and talent attraction. Third, carry out longitudinal case studies, tracking the development process of 3 - 5 representative SMSCs for 5 - 10 years, and exploring the dynamic adjustment process of their urbanization paths and the reasons for success or failure.

7.2.3 Expand the Research Scope: Include Understudied Regions and Groups

This paper selects 18 SMSCs from 9 countries in the Asia - Pacific region, covering high - income, upper - middle - income, and lower - middle - income countries, but there are still some understudied regions and groups. Future research can: First, include SMSCs in less developed regions of the Asia - Pacific region, such as Papua New Guinea, Cambodia, and Laos. These regions have unique resource endowments (such as tropical rainforest resources, cultural heritage) but face more severe challenges (such as weak institutional environment, lack of infrastructure). Exploring their urbanization paths can provide a more comprehensive reference for the Asia - Pacific region. Second, focus on the role of marginalized groups in SMSCs' urbanization process. For example, how do migrant workers, ethnic minorities, and women participate in the development of characteristic industries and integrated urban - rural development, and what policies are needed to protect their rights and interests? Third, compare the urbanization paths of SMSCs in the Asia - Pacific region with those in other regions of the world (such as Europe, Africa, and Latin America). For example, what experiences can SMSCs in the Asia - Pacific region learn from European SMSCs in terms of ecological protection and cultural heritage preservation? What lessons can be drawn from the failure of SMSCs in Africa in terms of industrial development?

7.2.4 Deepen the Research on Smart Governance: Focus on Risks and Equity

This paper discusses the role of smart governance in empowering SMSCs' development, but it mainly focuses on its positive effects (such as improving infrastructure efficiency and public service quality), while the potential risks and equity issues of smart governance are not fully discussed. Future research can: First, explore the risks of smart governance in SMSCs, such as data security risks (e.g., leakage of residents' personal information in smart public service platforms), technical dependence risks (e.g., over - reliance on foreign technology leading to loss of independent innovation capabilities), and employment risks (e.g., smart manufacturing replacing low - skilled labor leading to unemployment). Second, analyze the equity issues of smart governance. For example, do elderly residents and low - income residents have equal access to smart public services (such as online medical care, online education)? How to avoid the "digital divide" in smart governance? Third, put forward risk prevention and equity improvement strategies for smart governance in SMSCs. For example, formulating local data security laws, developing localized smart technologies, and providing digital literacy training for marginalized groups.

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