

Original Paper

Research on Spatial Planning Layout of Inclusive Pre-school Education Resources in Chengdu City

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Abstract

With the population gathering in urban centers, the spatial distribution of preschool education resources is becoming increasingly important. Families want their children to receive education at the kindergartens located near their homes. Public kindergartens and inclusive private kindergartens recognized by districts (cities) and counties are important components of the public preschool education system. In 2012, the State Council published the "Twelfth Five-Year Plan for the National Basic Public Service System", which first clarified the concept definition of basic public services, that is, services provided by the government based on social consensus, in line with the level of social and economic development, and aimed at meeting the survival and development needs of all citizens. Therefore, it can be judged that preschool education is an important basic public service. To solve the current problem of unreasonable spatial distribution of preschool education resources, Chengdu has proposed the goal of building a "15-minute preschool education service circle", by rational planning and layout, to increase the coverage and utilization rate of preschool education resources, and meet the needs of families for preschool education. This study, through analyzing the new trends of population mobility in various districts (cities) and counties in Chengdu and the allocation of preschool education resources, found that the coverage rate of inclusive kindergartens in Chengdu has reached more than 85%, and the proportion of children in public kindergartens has basically reached 50%.

Keywords

inclusive preschool education, inclusive kindergartens, spatial layout of preschool education resources

1. Introduction

Constructing a high-quality education system is the main policy direction and basic requirement for China's educational reform in the new era. Promoting "providing early childhood education for all,"

"providing good early childhood education for all," and "providing excellent early childhood education for all" are the goals of China's high-quality early childhood education system construction. In the new era, the development of inclusive early childhood education is moving from "providing basic services" to "providing quality services" and entering a new stage of improving quality and efficiency. In the process of building a public service system for early childhood education, inclusive kindergartens play an important role as the main channel. The report of the 19th National Congress proposed to build a public service system of "providing early childhood education for all" which is an important practice of social security in the field of education, based on the principles of fairness, public welfare, and inclusivity. It is also the best educational expression of achieving the ten projects of a happy and beautiful life. On November 7, 2018, "Several Opinions on Deepening the Reform and Standardizing the Development of Preschool Education" issued by the State Council proposed to "promote inclusive, affordable, high-quality development of preschool education." On December 15, 2021, the Ministry of Education and eight other departments issued the "Action Plan for the Development and Promotion of Preschool Education in the 14th Five-Year Plan", which pointed out that "achieving inclusive, affordable, and high-quality development of preschool education as an important task to improve the level of public services and promote common prosperity."

On November 16, 2022, the Sichuan Provincial Department of Education and eight other departments issued the "Implementation Plan for the Development and Promotion Action Plan of Preschool Education in Sichuan Province in the 14th Five-Year Plan", which clearly proposed to "improve the mechanism for ensuring inclusive pre-school education resources, teacher team construction, funding investment and cost sharing to enhance the level of public services in pre-school education. Optimize the layout of urban and rural kindergartens, continue to increase public and inclusive private pre-school education resources, further increase the popularization level of pre-school education, and consolidate the results of popularization and inclusivity." In the same year, 18 prefecture-level cities and 3 autonomous prefectures in Sichuan Province have subsequently released their implementation plans for the development and promotion of preschool education in the 14th Five-Year Plan. According to the overall requirements of the Action Plan, it is expected that by 2025, the gross enrollment rate of pre-school education in Sichuan Province will reach over 92%, the coverage rate of inclusive kindergartens (public kindergartens and inclusive private kindergartens) will reach over 86%, and the proportion of public kindergartens will reach over 55%.

With the accelerated construction of national central cities, Chengdu's population is increasing by 500,000 per year, and weak links in the educational public service system are posing challenges to educational modernization governance. "Providing excellent early childhood education for all" is a new concept put forward by Chengdu's pre-school education in moving towards high-quality inclusivity. The "Third Action Plan for Preschool Education in Chengdu (2017-2020)" pointed out that an early childhood education development pattern should be formed with public and non-profit kindergartens as the main body, further improving a reasonable and balanced public service system for early childhood

education. After nearly five years of effort, Chengdu's inclusive pre-school education career has taken a new step forward. The resource structure and spatial layout planning of inclusive pre-school education resources in each district are becoming more scientific and reasonable.

2. Literature Review

Scholars from countries such as the United States, Australia, New Zealand, etc. mainly studied inclusive pre-school education issues from the perspectives of development difficulties, development models, path selection, etc. In particular, the promotion of the U.S. VPK project (providing free voluntary inclusive pre-school education to all 4-year-old children in the state), the experience of the U.S. PPP model, the legislative guarantee for inclusive pre-school education support in different European countries, and Sweden's government's public service orientation of full coverage, high inclusivity, and high welfare. Although some achievements have certain academic significance, due to limitations such as national conditions, research purposes, and conditions, the results are mainly based on case studies and promotion experiences.

The relevant research on the public service system of pre-school education. In 2012, the State Council promulgated the "National Basic Public Service System Planning for the 12th Five-Year Plan", which clarified the concept definition of basic public services for the first time. That is, "basic public services refer to those provided by the government based on social consensus, in line with the level of social and economic development, aiming to ensure the survival and development needs of all citizens." Therefore, it can be judged that pre-school education is an important basic public service with distinct public service characteristics. Scholars believe that pre-school education public services refer to those led by the government and provided by pre-school institutions as the main body, with participation from social enterprises and other organizations (Hui & Chu, 2013). Through the formulation and implementation of a series of relevant policies and rules and regulations, they are guaranteed (Yuan, 2013), with most costs borne by public finance and most families with financial difficulties receiving government assistance (Li, 2011). From the perspective of social security ethics, the orientation of pre-school education public service system should take children's happiness and development as the starting point and endpoint. Based on principles of fairness, public welfare, compensation, and inclusivity, it provides a widely accessible educational system that covers all children (Zhu, 2020). The pre-school education public service system highlights the value orientation of "fairness, public welfare, and inclusivity". From the perspective of public administration and management, it establishes a macro value concept system, a meso organizational system, and a micro service practice system (Wang, 2014). Building a high-quality education system is an era requirement for education in the 14th Five-Year Plan. Pre-school education is the weakest link in the education system and needs to further clarify its basic characteristics such as publicity, government leadership, diversity, balance, innovation, and safeguard (Hui & Chu, 2013). The three aspects of public demand, government investment, and

institutional promotion are the driving force mechanism for promoting the construction of pre-school education public service system (Yu, 2014).

The relevant research on inclusive pre-school education public service system. The construction of an inclusive pre-school education public service system is crucial to achieving the goal of "providing early childhood education for all". Specifically speaking, from a policy perspective, "wide coverage and ensuring basic needs" are requirements for achieving universal access to pre-school education; from an academic perspective, scholars are more concerned with quality evaluation and institutional safeguards for inclusive kindergartens. Currently, one prominent issue in the inclusive pre-school education public service system is that the cost-sharing mechanism for pre-school education places a high burden on families. To provide "accessible", "affordable", and "basic quality" pre-school education to the general public requires further strengthening government responsibility and the effectiveness of fiscal appropriations (Liu, 2020). In guiding and supporting non-profit kindergartens to provide inclusive services to society, some scholars have borrowed experience. Firstly, non-profit institutional design should be implemented in the construction of inclusive pre-school education public service system. Secondly, combining "addressing needs" with "providing inclusivity". Finally, establishing a management and supervision system that combines internal and external factors (Liu, 2020). In gradually clarifying the positioning of an inclusive pre-school education public service system as "inclusivity based on public welfare" (Yu, 2014), new trends in birth population changes and growth in urban migration have raised higher requirements for the construction of pre-school education public service system. Some scholars have asked "who really needs pre-school education? What kind of pre-school education do they need?" (Zhao, 2021). Under the influence of the relationship between family and pre-school education, it is not only about the policy support provided by the top-level government design. The construction of an inclusive pre-school public service system should also comprehensively consider the impact of the economic function, parenting function, and teacher allocation and introduction of local resident families on the development of inclusive pre-school education in the region.

3. Policy Text Analysis of Inclusive Pre-school Education Resources in China

3.1 2017 "On Implementing the Third Phase of Action Plan for Preschool Education"

The first principle is to fully consider the needs of population policy adjustments and urbanization processes, optimizing the layout of kindergartens. The first key task is to increase the supply of inclusive resources. Priority should be given to strengthening kindergartens in poverty-stricken areas, regions with a high concentration of families with two children, and urban-rural junctions. We will vigorously develop public kindergartens to provide inclusive pre-school education services that cover a wide area and ensure basic education. We will actively encourage social forces to run kindergartens, supporting inclusive private kindergartens. Conditions for running a kindergarten should be improved to meet the basic needs of educational activities. The first policy measure is to develop inclusive

kindergartens. A batch of kindergartens should be arranged for new construction, renovation, and expansion year by year, supporting the establishment of kindergartens by state-owned enterprises and collectives, and expanding public resources. Old city areas, shantytowns, and new urban and residential areas should be built with kindergartens as needed.

3.2 2018 "Several Opinions of the State Council on Preschool Education Reform and Development"

The fourth principle of optimizing layout and management structure is to plan scientifically. Each region should fully consider population changes and urbanization trends, combining with the implementation of rural revitalization strategies to formulate plans to meet the demand for preschool education. Develop a layout plan for kindergartens at the county level, incorporating the construction of inclusive kindergartens into the unified planning of urban and rural public management and public service facilities. If there are insufficient public resources in urban areas with public kindergartens, a number of public kindergartens should be built or renovated. The seventh principle of expanding resources by actively tapping growth is to encourage support for the establishment of public kindergartens by streets, collective villages, and powerful state-owned enterprises. The eighth principle of expanding resources by broadening channels is to standardize the construction and use of supporting kindergartens in residential areas. By June 2019, each province (autonomous region, municipality directly under the Central Government) should formulate a management method for supporting kindergartens in residential areas. Old city areas (shantytowns), renovation of new cities and residential areas, and resettlement from difficult terrains should include the construction of supporting kindergartens in public management and public service facilities construction plans, in accordance with relevant standards and specifications. The local government should take overall responsibility for supporting kindergartens, run them as public kindergartens or entrust them as inclusive private kindergartens, without running them as lucrative private kindergartens.

3.3 2019 "Notice of the General Office of the State Council on Launching a Campaign to Govern Urban Residential Area Supporting Kindergartens"

The first task of job responsibilities is to strictly build kindergartens in accordance with the requirements of residential areas. It strictly follows the "People's Republic of China Urban Planning Law" and "City Residential Area Planning Design Standards" (GB50180). The renovation of old city areas (shantytowns), the development of new cities and residential areas, as well as resettlement from difficult terrains should include the construction of supporting kindergartens in public management and public service facilities construction plans, in accordance with relevant standards and specifications. The second task of job responsibilities is to ensure that supporting kindergartens in residential areas are handed over on schedule. Supplementary questions: Kindergartens that have been built in residential areas should be handed over to local education administrations in accordance with regulations. Relevant departments should handle land registration, property registration, and asset registration procedures for handed-over kindergartens. The third task of job responsibilities is to standardize the use of supporting kindergartens in residential areas. After handing over to local education administrations,

supporting kindergartens in residential areas should be run as public kindergartens or entrusted as inclusive private kindergartens, without running them as lucrative private kindergartens. For those run as public kindergartens, local governments and relevant departments should complete agency registration, staffing allocation, etc.; for those entrusted as inclusive private kindergartens, relevant departments should conduct a review of the qualifications, management capabilities, hygiene and safety, and quality of education and management provided by related institutions, clarify subsidy standards, strengthen dynamic supervision on inclusivity and quality.

3.4 The "Supervision and Evaluation Method for the Popularization and Equity of County-level Preschool Education" in 2020

Article 6, Section 2 of the main indicators and standards for popularization and equity levels states that the coverage rate of inclusive and equitable preschool education is 80% of public and inclusive non-profit private schools combined. Article 7, Section 2 of the main indicators and standards for government guarantees states that the development plan is scientific and reasonable. Develop a layout plan for kindergartens, integrate the construction of inclusive non-profit private kindergartens into urban and rural public management and public service facilities, and include it in the local development plan.

3.5 The "Action Plan for the Development and Improvement of Preschool Education in the 14th Five-Year Plan" in 2021

Policy measures include: first, optimizing the layout of inclusive and equitable resources. Promoting educational equity, increasing the supply of inclusive resources, fully considering changes in population, rural revitalization, and urban development trends, carefully calculating the demand for kindergarten places each year, improving the layout plan for inclusive kindergartens in counties (districts), and adjusting it every three years on principle. Combining with the implementation of the three-child birth policy and local conditions, timely revising and adjusting the residential community population to provide inclusive services and meet the need for nearby schooling. Policy measures also include: second, promoting the expansion and enhancement of inclusive resources. The state will implement the education quality expansion project and education power promotion project to build new or renovate and expand public kindergartens, support population-concentrated inflow areas, rural areas, "three areas and three states", counties in areas outside of the original contiguous poverty-stricken areas, and key development areas outside of the national development plan. Each region will implement kindergarten construction projects to complement inclusive resources, ensuring that preschool education resources are fully covered in urban and rural areas.

3.6 National Policy Paper of Inclusive Preschool Education Resources in 2017-2021

During the period from 2017 to 2021, national policies on inclusive and equitable preschool education resources have consistently emphasized the principles of "adhering to public welfare and inclusivity," "promoting public-private cooperation," "increasing the supply of inclusive resources," and "developing inclusive kindergartens." In addition, it has further emphasized "enhancing the ability of

public kindergartens to provide inclusive pre-school education services." A policy orientation that has become a turning point in the development of an inclusive kindergarten system is proposed: "By 2020, a widely accessible, fundamentally sound, and quality early childhood education public service system will be basically established. The national gross enrollment rate for three-year preschool will reach 85%, and the coverage rate of inclusive kindergartens (the number of children in public and inclusive non-profit private kindergartens divided by the total number of children in kindergartens) will reach about 80%. The concepts of 'inclusive pre-school education' and 'inclusive pre-school education services' have become new directions. The target of an 80% coverage rate for inclusive kindergartens has become a policy goal and a guide for action. In order to further achieve the development goal of inclusivity and equity, it is emphasized that "for provinces where the proportion of children in public kindergartens is relatively low, the proportion of children in public kindergartens should be gradually increased until it reaches about 50% nationwide by 2020. Each region can determine its specific development goals based on actual conditions. Private kindergartens should be actively supported to provide inclusive services, while non-profit private kindergartens should be regulated for development. This will meet parents' diverse needs for school selection." The proposed proportion of public kindergartens has laid a foundation for the ultimate realization of an inclusive kindergarten system and clarified a new pattern of development with a ratio of 5:3:2. At the same time, community-based kindergartens of urban areas are an important source of incremental inclusive kindergartens. If community-based kindergarten renovation is not completed properly, it will affect the achievement of an 80% inclusive goal overall. The development of national-level policies provides guidance for provinces and cities to promote inclusive pre-school education policies at the top level.

4. Research Data Sources

4.1 The Population of the Administrative Divisions of Various Districts (Cities) in Chengdu

The research team obtained the permanent resident population of Chengdu's districts (cities) and counties based on the population situation of the sub-administrative divisions in the Seventh National Census Bulletin of Chengdu (No.7) to provide a demographic basis for the spatial layout of inclusive pre-school education resources in each district (city) and county in Chengdu.

According to the results of the Seventh National Census, as of 00:00 on November 1, 2020, the specific data of the permanent resident population of the 20 districts (cities) and counties in Chengdu are as follows: (1) There are 8 districts (cities) and counties with a permanent resident population of more than 1 million, including Jinniu District, Wuhou District, Chenghua District, Longquan District, Xindu District, Shuangliu District, Pidu District, and Jianyang City. Among them, the top five districts (cities) and counties in terms of permanent resident population are Shuangliu District, Wuhou District, Pidu District, Xindu District, and Chenghua District. (2) There are 9 districts (cities) and counties with a permanent resident population between 500,000 and 1 million; there are 2 districts (cities) and counties

with a permanent resident population between 300,000 and 500,000; there is 1 district (city) and county with a permanent resident population of less than 300,000.

4.2 The Situation of Kindergartens in Various Districts (Cities) and Counties in Chengdu

The research team referred to the "2022 Chengdu Statistical Bulletin on the Development of Educational Undertakings" published on the official website of the Chengdu Municipal Education Bureau. In the category of preschool education, there were 2,821 kindergartens in Chengdu in 2022, with 662,800 children in the kindergartens. Among them, there were 369,900 children in public kindergartens, accounting for 55.81% of the total; there were 558,000 children in inclusive kindergartens, and the coverage rate of inclusive kindergartens reached 84.18%. There were 105,800 staff members, including 515,000 full-time teachers.

Compared with the data of 2020 and 2021, the number of kindergartens has continued to grow steadily, and the proportion of children in the kindergartens has increased. According to the 2020 and 2021 Chengdu Statistical Bulletins on the Development of Educational Undertakings, there were 2,732 kindergartens in Chengdu in 2020, with 632,100 children in the kindergartens; there were 2,773 kindergartens in the city in 2021, with 649,700 children in the kindergartens. The coverage rate of inclusive kindergartens increased by 1.33%.

5. Research Results

5.1 New Characteristics and Trends of Population Development in Chengdu

According to the Seventh National Census of 2020, the permanent resident population of Chengdu is 20,937,800, making it one of the super-large cities in China. According to the population census data, there are 8 regions in the city with a permanent resident population of more than 1 million, an increase of 6 compared with the Sixth National Census in 2010. This indicates that the population of Chengdu is further concentrated in the central urban area, and at the same time, the number and scope of the central urban area are constantly expanding. It has now been upgraded to the 12+2 region. In the past ten years, Chengdu has gradually formed a spatial hierarchy of "central urban area + suburban new town", showing new characteristics of population development with "an increase in regions with a population of over one million and a clear trend of population concentration in the central urban area".

5.1.1 The Impact of Administrative Division Adjustments of Townships (Streets) on Population Development in Various Districts (Cities) and Counties in Chengdu

On October 15, 2019, the Work Forum on the Adjustment and Mechanism Reform of the Sub-district (Street) Administrative Division was held in Chengdu. After this adjustment and reform, the adjustment plans of the sub-district (street) administrative divisions in various districts (cities) and counties in Chengdu have also been introduced successively. Some districts (cities) and counties have made more obvious adjustments, such as Qingyang District, which now has 14 streets, 12 after adjustment; Jianyang City, which now has 58 towns (streets), 37 after adjustment; Pujiang County, which now has 12 towns (streets), 8 after adjustment; Pidu District, which now has 16 towns (streets),

12 after adjustment; Wuhou District, which now has 13 streets, 11 after adjustment.

The adjustment of the sub-district (street) administrative divisions in various districts (cities) and counties in Chengdu optimizes resource allocation. Through the adjustment of the sub-district (street) administrative divisions, the government can better optimize resource allocation and improve resource utilization efficiency. The government merges or splits the sub-districts (streets) to promote the coordinated development of urban and rural areas, better coordinate urban and rural resources, optimize the spatial layout of urban and rural areas, and promote the coordinated development of urban and rural economy and society. However, the adjustment of the sub-district (street) administrative divisions may lead to the redivision of school districts and the redistribution of educational resources, which may affect the allocation of preschool education resources. After the adjustment, the government needs to reevaluate and adjust the distribution of preschool education resources to ensure the popularity and quality of preschool education. Therefore, after the adjustment of the sub-district (street) administrative divisions in various districts (cities) and counties, there will be corresponding changes in regional population mobility, changes in population distribution and population mobility trends, and some sub-districts (streets) will have a sharp increase in population. The proportion of population entering the central urban area has increased significantly, and the allocation of educational resources will further concentrate in the central urban area. The suburban new towns will also plan reasonable population growth, optimize population layout, and adapt to the possible impact of administrative division adjustment on population mobility, population growth, population structure, urbanization process, and public service facilities.

5.1.2 The Impact of GDP on Population Development in Various Districts (Cities) and Counties in Chengdu

Based on the administrative division adjustments, the research team collected the population and GDP indices of various districts (counties) in Chengdu in 2020, 2021, and 2022. Through the presentation of data and trend interpretation, we reveal the general trend characteristics of population and economic development in various districts.

Firstly, in terms of the overall trend, from 2020 to 2022, the GDP of various districts (counties) in Chengdu generally presented a growth trend. However, the growth rate of each district (county) was inconsistent. Among them, the GDP of Gaoxin District in 2022 was the highest at 301.58 billion yuan, while Pujiang County had the lowest GDP at 21.15 billion yuan. These two extremes represent the highest and lowest levels of economic development among regions. The high GDP of Gaoxin District plays an important role in Chengdu's economic development, which is closely related to its positioning as a high-tech industrial concentration area in Chengdu. The development of its high-tech industries, technological innovation, and high-quality talent resources have jointly contributed to its high-level economic development. However, Pujiang County's economic development is relatively lagging behind, which may be related to issues such as a single industrial structure, poor transportation, and brain drain

in the region. Nevertheless, with the increasing attention and policy support for economic development in western regions, Pujiang County is expected to achieve catch-up in future development.

Secondly, in terms of the characteristics of each district (county), GDP growth rate and population size present different characteristics. For example, the GDP of Xindu District increased from 87.795 billion yuan in 2020 to 103.26 billion yuan in 2022, while the GDP of Shuangliu District increased from 100.204 billion yuan in 2020 to 113.1 billion yuan in 2022. Additionally, the population size of each district (county) varies, with Xindu District having the largest population at 1.5585 million people and Pujiang County having the smallest population at 0.2556 million people. From the trend perspective, there is certain volatility in both the GDP growth rate and population size of each district (county). Among them, districts (counties) with a fast GDP growth rate include Gaoxin District, Longquanyi District, Jinniu District, etc., while districts (counties) with a fast population growth rate include Xindu District, Shuangliu District, etc.

With the acceleration of population change trends, the issue of the rational allocation of resources for preschool education has received widespread attention from researchers. In order to further improve the allocation of preschool education resources and address the phenomenon of population concentration in central urban areas, researchers believe that for regions with high, medium, or low GDP indices, reasonable preschool education development plans should be formulated based on local economic and social development levels and preschool education needs. This includes increasing investment in preschool education, expanding the scale of kindergartens, and improving teachers' welfare in order to attract more outstanding teachers and improve preschool education conditions. At the same time, to address the phenomenon of population concentration in central urban areas, government departments can consider building more kindergartens outside central urban areas to meet the preschool education needs of surrounding areas. Additionally, through policy guidance and financial support, social forces can be encouraged to invest in establishing kindergartens to increase the supply of preschool education.

Table 1. Table of the Permanent Population of the 7th National Census in Various Districts (Cities) and Counties in Chengdu

Serial number	District (city) and county	permanent population of the 7th National Census in 2020 (10 thousand people)
1	Xindu District	155.85
2	Shuangliu District	146.58
3	Pidu District	139.09
4	Chenghua District	138.19
5	Longquanyi District	134.62
6	Jinniu District	126.54
7	High-tech Zone	125.75

8	Wuhou District	120.66
9	Wenjiang District	96.79
10	Qingyang District	95.6
11	Jinjiang District	90.29
12	Tianfu New Area	86.62
13	Jintang County	80.04
14	Pengzhou City	78.04
15	Jianyang City	73.82
16	Chongzhou City	73.57
17	Dujiangyan City	71.01
18	Qionglai City	60.3
19	Dayi County	51.6
20	Qingbaijiang District	49.01
21	Eastern New Area	37.91
22	Xinjin District	36.36
23	Pujiang County	25.56

Table 2. Table of the GDP of Various Districts (Cities) and Counties in Chengdu from 2020 to 2022

Serial number	District (city) and county	GDP (100 million yuan) in 2020	GDP (100 million yuan) in 2021	GDP (100 million yuan) in 2022
1	High-tech Zone	2401.88	2800.56	3015.80
2	Longquanyi District	1355.19	1504.39	1545.70
3	Jinniu District	1329.94	1472.89	1499.10
4	Qingyang District	1304.84	1454.93	1496.40
5	Wuhou District	1232.29	1358.77	1372.70
6	Chenghua District	1103.29	1273.27	1360.60
7	Jinjiang District	1145.90	1260.64	1304.20
8	Shuangliu District	1002.04	1130.56	1131.00
9	Xindu District	877.95	1000.11	1032.60
10	Pidu District	655.63	724.19	751.00
11	Wenjiang District	623.84	688.13	717.10
12	Qingbaijiang District	559.07	620.16	650.70
13	Tianfu New Area	518.78	602.98	669.00
14	Pengzhou City	507.37	601.99	638.90
15	Jintang County	468.89	524.38	602.90

16	Dujiangyan City	441.7	484.28	483.70
17	Jiayang City	551.34	469.07	470.40
18	Xinjin District	400.59	444.41	469.10
19	Chongzhou City	405.85	442.59	461.80
20	Qionglai City	350.84	386.31	400.60
21	Dayi County	300.67	317.41	329.90
22	Pujiang County	178.18	203.94	211.50
23	Eastern New Area	Unestablished	151.02	202.60

5.2 Inclusive Preschool Education Resource Allocation in Each District (City) and County in Chengdu

In the "14th Five-Year" Action Plan for the Development and Promotion of Preschool Education in Chengdu, the Chengdu Municipal Education Bureau has set overall goals for the development of Chengdu's preschool education, including achieving an 88% coverage rate of inclusive kindergartens, a 85% or more proportion of preschool teachers receiving professional education, and the acceleration of new construction, expansion, and reconstruction of public kindergartens in areas. Based on population migration trends in each district (city) and county in Chengdu, the research team has focused on areas with relatively high population and GDP.

5.2.1 The Characteristic Cases of Inclusive Preschool Education Development in Each District (City) and County in Chengdu

Firstly, the high-tech zone has comprehensively promoted the inclusive and high-quality development of preschool education. Currently, there are 14 kindergartens of various levels in the high-tech zone, providing a total of 44,700 places, with a three-year preschool enrollment rate continuously above 99%. Among them, there are 2 provincial demonstration kindergartens, 13 municipal kindergartens, and 90 secondary kindergartens in the high-tech zone, with a coverage rate of high-quality preschool education resources reaching 85.88%.

Secondly, Jinniu District has taken another step forward in the high-quality development of preschool education. In 2023, Jinniu District added 4 Sichuan demonstration kindergartens, namely Chengdu Jinxiyi Kindergarten, Chengdu Shiwu Kindergarten, Chengdu Jiuyi Kindergarten, and Chengdu Shiyi Kindergarten. This marks Jinniu District's active optimization of the layout of preschool education resources, and acceleration of high-quality development of preschool education through various channels such as the establishment of provincial demonstration kindergartens.

Thirdly, Xindu District has innovatively explored a new path for "running kindergartens in towns and villages" to provide inclusive and high-quality preschool education at home. In 2022-2023, Xindu District added 13 public kindergartens in towns and villages with a total of 6780 places, which has effectively promoted the preschool education in the region. The public-based character of inclusive education has been highlighted.

Fourthly, Shuangliu District has passed the national evaluation and recognition of preschool education through the national supervision and evaluation of county-level preschool education. Shuangliu District is one of the top eight districts in Chengdu's population. In recent years, it has increased the supply of places by building new kindergartens, expanding existing ones, promoting the conversion of private kindergartens into public ones, and carrying out governance of residential kindergartens. In 2019, the proportion of public kindergartens in Shuangliu District was 27.4%. By 2022, it had exceeded the evaluation standard for creating an inclusive and accessible preschool education county, with the proportion of public kindergartens reaching 50%. Shuangliu District's exploration is a reflection of Chengdu's active construction of a public service system for inclusive, accessible, safe, and high-quality preschool education.

In addition, in order to optimize the layout of rural kindergartens, Chengdu has also used the layoffs from primary schools to prioritize the construction of public kindergartens. At the same time, it has strengthened the standardization of the construction and use of supporting kindergartens, and plans to add no less than 60,000 public kindergarten places.

Overall, each district and county in Chengdu is actively promoting the allocation of inclusive preschool education resources to improve the popularity of preschool education and the coverage of high-quality educational resources. For more information, please refer to the official website of relevant district or county governments for their published documents or announcements.

5.2.2 The Spatial Layout of Inclusive Pre-school Education in Various Districts (Cities) of Chengdu

During the "Thirteenth Five-Year Plan" period, the coverage rate of high-quality pre-school education in Chengdu reached 80.2%. During the "Fourteenth Five-Year Plan" period, focusing on quality improvement, the development goal is to achieve "balanced high-quality" development, and promote the coverage rate of inclusive kindergartens to 88%, to achieve inclusive, safe and high-quality development of pre-school education. Taking the five central urban districts of Chengdu as examples, the research team analyzes and explores the rationality and efficiency of the spatial layout of inclusive pre-school education.

In the early 1990s, the urban planning of Chengdu was adjusted. The eastern and western districts were canceled, and the eastern district, western district, and Jinniu District were re-established as five central urban districts: Jinjiang District, Qingyang District, Jinniu District, Wuhou District, and Chenghua District, which were later called "the five districts". As the first layer of Chengdu, the population density is large, especially in Chenghua District, Jinniu District, and Wuhou District, with a permanent population of over 1 million each. This undoubtedly brings challenges to the allocation of pre-school education resources. According to the public kindergarten enrollment plan published by Chengdu Education Bureau in 2022, Chenghua District plans to enroll 6014 children, ranking first. Jinniu District and Wuhou District can provide 5420 and 5192 new student places respectively, ranking second and third.

Table 3. 2022 Public Kindergarten Enrollment Plan in the Five Central Urban Districts of Chengdu

Serial number	District (city) and county	The number of public kindergartens	The number of public kindergarten enrollment plans
1	Jinniu District	71	5420
2	Chenghua District	72	6014
3	Jinjiang District	35	3425
4	Wuhou District	47	5192
5	Qingyang District	34	3225

Table 4. Table of Newly Built Kindergartens and Additional Places in the Five Central Urban Districts of Chengdu in the Autumn Semester of 2022

Serial number	District (city) and county	Newly built kindergartens	Additional classes	Additional places
1	Jinniu District	7	84	2520
2	Chenghua District	3	30	900
3	Jinjiang District	4	63	1890
4	Wuhou District	2	21	630
5	Qingyang District	2	18	540

According to the area of the five central urban districts, each district has tried to meet the needs of children who need to enter kindergartens through various measures, including newly building kindergartens. In the autumn semester of 2022, Chengdu newly put into use 48 kindergartens, adding 16,000 new seats. Among them, Jinniu District newly built 7 kindergartens, adding 84 classes and 2520 new seats; Jinjiang District newly built 4 kindergartens, adding 63 classes and 1890 new seats; Chenghua District newly built 3 kindergartens, adding 30 classes and 900 new seats; Wuhou District newly built 2 kindergartens, adding 21 classes and 630 new seats; Qingyang District newly built 2 kindergartens, adding 18 classes and 540 new seats. In order to meet this demand, each district has taken measures such as newly building kindergartens to provide more seats for children in need. This data reflects the importance that governments in each district attach to early childhood education and the practical actions they have taken to meet the growing demand. This not only helps to increase the popularity of early childhood education, but also helps to provide a better starting point for early education. At the same time, it also reflects Chengdu's pursuit of the development goal of "high-quality balance", ensuring that every child in need can receive high-quality educational opportunities.

Therefore, the adjustments in Chengdu's urban planning in the early 1990s led to the establishment of the "five districts" as the city's core urban areas. With a dense population, especially in districts like

Chenghua, Jinniu, and Wuhou, which have a permanent population of over 1 million each, the allocation of pre-school education resources poses a significant challenge. To address this challenge, each district has taken measures such as newly building kindergartens to provide more seats for children. This is not only a reflection of the importance that governments in each district place on early childhood education, but also a practical effort to meet the growing demand. By increasing the availability of quality educational opportunities, these measures aim to improve the accessibility and quality of early childhood education in Chengdu. They also align with the city's pursuit of a "high-quality balance" in its development goals, ensuring that every child in need has access to quality educational opportunities.

6. Conclusion

With the population gathering in the central urban areas, the rationality of the spatial layout of preschool education resources is becoming increasingly prominent. "Attending inclusive kindergartens at home" is the wish of every family to enroll their children in kindergartens. The public kindergartens run by the education department and other departments, as well as the inclusive private kindergartens recognized by the districts (cities) and counties, are important components of inclusive kindergartens. On July 5, 2023, the website of the Ministry of Education released the 2022 National Education Development Statistical Bulletin, which shows that there are 245,700 inclusive kindergartens across the country, with 41.44 million children enrolled. In the process of promoting high-quality inclusive preschool education nationwide, Chengdu, in combination with regional characteristics, has continuously improved the coverage rate of inclusive kindergartens based on the administrative division of "12+2 central urban areas plus suburban new cities", and further strengthened the requirement that public kindergartens enroll more than 50% of children.

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