Rural School Reorganization in Response to Demographic Changes in the New Era: Practical Challenges and Optimization Pathways

Song Shengtao[1,2,*], Chen Gong[2]
[1] *Center for Labor Education Research, Chongqing Preschool Teachers College, Chongqing, China*
[2] *Institute of Population Research, Peking University, Beijing, China*
**Corresponding Author: Song Shengtao*

Abstract: From the strategic perspective of building China into an educational powerhouse and promoting high-quality population development, this study adopts an interdisciplinary research paradigm that integrates philosophy, demography, and education to systematically examine the historical logic and contemporary drivers of rural school restructuring. The findings indicate that the relatively weak operational capacity of rural schools constrains both rural population development and the provision of high-quality education. The governance capacity of rural schools requires improvement to support the comprehensive and balanced physical and mental development of rural school-age children. In addition, insufficient resource allocation significantly impedes the normal operation and sustainable development of rural schools. Based on these findings, the study recommends: strengthening resource allocation to improve the educational quality and teaching standards of rural schools; analyzing trends in the rural school-age population to promote a differentiated and appropriately scaled rural school supply system; and refining standards for rural school layout adjustments while standardizing merger procedures and enhancing supporting safeguards.

Keywords: High-Quality Population Development; Chinese Modernization; Rural Schools; Layout Adjustment

1. Introduction

Since the promulgation of the Present School Regulation in 1904, the restructuring of China's rural school system has undergone more than 120 years of evolution [1]. The Republican era marked the formative stage of rural education. Following the establishment of the People's Republic, rural education entered a new phase of rapid expansion. During the early reform and opening-up period, China initiated its first round of rural school restructuring, driven primarily by demographic changes and characterized by capacity regulation and moderate streamlining. From the 1990s to the early 21st century, with the deepening of urbanization, the second round of restructuring centered on large-scale school combining and merging. In the new era, the third round of restructuring has unfolded against the backdrop of profound urban-rural transformations, with an emphasis on optimizing educational structures and pursuing comprehensive quality improvements to foster a more equitable, high-quality, and sustainable rural education system.

In May 2023, General Secretary Xi Jinping emphasized at the first meeting of the 20th Central Financial and Economic Affairs Commission that "building China into an education powerhouse must be regarded as a strategic project for high-quality population development." In July 2024, the Decision of the Central Committee of the Communist Party of China on Further Comprehensively Deepening Reform and Advancing Chinese Modernization, adopted at the Third Plenary Session of the 20th CPC Central Committee, further stated: "Optimize the allocation of regional educational resources and establish a basic public education service supply mechanism that aligns with demographic changes." Currently, under the strategic imperative of accelerating the construction of an education powerhouse and supporting Chinese modernization through high-quality population development, China's rural school-age population is undergoing profound and sustained demographic shifts.

This evolving situation presents both major opportunities for optimizing resource allocation and improving service efficiency in rural school layout restructuring, as well as real challenges arising from changes in the distribution and educational demands of the school-age population. On this basis, theoretical strategies and practical approaches for readjusting rural school layouts must be refined in accordance with local conditions to build a high-quality, balanced rural education system. This is not only crucial for deepening reform and innovation in rural education and advancing national educational development but also for effectively supporting the high-quality development of rural populations.

2. Literature Review and Problem Statement

By systematically reviewing existing research on rural school restructuring in response to demographic shifts, this study expands the academic perspective and opens new research pathways. At the same time, an in-depth examination of the historical evolution of rural school restructuring in China strengthens the theoretical foundation for adapting school layouts to demographic changes under new circumstances and provides scholarly support for accelerating the construction of an education powerhouse. Furthermore, this process underpins China's modernization through high-quality population development, thereby informing policy refinement and fostering practical innovation in optimizing rural school layouts to meet contemporary demographic challenges.

2.1 Analysis of the Necessity for Optimizing Rural School Layout Adjustments in Response to Population Trends

The sustained decline in the national school-age population, together with the growing trend of rural school-age children transferring to urban schools, constitutes the key objective basis for adjusting the layout of rural schools in China. To systematically examine the influencing factors, structural contradictions, and policy optimization pathways associated with readjusting rural school layouts under the new phase of demographic change, it is essential to conduct an in-depth analysis from multiple perspectives, including the evolution of the national population, structural shifts in the rural school-age population, and the spatial distribution patterns of urbanization. This study focuses on two core dimensions: the persistent decline of rural school-age populations and their migration to urban areas, in order to systematically review the evolution of policies on school layout adjustments in response to demographic shifts, as well as the progress of related research on their necessity.

First, this section categorizes relevant research on the necessity of adjusting rural school layouts amidst declining school-age population trends. Drawing on global population dynamics and China's low-fertility reality, research using data from the World Population Prospects 2019 (WPP2019) demonstrates that China's population decline is characterized by rapid acceleration, sustained momentum, and limited potential for rebound [2]. China has entered a low-fertility phase in which emerging demographic phenomena and challenges require thorough investigation and appropriate policy responses [3]. In the context of persistently declining fertility rates, proactive measures are needed to address the social, economic, and educational challenges arising from low fertility, while adopting a scientific, rational, and objective approach to rural school restructuring [3]. Empirical data further highlight this trend more obviously: since 2012, China's birth population has shown a fluctuating downward trajectory [4], and since 2022, the country has entered a phase of pronounced negative population growth [5]. Recent scholarship has increasingly examined rural school restructuring in light of birth rate changes [6]. Some researchers focus on optimizing rural school layouts [7], while others conduct qualitative analyses addressing decision-making biases and their rational correction in rural school restructuring under new demographic conditions [8]. A synthesis of existing findings suggests that although fluctuations in the national school-age population have a significant impact on school layout, current academic discussions largely concentrate on the necessity of adjusting rural schools amidst declining school-age populations, as well as on pathways for optimizing relevant policies.

Second, we also identified certain research on the necessity of adjusting rural school layouts amid the trend of rural school-age populations transferring to urban areas. Data from the Seventh National Population Census indicate that 88% of county-level administrative units

experienced growth in the permanent urban resident population of their county seats [9]. Urban-rural migration has increasingly become the key driver of the sustained decline in China's rural population, the continued outflow of labor, and the accelerated aging of the demographic structure [10]. The rapid advancement of urbanization thus necessitates corresponding optimization and adjustment of rural school layouts [11]. Additionally, scholars have examined this issue from multiple perspectives, including economic rationality, value equity, procedural justice, and the dual processes of urbanization and anti-urbanization in rural education. They argue that school restructuring should be situated within both urbanization and rural social development, with a priority on ensuring equitable access to quality education for urban and rural students alike. Such an approach is expected to promote coordinated allocation of rural school resources and foster a scientific, democratic, and ethical decision-making model for rural school restructuring [12] At the same time, researchers emphasize the need for in-depth investigation of decision-making frameworks and standards for rural school restructuring to provide operational guidance for policy implementation and to support the rationalization of decision-making in this process [13]. Therefore, exploring the necessity of rural school restructuring in the broader context of school-age populations migrating to urban areas, scientifically constructing decision-making standards and implementation plans, and systematically identifying pathways for policy optimization are of significant theoretical and practical importance.

2.2 Examination of the Evolutionary Process of Rural School Layout Adjustments in Response to Population Trends

The evolution of rural school layout adjustments in China has been closely intertwined with demographic trends. From the 1890s to the founding of the People's Republic, the rural school system developed from scratch, laying its foundational infrastructure during its formative stage. From the early years of the People's Republic to the eve of the Cultural Revolution, the establishment of a people's democratic government and steady social reforms fueled a surge in public demand for education, driving significant expansion in the number of rural schools and rapid growth in their scale of operations. From the post-reform era until 1996, China's rural areas underwent their first school restructuring initiative. This adjustment was primarily driven by shifts in population structure, with its core characteristic being the control and moderate streamlining of school numbers. Between 1997 and 2011, in response to ongoing demographic shifts, China launched the second round of rural school restructuring, which was characterized by large-scale combining and integration. The combination of rapid urban–rural migration and the continuous decline in school-age populations during this period jointly triggered a profound restructuring and systematic adjustment of rural school layouts. Since the 18th CPC National Congress, China has gradually advanced the third round of rural school layout adjustments. Grounded in the nation's profound demographic transformations, this phase prioritizes optimizing the allocation of educational resources and comprehensively improving teaching quality. Confronting the dual realities of a shrinking rural population and growing public demand for high-quality education, it emphasizes both structural optimization and intrinsic development, aiming to achieve systematic reform and high-quality advancement of the rural education system.

First, the formative period of rural school restructuring policy was systematically sorted and reviewed. Since the reform and opening-up, China's school-age population has continued to grow, accompanied by steadily rising educational demand. In 1980, the Decision on Several Issues Concerning the Universalization of Primary Education, issued by the CPC Central Committee and the State Council, first established "universalizing primary education nationwide" as a national strategic goal. The 1985 Decision of the CPC Central Committee on Reforming the Education System further clarified the policy orientation of "implementing nine-year compulsory education in a planned and phased manner." Against this backdrop, a balanced rural education layout model gradually emerged, characterized by "establishing a primary school in every village and allocating a junior high school in every township." This model effectively addressed the educational pressures generated by rapid growth in the school-age population through a tiered management system: townships centrally

managed junior high schools and central primary schools, while village-level organizations were responsible for primary education. It provided strong institutional safeguards for rural education development, substantially improved access to basic education in rural areas, and laid a vital foundation for both the comprehensive universalization of rural primary education and the broader implementation of nine-year compulsory education in China [4].

Second, we also focused on the implementation period of school combining during rural school restructuring. From the late 1980s to around 2000, China's total fertility rate displayed an overall downward trend, while urbanization advanced steadily, accelerating further after 1996. In 2001, the Decision on the Reform and Development of Basic Education issued by the State Council proposed an education management system primarily at the county level. County governments were tasked with coordinating responsibilities, scientifically planning, and dynamically optimizing the layout of rural schools. Following prolonged adjustments, the number of rural schools nationwide declined substantially. At that stage, with the continued combining of small rural schools, stabilizing school-age populations, and growing public demand for local access to education, further standardization of rural school restructuring became both an inevitable requirement and a crucial task for deepening rural education reform and improving public education services. In 2012, the State Council General Office issued the Opinions on Regulating the Adjustment of Rural Compulsory Education School Layouts, which explicitly required strict standardization of procedures for school combining. It mandated that consolidation be based on sustained and significant declines in enrollment, with strict adherence to statutory procedures, including county-level plan formulation, scientific demonstration, public disclosure, and hierarchical approval. At the same time, it emphasized strengthening the construction and safeguarding of village primary schools and teaching points, thereby fundamentally addressing the problem of large-scale, indiscriminate school closures in rural areas [4]. In 2018, the State Council General Office released the Guiding Opinions on Comprehensively Strengthening the Development of Rural Small-Scale Schools and Township Boarding Schools, which further stressed strict control over the combining and merging of rural small-scale schools. Nevertheless, implementation in some regions has been hindered by partial policy misinterpretations and insufficient assessment of consolidation necessity. This has resulted in the inappropriate retention of schools that should have undergone scientific optimization and adjustment, thereby impeding the rational allocation of educational resources and the improvement of school operational efficiency [8].

Third, in this part of the study, the optimization and refinement phase of rural school restructuring was also covered. Following the release of data from the Seventh National Population Census in 2021, scholars conducted systematic projections of urban and rural school-age population trends from 2021 to 2035. The total school-age population in China is expected to decline steadily from 328 million to approximately 250 million, placing higher demands on the flexibility and adaptability of rural educational resource allocation [14]. In recent years, China has entered a phase of negative population growth, while the urbanization process has moved into its "second half" [4]. Although the annual urbanization growth rate has slowed to below 1%, it still reflects relatively rapid development. The combined effects of advancing urbanization and declining birth rates have produced a "first increase, then decrease" trajectory in China's school-age population, forming the practical basis for current adjustments to rural school layouts. However, significant regional disparities remain: while most areas continue to experience population decline, some regions remain stable, and a few even show modest growth. These divergent demographic patterns create structural contradictions in rural school layout with respect to spatial planning, resource allocation, and the provision of public services [4]. To address these contradictions, China has systematically advanced and largely completed large-scale structural optimization and spatial reconfiguration of rural school layouts.

In summary, this study, situated within the contemporary context of China's strategy to build an education powerhouse and promote high-quality population development, adopts systematic literature critique and theoretical

analysis as its methodological foundation. It identifies the readjustment of rural school layouts as a critical research topic for responding to dynamic changes in the school-age population and supporting children's holistic development, while also aiming to advance paradigm innovation and broaden academic perspectives in this field. The study first elucidates, from a theoretical perspective, the objective necessity of optimizing school layouts in the face of demographic shifts, and then systematically traces their evolutionary logic through a historical lens. It selects 11 rural small-scale schools and township boarding schools influenced by Chongqing's second batch of Principal Master Studios as research samples. Using qualitative methods, including participatory observation and semi-structured interviews, to collect primary field data, the study applies systematic data screening, multidimensional analysis, and confirmatory inquiry to uncover the underlying mechanisms and essential attributes of rural school restructuring. Ultimately, grounded in both national strategic imperatives and grassroots practical challenges, this study constructs a systemic solution that integrates a structural conflict identification mechanism with a policy optimization framework. This approach provides robust theoretical support and practical pathways for addressing resource allocation dilemmas and refining the policy supply system. By combining in-depth conflict analysis with the scientific construction of strategic frameworks, the study achieves the synergistic development and organic integration of theoretical innovation and practical improvement.

3. Current Practical Challenges in Rural School Layout Adjustment in China

This study situates the adjustment of rural school layouts within the broader macro context of advancing education-driven national development and implementing strategies for high-quality population growth. It directly addresses the structural challenges arising from the sustained decline in the rural school-age population, focusing on the contradictions in rural school layouts brought about by profound demographic shifts [4]. With the central goal of promoting the comprehensive development and healthy growth of rural students, the study builds on scientific forecasts and precise assessments of demographic trends. By systematically planning school spatial layouts and coordinating the allocation of educational resources, it seeks to establish an adjustment mechanism that proactively adapts to dynamic changes in the internal and external environment of rural education. This mechanism integrates strategic foresight with dynamic responsiveness to resolve structural contradictions, such as imbalances between the supply and demand of educational resources and the rigidity of school site layouts under shifting population patterns [15]. To enhance the quality of rural education and achieve coordinated urban-rural educational development, it is essential to construct a dynamic optimization pathway for school layout. Such a pathway must align with emerging population trends while systematically addressing existing challenges, thereby forming a sustainable and actionable framework for long-term improvement.

3.1 Weakened Capacity of Rural Schools as a Constraint on High-Quality Development of the Rural Population and Education

Rural schools in China are currently confronted with dual pressures: a shrinking school-age population and persistent shortages of educational resources, most visibly in funding and teacher quality. These pressures have significantly weakened overall operational capacity, leaving some schools mired in prolonged inefficiency. Although national policies continue to prioritize rural education, existing management structures and top-down allocation mechanisms fail to adequately address local needs. As a result, many rural schools still experience insufficient financial support and limited opportunities for teacher development. Empirical data illustrate that 67.20% of rural schools cannot meet normal operational requirements with their allocated public funds, while 21.60% face acute shortages, barely sustaining basic operations. At the same time, teacher resources suffer from structural imbalances, including an aging workforce, generally low educational qualifications, and mismatches between subject expertise and teaching needs [13]. These deficits collectively form critical bottlenecks that undermine educational quality. The situation is further exacerbated by intertwined structural challenges and institutional contradictions, which reinforce

each other to erode institutional capacity and weaken governance effectiveness. This systemic fragility not only slows progress toward high-quality rural education but also, through the transmission mechanism of constrained resource availability and limited human capital accumulation, suppresses intergenerational improvement in the quality of rural populations. Ultimately, the weakened operational capacity of rural schools has emerged as a core impediment to the comprehensive development and sustainable growth potential of school-age children. Addressing this challenge requires fundamental institutional innovation and the restructuring of resource allocation mechanisms.

3.2 Governance Effectiveness of Rural Schools and Its Impact on the Holistic Development of Rural School-Age Children

Within the context of demographic shifts and ongoing structural transformation in China's rural education system, rural schools face dual pressures of fluctuating school-age populations and unstable teacher workforce allocation. These dynamics have produced significant instability in class sizes, revealing a structural imbalance between educational resource supply and demographic demand. Fluctuating enrollment, coupled with delayed adjustments in teacher deployment, fragments school operations and weakens institutional capacity to establish sustainable development models. As a result, schools struggle with insufficient development momentum, constrained teacher professional growth, and systemic barriers to student development. This fragile educational ecosystem not only undermines improvements in rural education quality but also directly constrains the high-quality development of the rural population. Empirical research reveals that rural school-age children face multidimensional developmental deficits. On the non-cognitive front, deficiencies in physical fitness, psychological resilience, and socio-emotional competencies reflect systemic shortcomings in holistic development support. These deficits manifest as poor physical health, limited self-awareness, weak interpersonal understanding, and inadequate group integration, pointing to serious gaps in the social support and psychological nurturing functions of rural schools [13]. Financial and organizational constraints further aggravate these challenges. A survey of 308 township boarding schools showed that 64.29% of principals reported inadequate public funding to sustain basic operations. Small school sizes also diminish educational vitality: limited class sizes, combined with heavy reliance on traditional lecture-based pedagogy, result in classrooms lacking deep inquiry and meaningful interaction, ultimately compromising teaching quality. At the same time, the outflow of high-quality teachers from rural areas has intensified structural imbalances in the teaching workforce. The absence of a sustainable teacher development ecosystem, where veteran, mid-career, and novice teachers can connect and support one another, hampers instructional innovation. New teachers' professional growth remains slow, while teacher aging is increasingly pronounced, leaving overall professional development momentum stagnant [13]. Collectively, these shortcomings in governance effectiveness, spanning financial management, human resource allocation, and pedagogical innovation, have significantly constrained the comprehensive and coordinated physical and mental development of rural school-age children. Strengthening governance capacity thus emerges as a critical pathway for achieving balanced, high-quality development in rural education.

3.3 Inadequate Resource Allocation in Rural Schools as a Constraint on Normal Operations and Development

Resource allocation represents a central determinant of rural schools' operational capacity and developmental potential. Current challenges can be systematically examined across three interrelated dimensions: teacher resources, funding investment, and school facilities. First, inefficiencies in teacher resource allocation remain prominent. The rigid staffing quota system amplifies shortages in rural schools, which are both numerous and geographically dispersed. Education administrators face multiple dilemmas: expanding staffing consumes limited regional quotas and reduces overall efficiency; maintaining current quotas leaves schools unable to support normal teaching; while hiring non-quota teachers generates fiscal burdens and undermines governance efficiency. This structural rigidity constrains the development of a sustainable and high-quality rural teaching

workforce. Second, funding allocation fails to achieve optimal efficiency. Although current operational funding standards allow small-scale schools to sustain basic functions, they exert continuous pressure on local finances. Even with central transfer payments partially offsetting costs, most county-level governments still face significant fiscal constraints. As a result, rural schools are often forced to operate under conditions of chronic underfunding, limiting their capacity to improve teaching quality or invest in innovation. Third, utilization of school buildings and facilities remains low. In some regions, school planning has not adequately anticipated demographic decline, resulting in the construction or retention of schools and supporting infrastructure that are subsequently targeted for closure. As student enrollment continues to decline, facility utilization rates have dropped sharply, producing risks of idle resources and structural overcapacity[13]. Collectively, these challenges—constrained teacher staffing, underutilized funding efficiency, and declining facility utilization—have significantly weakened rural schools' ability to sustain normal educational operations and advance high-quality rural education development.

4. Pathways for Optimizing Rural School Layout Adjustments in Response to Population Changes Under New Circumstances

Rural school layout adjustment is a systemic initiative designed to optimize the allocation of educational resources, improve the efficiency of public education services, and promote the high-quality development of education. It represents a comprehensive educational reform practice characterized by multi-system coordination and multidimensional integration. Guided by General Secretary Xi Jinping's important directives on building an education powerhouse and advancing high-quality population development, this study responds to the strategic requirements of educational reform in the new development stage [16]. By systematically analyzing the structural transformation of rural school-age populations and emerging patterns of basic education services, the research framework is anchored in the core value of promoting the all-around development of students. Within this framework, the paper focuses on the structural contradictions revealed in the current phase of rural school layout adjustment. Through systematic empirical investigation, it explores the underlying mechanisms driving these contradictions and identifies both the opportunities and constraints embedded within them. On this basis, it proposes a set of optimization strategies that adhere to the principle of differentiated development. The objective is to construct a scientifically grounded pathway for rural school layout adjustment that not only adapts dynamically to ongoing demographic shifts but also provides robust support for the high-quality development of rural education.

4.1 Strengthen Resource Allocation for Rural Schools to Enhance Educational Quality and Teaching Standards

Strengthening resource allocation for rural schools and improving educational quality constitute key measures for advancing high-quality rural education, carrying both significant public policy implications and critical value for educational governance. From an interdisciplinary perspective that integrates demography and education, it is essential to comprehensively consider population dynamics, principles of educational equity, school efficiency assessments, and the developmental needs of students in order to establish a scientific evaluation framework for resource allocation. Such a framework should guide precise investment decisions and institutionalize a dynamic adjustment mechanism for continuous optimization. Methodologically, educational demography forecasting models should be systematically combined with spatial geographic analysis techniques to examine regional demographic shifts and natural geographic characteristics. These insights provide the empirical foundation for developing a standards system for resource allocation that aligns with school layout optimization. At the policy instrument level, emphasis should be placed on refining funding mechanisms, optimizing teacher workforce structures, advancing standardized teaching facilities, enhancing educational informatization, and promoting the integration of artificial intelligence. Together, these efforts would establish a targeted and differentiated institutional support system. In terms of implementation pathways, the regulatory role of

fiscal transfers should be strengthened by optimizing allocation mechanisms and refining incentive-compatible measures. Institutional arrangements such as targeted teacher mobility programs and rotational exchanges should be leveraged to facilitate the rational cross-regional flow and balanced distribution of high-quality educational resources. Ultimately, this will enable synergistic improvements in both the efficiency and equity of rural education resource allocation.

Furthermore, in advancing rural school layout restructuring, local education authorities and schools should systematically explore effective pathways to enhance educational quality while fulfilling the fundamental mission of fostering virtue and cultivating talent under resource constraints. International practice highlights small-class teaching as a crucial approach to improving rural education quality, with its success dependent on comprehensively enhancing teachers' professional capabilities. Key measures include formulating targeted professional development plans, establishing incentive mechanisms tailored to small-class teaching, and leveraging modern tools such as AI-supported teaching research. Optimizing professional title evaluation systems and implementing rural master teacher cultivation programs can further strengthen teacher capacity. Rural schools should fully recognize the pedagogical value of small-class teaching, differentiated instruction, and deep teacher-student interaction. They should proactively explore development models suited to the rural educational ecosystem. By innovatively adopting diverse teaching strategies—such as scenario-based instruction, collaborative learning, and integrated approaches combining farming with reading—schools can effectively translate the concept of personalized education into tangible outcomes. In doing so, they can systematically enhance both teaching quality and overall educational standards in rural contexts.

4.2 Analyzing Trends in Rural School-Age Population to Advance a Categorized and Adaptive Rural School Supply System

In the context of building China into an education powerhouse, transitioning to high-quality population development, and navigating structural shifts in the rural school-age population, the synergistic interaction among these three factors constitutes the core driving force behind the current adjustment of rural school distribution. China's population development is undergoing a profound structural transformation. Two key variables—a persistently declining birth rate and accelerating urbanization—have significantly reshaped the spatial distribution of school-age populations. This has produced a dual-track pattern: the continuous contraction of rural school-age populations alongside the relative concentration of urban school-age populations. Within this process, the existing educational resource allocation system—particularly the structure of rural school distribution—has shown a marked decline in functional adaptability. Constrained by institutional inertia, it has struggled to respond flexibly to multidimensional challenges, such as regional differences in population density gradients, age structure disparities, and increasingly diverse educational demands. For example, small-scale rural schools urgently require personalized teaching approaches, while township boarding schools face heightened demands for student management and support services. To strengthen the alignment between educational provision and demographic shifts, it is essential to establish a systematic analytical framework integrating population forecasting, demand analysis, and layout simulation. Guided by the national strategy of building an education powerhouse and underpinned by policies for high-quality population development, this framework should systematically examine key trends in the rural school-age population—including its long-term decline, regional heterogeneity, and the mechanisms linking demographic shifts to economic levels, social structures, and geographic environments. Such an approach will enable the scientific formulation of school layout optimization pathways that balance equity with efficiency. By grounding policy design in empirical evidence and ensuring continuous adjustment, it will enhance the scientific basis of decision-making and achieve Pareto improvements in the allocation and outcomes of educational resources.

Changes in the rural school-age population represent the core driver and fundamental impetus of rural school restructuring, fundamentally shaping the trajectory of spatial reconfiguration. In response to the ongoing evolution of rural demographic structures, the

implementation of differentiated school classification and layout strategies is not only essential for optimizing educational resource allocation but also constitutes a key policy pathway for China's education governance system to address cyclical fluctuations in school-age cohorts. Promoting the optimization of rural school layouts under demographic transition requires adherence to systems thinking and scientific decision-making, anchored in a multidimensional evaluation system. At the micro level, this entails comprehensive consideration of factors such as school operational efficiency, teacher workforce composition, and student development needs. More importantly, it necessitates moving beyond traditional paradigms that rely solely on quantitative indicators—such as student-teacher ratios or class sizes—as the basis for decisions. Instead, policy frameworks must incorporate macro-level variables, including population age structures, regional economic development patterns, grassroots governance capacity, and local knowledge transmission needs. On this foundation, a scientific decision-making mechanism combining dynamic monitoring with forward-looking analysis should be established and continuously improved. By accurately capturing the spatiotemporal distribution of school-age population shifts, tailored school supply models can be designed to meet the distinct demographic characteristics of different regions. At the same time, a three-pronged institutional support system—encompassing resource allocation, fiscal safeguards, and quality monitoring—should be strengthened. Ultimately, this approach will foster a new governance framework that adapts to demographic transitions while ensuring resilient support for the high-quality development of rural education.

4.3 Optimizing Standards for Rural School Layout Adjustments, Standardizing Combining Procedures, and Strengthening Supporting Safeguards

Amid China's evolving demographic structure, optimizing rural school layout adjustments requires the establishment of a scientific and comprehensive indicator system. On one hand, structural contradictions should be addressed through differentiated approaches: scientifically defining the characteristics of decision-making matters, clarifying differentiated principles and standards for implementation, and ensuring that adjustments are aligned with regional differences and supported institutionally. On the other hand, scientific analysis must be deepened to refine the plan formulation process, quantify evaluation indicators, and establish a standardized operational system that both meets local practical needs and accommodates regional variations. Building on this foundation, adjustment plans should systematically integrate key factors such as the distribution of the rural school-age population, levels of rural social development, rural education goals, and the existing conditions, educational quality, and support capacities of rural schools. This ensures that implementation plans are both targeted and actionable.

Meanwhile, in practice, rural school layout adjustments must strictly standardize procedures for school closures and mergers while simultaneously improving and supporting safeguard mechanisms. The core value orientation must remain, ensuring equal access to quality education for rural students, avoiding a narrow focus on resource combining or efficiency gains. A priority is to enhance reception and support measures for relocated students and teachers, thereby building a comprehensive, high-quality support system. Key measures include: Designing evidence-based transportation plans to mitigate the risks of longer commuting distances and prioritizing improvements in public transportation and road infrastructure in underdeveloped areas. Constructing new boarding schools or expanding existing ones, while ensuring the presence of professional life counselors for regions where daily commuting is impractical, psychological support staff, and qualified catering teams to provide safe, comfortable living conditions and nutritious meals. Establishing standardized protocols for school asset disposal, refining operational procedures and management standards, and building a transparent, standardized disposal mechanism. Ultimately, these measures will comprehensively enhance the quality of educational services for both students and teachers.

Acknowledgments

This research was supported by the Chongqing Municipal Education Commission Teaching Reform Project, "Research on Flexible

Governance in Implementing Labor Education Courses in Higher Vocational Colleges" (Z2241600), and the Chongqing Municipal Education Commission Key Project in Humanities and Social Sciences, "Research on Cultivating the Spirit of Labor Among College Students in the New Era Amidst China's Modernization Process" (25SKGH317).

References

[1] Ji B. A Century of Rise and Fall in China's Rural Primary Schools[J]. Journal of East China Normal University: Educational Sciences, 2012, (4): 81-88.

[2] Tao T, et al. Global Population Decline: Characteristics, Trends, and Responses[J]. Population Research, 2020, (4): 46-61.

[3] Guo Z. China's Low Fertility Rate and Sustainable Population Development[M]. Beijing: China Social Sciences Publishing House, 2014: 48-49, 91.

[4] Qin Y. County-Level Compulsory Education School Distribution in the Context of Population Change: Structural Contradictions and Classification-Based Optimization[J]. Educational Research, 2024, (9): 25-36.

[5] Cai F. The Era of Negative Population Growth: Challenges and Opportunities for China's Economic Growth[M]. Beijing: CITIC Press, 2023: 3-23.

[6] Rong Z, Du W. Research for Chinese Rural School Construction, Arrangement and Adjustment in New-era: On the Adjustment of Rural Schools Arrangement in the Light of the Natural Birth Rate of Population[J]. Research in Educational Development, 2021, (24): 39-44.

[7] Zhao D, et al. How to Optimize Small Rural Schools Layout[J]. Journal of Educational Science of Hunan Normal University, 2024, (1): 63-72.

[8] Liu S, et al. Rural Schools' Layout Adjustment in the New Situation: Decision-Making Biases and Rational Return[J]. Educational Research, 2025, (1): 16-29.

[9] Ye Q, et al. Trends in the Development of Permanent Resident Populations in China's Counties[J]. Macroeconomic Management, 2021, (11): 33+48.

[10] Xie A, Lin J. The Population Trend in Rural China from 2020 to 2050: Simulation Analyses Based on Different Scenarios of Urbanization[J]. China Rural Survey, 2023, (3): 61-86.

[11] He Y. Rapid urbanization calls for synchronized school planning[N]. China Education Newspaper, 2015-05-05(6).

[12] Liu S. Research on the Tri-dimensional Model of the Layout and Adjustment of Rural Schools[J]. Educational Research, 2012, (9): 91-98.

[13] Liu S, Wu S. Vigorously Develop Rural Education to Support the Construction of a Powerful Country in Education[J]. China Educational Technology, 2025, (2): 1-6.

[14] Zhang L, et al. The Trends and Characteristics of Urban and Rural School-Age Population in China Between 2021 and 2035—A Prediction Based on the Data from the Seventh National Population Census[J]. Educational Research, 2022, (12): 101-112.

[15] Bai L. The Overall Allocation of County-Level Compulsory Education Resources in Response to Population Change: Structural Contradictions and Policy Optimization[J]. Educational Research, 2025, (4): 45-55.

[16] Chen G. New Perspectives on Constructing a New Pattern of Support and Services for Population Development[J]. Population and Development, 2024, (5): 2-6.

