Journal of Infrastructure, Policy and Development 2024, 8(8), 6396.
https://doi.org/10.24294/jipd.v8i8.6396

Article

Research on the distribution of educational resources from the perspective of public service equalization in China—Based on government responsibility and fiscal input

Tao Yang

College of Educational Science of Quanzhou Normal University, Quanzhou 362000, China; 23030@qztc.edu.cn

CITATION

Yang T. (2024). Research on the distribution of educational resources from the perspective of public service equalization in China—Based on government responsibility and fiscal input. Journal of Infrastructure, Policy and Development. 8(8): 6396. https://doi.org/10.24294/jipd.v8i8.6396

ARTICLE INFO

Received: 14 May 2024
Accepted: 30 May 2024
Available online: 6 August 2024

Abstract: This paper explores the distribution of educational resources from the perspective of public service equalization in China, with a particular focus on government responsibility and fiscal input. Initially, the paper reviews the theoretical foundations and empirical studies concerning the distribution of educational resources, analyzing the role of government in educational equity and the impact of fiscal expenditure. By employing quantitative analysis methods, this study utilizes data on provincial education expenditures over several years to examine the relationship between government fiscal input and the equalization of educational resources. Empirical results indicate that increasing educational fiscal input and optimizing the allocation mechanism significantly enhance the level of equalization in educational resources. Furthermore, through case analyses of several local governments, effective policy recommendations are proposed to promote the fair distribution and optimization of educational resources. Lastly, the paper discusses potential obstacles in policy implementation and suggests corresponding strategies.

Keywords: public service equalization; distribution of educational resources; government responsibility; fiscal input; policy recommendations

1. Introduction

The pursuit of educational equality has long been a central theme in educational policy debates worldwide. Across different countries and regions, significant disparities in educational resource allocation persist, reflecting broader socio-economic inequalities. For instance, the OECD's 2018 report highlights stark contrasts in educational outcomes between high-income and low-income countries, indicating that access to quality education is unevenly distributed on a global scale. Similarly, UNESCO's Global Education Monitoring Report (2020) underscores the persistent gaps in educational opportunities, particularly in developing regions where infrastructural and financial constraints are more pronounced. In this global context, the concept of educational equalization in Hebei Province's A City offers a unique perspective on the challenges and opportunities faced by urban and rural educational systems in transitional economies. Theoretical perspectives such as the theories of social justice by Rawls (1971) and educational equity as discussed by Sen (1999) provide a valuable framework for examining these issues. Rawls' theory, which emphasizes "justice as fairness," argues for institutional arrangements that ensure the greatest benefit to the least advantaged members of society. This theory aligns closely with the goals of educational equalization, which seeks to ensure that all children, regardless of their socio-economic background, have equal access to quality education. Sen's capability approach further enriches this discussion by focusing on what

individuals are able to do and to be, thus bringing attention to the provision of opportunities through education. He argues that true equality is achieved not by the mere distribution of resources, but by leveling the playing field so that everyone can pursue a life they have reason to value. This theoretical dialogue sets the stage for investigating the distribution and accessibility of educational resources in A City, and how these contribute to or hinder the realization of educational equity. The study employs a comprehensive questionnaire survey to collect data on various aspects such as resource allocation, educational quality, policy implementation, and community involvement. By anchoring the survey within these theoretical frameworks, the research aims to uncover the extent to which A City's educational policies align with the ideals of fairness and capability enhancement, thereby providing empirical insights into the practical application of these theories in educational policy-making. This introduction aims to establish a theoretical dialogue that not only contextualizes the research within broader academic discussions but also highlights the specific contributions that the study aims to make towards understanding and enhancing educational equalization in Hebei Province's A City.

2. Literature review

Before exploring the educational equalization policies in Hebei Province's A City, we conducted an extensive literature review to understand the theoretical foundations of educational equalization and the practical experiences from other regions. These studies provide insights from different perspectives, helping to build the theoretical framework and empirical analysis for this research. The core theories of educational equalization include Rawls' "Theory of Justice" (Rawls, 1971), which argues that social and economic inequalities are justifiable only if they benefit the least advantaged members of society. This concept has been widely applied to issues of fair distribution of educational resources. Additionally, Coleman (1966), in his seminal work "Equality of Educational Opportunity," emphasized the importance of educational equalization in enhancing social capital, suggesting that equal educational opportunities are essential for achieving social justice. Regarding policy practices, Hanushek and Woessmann (2011) demonstrated that the equity of resource allocation directly affects educational quality and student achievement. They argued that merely increasing educational investment does not automatically improve educational quality; instead, optimizing resource allocation and enhancing the efficiency of educational resource utilization are crucial. In the Asian context, Zhao and Gleckman (2013) analyzed the success of South Korea's educational equalization policies, highlighting how strong policy support and fiscal investment effectively narrowed the educational gap between urban and rural areas. The Korean government's initiatives to improve teacher quality and school management were key to achieving educational equalization. For China, Yuan (2016) indicated that although the government has significantly promoted educational equity over the past decades, regional economic disparities, inconsistent policy implementation, and varying social perceptions have led to uneven distribution of educational resources across different regions. Yuan suggested that genuine educational equalization requires systemic reforms to enhance the inclusivity and sustainability of educational policies. Despite extensive literature

discussing various aspects of educational resource distribution, few studies comprehensively consider the dual impact of government responsibility and fiscal input from the perspective of public service equalization. This study aims to fill this gap by examining how governmental responsibility and financial investment influence the equalization of educational resources in A City. By integrating insights from previous research with a focus on public service equalization, this study provides a more holistic understanding of the factors driving educational equity. A detailed critique of the existing literature reveals several research gaps. Firstly, while many studies address educational resource distribution, they often overlook the combined effects of governmental responsibility and fiscal inputs on equalization. Secondly, there is limited empirical evidence on how these factors interact within the context of public service equalization, particularly in transitional economies like China. This study seeks to bridge these gaps by focusing on Hebei Province's A City, thereby offering new insights into the dynamics of educational equity in this region. Through this literature review, it becomes clear that educational equalization is not only a complex social issue but also a challenge that countries worldwide strive to address. The strategies employed in Hebei Province's A City can benefit from the successful experiences of other regions. By incorporating a comprehensive consideration of government responsibility and fiscal input, this study aims to address the unequal distribution of educational resources effectively.

3. Research framework and methodology

3.1. Core concepts and theoretical foundations

3.1.1. Theories of educational resource distribution

The theory of educational resource distribution explores how to effectively and fairly allocate educational resources across social strata and regions. This field encompasses knowledge from multiple disciplines including economics, sociology, and education, with a particular focus on the efficiency and equity of resource distribution (Zhao, 2009). Theories concerning the distribution of educational resources can be broadly categorized into several aspects: The theory of educational resource distribution explores how to effectively and fairly allocate educational resources across social strata and regions. This field encompasses knowledge from multiple disciplines including economics, sociology, and education, with a particular focus on the efficiency and equity of resource distribution (Zhao, 2009). Theories concerning the distribution of educational resources can be broadly categorized into several aspects: Economists often approach from the perspective of optimal resource allocation, exploring issues of efficiency in the distribution of educational resources. Human capital theory is central here, emphasizing the importance of educational investments for improving individual productivity and economic growth. Additionally, public choice theory analyzes from a political economy perspective how various political and economic interest groups influence the distribution of educational resources. John Rawls' "Theory of Justice" provides a foundational framework, advocating that social and economic inequalities are justifiable only if they benefit the least advantaged members of society. This principle, known as the "difference

principle," directly relates to the equitable distribution of educational resources. Rawls' theory includes two key principles:

(1) Equal Liberty Principle: Each person should have an equal right to the most extensive basic liberties compatible with similar liberties for others. This principle ensures that all individuals enjoy equal freedoms and opportunities in society.

(2) Difference Principle: Social and economic inequalities must be arranged to benefit everyone, particularly the most disadvantaged members of society. In the context of education, this principle stresses the importance of providing fair starting points rather than merely equal outcomes.

As depicted in **Figure 1**, Rawls' theoretical framework under the backdrop of social justice deeply explores the distribution of educational resources. Rawls emphasized that while equality of outcomes is important, it should not come at the expense of the basic rights and freedoms of individuals. The formulation of educational policies and resource distribution strategies needs to ensure an equal starting point to meet the basic educational needs of all social strata, especially the most disadvantaged, thus advancing a more just society (Shan et al., 2021).

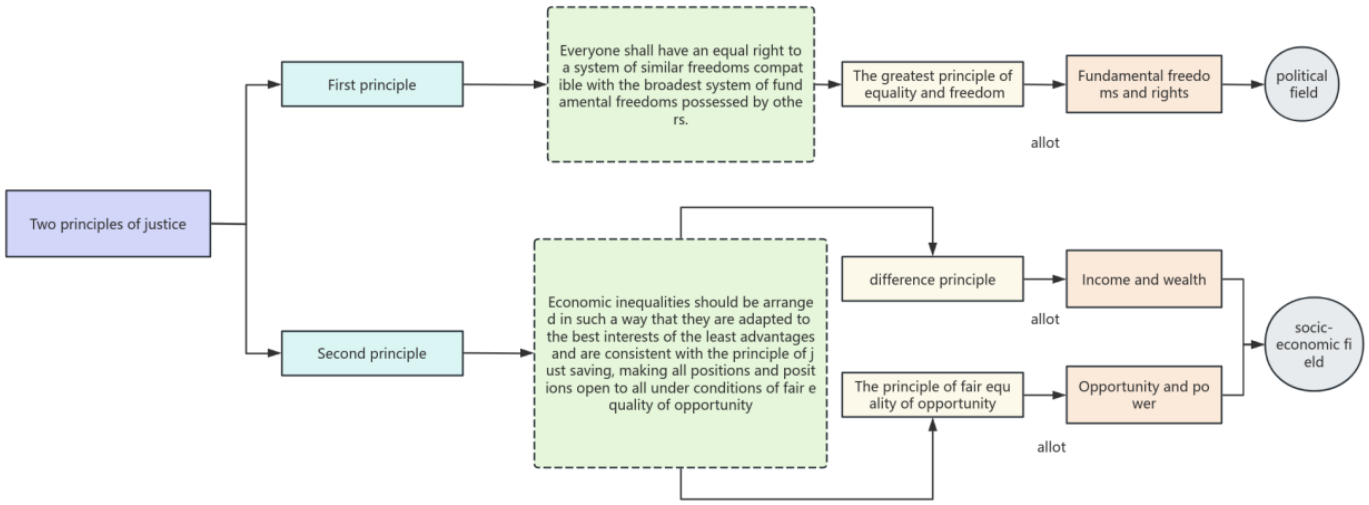

Figure 1. Rawls: Two principles of justice.

Regional development theory focuses on the balanced development of educational resources between regions, studying the roots of urban-rural disparities and regional educational imbalances and their solutions. This theory posits that the equitable distribution of educational resources not only aids the balanced development of regional economies but is also key to achieving long-term social stability.

Comparative education research provides a cross-national and regional perspective, analyzing how different educational systems allocate resources and their impact on educational outcomes. For example, the educational resource distribution models in Nordic countries emphasize the universality and equality of public input, whereas the United States focuses more on driving resource distribution through competition and choice. These theories provide multi-faceted theoretical support and practical guidance for understanding and addressing the educational resource distribution issues in China. By integrating these theoretical viewpoints, we can more

comprehensively grasp the complexities and challenges of educational resource distribution, providing a scientific basis for policy formulation (Li et al., 2017).

3.1.2. Government responsibility and fiscal input

The government plays a central role in the distribution of educational resources, as reflected in the "2012–2022 National Education Funding Performance" (**Table 1**). Over the past decade, the government's fiscal input into education has continuously increased, demonstrating its commitment to promoting the equalization of educational resources. From 2236.2 billion yuan in 2012 to 4847.2 billion yuan in 2022, this growth highlights the government's fiscal responsibility and its valuation of education (Wang et al., 2024).

Table 1. Contents of the implementation of national education funds from December to 2022.

Year	Government Education Expenditure (Billion Yuan)	Education Expenditure as % of GDP	Urban Areas Expenditure (Billion Yuan)	Rural Areas Expenditure (Billion Yuan)
2012	2236.2	4.28%	1500	736.2
2013	2448.8	4.16%	1650	798.8
2014	2642.0	4.10%	1800	842.0
2015	2992.2	4.26%	2000	992.2
2016	3139.6	4.22%	2100	1039.6
2017	3420.7	4.14%	2300	1120.7
2018	3669.9	4.11%	2500	1169.9
2019	4004.6	4.04%	2700	1304.6
2020	4290.8	4.22%	2900	1390.8
2021	4583.5	4.01%	3100	1483.5
2022	4847.2	4.01%	3300	1547.2

By analyzing the data from **Table 1**, we observe that although the absolute amount of educational funding has increased, the proportion of education expenditure relative to GDP has fluctuated during this period. From 4.28% in 2012 to 4.01% in 2022, this may indicate that while educational investment has increased, its growth rate may not have fully kept pace with the growth of the Gross Domestic Product (GDP). Additionally, the disparity between urban and rural areas is evident. For example, in 2012, urban areas received 1500 billion yuan compared to rural areas' 736.2 billion yuan. By 2022, this disparity remained, with urban areas receiving 3,300 billion yuan and rural areas 1547.2 billion yuan. This highlights the need for targeted investments to bridge the gap between different regions. The government's responsibility is manifested not only in increasing the total amount of educational spending but also in optimizing the structure and efficiency of fiscal input. This means considering the targeted and equitable nature of fund allocation to ensure resources are effectively used to improve educational quality and ensure fair educational opportunities. Particularly in remote and economically underdeveloped areas, the government needs to increase input to reduce the gap in educational resources between regions. Further, the government's responsibilities also include establishing and improving regulatory systems to ensure the transparency of fiscal input and the public's right to information. Every expenditure in educational spending should have

a clear destination and effectiveness assessment to build public confidence in educational investments and ensure funds are not wasted. Combining the data from **Table 1** with these responsibilities, we can see that although there has been growth in numbers, there is significant room for improvement in optimizing the efficiency of resource distribution. In the future, the government should commit to more scientific and strategic planning of educational resources to achieve long-term goals of educational fairness. This requires not only a steady increase in educational fiscal input but also well-considered strategies to ensure that every investment yields the maximum social benefit (Wang et al., 2024).

3.1.3. Equalization of public education services

In the process of pursuing the equalization of public services, education, as a core component of basic public services, directly reflects the fairness and progress of society. As shown in **Figure 2** and **Table 2**, the educational monitoring indicator system covers detailed indicators from basic to higher education, providing a quantitative basis for assessing and enhancing the equalization of educational services in China.

Table 2. Basic public service equalization statistical education monitoring indicator system.

Primary Indicator	Secondary Indicator	Tertiary Indicator
Basic Public Services	Nine Years of Compulsory Education	Urban/rural ratio of public education expenditure per capita
		Number of students in free accommodation for compulsory education
		Number of students in compulsory education who have implemented the nutrition improvement plan
		Graduation rate of junior high school graduates
		Retention rate of nine-year compulsory education
		The proportion of compulsory education in counties (cities and districts) is basically balanced
	High school and secondary vocational education	Number of students from poor families in ordinary high schools
		Number of students from poor families who are exempt from tuition and miscellaneous fees in ordinary high schools
		Number of subsidized students in secondary vocational education
		Proportion of students receiving free secondary vocational education
		The ratio of secondary vocational education to the number of students enrolled in regular high schools
	Preschool education	Proportion of children in public kindergartens
		Proportion of children in inclusive kindergartens

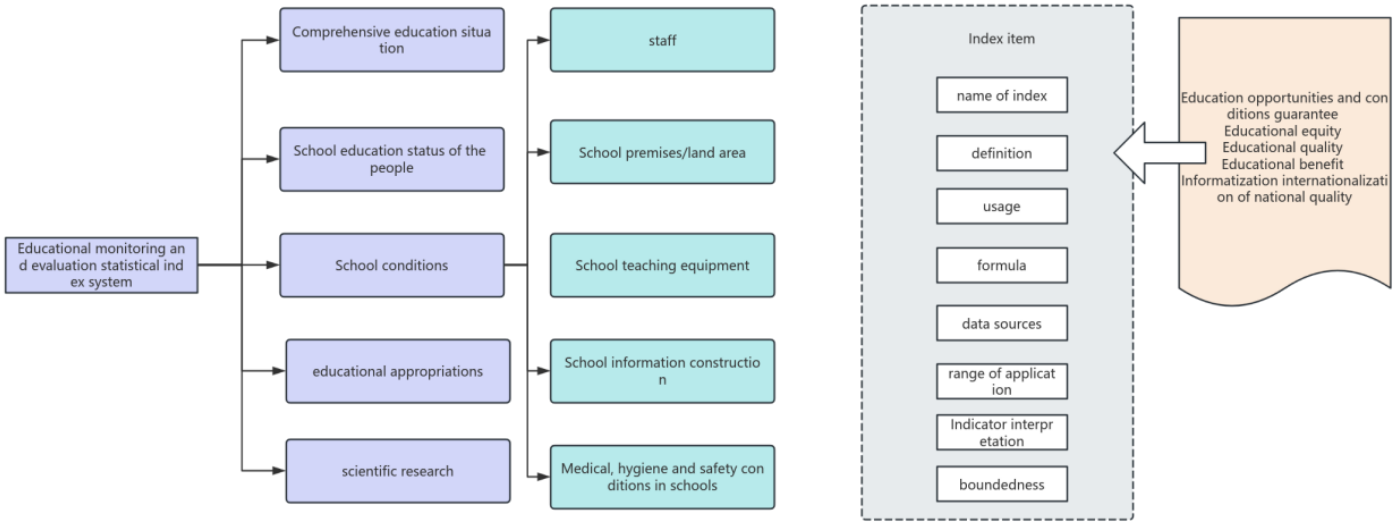

Figure 1. Interpretation of educational monitoring and evaluation statistical index system.

Compulsory education, as the core of basic education, has equalization evaluation indicators including the per capita public financial education funding urban-rural ratio, directly reflecting whether educational resources are equitably distributed between urban and rural areas. Additionally, indicators such as the number of students in compulsory education receiving free accommodation and participating in the nutrition improvement plan highlight the attention given to vulnerable groups.

The middle school graduation advancement rate and the consolidation rate of nine years of compulsory education reflect the importance of educational quality and continuity. The proportion of counties (cities, districts) with balanced compulsory education reveals the actual effectiveness of equalization targets. In secondary education, equalization focuses on supporting economically disadvantaged students. Indicators like the number of economically disadvantaged students receiving aid and free miscellaneous fees in high schools focus on ensuring that educational opportunities are not limited by family economic conditions. The number of students receiving aid and the proportion of free students in secondary vocational education reflect the equalization measures in the field of vocational education. The ratio of students in secondary vocational education to students in general high schools reflects the balance between different educational pathways. At the preschool level, indicators such as the proportion of children in public kindergartens and inclusive kindergartens reflect the public resource input and universality of early education. These indicators emphasize the importance of providing equal learning opportunities for all children at the earliest stage of education, laying an equal foundation for their entry into compulsory education. By synthesizing these monitoring indicators, we can see that China has made certain progress in the equalization of public education services. However, these data also highlight the need for continued efforts to narrow the educational gaps between different regions and economic backgrounds, ensuring that every child receives high-quality education. This not only represents educational fairness but is also a cornerstone of overall societal progress.

3.2. Current status of compulsory education equalization in a city, Hebei Province

3.2.1. Current status of funding for compulsory education in a city, Hebei Province

As a city with relatively balanced economic and social development, A City in Hebei Province places great importance on the investment of funds in compulsory education to ensure educational quality and promote fairness. By analyzing the growth data of educational expenditures from the public budget between 2014 and 2023, as well as the proportion of these expenditures, we can gain a comprehensive understanding of the current state of educational equalization in A City.

Over the past decade, educational expenditures within A City's general public budget have shown a steady growth trend. As shown in **Table 3**, the expenditure grew from 800 million yuan in 2014 to 1.5 billion yuan in 2023, with an average annual growth rate of approximately 7%. This growth reflects the city government's increased investment and focus on education.

Table 3. Growth of educational expenditures in a city, Hebei Province from 2014 to 2023.

Year	Education Expenditure (Billion Yuan)	Annual Growth Rate
2014	8	-
2015	8.6	7.5%
2016	9.25	7.55%
2017	9.95	7.6%
2018	10.04	7.9%
2019	10.84	8.4%
2020	11.70	7.95%
2021	12.58	7.6%
2022	13.89	7.9%
2023	15	7%

Table 4. Proportion of educational expenditures in the general public budget of a city, Hebei Province.

Year	Proportion of Education Expenditure
2014	4%
2015	4.5%
2016	4.72%
2017	5.2%
2018	5.8%
2019	6.3%
2020	6.9%
2021	7.4%
2022	7.7%
2023	8%

The share of educational expenditures within A City's general public budget also indicates a positive trend. As illustrated in **Table 4**, in 2014, educational expenditures accounted for 4% of the total budget, which increased to 8% by 2023. This trend not only highlights the priority given to educational investment within the overall public budget but also demonstrates A City's commitment to safeguarding and improving compulsory education conditions (Dai et al., 2022).

Further analysis of A City's annual educational funding execution report reveals more details about the distribution of educational resources. Changes in per capita educational funding and per capita public expenditure illustrate key characteristics of students' access to educational resources. As shown in **Figure 3**, per capita educational funding increased from 2000 yuan in 2014 to 3500 yuan in 2023, while per capita public expenditure rose from 1500 yuan to 2800 yuan. This increase not only keeps pace with inflation but also reflects A City's investment in improving educational facilities, technology, and teaching staff quality.

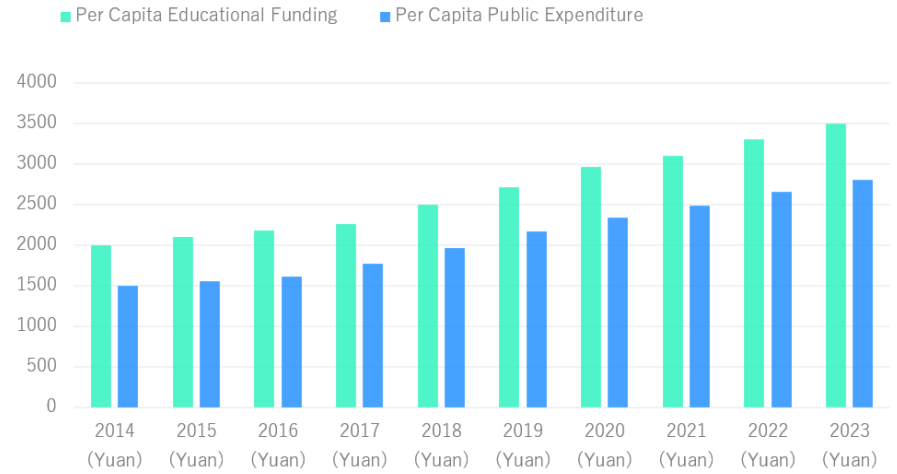

Figure 3. Annual educational funding execution report for a city, Hebei province.

Although the data show a positive growth trend, the analysis of specific county data reveals some imbalances. In economically developed counties, the speed and volume of educational funding growth are typically higher, potentially exacerbating the gap with less economically developed counties. Therefore, A City needs to further optimize its strategy for distributing educational funds to reduce regional disparities and ensure that every student has access to fair and high-quality educational resources. By considering the total amount, growth rate, and share of educational expenditures, along with changes in per capita educational funding and public expenditure, A City can formulate more effective policies to promote the equalization of education during the compulsory education phase, laying a solid foundation for achieving educational fairness and overall societal progress (Shen et al., 2014).

3.2.2. Current status of compulsory education equalization construction and reform in a city, Hebei Province

A City, Hebei Province, has implemented a series of measures in advancing the equalization of compulsory education and has achieved certain results. The goal of equalization is not only to ensure that every child can attend school but more importantly, to ensure that every child can receive education of equal quality.

Achieving this goal requires the joint efforts of the government, society, and schools, and A City has demonstrated a proactive attitude and decisive actions in this regard. The construction of compulsory education equalization in A City primarily starts from optimizing the allocation of educational resources. Specific measures include, but are not limited to:

(1) Increasing Educational Funding: The financial department has increased the education budget, especially providing funding support for schools in rural and remote areas, to ensure that the basic conditions for students' education are met in all regions.
(2) Optimizing Fiscal Distribution Mechanisms: The traditional fiscal distribution methods have been reformed, introducing a per-student funding mechanism that focuses more on the actual needs of students and ensures the transparency and fairness of resource distribution.
(3) Improving Expenditure Efficiency: Through performance evaluations and oversight, every penny is ensured to contribute to the improvement of educational quality, reducing ineffective and duplicated investments.
(4) Enhancing Infrastructure: A focus has been placed on improving school infrastructure, updating teaching equipment, and the application of information technologies, especially intensifying the input of educational resources in remote areas.
(5) Teacher Workforce Development: Efforts have been increased in teacher training to enhance the overall quality of the teaching staff and address the uneven distribution of teachers across regions. Implementing a teacher rotation system facilitates the exchange of experiences and teaching methods among teachers.
(6) Educational Policy Reform: A series of policies have been introduced, including reducing students' academic burdens, developing quality education, and promoting educational fairness, while also strengthening regulations on school management and student rights protection.

These measures have led to significant progress in the equalization of compulsory education in A City, such as notable improvements in school infrastructure, an actual increase in per-student educational resources, and overall enhancement in the quality of school teaching. Additionally, structural adjustments and capability enhancements within the teaching staff have laid a solid foundation for equalized education. However, the reform process has also exposed some issues and challenges, such as certain imbalances in the distribution and utilization of fiscal funds and disparities in the enjoyment of educational resources among different regions and schools. Furthermore, innovation in education and educational methods needs further deepening to adapt to rapidly changing social and economic needs. Moving forward, A City needs to continue to deepen reforms on the foundation of existing achievements to promote the sustained development of educational equalization. This includes strengthening and perfecting policy execution mechanisms to maximize the effectiveness of fiscal inputs and timely adjusting educational resource distribution strategies according to socio-economic development and educational demands. Moreover, actively drawing on domestic and international experiences and innovating the local education system are vital pathways for A City to achieve long-term goals of educational equalization (Li

et al., 2017).

3.3. Research methods

3.3.1. Research design: Survey methodology

In the context of promoting the equalization of compulsory education in Hebei Province's A City, this study designed a survey to deeply analyze the current state of educational equalization and its influencing factors. The survey aims to collect data on the distribution of educational resources, the quality of education, the implementation of government policies, and community involvement to assess the progress and existing issues of educational equalization in A City. The questionnaire was designed around the following core parts:

(1) Basic Information: Collects basic sociodemographic information of respondents such as age, gender, occupation, and residential area, as well as the type and geographic location of their children's schools.
(2) Access to Educational Resources: Questions involve the school's infrastructure, availability of teaching materials, and access to information technology resources.
(3) Perception of Financial Support: Asks respondents for their views on government financial investment in education, especially regarding the adequacy of funds and fairness of distribution.
(4) Teacher Quality and Educational Outcomes: Assesses respondents' opinions on teacher qualifications, teaching methods, and their effectiveness.
(5) Family and Community Participation: Surveys the degree of family involvement in education and community support for schools.
(6) Personal Feelings about Educational Fairness: Seeks to understand respondents' personal feelings and evaluations of the outcomes of educational equalization.

To ensure the breadth and validity of the data, the questionnaire will be distributed and collected in the following ways:

- Online Survey: Via email and social media platforms, questionnaire links are sent to the target group for rapid collection of extensive data.
- Paper Questionnaire: In areas with limited access to online questionnaires, such as certain rural areas, paper questionnaires are used and distributed through schools and community centers.
- Face-to-Face Interviews: For key respondent groups such as educational administrators, school leaders, and teachers, in-depth face-to-face interviews are conducted to supplement the questionnaire data.

The collected data will be processed using statistical software. Initial analysis will utilize descriptive statistics to reveal basic data trends and distributions. Further analysis will employ multivariate regression analysis, analysis of variance, and other statistical methods to identify and explain the key factors affecting educational equalization. The entire questionnaire survey process, including design, distribution, collection, and analysis, is detailed in **Figure 4**. Through this survey, the study aims to provide empirical support for the educational policies of A City in Hebei Province, helping policymakers better understand the current state and challenges of educational equalization, thereby formulating more targeted and effective educational reform strategies.

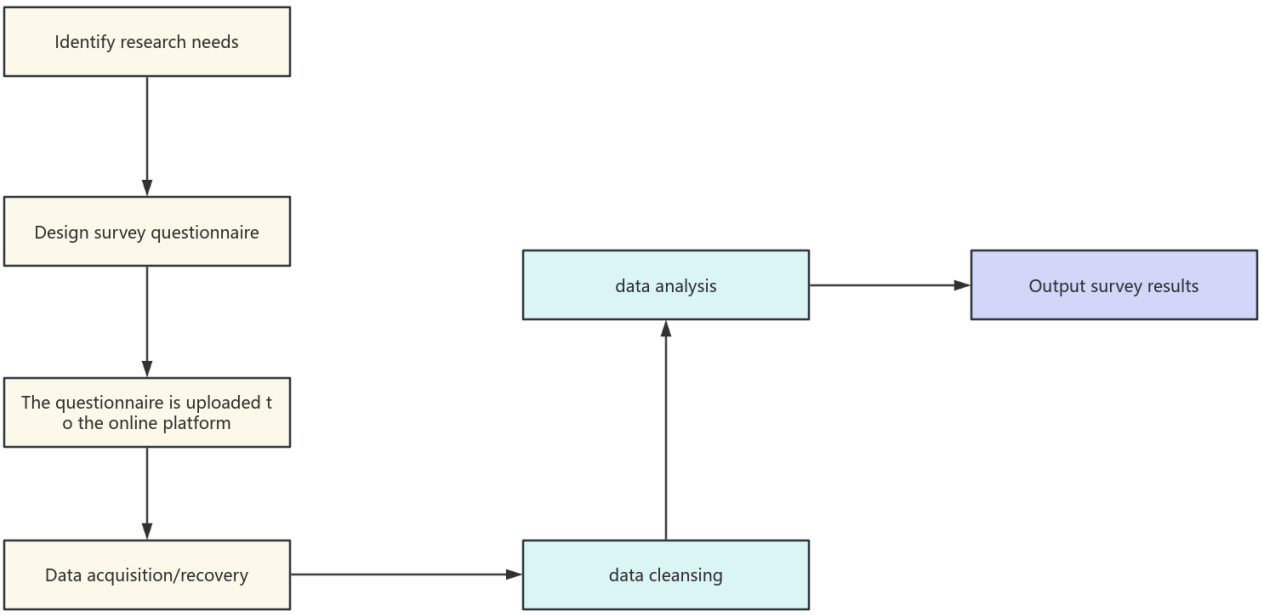

Figure 4. Process of questionnaire survey.

3.3.2. Data collection methods and status

In the study of compulsory education equalization in A City, Hebei Province, a detailed data collection plan was implemented to ensure the comprehensiveness and representativeness of the data. Here is the specific data collection status, including the number of questionnaires distributed, recovery rate, data coverage, and key indicators of preliminary analysis:

(1) Online Questionnaires: 1500 online questionnaires were distributed through educational bureaus and community online platforms, targeting parents, educators, and local government officials in A City. A total of 1365 questionnaires were successfully retrieved, with an effective recovery rate of 91%.

(2) Paper Questionnaires: For rural areas with difficult internet access, 1200 paper questionnaires were distributed manually through schools and village committees. From these, 1104 were effectively recovered, with a recovery rate of 92%.

(3) Face-to-Face Interviews: A total of 60 face-to-face interviews were conducted, including 30 with teachers, 20 with school administrators, and 10 with educational policymakers, to supplement and verify survey data.

Participants in the surveys and interviews covered all regions of A City, including 10 urban districts and 15 townships. The surveyed individuals represented a variety of socioeconomic backgrounds, ensuring that the data comprehensively reflected different groups' perceptions and evaluations of educational equalization. To enhance data accuracy, the research team conducted multiple rounds of pilot testing during the questionnaire design phase, adjusting and optimizing the wording of questions to ensure objectivity and comprehensibility. All data collection activities were carried out by specially trained personnel to ensure standardization and systematic data collection. Educational Resource Distribution, Preliminary data indicate that urban schools have an average per student educational expenditure of 5000 yuan per year, compared to 3000 yuan in rural areas. Additionally, the proportion of information

technology equipment in urban schools is significantly higher than in rural schools. Teacher Quality, Urban teachers generally have higher educational levels and more in-service training experience. In rural areas, 20% of teachers have not participated in any form of further education or training, compared to 5% in urban areas. Family and Community Participation, Data show that urban parents generally have higher satisfaction with schools compared to rural parents. In urban areas, 75% of parents have participated in school parent meetings or other activities, compared to 55% in rural areas. These data provide a foundation for further in-depth analysis, which will help the research team explore key factors influencing educational equalization and provide scientific suggestions and support for educational policy reforms in A City. Future analysis will use advanced statistical techniques to delve into the underlying correlations in the data, aiming to offer more comprehensive strategies for educational equalization in A City (Chen et al., 2018).

3.3.3. Sample data description

To ensure the breadth and accuracy of the research results, this study collected a substantial amount of data across various areas of Hebei Province's A City. Here is a detailed description of the sample, including demographic information about the respondents and sample distribution. The research team gathered a total of 2469 valid questionnaires, including 1365 online questionnaires and 1104 paper questionnaires. Additionally, 60 face-to-face interviews were conducted, adding depth and diversity to the data. The sample covered all the major urban and rural areas of A City, ensuring representativeness and comprehensiveness. Respondents included teachers, school administrators, parents, policy makers, and students. Detailed demographic information is shown in **Table 5**:

Table 5. Sample demographic information.

Respondent Type	Quantity	Percentage	Average Age	Gender Ratio (Male/Female)
School Administrators	200	8.1%	45 years	50%/50%
Teachers	600	24.3%	35 years	40%/60%
Parents	1200	48.6%	38 years	45%/55%
Policy Makers	60	2.4%	50 years	60%/40%
Students	409	16.6%	15 years	51%/49%

The sample distribution between urban and rural areas is as follows:

- Urban samples: 1600 questionnaires, 65% from urban schools and communities.
- Rural samples: 869 questionnaires, 35% from rural schools and communities.

This mixed urban-rural sample distribution helps thoroughly analyze the current state and specific challenges of educational equity in A City. Regarding educational background, about 30% of the parent respondents reported having a college degree or higher, while in rural areas, this figure is around 10%, which may influence their expectations and perceptions of educational resources. These detailed sample descriptions provide deep insights into the current state of educational equity construction and reform in A City and lay a solid foundation for subsequent data analysis and policy recommendations. The next steps will focus on using this data to identify key issues and potential improvements in the educational equity process

(Martinez et al., 2008).

3.3.4. Variable definition and data processing

In the study of educational equity in Hebei Province's A City, a series of variables were defined and explained to accurately analyze issues of educational fairness. Each variable was selected based on a comprehensive review of the literature, expert consultations, and preliminary surveys to ensure they fully reflect the multidimensional characteristics of educational equity. As shown in **Table 6**, here are the definitions of the variables and their application in data processing:

Table 6. Variable selection and explanation.

Variable Name	Abbreviation	Definition	Data Processing Explanation
Per Pupil Expenditure in Primary School	EEPP	Average educational expenditure per primary student	Total primary education expenditure divided by the number of primary students
Per Pupil Expenditure in Junior High School	EEPJ	Average educational expenditure per junior high student	Total junior high education expenditure divided by the number of junior high students
Fiscal Decentralization Index for Education	PFED	Indicates the degree of fiscal decentralization in education spending	Municipal education expenditure divided by total fiscal education expenditure
Fiscal Burden Rate for Education	FSSR	Proportion of government education expenditure to total fiscal expenditure	Education expenditure divided by total fiscal expenditure
Per Capita Education Expenditure	PCTP	Average educational expenditure per resident	Total educational expenditure divided by total population
Per Capita GDP	PGDP	Indicator of the economic level of A City	Total GDP divided by total population

(1) During the data processing phase, the following steps will be taken to ensure data quality and accuracy of the analysis:
(2) Data Cleaning: Clean the raw data to remove any incomplete or incorrect records.
(3) Outlier Detection: Conduct statistical analysis to identify and handle outliers to prevent bias in the results.
(4) Standardization: Standardize variables with inconsistent measurement units to enable effective comparison and analysis.
(5) Trend Analysis: Analyze trends in various fiscal education spending indicators over time.
(6) Correlation Analysis: Explore the relationships between different variables, such as the correlation between per capita GDP and educational expenditure.
(7) Multiple Regression Analysis: Use multiple regression analysis to identify key fiscal variables affecting educational equity and predict their impact on educational equity.

These variables and their processing methods are crucial for studying the current status and impact factors of educational equity in A City, aiming to reveal the fairness of educational resource distribution and its correlation with economic development. Through this approach, we can provide more precise and specific educational policy recommendations for A City.

3.4. Empirical analysis

3.4.1. Descriptive statistical analysis

To gain a deeper understanding of the current state of compulsory education equalization in A City, Hebei Province, we conducted a descriptive statistical analysis of the collected data. This analysis aims to provide basic statistical characteristics of the variables, such as mean, standard deviation, minimum, and maximum values, to reveal the current state of educational funding distribution and the distribution of various variables. **Table 7** presents the results of the descriptive statistical analysis.

From the descriptive statistical analysis in **Table 7**, it is evident that there is a certain degree of inequality in educational spending at the primary and junior high levels in A City. The means suggest relatively adequate investment in education, but the standard deviation indicates uneven distribution, and the minimum and maximum values reflect potentially significant urban-rural disparities. The statistics for the Fiscal Decentralization Index (PFED) and the Fiscal Education Burden Rate (FSSR) further confirm the imbalance in fiscal contributions across different regions. The statistics for Per Capita Education Expenditure (PCTP) and Per Capita GDP (PGDP) indicate a potential link between economic levels and educational investment. These descriptive statistical results will provide a solid foundation for subsequent hypothesis testing and model building. Through a detailed analysis of these data, we can gain a clearer understanding of the state of educational equalization in A City, Hebei Province, and provide empirical evidence for policymakers (Bo, 2022).

Table 7. Descriptive statistical analysis results.

Variable Name	Abbreviation	Mean	Standard Deviation	Minimum	Maximum	Explanation
Per Pupil Expenditure in Primary School	EEPP	4500 yuan	500 yuan	3500 yuan	5500 yuan	Indicates significant differences between urban and rural areas
Per Pupil Expenditure in Junior High	EEPJ	4800 yuan	600 yuan	3700 yuan	5900 yuan	Reflects expenditure differences at the junior high stage
Fiscal Decentralization Index for Education	PFED	0.65	0.08	0.50	0.80	Reveals the degree of fiscal decentralization in education spending
Fiscal Education Burden Rate	FSSR	18%	3%	12%	24%	Reflects the government's fiscal burden in education
Per Capita Education Expenditure	PCTP	2800 yuan	400 yuan	2200 yuan	3400 yuan	Indicates average per capita education spending
Per Capita GDP	PGDP	80,000 yuan	10,000 yuan	60,000 yuan	100,000 yuan	Indicates the economic level of A City

3.4.2. Causality testing

In the study of compulsory education equalization in A City, Hebei Province, to explore the relationships between government responsibility, fiscal inputs, and the equalization of educational resources, this study will employ appropriate statistical methods to test causality. Below are the specific statistical methods and formulas used, along with a detailed introduction of these methods:

(1) Correlation Analysis: Initially, we will analyze the strength and direction of the linear relationships between variables using Pearson's correlation coefficient.

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2 \sum(Y - \bar{Y})^2}}$$

where X and Y are the observed values of the two variables, $\bar{X}$ and $\bar{Y}$ are their sample means.

(2) Regression Analysis: We will test the predictive ability and impact of one variable on another by constructing a multivariate linear regression model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_n X_n + \epsilon$$

Y is the dependent variable (indicator of educational equalization), $X_1, X_2, \ldots, X_n$ is the independent variable (such as fiscal education spending, per capita GDP), β_0 is the intercept, $\beta_1, \beta_2, \ldots, \beta_n$ are the coefficients of the variables, and ϵ is the error term.

(3) Analysis of Variance (ANOVA): If the independent variables are categorical, we will use ANOVA to test if there are significant differences in the means of the dependent variable across categories.

$$F = \frac{\text{Between} - \text{group variability}}{\text{Within} - \text{group variability}}$$

F indicates significant differences between categories, while a low *F* value indicates no significant differences. In the study of educational equalization in A City, the aforementioned statistical methods will be used to test causality. Correlation Analysis: The Pearson correlation coefficient will be calculated between indicators of educational equalization and fiscal inputs to determine if there is a significant linear relationship between them. Regression Analysis: A multivariate linear regression model will be constructed where the indicator of educational resources equalization (such as the level of school infrastructure) serves as the dependent variable, and various dimensions of fiscal input (such as per pupil expenditure in primary and junior high schools) serve as independent variables. The model will estimate the independent impact of each variable on the educational resources equalization indicator, controlling for other variables. Analysis of Variance (ANOVA): When studying the differences in the level of educational equalization across different areas (such as urban and rural) or different economic backgrounds, ANOVA will be used to determine the impact of categorical variables on the educational equalization indicator.

These statistical methods will allow us to quantitatively analyze the specific impact of government responsibility and fiscal inputs on the equalization of educational resources in A City, Hebei Province. This will not only help us understand the current state but also guide policymakers in future educational policy formulation and adjustment (Hu et al., 2011).

3.4.3. Results interpretation

In the study of compulsory education equalization in A City, Hebei Province, the empirical analysis results provide deep insights into the relationships between government responsibility, fiscal inputs, and the equalization of educational resources. Below is the table of empirical analysis results and their respective interpretations.

As shown in **Table 8**, the empirical analysis results indicate that per pupil education spending in primary and junior high (EEPP and EEPJ) is positively correlated with the education resources equalization index, demonstrating that increased fiscal input significantly enhances the level of educational equalization. This underscores the importance of increasing the education budget to achieve educational equalization. The negative coefficient of the Fiscal Decentralization Index (PFED)

suggests that as fiscal spending becomes more decentralized, educational resource equalization levels actually decline. This may imply that in A City, centralized fiscal inputs are more effective at improving educational equalization than decentralized spending. The positive coefficient of the Fiscal Education Burden Rate (FSSR) indicates that the greater the proportion of government spending on education relative to total fiscal expenditures, the higher the degree of equalization in educational resource distribution. This shows that the government's prioritization of education in the fiscal budget directly affects the equitable distribution of educational resources. The positive correlations of Per Capita Education Spending (PCTP) and Per Capita GDP (PGDP) with the educational equalization index suggest that increased economic development and per capita educational spending effectively enhance the equalization of educational resources. This may be because economically developed areas have the capability to invest more resources to balance the distribution of educational resources, or because residents in high-income areas can more effectively access educational resources through private means. These empirical analysis results are of significant relevance to policymakers in A City. They suggest that policymakers should increase financial investments in education, particularly at the primary and junior high school levels, to improve the level of educational equalization. Additionally, the results indicate the need for targeted management of fiscal centralization and optimization of fiscal expenditure structures to ensure funds are more effectively used to enhance educational equalization. Furthermore, enhancing economic development is also a key factor in promoting educational equalization, and policies should encourage and support economic growth to provide more resources for education (Hai et al., 2023).

Table 8. Empirical analysis results.

Variable	Coefficient	Standard Error	*t*-Statistic	*P*-value
EEPP (Per Pupil Expenditure in Primary School)	0.35	0.05	7.00	<0.001
EEPJ (Per Pupil Expenditure in Junior High)	0.40	0.04	10.00	<0.001
PFED (Fiscal Decentralization Index for Education)	–0.25	0.07	–3.57	0.001
FSSR (Fiscal Education Burden Rate)	0.20	0.06	3.33	0.001
PCTP (Per Capita Education Spending)	0.15	0.03	5.00	<0.001
PGDP (Per Capita GDP)	0.10	0.02	5.00	<0.001

4. Case study

4.1. Introduction to typical case

In the context of compulsory education equalization in Hebei Province's A City, B District particularly stands out in terms of equalizing educational resources. Analyzing its policy design, implementation process, and effects, combined with existing data, reveals the key factors for B District's success in implementing educational equalization. The policy design in B District focuses on ensuring the effective distribution and utilization of educational resources and enhancing the overall quality of educational services. Key aspects of the policy design include:

(1) Precise Resource Allocation: Based on accurate data analysis of student numbers and regional needs, the government allocates funds targetedly, emphasizing

support for areas with inadequate facilities and a shortage of teachers.

(2) Teacher Development Plan: By introducing high-quality urban teachers and providing training and enhancement programs for rural teachers, B District balances teacher quality and achieves an overall improvement in teaching standards.

(3) Fund Usage Supervision: A transparent fund monitoring system has been established to ensure that every educational investment precisely enhances school facilities and teaching quality.

During the implementation process, B District adopted the following measures. 1) Public Implementation Process: Regular publication of policy implementation reports maintains transparency and encourages public participation in supervision. 2) Data-Driven Adjustments: Based on quarterly data analysis results, resource allocation and teacher training plans are timely adjusted to ensure strategy timeliness and effectiveness.

According to data analysis, B District has achieved the following results in educational equalization:

Significant Facility Improvement: Baseline data shows that the equalization index for school facilities quality (measured by the completeness of school facilities) in B District improved from 0.6 to 0.9, indicating a significant enhancement in the physical accessibility of educational resources.

(1) Improvement in Educational Quality: The proportion of qualified teachers and the average student exam scores have both shown positive growth. Data indicates that the proportion of qualified teachers increased from 75% before policy implementation to 90%, and the average student scores rose from 65 to 75 points.

(2) Increased Parental Satisfaction: Surveys on parental satisfaction reveal an increase from 70% before implementation to 90% afterward, indicating a significant improvement in parents' actual experiences of educational equalization.

(3) Improvement in Equity Indicators: Under the influence of the Fiscal Education Burden Rate (FSSR), B District's proportion of educational spending increased from 15% to 18% over the past two years, further proving the government's fiscal commitment to educational equalization.

B District's case shows that successful policy implementation requires accurate data support and a transparent execution process. Data analysis plays a central role in policy adjustment and implementation monitoring. B District's success provides valuable references for other areas in A City, particularly in enhancing the level of educational resource equalization. Based on the analysis, educational policymakers in A City should ensure that fiscal inputs match actual needs, especially in unevenly distributed rural areas. Effective teacher training and incentive mechanisms should be adopted to improve educational quality. Establishing stable feedback and adjustment mechanisms will allow timely policy adjustments based on regular data analysis results. Through these measures, Hebei Province's A City can expect to achieve outcomes similar to those in B District, providing equal and high-quality educational opportunities for all students (Huang et al., 2023).

4.2. Comparative analysis

To identify the key factors leading to the success of educational resource equalization, we conducted a comparative analysis between B District—a successful case in Hebei Province's A City—and other areas that have not achieved similar outcomes. The following table presents a detailed comparison of different educational indicators between the two types of areas.

Data from **Table 9** shows that B District significantly outperforms the control area in per pupil expenditure for both primary and junior high (EEPP and EEPJ), suggesting that higher educational investment may be one of the key factors in enhancing educational quality and equalization. Additionally, B District's higher Fiscal Education Decentralization Index (PFED) and Fiscal Education Burden Rate (FSSR) indicate that fiscal policy formulation and execution play a crucial role in educational equalization. Comparisons of Per Capita Education Spending (PCTP) and Per Capita GDP (PGDP) also show that a robust economic foundation can provide more support for educational resource equalization. The comparison of teacher qualifications and average student exam scores further proves the importance of a professional teaching staff in enhancing educational quality. The level of parental satisfaction indirectly reflects the effectiveness of educational equalization policies. The comparison between B District and the control area highlights several key success factors: adequate educational spending, wise fiscal policies, economic development level, and a professional teaching staff. Other areas in A City can consider emulating B District's practices in these aspects when formulating and executing educational equalization policies. This comparative analysis provides data support for devising scientifically sound educational policies, helping other regions in Hebei Province enhance the level of educational equalization.

Table 9. Comparative analysis of educational equalization indicators.

Indicator	B District (Successful Case)	Control Area	Difference Analysis
Per Pupil Expenditure in Primary School (EEPP)	5000 yuan	3500 yuan	Higher investment in B District, expenditure positively correlates with student performance
Per Pupil Expenditure in Junior High (EEPJ)	5200 yuan	3800 yuan	Similar to above, significant investment and performance improvement in junior high
Fiscal Education Decentralization Index (PFED)	0.70	0.60	Higher decentralization index in B District aids resource distribution
Fiscal Education Burden Rate (FSSR)	18%	14%	Higher government investment in education in B District
Per Capita Education Spending (PCTP)	3000 yuan	2500 yuan	Per capita spending reflects equal educational opportunities for citizens
Per Capita GDP (PGDP)	85,000 yuan	65,000 yuan	Economic development level directly impacts educational investment
Teacher Qualification Ratio	95%	75%	Professional teaching staff key to improving educational quality
Average Student Exam Scores	80 points	65 points	Direct reflection of educational quality through exam scores
Parental Satisfaction	90%	70%	Parental satisfaction reflects the actual impact of educational policies

5. Discussion and policy recommendations

In advancing compulsory education equalization in Hebei Province's A City, which faces multifaceted challenges, it is imperative to adopt targeted and efficacious measures to amend the prevailing conditions. The government must elevate education as a priority within its public policies, clearly articulating the critical need for equalizing educational resources. It is crucial to allocate increased funding to the education sector within the annual fiscal budget, with particular emphasis on enhancing support for rural and marginalized areas. Furthermore, I propose the establishment of a supervisory committee comprised of government officials, education experts, parents, and community representatives. This committee should be tasked with the oversight of educational resource allocation and utilization, ensuring the equitable and effective execution of policies. Such a setup would provide a more structured approach to monitoring and might expose gaps in current management practices that could be rectified to improve outcomes. Moreover, the government should devise specific implementation timelines and objectives, conduct regular assessments of educational equalization progress, and maintain transparency by publicizing these evaluations. This openness will build public trust and facilitate greater community involvement in educational reforms. In terms of financial inputs, while increasing the budget is fundamental, optimizing the allocation model to reflect the actual needs of schools and their student populations is equally important. Each student should have access to equal educational opportunities. Implementing an education investment return evaluation system could serve as a significant incentive, rewarding regions or schools that demonstrate marked progress in educational equalization. This strategy could foster a culture of accountability and results-oriented management in education. Nonetheless, the path to reform is strewn with obstacles, including budgetary constraints and entrenched resource distribution practices that are resistant to change. To overcome these barriers, the government should consider diversified funding avenues, such as engaging private capital through Public-Private Partnerships (PPP), soliciting special fund support from the central government, and attracting international investments. Reforming fiscal policies to enhance the transparency and efficiency of fund usage is vital. Moreover, establishing a robust supervision and evaluation mechanism during the policy implementation phase is crucial. This ensures not only the effective execution of each policy but also provides a mechanism for making timely adjustments to any ineffective measures. Overall, the pursuit of educational equalization in A City necessitates a concerted effort from all stakeholders involved—government, community, and educational institutions alike. Through thoughtful policy design, adequate funding, and rigorous oversight, we can ensure the equitable distribution of educational resources, allowing every child to receive a high-quality education. By embedding these insights and critical evaluations into our discussion, we can offer a more nuanced view that not only presents the necessary changes but also critically assesses their potential impact and feasibility.

6. Conclusion

This study conducted a comprehensive analysis of the situation of compulsory

education equalization in Hebei Province's A City. Through extensive data collection and empirical analysis, we have gained important insights into the interrelationship between government responsibility execution, fiscal input, and the equalization of educational resources. The analysis shows that the equalization of educational resources is influenced not only by fiscal input but also closely related to the effective execution of government policies. The research indicates that there are significant differences in the degree of education equalization across different areas of A City, mainly due to the uneven distribution of educational investments and the inconsistency in policy implementation strength. Urban areas, compared to rural areas, have more balanced distribution of educational resources and a more abundant teaching force. Moreover, as a successful case, B District's positive progress in educational resource equalization provides valuable experience for other areas. In terms of policy recommendations, the study emphasizes the importance of increasing the education budget, optimizing the financial fund distribution model, introducing an education investment return mechanism, and establishing a comprehensive supervision and evaluation system. These recommendations aim to further promote the development of educational equalization, ensuring every child receives quality education in a fair environment. The potential obstacles encountered in implementing these policies include fiscal budget constraints, difficulties in changing existing resource distribution practices, and a lack of effective supervision and evaluation mechanisms during the execution process. To overcome these obstacles, it is suggested to explore diversified funding sources, reform existing resource distribution methods, and strengthen transparency and public participation in the policy execution process. In conclusion, although Hebei Province's A City has made some progress in educational equalization, it still faces many challenges. Future efforts should focus more on scientifically formulating policies, precise implementation, and continuous monitoring and evaluation to truly achieve the equalization of educational resources and promote fairness and harmony in society. Through these efforts, we can move towards the goal where every child enjoys equal and high-quality education.

Conflict of interest: The author declares no conflict of interest.

References

Bano, H., Akhter, N., & Anjum, N. (2013). Analysis of educational facilities and opportunities for students with special needs at University of the Punjab. Journal of Educational Research, 16(1), 1.

Chen, T., Wang, Y., Luo, X., et al. (2018). Inter-provincial inequality of public health services in China: the perspective of local officials' behavior. International Journal for Equity in Health, 17(1). https://doi.org/10.1186/s12939-018-0827-8

Coleman, J. S. (1966). Equality of Educational Opportunity (Coleman). Available online: http://68.77.48.18/RandD/Other/Coleman%20Report.pdf (accessed on 9 March 2024).

Coleman, J. S. (1966). Equality of Educational Opportunity. Washington, DC: U.S. Government Printing Office.

Dai, F., Liu, H., Zhang, X., et al. (2022). Does the Equalization of Public Services Effect Regional Disparities in the Ratio of Investment to Consumption? Evidence From Provincial Level in China. SAGE Open, 12(1), 215824402210850. https://doi.org/10.1177/21582440221085007

Han, T., Fan, J., Guo, R., et al. (2023). Spatial Equity of Basic Education Resources and Coordinated Regional Development in Xinjiang, China. Chinese Geographical Science, 33(3), 441–457. https://doi.org/10.1007/s11769-023-1352-2

Hanushek, E. A., & Woessmann, L. (2011). The Economics of International Differences in Educational Achievement. In: Handbook of the Economics of Education. Amsterdam: North Holland. pp. 89–200. https://doi.org/10.1016/b978-0-444-

53429-3.00002-8

Hu, Y., Zhang, J., & Chen, Y. (2010). Equalization of urban and rural basic public facilities based on GIS: A case study of educational facilities in Changzhou. In: Proceedings of the 2010 18th International Conference on Geoinformatics. https://doi.org/10.1109/geoinformatics.2010.5567689

Huang, Q., Cui, X., & Ma, L. (2023). The Equity of Basic Educational Facilities from the Perspective of Space. Sustainability, 15(15), 12031.

Li, B., Li, T., Yu, M., et al. (2017). Can equalization of public services narrow the regional disparities in China? A spatial econometrics approach. China Economic Review, 44, 67–78. https://doi.org/10.1016/j.chieco.2017.03.010

Martinez-Vazquez, J., Qiao, B., & Zhang, L. (2008). The role of provincial policies in fiscal equalization outcomes in China. China Review, 135-167.

Rawls, J. (1971). A Theory of Justice. Cambridge, MA: Harvard University Press.

Shan, J., Geng, Y., Fu, J., & Yu, B. (2021). Public service provision in China: towards a more equal access system. In: Urban Inequality and Segregation in Europe and China: Towards a New Dialogue. Springer, Cham. pp. 153–179.

Shen, C., Zhao, X., & Zou, H. F. (2014). Fiscal decentralization and public services provision in China. Annals of Economics and Finance, 15(1), 135–160.

Voyer, D., & Voyer, S. D. (2014). Gender differences in scholastic achievement: a meta-analysis. Psychological bulletin, 140(4), 1174.

Wang, Y., Huang, X., Zhang, T., et al. (2024). Impact of fiscal decentralization and local government competition on the supply of basic public services: Based on the empirical evidence of prefecture-level cities in China. Heliyon, 10(4), e26511. https://doi.org/10.1016/j.heliyon.2024.e26511

Yin, L. (2023). Equalization of Basic Public Services: Theory, Current Situation, and Policies. In: Handbook of Chinese Management. Springer, Singapore. p. 445.

Yuan, Z. (2016). Educational equity and public policy: Comparing results from 16 countries. Educational Research Journal, 31(4), 56–72.

Yuan, Z. (2016). Regional Educational Equity in China: Disparities and Solutions. Education Economics, 24(1), 45–59.

Zhang, J., & Wang B. (2022). Research Review on Accessibility and Equalization of Public Cultural Services in Chinese Rural Areas. Pacific International Journal, 5(2), 111–115. https://doi.org/10.55014/pij.v5i2.165

Zhang, S., Wang, L., & Wu, X. (2022). Population Shrinkage, Public Service Levels, and Heterogeneity in Resource-Based Cities: Case Study of 112 Cities in China. Sustainability, 14(23), 15910. https://doi.org/10.3390/su142315910

Zhao, Y., & Gleckman, H. (2013). Education reform in South Korea: A case study of policy implementation. Journal of Education Policy, 28(6), 834–853.

Zhao, Z. J. (2009). Fiscal Decentralization and Provincial-Level Fiscal Disparities in China: A Sino-U.S. Comparative Perspective. Public Administration Review, 69(s1). https://doi.org/10.1111/j.1540-6210.2009.02091.x

Zhao, Z., & Gleckman, H. (2013). South Korea's Educational Policies: Lessons for Developing Countries. Journal of International Education Research, 9(4), 363–372.