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The Equal Right to Education of Disadvantaged Groups and the Adjustment of Higher Education Policy Under the Theory of Pluralism

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Abstract This paper combines the typical characteristics of my country's unique urban-rural dual structure, gender discrimination in education, uneven regional development, and the coexistence of vocational education and general education. To study the heterogeneity of educational inequality and its changing trend caused by inequality of educational opportunities among different groups, using the Shapley value decomposition method based on regression equation, Calculate the contribution of various environmental factors to the inequality of educational opportunities in my country, and find out the main influencing factors of the inequality of educational opportunities in my country. Using the Multiple Intelligences Theory model based on the parameter method and various discrete variable inequality indicators to measure the inequality of educational opportunities at various stages of education in my country, Divide all the samples into several subgroups according to their birth years, observe the changing trend of the inequality of educational opportunities in my country, and find out which the current inequality of educational opportunities in my country is mainly concentrated in.

Index Terms multiple intelligences, algorithm optimization, disadvantaged groups, right to education, equality

I. Introduction

Vulnerable groups in education generally refer to the relatively weak ability to obtain resources due to their own conditions and insufficient external relief and guarantees, which are excluded and marginalized. If it is not supported and paid attention to, it is a virtual group of its own life. Generally manifested as low social status and economic poverty [1]–[4]. For example, people living with minimum living allowances in cities, migrant workers, residents of underdeveloped areas, disabled people, etc. After the "vulnerable group" was mentioned in the "Government Work Report" document of our country, the vulnerable group has become a widely concerned concept. However, there is no clear concept for it in legislation and policy and legal documents [5]. Scholars have studied the concept of vulnerable groups. The main point of view is as follows: one point of view is that disadvantaged groups are those who are unable to realize their basic rights due to obstacles such as social conditions and personal abilities, Groups that need state help and social support to realize their fundamental rights [6], [7].

Some scholars also believe that the disadvantaged group is a relative concept [8]. Compared with another part of the population (usually the majority). For example, economically relative to groups in poor areas and townships in developed regions; culturally relative to groups in backward culturally conscious areas with complete educational facilities and talents; Physically disabled and mentally handicapped people compared to normal people; women, children, and the elderly are divided according to their social power status, and people who are unemployed, impoverished, isolated and marginalized in social competition are also included; In the face of environmental damage and pollution, they can only bear the obligation to endure, but do not know the rights and remedies or resistance groups. In addition, there is a view that "the weak originate from social deprivation, Putting some people at a relative disadvantage", from the analysis of the causes of "deprivation", there are mainly several types of natural, social, political and legal deprivation.

In China, at the macro level, due to the unbalanced education policy and the long-standing characteristics of my country's unique urban-rural dual structure, gender discrimination, unbalanced regional development and other factors, There are great differences in the allocation of educational resources in various regions of our country, so the quantity and quality of education that individuals can receive in different environments vary widely [9]. Taking education investment as an example, the amount of education investment in different regions of the country varies greatly, and the allocation of

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education resources varies [10]. Figure 1 shows the retrieval situation of the data set of educational funding investment in various regions in China in 2021.

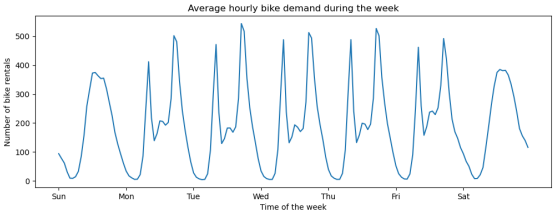

Figure 1: Data retrieval on the education input demand dataset

At the micro level, affected by family cultural capital, economic and political capital, etc. the educational acquisition of individuals is closely related to the family resource background, and the phenomenon of social group stratification is serious. The level of education that individuals can receive under the dual effects of macro and micro is greatly affected by objective environmental factors, resulting in unequal educational opportunities [11].

However, the current research status reflects that the current research is still insufficient [12]. First, the research paradigm is relatively single, Domestic researchers mainly use CHNS and the National Education Service Survey Database for analysis, and the research path basically follows:

- Select the cross-sectional data of some years;
- Use the concentration index and other methods to measure the fairness, Some studies further decompose the concentration index and measure the contribution rate of related factors;
- Analysis of reasons and policy suggestions [3].
- the measurement of fairness is dominated by cross-sectional studies, with few longitudinal studies. Although relevant longitudinal studies have analyzed the trend of fairness improvement, the analysis methods are mainly descriptive statistical analysis methods. Moreover, the research subjects were selected in a relatively short period of time.
- there is a lack of research on the evaluation of specific educational policies' fairness improvement effect. Some studies have linked education service equity with the new medical reform policy, but the number of studies is small and the observation time of the research objects is short. Fourth, there is a lack of corresponding fairness evaluation standards.

The mainstream Gini coefficient, concentration index and other methods measure relative inequality, implying the assumption that equality is fairness, and relevant research does not propose a clear standard for fairness judgment [4].

II. Research Objective

Vulnerable groups in the educational environment are not unique to China, they exist in any society, and the duration and form of expression are different due to the joint influence of the state and society. In this paper, from the perspective of rural areas, through data collection and comparison, this paper studies the causes, influencing factors, hazards and countermeasures of disadvantaged groups in my country's educational environment. To discuss the importance of education for disadvantaged groups such as rural areas, so as to attract the attention and support of the state and society to this group, and truly realize the fairness and justice of the environmental rights and interests of the whole society, which belong to the attributes of human rights [5].

A. Factor recursion of educational imbalance

China's large population, coupled with the influence of the long-term, makes education policies also divided according to the structure. This leads to inequity in education in remote areas such as rural areas. The education is not broad enough, the level is not high, the scope is not complete, and the resources are not enough. As a result, it is difficult for rural groups to adapt to the rapidly developing new type of rural areas. The recursive graph of its education factor is shown in Figure 2.

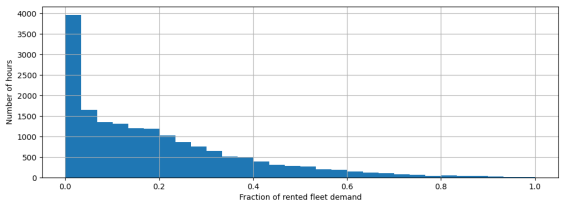

Figure 2: Recursive graph of education factor

On the one hand, education in most provinces and regions is based on the admission rate of the pays little attention to the comprehensive quality education of students. Especially in underdeveloped and underdeveloped areas, the philosophy of both schools and families is that students have only one way out for further education, which creates a mental set for this group of people. That is, apart from education, nothing else matters. They do not have a sense of protection for the severity of the environmental problems in the living area, and do not care about the damage. Therefore, these groups can easily become environmentally disadvantaged groups, unless they have really acquired relevant environmental knowledge through further education, otherwise, To a large extent, they have become potentially vulnerable groups in the environment; on the other hand, the urban-rural division of school-running system has also blocked rural education and made nearly 80% of students miss the college entrance examination. In this regard, it can be said that rural groups are cut off from other educational opportunities other than local educational resources.

Many researchers have pointed out that the current system of regional division is largely due to the remnants of the idea of "city priority" under the planned economic system. In addition, urban resources are more abundant and sound

than rural educational resources. Even if some wealthy rural residents send their children to urban schools, they rarely care about what their children gain and what they lose. Development is not based on the level of commodity prices, it needs to be evaluated based on the combination of various groups of people and their education, quality and morality. Strictly speaking, the most essential reason why a country or region is backward, aside from other objective reasons, is the low quality of people. The inequality of education is undoubtedly an important reason for the low quality of farmers and thus the low quality of the nation. The low proportion of educated people and the low quality of citizens further exacerbate the possibility of rural groups becoming environmentally disadvantaged.

B. Optimization and robustness test of multivariate algorithm

A combination of theory and evidence. At the theoretical level, the relevant research methods in the field of opportunity inequality are introduced, Including ex-ante method, post-event method, random dominant method, parametric method, non-parametric method, etc. Based on the relevant theoretical models and the research content of this paper, a more appropriate parametric method is selected. On this basis, we use micro-level data to measure the inequality of educational opportunities in China.

At the empirical level, when measuring the inequality of educational opportunities in my country, Using parametric analysis methods that are normative in the field of inequality of opportunity research, Simultaneous use of mixed OLS, binary Probit, and sorted Probit models, At the same time, the Theil index, the dissimilarity index and the modified dissimilarity index are used to measure and empirically analyze the inequality of educational opportunities in my country. Use a variety of robustness testing methods to test the robustness of the conclusions drawn. In addition, the Shapley value decomposition method based on regression equation, which is a more reasonable and comprehensive measure, is used to measure the contribution of various environmental factors to the inequality of educational opportunities in China. The chronological trend of each influencing factor is empirically tested, and the main influencing factors are analyzed to pave the way for policy recommendations. The waterfall model is shown in Figure 3.

III. Methods

The intelligent evaluation and algorithm optimization is to provide users with a fair experience of education closely related to real life. It is only a tool for teachers and students, and it has a certain reference value. But it is not an absolute tool for identifying high and low intelligence. The system mainly includes a large number of test questions designed for different types of intelligence, and each test randomly gives the test questions to ensure the validity of the results. Before entering the test, testers must register and log in to enter the interface for testing and managing their own information. After the test,

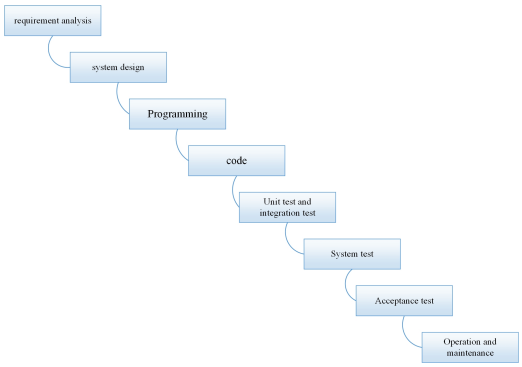

Figure 3: Waterfall development model

User category	Function description	explain
administrators	Add teacher user Add student user delete user View user information Edit user information	Have the highest authority of the system
teacher	Modify personal password Change student password View individual test results View all user test results	System registered user
student	Conduct tests View test results Personal information maintenance Modify personal password	System registered user

Table 1: User function table of educational equity software

there will be feedback information about the relevant results. At present, the main users of this system are students and teachers. Students are managed by teachers. Individual results and all results will be viewed by teachers so that teachers can help. To sum up, according to the different functions of users, they are divided into three users: administrators, teachers, and students.The descriptions are shown in Table 1.

A. System structure design

The joint verification task is a model, presentation, console and web application based on the joint verification task model, which can be easily implemented with multiple controllers. When creating the console, the navigation page setting is relatively unstable. Through the web application search based on the joint audit panel structure, we can understand the execution differences, develop online software based on these differences, adjust the communication according to the joint audit panel structure, and use the external strategic configuration file to display the differences. This intelligent method can change the file settings, making the network software a development platform for developers. The previous software was based on the structure of the joint Verification Mission, which developers could implement.Its design structure is shown in Figure 4.

B. Algorithm optimization

On this basis, this research systematically optimizes the MPV model.The system administrator is mainly responsible for the account management of teachers and students. The data is always consistent. Only by using the existing power can it play a role. The administrator interface Figure 5.

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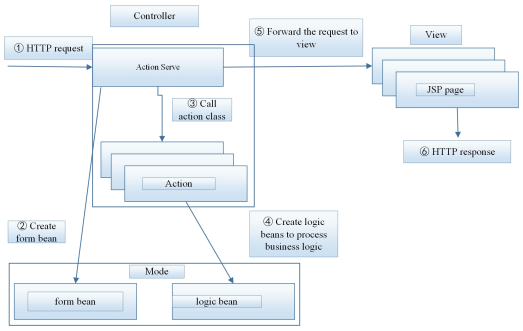

Figure 4: MVC system design structure diagram

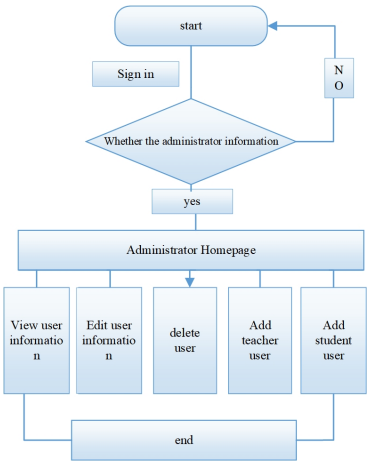

Figure 5: Optimized flow chart of the administrator interface

In short, while maintaining their own information, civil servants have the greatest power to restrict and restrict teachers and student staff from engaging in specific businesses. In addition, teachers can manage students within a certain range, and teachers can protect students' private life while understanding students. In addition to using their own work permits, students will not affect other users, but they are the main users of the system and other users of the process. Its PBL flow chart is shown in Figure 6.

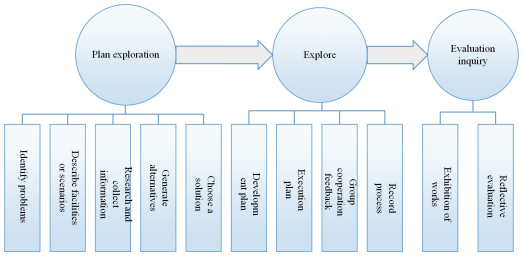

Figure 6: PBL flow chart

IV. Case study

In order to measure the inequality of educational opportunities in my country and its chronological trend, We first consider the environmental factors Mixed OLS regression was performed on the educational level of individuals, and then the overall sample was divided into1930-1939, 1940-1949, 1950-1959, 1960-1969, 1970-1979, 1980-1989 six subgroups were mixed OLS regression. The regression heatmap is shown in Figure 7.

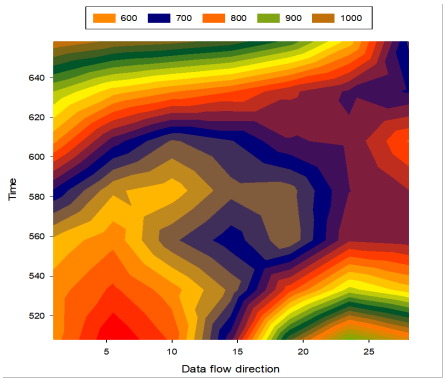

Figure 7: Regression heat map of inequality of educational opportunity

From Figure 7 can be found that for social background factors, including region and household registration type. The coefficients of dummy variables in each province are significantly negative. The reference group is Beijing, and the place of birth has a significant impact on the educational level of individuals. Beijing is still an area with relatively high educational level and cultural level in China. In general, individuals with urban hukou have higher educational attainment than rural individuals, The household registration factor is still an important factor restricting the fairness of educational opportunities in my country, and factors such as differences in access to educational resources between urban and rural areas make it impossible for urban and rural individuals to have the same education rights.

A. Staged inspection optimization improvement

Based on the above regression results, the educational inequality and educational opportunity inequality in China are calculated as shown in Table 2.

Among them, the inequality index selects the Theil index of education, and lists the results of the Gini coefficient and the average logarithmic deviation as a comparison. Opportunity inequality includes absolute value and relative contribution degree. The relative contribution degree is the degree to which the inequality of educational opportunity accounts for the true overall education inequality of the sample. The results presented include direct and indirect methods. Regardless of whether the inequality of opportunity is measured by the direct method or the indirect method, the degree of inequality of educational opportunity in my country has the same chronological trend, and the result is relatively stable. Among them, the overall educational inequality has maintained a downward trend, which reflects the overall effect of my country's various educational reform policies and measures, and the per capita

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		Full sample	30-39	40-49	50-59	60-69	70-79	80-89
Overall education inequality	GE(1)	0.1507	0.4018	0.2341	0.1931	0.1037	0.0791	0.0512
	GE(0)	0.2384	0.4845	0.3357	0.2962	0.1564	0.1073	0.0624
	GINI	0.2811	0.4765	0.3504	0.3138	0.2264	0.2055	0.1709
Unequal opportunities	direct method	0.0548	0.1419	0.0674	0.0551	0.0301	0.0301	0.0210
absolute value	indirect method	0.0763	0.1299	0.0931	0.082	0.0422	0.0368	0.0239
Unequal opportunities	direct method	0.3634	0.3532	0.2868	0.2855	0.2902	0.3805	0.4099
Relative value	indirect method	0.5061	0.3233	0.3978	0.4244	0.4065	0.4661	0.4663
sample size	N	34748	1992	4123	6559	7726	7104	5086

Table 2: Recursive factors of inequality of educational opportunity

education gap is narrowing. The absolute value of the inequality of educational opportunities also decreased year by year, but the relative to the overall educational inequality showed a trend of first decreasing and then increasing. The upward trend increased significantly after the 1960s.

We decompose educational inequality into unequal educational opportunity and unequal educational effort, Among them, the inequality of educational opportunities is the unreasonable inequality originating from the exogenous environment of individuals, and the inequality of educational effort is the reasonable inequality caused by the degree of individual effort. Therefore, the relative degree of inequality in educational opportunities is undoubtedly a more important indicator. The increase in the relative degree of inequality in educational opportunities means that, Inequality in individual educational achievement is increasingly derived from irrational returns to "environment" rather than reasonable returns to "effort". A more intuitive display of the calculation results of the inequality of educational opportunities expressed by the direct method is shown in Figure 8.

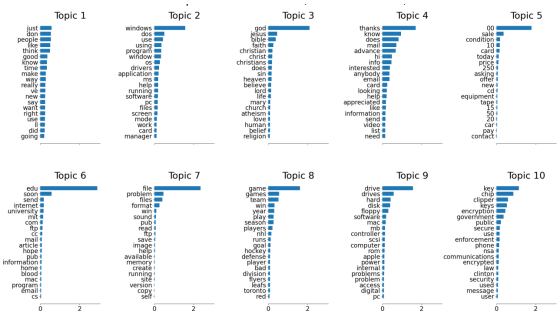

Figure 8: Calculation diagram of the results of non-matrix analysis

B. Data situation optimization

A discontinuous time series analysis was performed on the concentration index values of each indicator from 2010 to 2021, respectively. Model output reports model parameter estimates, standard errors, P-values, and more. The statistical results show that the overall fitting of the six models is good, and there is no autocorrelation between the residuals of all model data. Its F-test chart is shown in Figure 9.

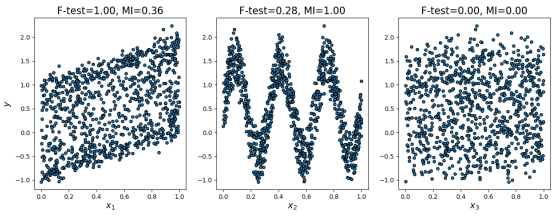

Figure 9: F-test chart for data situation optimization

Before the implementation of the education reform, the CI value of educational institutions showed a gradually increasing trend. The resource allocation characteristics of educational institutions gradually changed from pro-poor to pro-rich, and showed a trend of continuous accumulation in economically developed provinces; However, after the implementation of the intervention, the CI value showed a downward trend from an increase, and the resource allocation of educational institutions changed to a trend of gradually gathering in less developed provinces. To sum up, it can be concluded that the intervention of the new education reform has a positive significance in improving the fairness of the allocation of educational institutions, although the instantaneous effect is not obvious (level change), However, the intervention of the new education reform has caused the total allocation of educational institutions to show a trend of gathering in economically underdeveloped provinces for a long time. Its provincial clustered bar chart is shown in Figure 10.

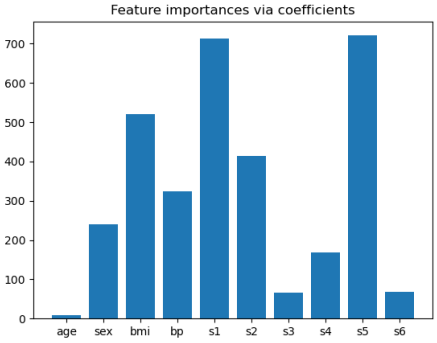

Figure 10: Schematic diagram of CI value aggregation

The deployment of teaching mode can distribute learning

content to multiple locations scattered by teachers and students. The community is scattered in many places where students, teachers and learning content (multidisciplinary learning) are scattered. There are three aspects around this problem. The process of solving problems is to closely link these three aspects. Information technology supports teachers and students to interact while participating in educational activities. The main part of this model is that teachers and students learn multidisciplinary knowledge of this problem. Teachers design and manage learning activities. According to the characteristics of intelligent structure, students choose learning and expression methods to participate in learning activities. The participation of teachers and students in learning activities is greatly restricted [6], [7].

V. Conclusion

From a relatively crude measurement method at the beginning to a more complete measurement method, including two of them, the vigorous academic discussions on the update of the method development, In general, the method system of advanced inequality measurement is relatively complete and systematic. These include decomposition methods (single-period and multi-period cross-sectional data) and the introduction of "counterfactual frameworks", the combination and fusion of spatial econometric methods, and more. Therefore, the increase in educational opportunities brought about by educational expansion alone cannot substantially solve the problem of inequity. The new higher education opportunities are more accessible to the advantageous classes, and the fairness of higher education opportunities needs to be promoted by stronger policies and systems.

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References

[1] Luckett, K., & Shay, S. (2020). Reframing the curriculum: A transformative approach. *Critical Studies in Education, 61*(1), 50-65.
[2] Nichols, S., & Stahl, G. (2019). Intersectionality in higher education research: A systematic literature review. *Higher Education Research & Development, 38*(6), 1255-1268.
[3] Pascual, U., Adams, W. M., Díaz, S., Lele, S., Mace, G. M., & Turnhout, E. (2021). Biodiversity and the challenge of pluralism. *Nature Sustainability, 4*(7), 567-572.
[4] Benda-Beckmann, K. V., & Turner, B. (2018). Legal pluralism, social theory, and the state. *The Journal of Legal Pluralism and Unofficial Law, 50*(3), 255-274.
[5] Rabovsky, T., & Lee, H. (2018). Exploring the antecedents of the gender pay gap in US higher education. *Public Administration Review, 78*(3), 375-385.
[6] Chankseliani, M., Qoraboyev, I., & Gimranova, D. (2021). Higher education contributing to local, national, and global development: new empirical and conceptual insights. *Higher Education, 81*(1), 109-127.
[7] Kopnina, H., & Cherniak, B. (2016). Neoliberalism and justice in education for sustainable development: a call for inclusive pluralism. *Environmental Education Research, 22*(6), 827-841.
[8] De Korne, H., López Gopar, M. E., & Rios Rios, K. (2019). Changing ideological and implementational spaces for minoritised languages in higher education: Zapotequización of language education in Mexico. *Journal of Multilingual and Multicultural Development, 40*(6), 504-517.
[9] Sanz, R., Peris, J. A., & Escámez, J. (2017). Higher education in the fight against poverty from the capabilities approach: The case of Spain. *Journal of Innovation & Knowledge, 2*(2), 53-66.
[10] Wang, L., & Lehtomäki, E. (2022). Bilingual education and beyond: how school settings shape the Chinese Yi minority's socio-cultural attachments. *International Journal of Bilingual Education and Bilingualism, 25*(6), 2256-2268.
[11] Ljungblad, A. L. (2021). Pedagogical Relational Teachership (PeRT)–a multi-relational perspective. *International Journal of Inclusive Education, 25*(7), 860-876.
[12] Nguyen, T. H., Nguyen, M. H., Nguyen, B. M. D., Gasman, M., & Conrad, C. (2018). From marginalized to validated: An in-depth case study of an Asian American, Native American and Pacific Islander serving institution. *The Review of Higher Education, 41*(3), 327-363.